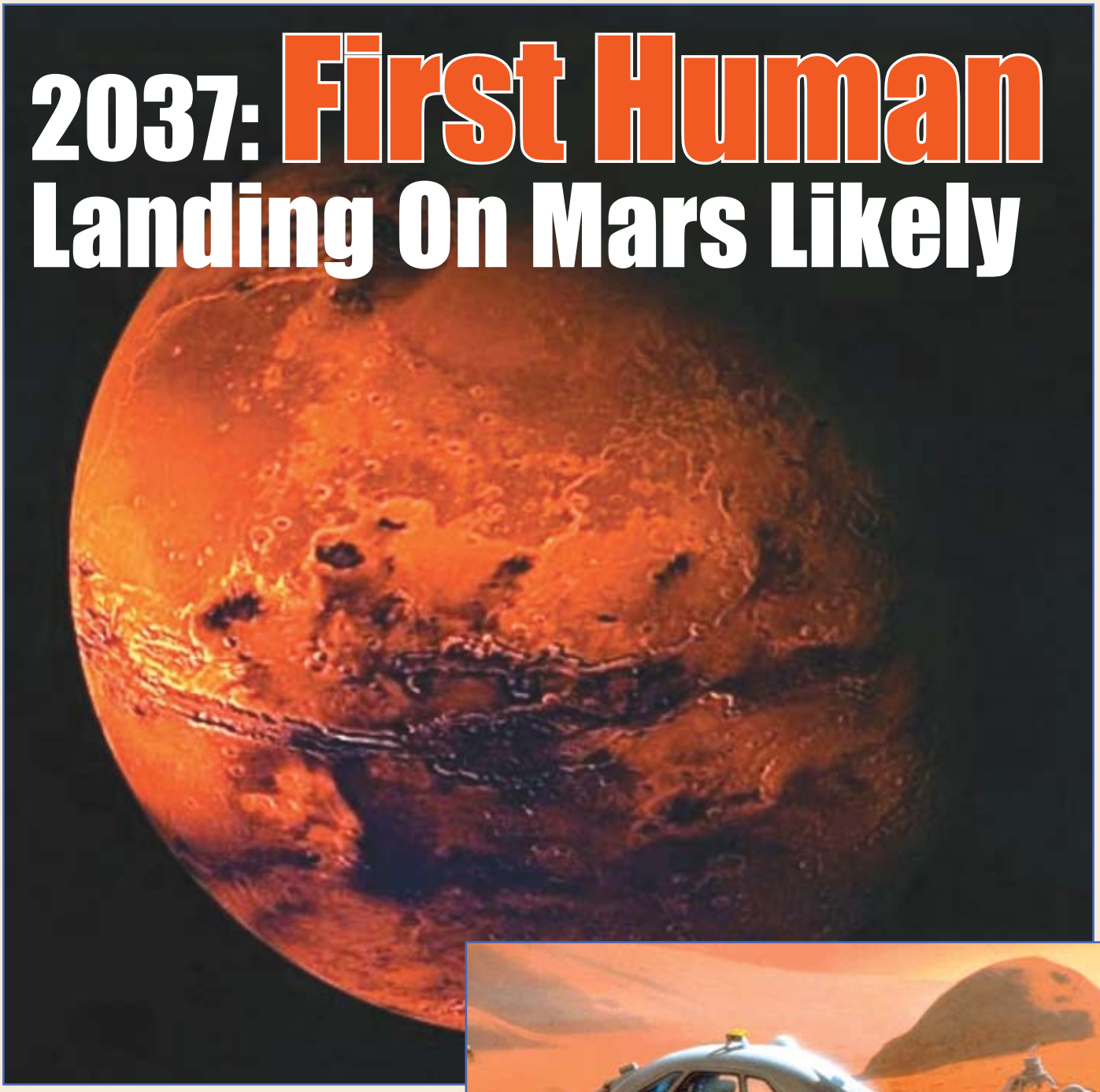
2037: First Human Landing On Mars Likely



With the race to probe the earth's nearest neighbour Moon and the red planet Mars hoting up as a prelude to create human settlements in both Moon and Mars, it was but appropriate that the 58th International Astronautical Federation Congress (IAF) held at the historic Indian city of Hyderabad towards the close of September 2007 provided an exciting setting to deliberate on the lunar missions of various countries as well as the long term program of conquering Mars.

Quite bullish about the prospects of human landing on the Mars, Dr.Michael Griffin, Administrator of NASA (National Aeronautics and Space

Administration) of USA was clear in his perception that the first human being will land on Mars in 2037. "When this conference meets in 2057, I am convinced that we will be able to celebrate the 20th anniversary of the first human landing on Mars.

According to Dr.Griffin the next step in space exploration would be one step beyond ISS (International Space Station) where fifteen partners of US are engaged in building a platform humanity above the earth's atmosphere. "We will learn from that—how to go beyond—first back to the moon and stay there for a substantial length of time and then on to Mars. In the process, we will build a civilization for tomorrow and day after that" he declared.

Providing a pointer to the possibility of India joining the Mars G. Madhavan Nair, Chairman, Indian Space Research Organisation(ISRO), stated that everything going as planned, ISRO will give a practical shape to the proposal of sending a 500-kg. orbiter to Mars at the head of the three stage Geosynchronous Satellite Launch Vehicle(GSLV).

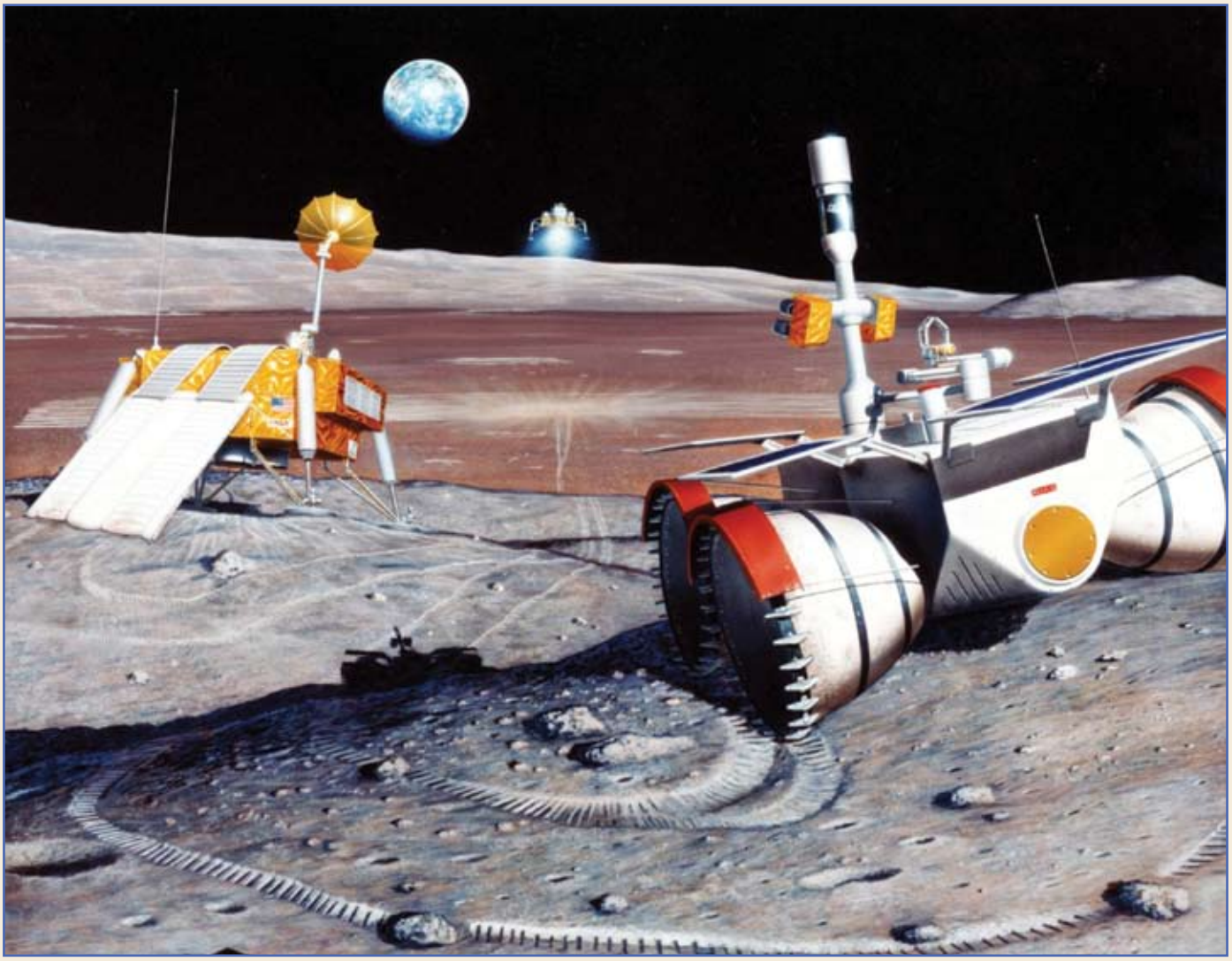
As a prelude to push ahead the Mars probe proposal, Nair urged the Indian scientific community to come up with ideas to crystallize the objectives for the Mars mission so that a clear cut project could be put in place. Nair stated that it was well within the capability of ISRO to undertake such a mission to the Red Planet. Of course, ISRO is yet to submit a proposal on Mars mission to the Government of India for its approval.

Giving a presentation on the American Mars missions the Congress, James E.Graf, Deputy Director of Earth Science and Technology at Jet Propulsion Laboratory (JPL)of NASA, said "it is a real testimony of the engineering skill of NASA personnel that rovers opportunity and spirit, exploring Martian soil, weathered a dust storm that buffeted them for about six weeks from June 2007 and the instruments onboard them are now back in action". He also revealed that NASA will launch Mars Science Laboratory, a rover of the size of small automobile, in 2007."

Not willing to be left behind in the race to explore moon and Mars, Russia too projects roadmap for planetary conquests. Said Anatoly.N.Pernimov, Head of the Russian Federal Space Agency "Russia would develop near earth space infrastructure which would form the basis for human flights to moon and Mars".

Keigi Tachikawa, President, Jaxa, Believes That Moon Was No Longer A Place To Visit But Should Be Considered For Human Inhabitation And Exploitation Of Mineral Resources.

Because moon could provide an ideal base to undertake human expeditions to Mars, lunar probes too were under scanner at the Hyderabad IAF Congress. In particular, lunar missions of Japan, China and India were discussed at length. The Japan Aerospace Exploration Agency (JAXA), which launched its Selene-1 lunar probe on September this year, recalled that the follow up mission Selene-2, a lunar lander, would be launched in 2010. JAXA also said that a manned lunar mission is also being considered and revealed that the ground work is being done for a possible manned mission to moon. Keigi Tachikawa, President, JAXA, believes that moon was no longer a place to visit but should be considered for human inhabitation



and exploitation of mineral resources.

China's Chang'e-1 mission to moon, which has objectives similar to that of India' Chandrayaan-1 lunar probe, is expected to be launched before the end of this year. Dr. Ji Wu, Director of China's Centre for Space Sciences and Applied Research said that Chang'e-1 will be followed by a lander/rover Chang'e-2 in 2015-17 and then a human landing possibility after 2020.Wu was of view that moon would offer several benefits including industrial raw materials and energy sources.

On India's Chandrayaan-1 mission to moon, ISRO revealed that the Indian lunar spacecraft would be launched on April 9, 2008 by means of an augmented version of the four stage Polar Satellite Launch Vehicle(PSLV from Satish Dhawan Space Centre(SDSC) in Sriharikota island. The Rs.38,000-million Chandrayaan-1 will carry a number of Indian and foreign payloads.

Chandrayaan-2, which ISRO is planning to develop as a follow up to Chandryaan-1 mission, is likely to be designed for collecting samples and analyzing them on the spot.

The main objective of Chandrayaan-1 mission is the investigation of the distribution of various minerals and chemical elements and high resolution three dimensional mapping of the entire lunar surface.

Chandrayaan-2, which ISRO is planning to develop as a follow up to Chandryaan-1 mission, is likely to be designed for collecting samples and analyzing them on the spot. Like its predecessor,Chandrayaan-2 would also carry foreign payloads. Nair stated that the details of Chandryaan-2 mission would be finalized in six months. However no details were reveled when questioned about sending an Indian manned mission to the moon.

In a related development, Bretton. S.Alexnader, the Executive Director of X-Prize Foundation promoted by the internet giant Google announced at the IAF Congress that the first prize of US$20-million would be awarded to any private initiative that can build a rover and send it to the moon and ensure that it moves at least 500-metres on the lunar surface first. ●

- Radhakrishna Rao