“We shall return in peace, with all mankind.”

THE INTERNATIONAL LUNAR DECADE WORKING GROUP (ILDWG)

PROPOSAL TO LAUNCH AN INTERNATIONAL LUNAR DECADE

Introduction

The Moon – proximal to Earth with abundant resources that can both enable interplanetary travel and improve qualities of life on our home planet – is a logical steppingstone to the future. An expanded space economy based on commercial exploitation of lunar resources could enrich terrestrial civilization, help preserve the Earth’s environment, and enable sustained exploration both on Mars and throughout the Solar System.

Leveraging lunar resources will be key to expanding the frontiers of space. Global technologies and economic capacity have now advanced to the point where self-sustaining space economies can be created through international collaboration. The proposed International Lunar Decade (ILD) is a framework that will enable coordination of space-related activities across national, institutional, and commercial boundaries.

Rationale and Evolution

The ILD process will address key challenges through international collaboration:

• Negotiation of internationally recognized policies to govern commercial activities beyond Earth orbit, including utilization of lunar resources.

• Development of technologies enabling cost effective lunar ISRU operations, with the goal of achieving major cost reductions.

• Emplacement of infrastructure that contributes to reduce risk and the cost of space, communications, energy, logistics and transport facilities, and potentially other services.

• Development of financing for space exploration and long term industrial/commercial development, including partnerships leveraging public and private investment that enable projects with long planning horizons and provide time to reach profitability.

• Expansion of research and development opportunities to include both existing spacefaring powers and smaller, less developed countries.

• Particular emphasis on action by small business and engagement in projects and innovations by schools and academic communities to open this global frontier.

• Development of global markets for products of space manufacturing and related research/innovation, as well as support services and commercial activities enabled through public–private partnerships, infrastructure investment by governments, and commercial investment schemes that address value chain development.
Progress in implementing the ILD will be measured by rapid expansion in the range of business opportunities, decreasing costs of activities in space, and new missions. Rates of return on investment financing will increasingly come from private capital, rather than government budgets. The Moon and industrial activities in cislunar space will generate new wealth that will enable and accelerate both a permanent human presence beyond low-Earth orbit as well as rapid expansion into the Solar System.

Specific ILD infrastructure projects and developmental milestones could include:

- Fuel depots in LEO, Earth-Moon Lagrange locations, and the lunar surface to extend humanity's reach into space.
- Navigation, communications and power infrastructures in cislunar space and on the lunar surface to enable safe travel and operations.
- Space observatories that will improve identification and tracking of space debris and near-Earth asteroids.
- An Earth-Moon Lagrange-point station to serve as both a research and gateway facility for tele-operations on and transportation to the lunar surface.
- A permanent human base on the lunar surface.
- Many affordable CubeSat scale spacecraft and space lab projects to help expand international educational, scientific, and commercial opportunities and engagement.
- Research, development, and commercial initiatives, including the use of lunar *in situ* resources to enable a high degree of self-sufficiency for human habitation.

**Guiding Principles and Next Steps**

Several basic principles will help launch and guide the ILD, including:

- Multinational programs that can leverage the complementary resources and capabilities of space-faring nations to help reduce costs, enhance benefits, and accelerate timetables for future space missions and development.
- Promotion of public-private partnerships to leverage entrepreneurship and diverse resources from the commercial sector to help accelerate the development and execution of future space missions.
- “Massively participatory” initiatives that can engage the public on Earth as both investors and participants in space missions and commerce, thereby helping to inspire and enable the next generation of space scientists, engineers, and entrepreneurs.

The ILD will enhance the celebration of major global space events (e.g., Sputnik, the IGY, Apollo, Lunakhod), and encourage multinational partnerships in the exploration and economic development of the Moon. The ILDWG will also encourage existing leadership in developing this campaign – including COSPAR, the International Science Council (ISU), the International Space Exploration Coordination Group (ISECG), the Lunar Exploration Analysis Group (LEAG) – that could serve as catalysts for voluntary participation among international space agencies. These organizations, in concert with the International Lunar Exploration Working Group (ILEWG), can encourage expanded participation within COPUOS and the ITU, as well as help identify optimal locations for scientific, industrial, and commercial activities on the Moon.

Additional information on the ILD is available online at: ildwg.wordpress.com