

# Using The Framework of International Organizations to Develop an International Lunar Decade Campaign

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- The opinions express here are my own as an individual participant in the ILD-Working Group. The National Space Society has endorsed the International Lunar Decade with a declaration at its ISDC Conference in Toronto 2015.

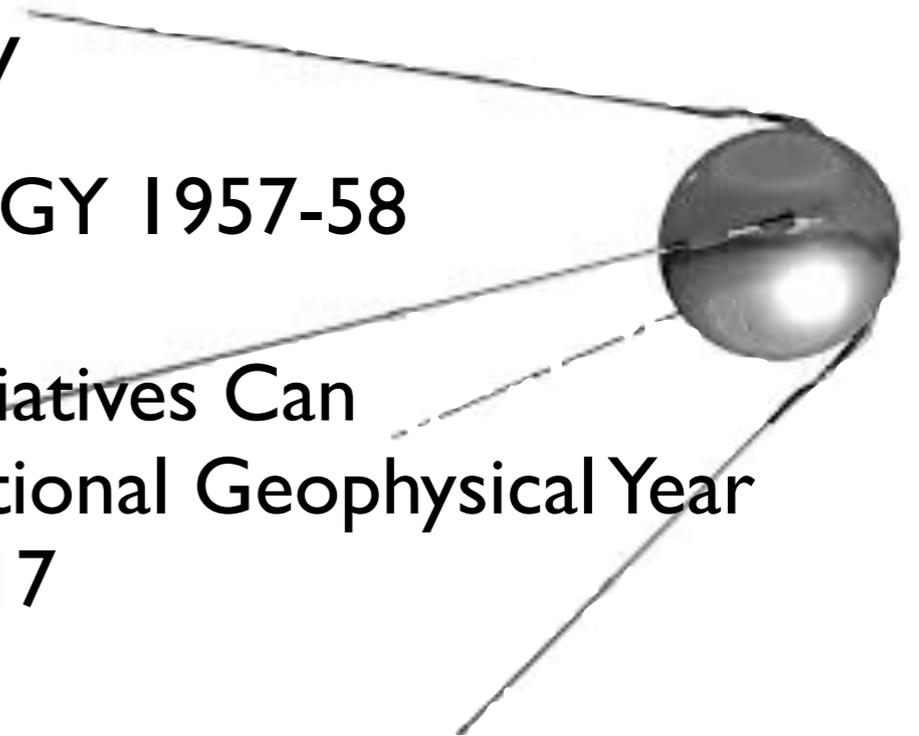
An International Lunar Decade Campaign to further explore and develop the infrastructure of access to the Moon as a whole, modeled on the highly successful voluntary International Geophysical Year campaign of 1957-58 to study the Earth as a whole, can be established on the foundations and within the framework of existing international organizations.

# IGY 60th Anniversary

2017 is the 60th Anniversary of the IGY 1957-58

The Development of the Lunar Initiatives Can  
Open the Lunar Frontier and Start An International Geophysical Year  
Campaign beginning in 2017

- The IGY of 1957-58 saw the beginning of the Space Age with the launch of Sputnik I by the Soviet Union as its ILGY project
- The US IGY investigator James Van Allen discovered the radiation belts now bearing his name
- Some 60 nations collaborated in IGY projects (even at the height of the cold war)
- An ILGY Campaign can similarly succeed now!



- To meet these challenges will require the participation of a greater cross section of nations and additional national and commercial resources. An International Lunar Decade Campaign is a proposal to provide such wider engagement through the framework and foundation of many international organizations.

# Senior Managers from ISECG Agencies Meet at ESA in Oct 2015



Eight of the G-20 Powers, (Argentina, Brazil, Indonesia, Mexico, Saudi Arabia, South Africa, and Spain) and other smaller countries with strong economic do not have their space agencies participating in the ISECG. Their participation has the potential to expand global participation and economic support for an ILD campaign.

In 1958 on the heels of the IGY the International Science Council established the Council on Space Research (COSPAR)

In February 2016 Representatives of ISECG and COSPAR meet in Paris to discuss collaboration between exploration activities of ISECG and science objectives of COSPAR.

The United Nations Committee for the Peaceful Use of Outer Space (COPUOS), with 84 members is an important global forum for the discussion of space policy and activities but still represents a minority of the 189 UN member countries.

# COPUOS Members have the Economic and Technical Resources to Begin the ILD Campaign





The International Lunar Decade Campaign can begin a new sustainable path using cislunar space resources to address economic and environmental requirements on Earth

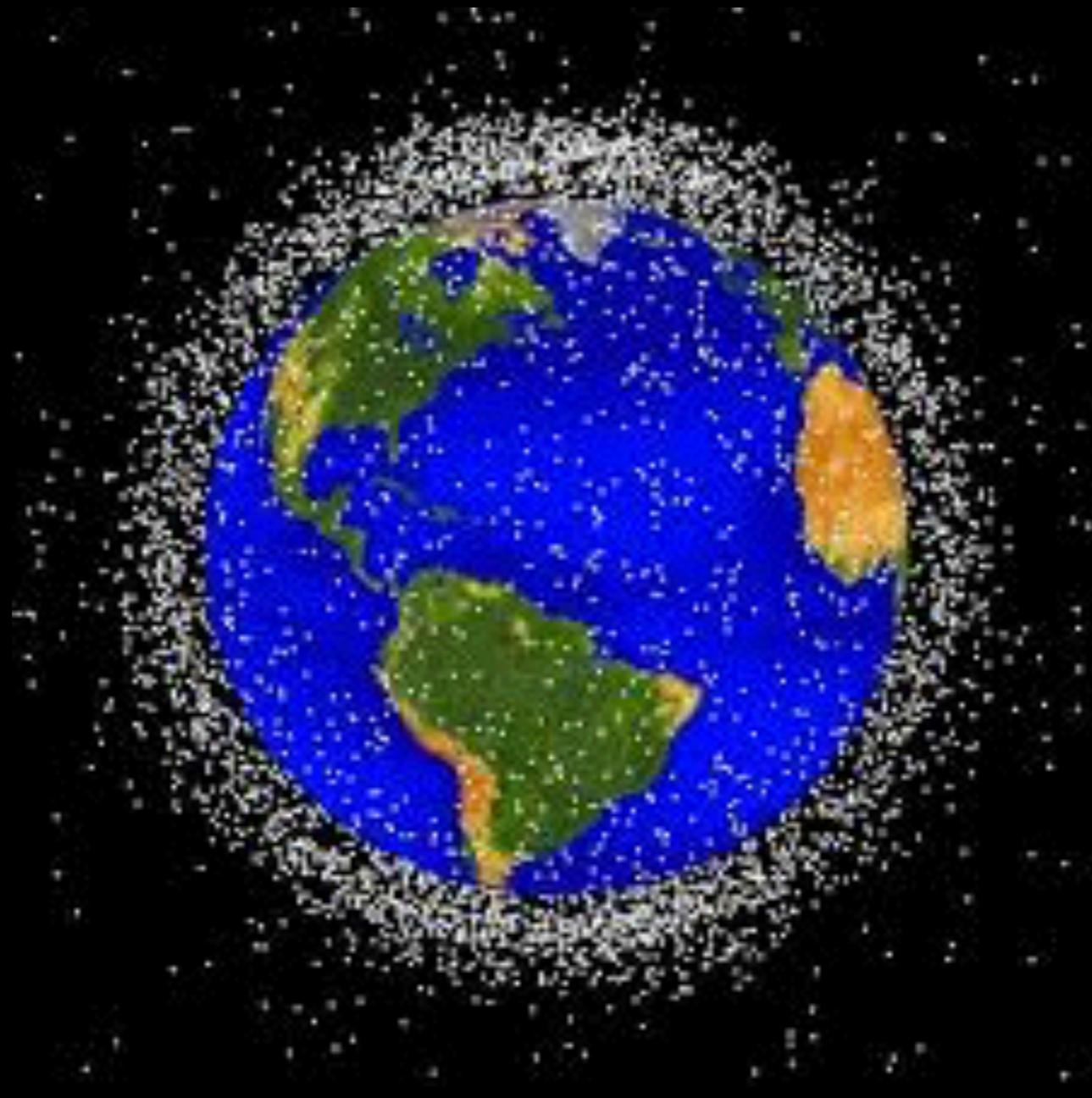
# Air Pollution from fossil fuel use in Mexico City, Beijing, Dehli, Los Angeles



Zaartari Refugee Camp Jordan, Dadaab Refugee  
Camp in Kenya, and Jalozi  
Refugee Camp Peshawar reflect unmet human  
requirements

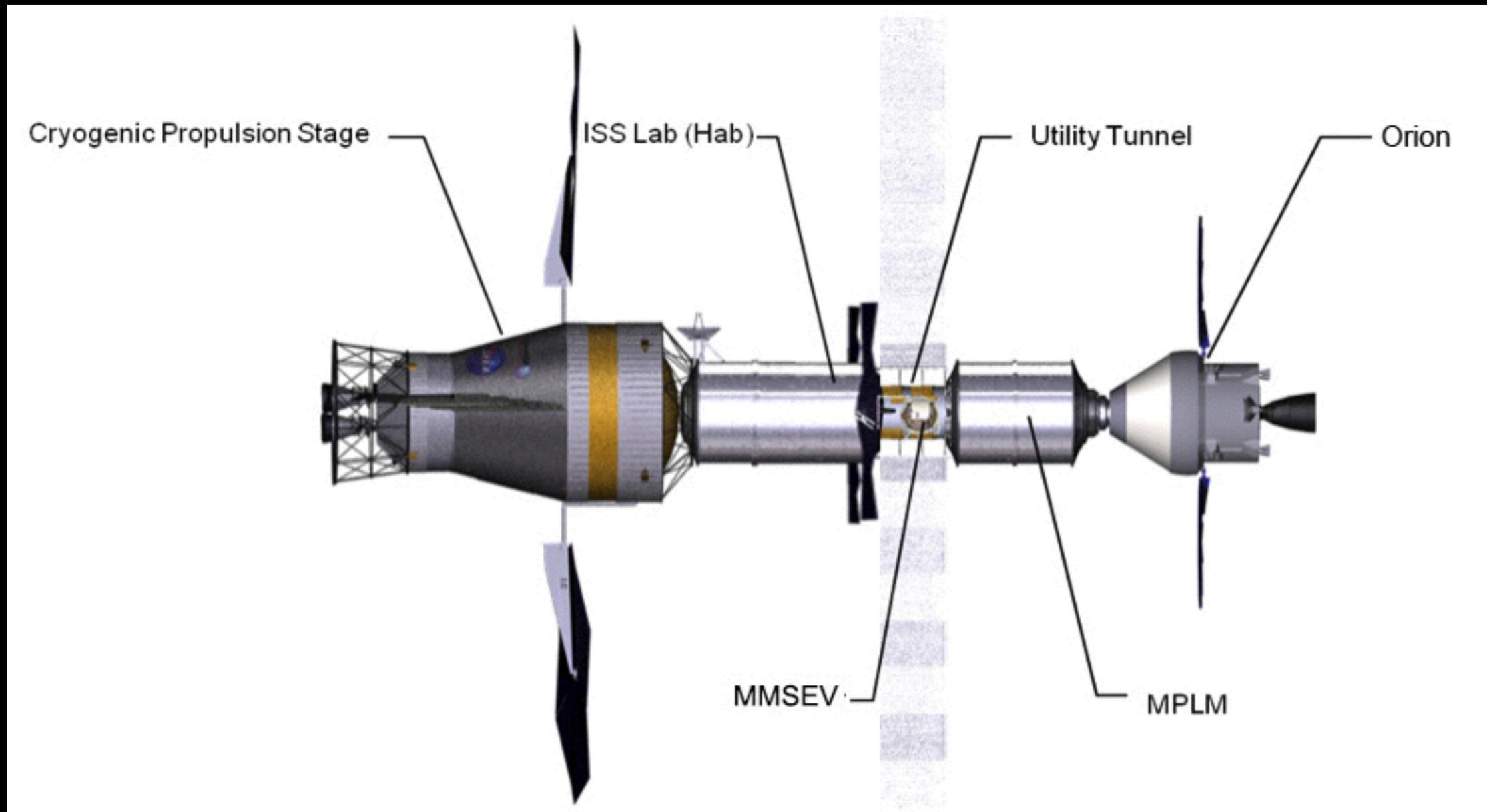


More than 500,000 Objects Space Debris  
Cloud put space infrastructure at risk

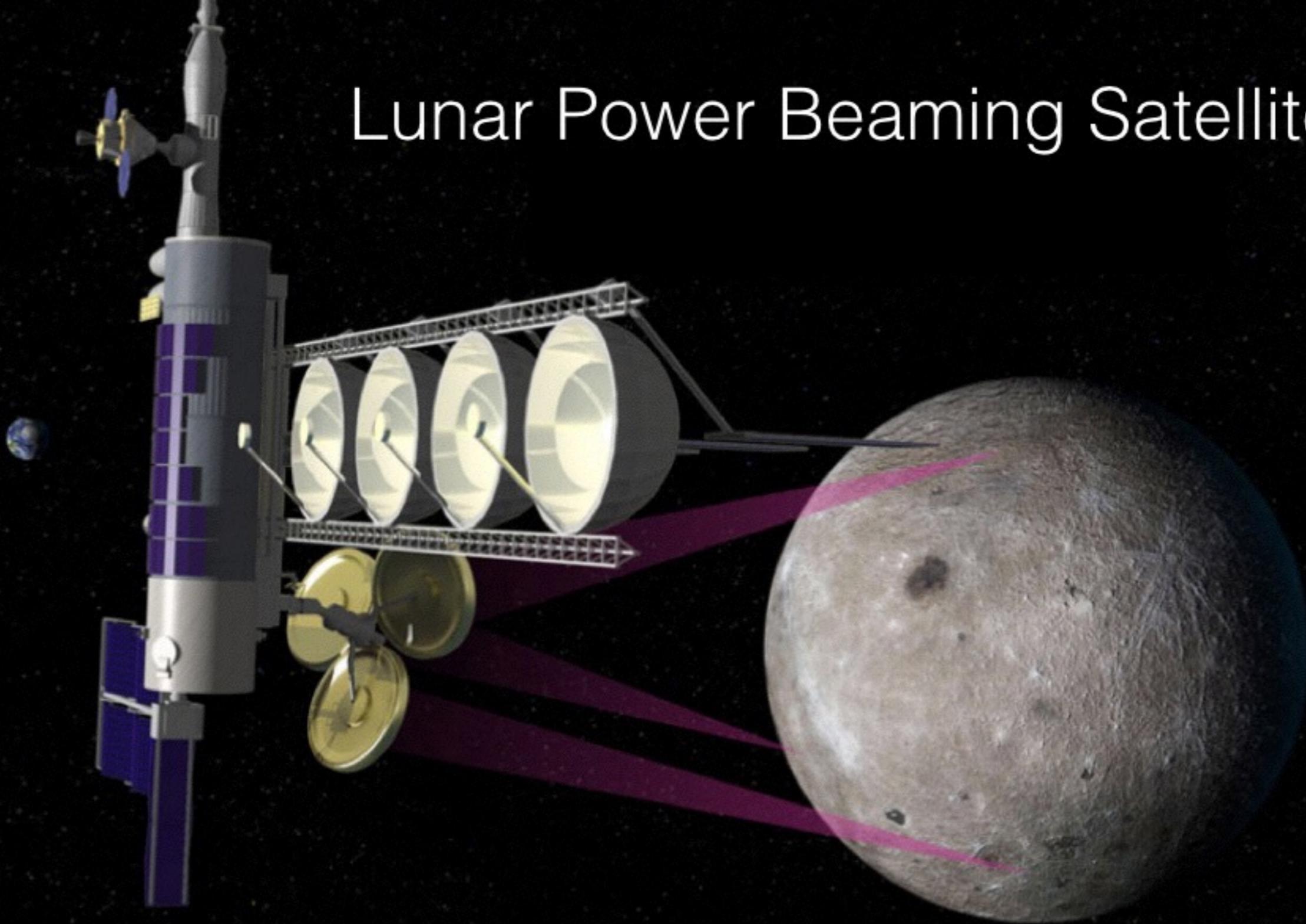


The ILD Campaign is about sustainability both on Earth and In Space and expanded global participation and new opportunities to develop new resources

# Deep Space Habitation Facility

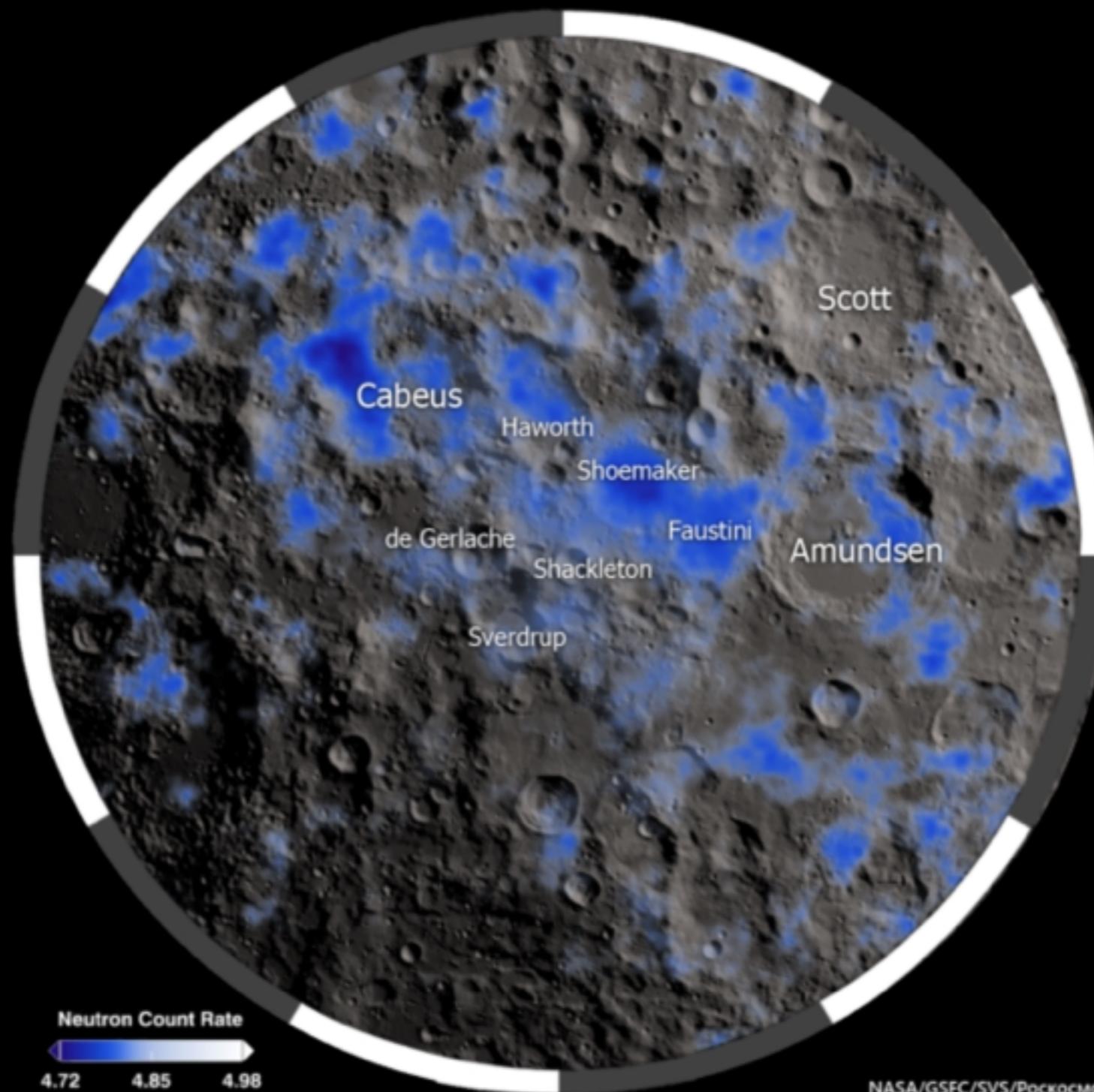


# Lunar Power Beaming Satellite



Lunar surface energy and material resources can further address human requirements.

# Investigating the origin and location of the Moon's water



Map of energetic neutron absorption centered on the lunar South Pole on the rim of Shackleton crater and prepared by NASA (GSFC) using neutron absorption data collected by the Russian LEND experiment aboard LRO. The map shows areas where water ice is most

NASA/GSFC/SVS/Роскосмос

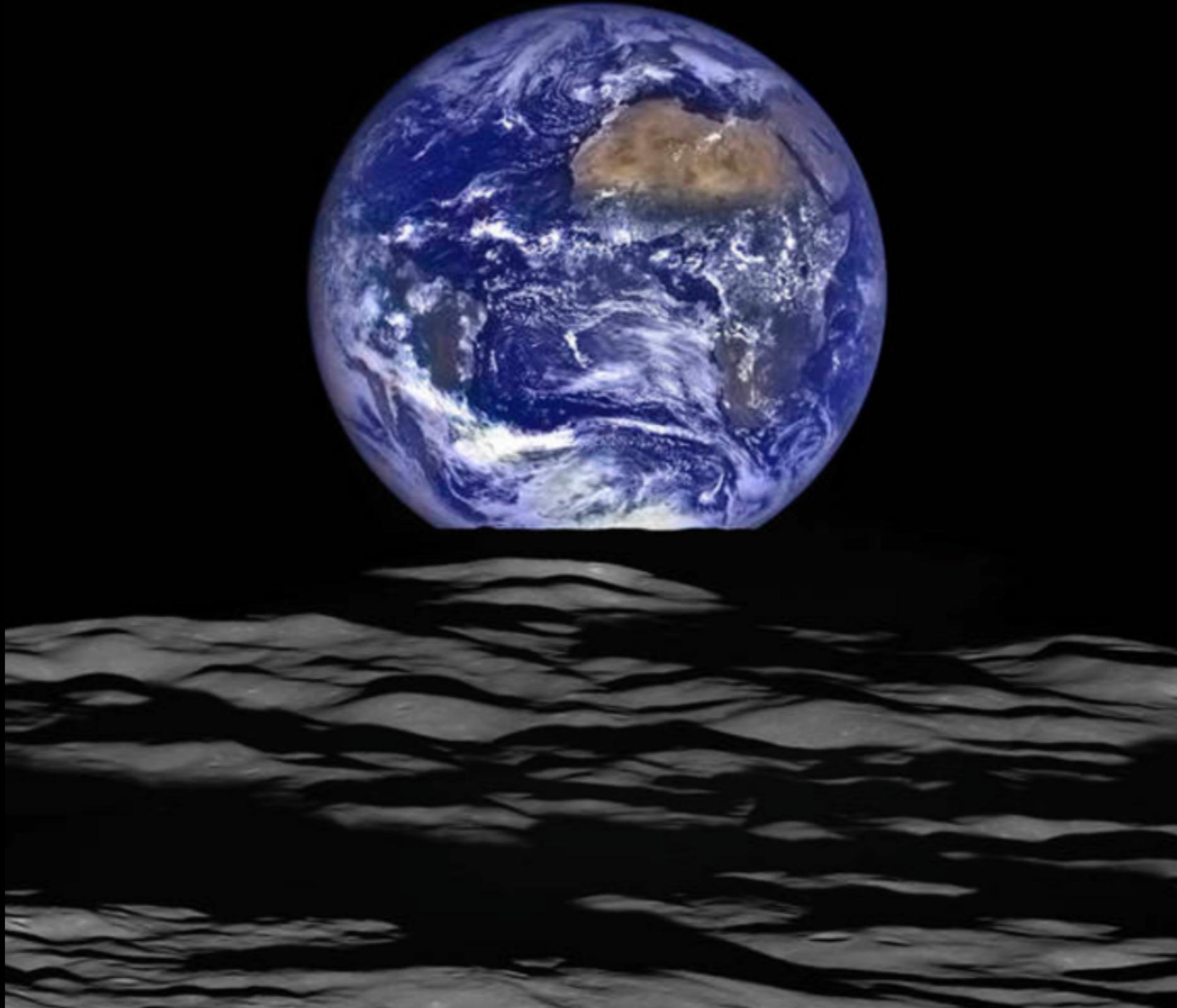
# American, French-Italian, Indian, and Chinese Antarctic Bases are models for International Lunar Cooperation



# Proposed Moon Village



# International Lunar Decade Areas for Collaborative Policy Development



The Moon 2020-2030 Conference in 2015 sponsored by ESA with broad international participation demonstrated a much expanded international community of interest for cislunar infrastructure which supports both access to the Lunar surface, lays the foundations for access to Mars as well and expands the Earth's market economy in cislunar space and the lunar surface.

# International Science Council Member Organizations Collaborative Potential

Other ISC member organizations could also broaden the participation framework of ISECG and COSPAR including: 1) IAU (International Astronomical Union), 2) ICA (International Cartographic Association), 3) IUCR (International Union of Crystallography), 4) ISPRS (International Society for Photogrammetry and Remote Sensing), 5) IUGG (International Union of Geodesy and Geophysics), 6) IUGS (International Union of Geological Sciences), 7) IUMRS (International Union of Materials Research Societies), 8) IUMS (International Union of Biological Sciences), 9) IUPAB (International Union of Pure and Applied Biophysics), 10) IUPAC (International Union of Pure and Applied Chemistry), 11) IUPAP (International Union of Pure and Applied Physics), 12) IUPESM (International Union for Physical and Engineering Sciences), 13) IUPS (International Union of Physiological Sciences), 14) IUPsyS (International Union of Psychological Sciences), 15) IUSS (International Union of Soil Sciences), 16) URSI (Union Radio Scientifique Internationale), 17) IIASA (International Institute for Applied Systems Analysis), 18) IUVSTA (International Union for Vacuum Science, Technique, and Application), 19) UIS (Union Internationale de Speleologie)

# ITU Regulatory Role in Cislunar Space

- The Radio Communications Conference should form a study group with regard to the ITU role cislunar space concerning frequency assignments, orbital assignments, traffic management, and positioning and navigation

# Expand ITU Regulatory Authority for Cislunar Space

- 1 Provide for Communications regulations for cislunar space
- 2 Provide for regulatory assignment of Cislunar orbits for commercial and scientific utilization and associated responsibilities for space situational awareness and traffic management

# Development a Cislunar Development Authority with the support of ISECG members for Spaceport functions

- 1 Develop cislunar infrastructure for communications, positioning and navigation, space to space power beaming, habitation, and fuel depots.
- 2 Provide for astronaut rescue Treaty obligations
- 3 Provide framework for ISRU utilization without national claims
- 4 Provide a Freeport status with international open access
- 5 Provide for Customs revenues and inspection responsibilities for health, quarantine and planetary protection.
- 6 Provide for civil and criminal law enforcement responsibilities

# International Lunar Decade Activities

- Utilize the Lunar Exploration Roadmap developed by NASA's LEAG
- Utilize the Strategic Knowledge Gaps developed by NASA's HEOMD
- Utilize the International Network of Solar System Exploration Virtual Research Institute
- Utilize the Technology Roadmaps developed by NASA Space Technology Mission Directorate
- Utilize Public Private Partnerships

- Develop a legal framework for collaboration as effective as the ISS for Cislunar Infrastructure supporting additional exploration & Economic Development.
- Explore the development of an International Cislunar Development Authority within the context of ISECG member countries.
- Develop an International Lunar Survey Working Group within the context of ISECG to assay lunar resources, provide for cartographic standards and description, and provide analytic services for ISRU and economic development.

# Develop a Framework of Space Financial Development Mechanisms

- 1 Provide for an Internationally chartered Space Development Bank back by ISECG member nations (following the precedents of IMF-World Bank & regional development banks for terrestrial development)
- 2 Provide for credit and bonding authority for Cislunar Infrastructure (similar to that provided by terrestrial airport and port authorities) that advances scientific and commercial access to cislunar space, the lunar surface and Mars.
- Provide for financial and reporting transparency for developmental milestones, and use of space based resources for sustainable exploration and settlement.

# Utilize NGO and Subnational Resources for potential Support of an ILD Campaign

- 1 Aerospace States Association and State Governments in the US
- 2 International Lunar Exploration Working Group
- Hague Space Resources Governance Working Group
- 3 NASA LEAG
- 5 National Space Society
- 6 Secure World Foundation
- 7 X-Prize Foundation
- 8 Hague Space Resources Governance Group
- 9 Way Paver Foundation
- 10 Regional Space Focused Collaborative Organizations



AN ILD CAMPAIGN can be  
Enabled by Many Organizations  
WORKING TOGETHER



- Thank You