

## Proposal for Forming an IAA Study Group SG 3.26

**Title of Study:** Space Mineral Resources # II

**Proposer(s):** Roger X. Lenard, Arthur M. Dula, Zhang Zhenjun,

**Primary IAA Commission Preference:** Commission III

**Secondary IAA Commission Interests:** Commission V

*(From Commission 1 to Commission 6)*

### Members of Study Team

**Chair(s):** Arthur M. Dula & Zhang Zhenjun

**Secretary:** Roger X. Lenard

**Other Members:**

*Susan McKenna-Lawlor*

*Peter Swan*

*Cathy Swan*

*George Nield*

### Short Description of Scope of Study

**Overall Goal:** To provide the appropriate approach for teams in the public and private sectors to progress into space leveraging the extra-terrestrial resources available. The investigation will look across the technological, legal, and programmatic challenges. Emphasis will be upon the Outer Space Treaty recognition of national authority and the ability to utilize resources in space for public and private activities. A path forward will be laid out that shows the technological challenges and proposes approaches to lower the risk..

**General Concepts:**

Humanity must move beyond low Earth orbit in a timely manner leveraging the strengths of each nation

Space Resources for Space Activities

Near-term need to develop National Authorities for Extra-Terrestrial Resource Utilization and Beneficiation based on the Outer Space Treaty

Initial Step to Identify a Roadmap for Technological Developments to Lower the Risk within the Program.

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Instructions and application form: see: "Scientific Activity" section at <http://iaaweb.org/content/view/256/393/>

**Intermediate Goals:** Investigate and report upon:

- An updated Global Exploration Roadmap with commercial programs added to or leveraging government plans
- Available Technologies, launch, propulsion, space mining, transportation, storage, and transferring assets in-space, on asteroids, at the Moon, Mars, and beyond. The key is to identify technology readiness and risk reduction activities needed to progress off-planet.
- Programmatic issues such as funding, cost to orbit, developmental times and investment potential for mining space mineral resources. This would show government investment planning and commercial economic models.
- Legal challenges and authorities based on the OST to exploration and utilization of resources beyond low Earth orbit, to include Asteroids, Lunar and Martian locations.
- Governance from the view of how to implement appropriate oversight for public and private projects. Expansion of the concept that the Outer Space Treaty provides the legal basis for national responsibility for each nation's space activities; to include, civil, defense, and commercial.

**Methodology:**

*Create Study Group – gain approval – IAC Mexico Meeting [Sep 2016]*

*First Meeting at Guadalajara 2016*

*Form Team – by Guadalajara 2016*

*Create path to follow – by Paris March 2017*

*Work on study – March 2017 to October 2019*

*Develop study report – Sept 18 – Dec 19*

*Final study report approved by commission III Mar 2020*

*Academy Level peer review and then publishing by Sept 2020*

*Plenary at IAC and discuss findings in technical sessions*

**Time Line:**

*See above*

**Final Product Book Published Sept 2020**

**Target Community:**

Commercial space scientific, technical and business community; mineral extraction, processing and marketing firms worldwide, space policy makers and officials responsible for assuring adequate future supply of critical minerals.

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**Support Needed: volunteer Academy members**

**Potential Sponsors:**

*To be returned to the IAA Secretary General Paris*

*by fax: 33 1 47 23 82 16 or  
by email: [sgeneral@iaaemail.org](mailto:sgeneral@iaaemail.org)*

**Date: 15 Sept 2016**

**Name: Roger Lenard**

*(No Signature required if document authenticated).*