



Abstract #1677

English

An Update on the Progress of the Hague Space Resources Governance Working Group

At the 7th joint meeting of The Space Resources Roundtable (SRR) and the Planetary & Terrestrial Mining Sciences Symposium (PTMSS) in June 2016 the author gave a presentation discussing “The Policy Context For Space Resources Development,” in which the activities of the Hague Space Resources Governance Working Group (“the Working Group”) were introduced. The Working Group, composed of Industry, government, and civil society representatives from across the globe, is working to identify, formulate, and recommend a set of policy and legal “building blocks” to support and enable the policy environment for space resources development. Since June 2016 the activities of the Working Group have produced an initial set of 18 building blocks, and by the time of the 8th SRR/PTMSS the Working Group is expected to publish summary information for each of these building blocks. This paper will present an update on the Working Group’s ongoing activities to facilitate a coordinated international approach to space resources policy. The author’s organization is a founding partner of the Working Group.

French

No abstract title in French

No French resume

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Ian Christensen is a Project Manager at Secure World Foundation, and has eight years of experience as a consultant and analyst focused on international and domestic commercial space, satellite, and aviation markets. At SWF he leads the Foundation's engagement activities with the commercial space industry. SWF is a partner organization in the Hague Space Resources Governance Working Group, a collaborative international group looking at the policy and legal environment to enable space resources development.

Prior to joining SWF, Mr. Christensen worked at leading space-sector consulting firms Futron Corporation and Avascent. In these positions he managed or served in lead analysis roles on market, business planning, and forecasting studies for numerous commercial space sector clients in the United States, Israel, and Europe. For government clients, Ian has provided space-related strategic and analytic services for NASA, the Federal Aviation Administration (FAA), the United States Trade and Development Agency (USTDA), the Japan Aerospace Exploration Agency (JAXA), and the Government of Australia. Mr. Christensen has supported consulting engagements with clients in Australia, Israel, the Isle of Man, Japan, and South Korea; and led in-country work in Brazil, Burkina Faso, Europe, and Japan.

While at Futron Mr. Christensen led a multi-year project for NASA's Office of Safety and Mission Assurance, and served for one and a half years on a NASA team tasked with managing the retirement of the Space Shuttle. On behalf of USTDA Ian organized several reverse trade missions and workshops aimed at US export promotion. Mr. Christensen also led an industry research team in support of the annual Space Report, a comprehensive guide to the global space industry published by the Space Foundation.

Mr. Christensen holds a Master of Arts (M.A.) in international science and technology with a focus on space policy from the George Washington University Elliott School for International Affairs. He holds dual Bachelor's of Science (B.S.) degrees in political science and biochemistry from the University of Nebraska-Lincoln. He also completed the International Space University (ISU) 2007 Space Studies Program in Beijing, China.



Promoting Cooperative Solutions for Space Sustainability

An Update on the Progress of the Hague Space Resources Governance Working Group

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8th joint meeting of The Space Resources Roundtable (SRR) and
the Planetary & Terrestrial Mining Sciences Symposium (PTMSS)
Montreal, QC Canada May 1, 2017

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- Secure World Foundation ***is a private operating foundation*** that promotes cooperative solutions for space sustainability
- Why **space sustainability**? Increasing reliance on space assets coupled with potentially destabilizing trends
- **Our mission:** SWF works with governments, industry, international organizations and civil society to develop and promote ideas and actions for international collaboration that achieve the secure, sustainable, and peaceful uses of outer space for the socioeconomic and environmental benefits to Earth



THE HAGUE SPACERESOURCES GOVERNANCE WORKING GROUP

- The Hague Space Resources Governance Working Group The Working Group aims to build consensus on regulatory “concepts needed to enable, support and co-ordinate the use of space resources and be acceptable for space-faring nations and other interested states”
- Industry, government, and civil society participation from across the globe
- Two-year working period beginning in October 2015
- Outcome will be identification, formulation, and recommendation, of “building blocks” for the governance of space resource activities
- Secure World Foundation is a sponsor of the Group

Management

- Chair, Vice Chairs, Members, Observers
- Secretariat (Executive Secretary & Assistant Secretary) embedded in the International Institute of Air and Space Law, Leiden

Members

- Stakeholders from government, industry, IGO, universities, research centres
- They form the operative body of the group
- Limited to ± 20-25 members, covering the globe
- Currently 22 members (from Australia, Brazil, China, France, Italy, India, Indonesia, Japan, Luxembourg, Mexico, The Netherlands, Nigeria, South Africa, Switzerland, UAE, UK, USA)

Observers

- Professionals & academics directly involved in space resources issues, UNOOSA
- Number not limited, currently 38 (additional nationalities: Austria, Belgium, Canada, Germany, Italy, Russia, Serbia)

Window for Action

- Business plans and economic returns will be affected by policy and legal regimes relating to the commercialization of off-Earth resources
- Both governments and private enterprise are facing a condition of uncertainty – risk – in defining space resources activities
- There is interest in working jointly to reduce that uncertainty to define market conditions and respect international obligations
- Coordination of national and international law will help states establish the conditions under which socio-economic benefit could result from space resources development
- **Both national and international bodies are actively considering policy and legal approaches to space resources**

UN Committee on the Peaceful Uses of Outer Space Legal Subcommittee

- April 2017 and April 2018 sessions include an agenda item for the discussion (“exchange of views”) of space resources

“The view was expressed that any legal framework considered in connection with the agenda item “General exchange of views on potential legal models for activities in exploration, exploitation and utilization of space resources” must include three essential points:

- 1) that all States be able to benefit from the exploitation of space resources and that exploitation should not be reserved for a monopoly;**
- 2) that the exploitation of resources must be rational and sustainable;**
- 3) and that private and public investors should be protected by guarantees of legal certainty.”**

UN COPUOUS DOC: [A/AC.105/C.2/L.301/Add.5](#)

- International law provides a framework under which all space activities are conducted but does not currently address space resources with any specificity

Key Themes From COPOUS April 2017 LSC Session

- Wide range of countries made including statements: Australia, Austria, Belgium, Brazil, Canada, Chile, China, Costa Rica, Cuba, France, Germany, India, Indonesia, Italy, Japan, Luxembourg, Morocco, the Netherlands, the Russian Federation and the United States
- For summary of discussions see (at page 3-6):
http://www.unoosa.org/res/oosadoc/data/documents/2017/aac_105c_2/aac_105c_2_301add_1_0_html/AC105_C2_L301Add01E.pdf

Balancing Multilateral &
Domestic Legal Approaches

Meanings of Exploration,
Exploitation & Use

Impact on space environment

Developing Countries &
Benefits from Space Resources

Meaning of “appropriation”

Timing of legal regime relative
to knowledge of industry

Safety of space resources
activities

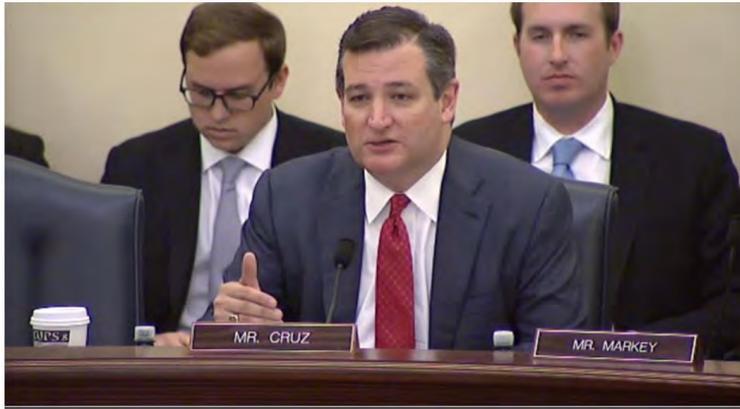
MOTHERBOARD Trump's Transition Team Asked NASA About Surveying the Moon for Valuable Resources

SPACENEWS

NEWS OPINION VIDEO LAUNCH BUSINESS MISSIONS POLICY & PO

Cruz interested in updating Outer Space Treaty to support commercial space activities

by Jeff Foust — April 26, 2017



MOON VILLAGE

A vision for global cooperation and Space 4.0

Jan Woerner, ESA Director General

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Luxembourg to Launch a Fund Offering Financial Support for the Space Resources Industry

Luxembourg, April 13, 2017 – To promote Luxembourg as a European hub for the exploration and commercial use of space resources, the Ministry of the Economy conducted from April 9th to April 13th an economic mission headed by Luxembourg's Crown Prince to the U.S. West Coast. The mission aimed to identify and develop new business opportunities and to promote the governmental SpaceResources.lu initiative that offers an attractive overall framework for space resource utilization related activities, including but not limited to the legal regime to provide private companies and investors with a secure legal environment as of the ownership of resources gathered in space.

The four-day program included events presenting the Grand Duchy as a location for potential investors, as well as visits to U.S. companies (Planetary Resources, SSL) and scientific institutes (NASA Frontier Development Lab/SETI Institute) to learn about the latest trends and developments in the space industry. On April 12th, the Luxembourg delegation visited the NASA Ames Research Center at Moffett Field, one of ten NASA field centers and located in the heart of California's Silicon Valley. The companies Skycorp, Deep Space Industries, Audacy, and Made In Space presented their activities to the Luxembourg delegation that included high-level representatives from the national space sector.

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Japan Joins Race for Space Resources

Resources extracted from the moon could be used as fuel, allowing space missions to cut launch costs



THE HAGUE SPACE RESOURCES GOVERNANCE WORKING GROUP



- Has identified 18 topical “building blocks”
- Which might form the basic topics for any domestic and/or international legal instrument pertaining to the space resources
- Focuses on enabling factors
- Work is ongoing on elucidating detail of each building block

Building Blocks (2 of 3)

1. Objective of international legal framework
2. Definition of key terms
3. Scope of international legal framework
4. Principles of international legal framework
5. Exercise of jurisdiction over space resource activities
6. Access to space resources
7. Utilization of space resources
8. Safety of space resource activities
9. Prevention and abatement of harmful impacts of outer space activities

10. Sharing of benefits arising out of the utilization of space resources
11. Exchange of information under international legal framework
12. Provision of assistance in case of distress
13. Liability in case of damage
14. Monitoring and inspection of space resource activities
15. Compliance with and enforcement of international legal framework
16. Institutional arrangements of international legal framework
17. Settlement of disputes
18. Final clauses of international legal framework

Conclusion: Key Policy/Legal Issues Moving Forward

- Identification and/of description of **global benefits** from space resources development
- **Resource access rights** – balancing “non-appropriation” vs. “freedom of exploration and use”
 - Property rights?
 - International claim and registration system?
 - Priority claims?
 - Historic/heritage sites / sites of scientific interest?
- **Non-interference** provisions
- Coordination of various national laws/regulations/policies

General need for increased communication and dialogue between space resources development community & the international policy/legal community. The Working Group provides one such pathway



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Thank You

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