

The Role of a Lunar Development Corporation in facilitating Commercial Partnerships in Lunar Exploration. Buzz Aldrin¹ Thomas L. Matula² and Stan Rosen³, ¹United Space Visions, (10380 Wilshire Blvd, APT 703, Los Angeles, CA, 90024, starbuzz1@buzzaldrin.com), ²TL Matula & Associates, (12665 Sundance Ave, San Diego, CA 92129), ³Consultant, (8004 Kentwood Ave Los Angeles CA 90045, srosen6@aol.com).

Introduction: This abstract proposes the creation of an International Lunar Development Corporation (ILDC) as a mechanism to facilitate commercial partnerships for lunar exploration. The ILDC would be based on the successful model of Intelsat which brought the benefits of satellite communication to the nations of the Earth. Like Intelsat, the ILDC will pool the financial, technical and human resources of its member nations to facilitate commercial involvement in lunar exploration. A key goal of the ILDC will be to construct lunar communication, navigation, transportation and surface infrastructure systems that would reduce the cost of lunar operations and make Moon exploration easily accessible to all humanity.

Lunar Development Corporations: Several authors have noted the potential of a lunar development corporation in creating commercial partnerships to explore the Moon [1], [2], [3], [4]. Charted as a corporation, a lunar development corporation has flexibility in organizing and financing lunar activities through the partnering with academic, commercial and governmental entities for exploration missions.

In addition to traditional government funding, the ILDC would also enable private and corporate donors to contribute to individual expeditions. University alumni could pool their resources to allow students and faculty at their institution to take part in a lunar mission. Small nations, unable to afford a space program, could still fund researchers at their education and research institutions to be join a robotic mission.

This funding flexibility would allow even the smallest nations, companies and educational institutions to join in the exploration of the Moon by enabling them to contribute to missions at a level that is sustainable for their economies. In doing so it will also give rise to a new age of international cooperation and interest in lunar exploration and development.

Beyond the individual exploration missions that a ILDC would enable it would also have the ability to partner with different nations and private entities to finance and operate the facilities and equipment needed for sustained lunar exploration . [3]. The flexibility of an ILDC that is able to partner with academic, commercial and government entities would allow the development of a sustainable lunar infrastructure for communication, navigation, and mission support that would reduce the risk and costs of lunar exploration [4]. For example the placement of a communication

relay satellite in a halo orbit around the Earth-Moon L2 LaGrange point would enable robotic landers and rovers to explore the lunar farside. [4] A lunar communication relay satellite would also eliminate the “black-out” periods for spacecraft that are orbiting the Moon or engaged in critical maneuvers while on the lunar farside. This would both reduce the risk to such missions and their complexity.

Finally, a ILDC would allow a smooth transition from exploration of the Moon to the creation of a permanent research presence on the Moon. Just as permanent research stations in the Antarctic have greatly facilitated human understanding of that continent, the eventual creation of permanent research stations on the Moon will revolutionize human understanding of it and the development of the Moon and the Solar System.

Implementation: This abstract proposes that the first step be taken towards the creation of an International Lunar Development Corporation by the creation of a series of workshops and conferences towards that objective. The Lunar and Planetary Institute may choose to partner with NASA and other national space agencies towards that goal. At these conferences, experts in international law, organizational design, lunar exploration and aerospace engineering could be brought together to create the charter and organization structure needed to create an International Lunar Development Corporation.

References: [1] Benaroya, H. (1994) *The Journal of Practical Applications in Space*, 6, 85-94. [2] Harris, P. R. (1996) *Living and working in space: Human behavior, culture and organization*. 267-274 [3] Durst, S. (2000) *Return to the Moon II: Proceedings of the 2000 Lunar Development Conference*. [3] Sadeh, E. et al. (2005) *Space Policy*, 21, 267-275. [4] Matula, T.L. and K. A. Loveland (2006). *Beyond Earth - The Future of Humans in Space*, 281-285.