

Western University

Scholarship@Western

---

Institute for Earth and Space Exploration White  
Papers

Western Space

---

8-2021

## Space Resource Discussions within the United Nations Committee on the Peaceful Uses of Outer Space Legal Subcommittee: The Past, Present and Future

Anne Campbell  
*Western University*

Follow this and additional works at: <https://ir.lib.uwo.ca/iesewp>



Part of the [Astrophysics and Astronomy Commons](#)

---

### Citation of this paper:

Campbell, Anne, "Space Resource Discussions within the United Nations Committee on the Peaceful Uses of Outer Space Legal Subcommittee: The Past, Present and Future" (2021). *Institute for Earth and Space Exploration White Papers*. 1.

<https://ir.lib.uwo.ca/iesewp/1>

Space Resource Discussions within the United Nations Committee on the Peaceful Uses of Outer  
Space Legal Subcommittee: The Past, Present and Future

Anne Campbell

Institute for Earth and Space Exploration at Western University

August 2021

## Table of Contents

<b>1. Introduction.....</b>	<b>1</b>
<b>2. Recent Developments in Space Resource Activities Outside of COPUOS .....</b>	<b>2</b>
<b>a. The Hague International Space Resources Governance Working Group.....</b>	<b>2</b>
<b>b. The Artemis Accords .....</b>	<b>4</b>
<b>c. National Legislation .....</b>	<b>5</b>
<b>d. National and Commercial Space Missions.....</b>	<b>6</b>
<b>3. Space Resource Debates at COPUOS: From Single Issue/Item to Working Group .....</b>	<b>7</b>
<b>a. The Fifty-fifth Session of the Legal Subcommittee (2016) .....</b>	<b>7</b>
<b>b. The Fifty-sixth and Fifty-seventh Sessions of the Legal Subcommittee (2017-2018)</b> <b>.....</b>	<b>8</b>
<b>c. The Fifty-eighth Session of the Legal Subcommittee (2019) .....</b>	<b>12</b>
<b>4. 2021 COPUOS Legal Subcommittee Discussions on Space Resource Activities .....</b>	<b>13</b>
<b>a. Outcome .....</b>	<b>15</b>
<b>5. Overarching Themes within State Interventions .....</b>	<b>16</b>
<b>6. Recommendations .....</b>	<b>22</b>
<b>a. Feminist Approach to Outer Space Policy .....</b>	<b>23</b>
<b>b. Scientific Expertise in Outer Space Activities .....</b>	<b>27</b>
<b>c. Environmental Sustainability and Terrestrial Mining .....</b>	<b>28</b>
<b>d. Indigenous Perspectives .....</b>	<b>30</b>
<b>7. Conclusion .....</b>	<b>31</b>

### **Abstract:**

The sixtieth session of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) Legal Subcommittee occurred virtually between May 31<sup>st</sup>, 2021 and June 11<sup>th</sup>, 2021. The sixtieth session of the Legal Subcommittee included the highly anticipated scheduled informal consultations on “potential legal models for activities in exploration, exploitation and utilization of space resources” (United Nations Office of Outer Space Affairs, 2021f, p.2), which concluded with the establishment of a COPUOS Legal Subcommittee Working Group under a five-year workplan (United Nations Office of Outer Space Affairs, 2021f, p.33). The establishment of a Legal Subcommittee Working Group on space resource activities emphasizes the growing importance of the issue internationally. Therefore, in this White Paper, I draw upon the previous COPUOS sessions and the recent COPUOS scheduled informal consultations on space resources to analyze the overarching themes within the previous and current COPUOS space resource discussions, in order to identify opportunity areas for the Canadian government to increase its leadership in future space resource discussions and initiatives.

### **Keywords:**

Space resources; outer space; policy; United Nations Committee on the Peaceful Uses of Outer Space; international law

## 1. Introduction

The latest technical developments in the exploration, exploitation and utilization of space resources demonstrate that the scientific community is quickly outpacing the evolution of existing international law related to space activities, specifically space resources. As a result, the recent scheduled informal consultations on “potential legal models for activities in exploration, exploitation and utilization of space resources” (United Nations Office of Outer Space Affairs, 2021f, p.2), which occurred during the sixtieth session (2021) of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), take on an increased significance due to the current international uncertainty regarding the legal future of space resource activities. Therefore, in this White Paper, I draw upon the recent COPUOS scheduled informal consultations to analyze the overarching themes within the current COPUOS space resource discussions, in order to identify opportunity areas for the Canadian government to increase its leadership in future space resource discussions and initiatives.

First, I contextualize the current COPUOS space resource discussions within the broader developments in space resource activities. Second, I explore the evolution of the space resource discussions within the COPUOS Legal Subcommittee from a single issue/item to the establishment of a COPUOS Legal Subcommittee Working Group. Third, I analyze the space resource developments at the sixtieth session of the COPUOS Legal Subcommittee. Furthermore, I outline six primary themes within the discussion, including the creation of an international legal framework governing space resources, the interpretation of the Outer Space Treaty (OST), the significance of environmental sustainability, the role of the COPUOS Legal Subcommittee and non-State actors, and the inclusion of developing countries within future space resource initiatives. Finally, I highlight four potential areas for Canadian leadership

regarding the future of space resource activities, specifically regarding Canada's leadership within feminist foreign policy, scientific development, environmental sustainability, and indigenous knowledge. This White Paper provides an overarching analysis of recent COPUOS discussions related to space resource activities. However, its secondary goal is to foster continued conversation regarding the future of Canadian leadership in the exploration, exploitation and utilization of space resources.

## **2. Recent Developments in Space Resource Activities Outside of COPUOS**

The COPUOS Legal Subcommittee discussions regarding space resources cannot be analyzed in isolation. National legislation, private sector advancements and multilateral initiatives shape international debates regarding space resources and provide context to States' stances within COPUOS discussions. In order to understand the origins, current context and future of the COPUOS space resource Working Group, it is important to understand the larger international context. In this section, I explore the recent developments in space resource activities outside of COPUOS, in order to contextualize the debates that occur within COPUOS.

### **a. The Hague International Space Resources Governance Working Group**

The Hague International Space Resources Governance Working Group was established in 2016 (International Institute of Air and Space Law, n.d.) following an international roundtable organized by The Hague Institute for Global Justice in 2014. The international roundtable included "industrial leaders, scientists, diplomats as well as political and legal experts" focused on the governance of space resources (United Nations Office of Outer Space Affairs, 2018a, p. 1). The Hague Working Group was convened to "discuss and propose solutions" to the absence of an international legal framework regarding the exploration, exploitation and utilization of space resources on asteroids and other celestial bodies, including the Moon (United Nations

Office of Outer Space Affairs, 2018a, p. 1). Through eight face-to-face meetings between 2016 and 2019, the Working Group developed a series of provisions pertaining to space resource utilization to be used to inform future space resource governance frameworks (International Institute of Air and Space Law, n.d). In 2019, the Working Group adopted a set of building blocks “guided by the principles of adaptative governance” (United Nations Office of Outer Space Affairs, 2020, p.1). The final report does not “comprehensively address” every question related to space resource activities; rather, the Working Group argues for an incremental approach to space resource governance that aligns with technological developments (United Nations Office of Outer Space Affairs, 2020, p.1). Moreover, the Working Group report provides numerous stances on pressing questions related to space resource rights, priority rights, jurisdiction, safety zones, and benefit sharing (United Nations Office of Outer Space Affairs, 2020).

The Hague Working Group was established the same year (2016) that the COPUOS Legal Subcommittee agreed to include the “General exchange of views on potential legal models for activities in exploration, exploitation and utilization of space resources” as a separate agenda item at the following Subcommittee session (United Nations Office of Outer Space Affairs, 2016c, p. 37). Furthermore, the Hague Working Group adopted its final report in the same year (2019) that the COPUOS Legal Subcommittee agreed to scheduled informal consultations regarding space resource activities (United Nations Office of Outer Space Affairs, 2019g, p. 38). The Hague Working Groups’ building blocks were routinely cited during COPUOS Legal Subcommittee discussions by States, such as France (United Nations Office of Outer Space Affairs, 2017b, 16:27-16:31), Mexico (United Nations Office of Outer Space Affairs, 2018b, 10:44-10:48), and Russia (United Nations Office of Outer Space Affairs, 2019b, 11:13-11:19),

thus reinforcing the interconnection between COPUOS and external space resource activities initiatives.

### **b. The Artemis Accords**

In October 2020, eight countries (Australia, Canada, Italy, Japan, Luxembourg, United Arab Emirates, United Kingdom and United States of America) signed onto the United States-led Artemis Accords (NASA, 2020b). The Artemis Accords are a set of non-binding<sup>1</sup> “principles to guide space exploration cooperation” implemented through bilateral agreements between NASA and the partner countries (NASA, 2020b). The document outlines key principles regarding 10 primary space-related concerns, ranging from space resources to the release of scientific data (NASA, 2020b). Most notably, the Artemis Accords suggest that “the extraction of space resources does not inherently constitute national appropriation under Article II of the Outer Space Treaty” (“The Artemis Accords,” 2020, p.5). As of July 2021, there are 12 State signatories to the Artemis Accords (NASA, 2021).

Despite the attempted legal clarity established through the Artemis Accords regarding space resource activities, there is concern within academia (Boley and Byer, 2020) and the international community (Russian Federation, 2021) that the Artemis Accords will shape, and are currently shaping, the interpretation of international outer space law to align with the United States’ interpretation of existing law. The Artemis Accords negotiations occurred outside of COPUOS. Consequently, statements made by Russia (Russian Federation, 2021) and Iran (Islamic Republic of Iran, 2021) suggest that the Artemis Accords circumvent the consensus-based model of the UN in order to push a specific interpretation of the OST in relation to space

---

<sup>1</sup> Paragraph 10 of the Preamble of the Artemis Accords outlines that the Artemis Accords “establish a political understanding regarding mutually beneficial practices for the future exploration and use of outer space, with a focus on activities conducted in support of the Artemis Program” (“The Artemis Accords,” 2020, p.1).

resources. As a result, despite the growing list of Artemis signatories, there remain questions surrounding the enforceability, weight and importance of the Artemis Accords internationally.

### c. National Legislation

In addition to the establishment of the Artemis Accords, the United States has taken a leadership role in the development of national legislation regarding space resources. In 2015, under the Obama administration, the US government adopted the *US Commercial Space Launch Competitiveness Act*. The legislation states that:

“A United States citizen engaged in commercial recovery of an asteroid resource or a space resource under this chapter shall be entitled to any asteroid resource or space resource obtained, including to possess, own, transport, use, and sell the asteroid resource or space resource obtained in accordance with applicable law, including the international obligations of the United States” (*U.S. Commercial Space Launch Competitiveness Act*, 2015, p.128).

The *US Commercial Space Launch Competitiveness Act* stipulates that the OST allows for the possession, ownership, transportation, use, and selling of space resources. The *US Commercial Space Launch Competitiveness Act* is significant to the analysis of COPUOS space resource discussions as it served as the first piece of national legislation regarding space resources. The stability and predictability established through the United States’ national legislation creates a “pro-growth environment” for the American space industry (*U.S. Commercial Space Launch Competitiveness Act*, 2015, p.703). However, the initial novelty of the US legislation regarding the commercial uses of space resources raised questions as it addressed space resource related issues that remain unclear at an international level. Therefore, the *US Commercial Space Launch Competitiveness Act*, along with the Luxembourgish *Law of*



*2017 on the Exploration and Use of Space Resources* (2017), the Emirati *Federal Law No. 12 of 2019 on the Regulation of the Space Sector* (2019), and the recent space related legislation passed in Japan (SpaceWatch, 2021), demonstrate that the international legal uncertainty surrounding space resources is enabling individual States to implement potentially controversial space resource legislation at the national level.

#### **d. National and Commercial Space Missions**

Finally, the topic of space resources has grown in importance within COPUOS as space-faring States are currently conducting missions to the Moon, as well as announcing future plans, including *in situ* space resource utilization, while private companies are emerging as key space sector stakeholders. For instance, the United States, along with its partners through the Artemis Missions (Australia, Brazil, Canada, Italy, Japan, Luxembourg, New Zealand, the Republic of Korea, Ukraine, the United Arab Emirates, and the United Kingdom) intend to study “the in-situ resource utilization (ISRU) potential of resources for lunar exploration and beyond” throughout the Artemis Missions (NASA, 2020a, p.23). Furthermore, in 2018, NASA selected 10 United States companies to study and develop technologies in order to “collect, process and use space-based resources for missions to the Moon and Mars” (NASA, 2018). In 2020, the Chinese government completed a sampling and return mission to the Moon through its Lunar Exploration Program (Amos, 2020). Furthermore, India (The Economic News, 2021) and the European Union (European Space Agency, 2020) have announced intentions to send missions to the Moon over the next decade. As a result, the developments made by space-faring States, along with private companies, reinforce the timely importance of the current COPUOS space resource discussions as space resource activities are not an issue of the distant future; rather, they are a current international topic that must be addressed.

### **3. Space Resource Debates at COPUOS: From Single Issue/Item to Working Group**

Discussions pertaining to space resource activities have been included as a single issue/item within the COPUOS Legal Subcommittee since the fifty-sixth session of the Legal Subcommittee in 2017 (United Nations Office of Outer Space Affairs, 2016c, p.38). Therefore, in this section, I utilize publicly available State statements and final reports from the Legal Subcommittee meetings to identify the major themes within the recent COPUOS Legal Subcommittee meetings. Furthermore, I outline the trajectory of the issue from a single issue/item to a Legal Subcommittee Working Group, in order to demonstrate the complexity and nuance within the current space resource debates.

#### **a. The Fifty-fifth Session of the Legal Subcommittee (2016)**

The fifty-fifth session of the Legal Subcommittee is relevant to the current space resource debates as the discussions contextualize the initial State concerns and priorities that led to the creation of a single issue/item the following session. Most notably, during the fifty-fifth session of the Legal Subcommittee, the topic of space resources was discussed in reference to the status and application of the existing UN treaties on outer space. As previously stated, the United States adopted the *US Commercial Space Launch Competitiveness Act* in 2015. Consequently, the 2015 US space resource legislation served as reoccurring point of discussion during the fifty-fifth session of the Legal Subcommittee, given that it was the first time the Legal Subcommittee met following the adoption of the 2015 US legislation. States, including Russia (United Nations Office of Outer Space Affairs, 2016a, 12:01) and Belgium (United Nations Office of Outer Space Affairs, 2016a, 11:02), raised initial concerns regarding the applicability of existing international space law in relation to national legislation. As a result, throughout the fifty-fifth session of the Legal Subcommittee, the US national legislation indirectly sparked debate

regarding the role of COPUOS and the Legal Subcommittee as the main body overseeing outer space law, the interpretations of existing space law and the need for an international legal framework governing space resource activity. In response to the recent developments in the space industry, the introduction of “regulatory initiatives” and the growing debate within the Legal Subcommittee regarding space resource activities, Belgium proposed the inclusion of a new single issue/item dedicated to the “general exchange of views on potential legal and economic models for space resources exploitation” (United Nations Office of Outer Space Affairs, 2016b, 15:47), rather than addressing the topic during the more general agenda item relating to the “status and application of the five United Nations treaties on outer space” (United Nations Office of Outer Space Affairs, 2016c, p.1). Following concern from the Netherlands regarding the inclusion of “economic models” within the title (United Nations Office of Outer Space Affairs, 2016b, 15:53), as well as the desire amongst States, such as Russia (United Nations Office of Outer Space Affairs, 2016b, 15:59), and Mexico (United Nations Office of Outer Space Affairs, 2016b, 16:05), to expand the title to include the exploration, exploitation and utilization of space resources, the Legal Subcommittee reached consensus to continue the discussion under the title “General Exchange of Views on Potential Legal Models for Activities in Exploration, Exploitation and Utilization of Space Resources” during the fifty-sixth session of the Legal Subcommittee (United Nations Office of Outer Space Affairs, 2016c, p. 37).

**b. The Fifty-sixth and Fifty-seventh Sessions of the Legal Subcommittee (2017-2018)**

Over the course of the fifty-sixth and fifty-seventh sessions of the Legal Subcommittee, States’ statements highlighted the wide range of government priorities and stances regarding space resource activities between nations. For example, during debate, numerous States, including Belgium (United Nations Office of Outer Space Affairs, 2017b, 16:20), France (United

Nations Office of Outer Space Affairs, 2017b, 16:27), Germany (United Nations Office of Outer Space Affairs, 2017c, 10:53), China (United Nations Office of Outer Space Affairs, 2017a, 11:32), Russia (United Nations Office of Outer Space Affairs, 2017a, 11:49), Brazil (United Nations Office of Outer Space Affairs, 2017d, 17:00), and GRULAC (Group of Latin America and the Caribbean) (United Nations Office of Outer Space Affairs, 2018b, 10:35), reinforced that COPUOS and the Legal Subcommittee serve as “the appropriate forum for discussing (the issue of space resource activities)” (United Nations Office of Outer Space Affairs, 2017c, 10:53). States highlighted that COPUOS is uniquely situated to lead multilateral discussions in order to reach an international consensus, as the forum was established “to promote the emergence of common standards” (United Nations Office of Outer Space Affairs, 2017b, 16:27). However, the United States presented an alternative point of view, arguing that it is “wrong” to believe that “COPUOS is the most inclusive or only appropriate place” to discuss space resource activities (United Nations Office of Outer Space Affairs, 2018e, 11:27). In particular, the United States highlighted the need to include non-State space resource experts and private sector leaders within international space resource discussions, as well as referenced to the inadequacies of the consensus-based procedure utilized in COPUOS (United Nations Office of Outer Space Affairs, 2018e, 11:27).

Similar to 2016, the United States’ adoption of space resource related legislation served as a recurring point of discussion within the fifty-sixth and fifty-seventh Legal Subcommittee sessions, especially in relation to the role of national legislation and the interpretation of the existing international outer space laws. The overarching concern amongst States addressed the lack of international consensus regarding the ways in which space resource activities should occur and be regulated. For example, the Group of 77 + China outlined that the adoption of

national legislation “allowing the exploitation of celestial bodies for economic purposes” must be urgently addressed, “in order to avoid gaps or contradictions in legal frameworks” regarding space resource activities (United Nations Office of Outer Space Affairs, 2017a, 11:28). The underlying theme raised within the discussions pertaining to national legislation was the concern of potential alternative interpretations of the OST. Belgium highlighted that the multiple interpretations of the UN treaties caused concern as it “undermin(es) the co-operative efforts that have underpinned the work of the committee” (United Nations Office of Outer Space Affairs, 2017b, 16:20). Germany went as far as to question “whether a unilateral approach by means of national legislation is in accordance with the spirit of the UN Outer Space Treaty in principle” (United Nations Office of Outer Space Affairs, 2017c, 10:53). As a result, many States, such as the Group of 77 + China (United Nations Office of Outer Space Affairs, 2017a, 11:28), Belgium (United Nations Office of Outer Space Affairs, 2017b, 16:20) and Germany (United Nations Office of Outer Space Affairs, 2017c, 10:53), expressed concern regarding the use of national legislation to unilaterally push an interpretation of the OST that enables the commercial exploitation and use of space resources.

In response, the United States pressed back against the claim that its 2015 space resource legislation is a unilateral action, stating that its legislation adheres to the Article VI of the OST (United Nations Office of Outer Space Affairs, 2017c, 11:22-11:24). Canada (United Nations Office of Outer Space Affairs, 2017c, 11:06) and Luxembourg (United Nations Office of Outer Space Affairs, 2018c, 11:03) supported the United States’ position by suggesting that the use of national legislation, such as the United States’ space resource legislation, is an avenue for States to adhere to Article VI of the OST in order to “authorize and continuously supervise the activities of non-governmental entities in outer space” (United Nations Office of Outer Space

Affairs, 2017c, 11:06). In regard to the interpretation of the OST, the United States highlighted that the interpretation of terms within treaties is not included in the mandate of the Legal Subcommittee. Consequently, the United States argued that the interpretation of terms within treaties are dependent upon States Parties (United Nations Office of Outer Space Affairs, 2017d, 16:55). The United States perceived space resource activities as a “relatively straightforward” issue, yet the delegation acknowledged that the view was “obviously not shared by (all delegations)” and welcomed continued discussions (United Nations Office of Outer Space Affairs, 2017d, 16:49). Overall, the United States repeated comments made in 2016 regarding the lack of “a practical need or basis to elaborate or establish some new multilateral mechanism” to govern space resources activities (United Nations Office of Outer Space Affairs, 2016a, 12:16). As a result, the United States rejected the calls for urgent space resource-related discussions as “humanity is in the earliest days of space resource exploration, exploitation and utilization” (United Nations Office of Outer Space Affairs, 2018d, 15:27).

In relation to the regulation of space resource activities, some States addressed the importance of sustainability within the outer space environment. China summarized the concern by highlighting the need to explore the “relationship between the sustained and rational use of space and environmental protection” (United Nations Office of Outer Space Affairs, 2017a, 11:34). However, based on the statements, it is unclear whether States are dedicated to the sustainability of the outer space environment due to their commitment to environmental protection and sustainability, or due to the impacts that excessive mining could have on the long-term utilization and exploitation of space resources. Lastly, GRULAC (United Nations Office of Outer Space Affairs, 2017b, 11:28) and the Group of 77 + China reaffirmed that the benefits of space resource activities should be shared equitably with all States, irrespective of their level of

economic or scientific development, as the G77+ China expressed concern that developing countries will be excluded from the benefits and rights associated with space exploration (United Nations Office of Outer Space Affairs, 2017a, 11:34-11:42).

**c. The Fifty-eighth Session of the Legal Subcommittee (2019)**

The fifty-eighth session of the Legal Subcommittee, which occurred in 2019, adopted similar themes to previous sessions during its discussion of space resources (Agenda Item 14, “General Exchange of Views on Potential Legal Models for Activities in Exploration, Exploitation and Utilization of Space Resources”). However, the focus of the discussions shifted to the creation of a Working Group dedicated to the issue of space resource activities. Belgium and Greece proposed a working paper, entitled “Proposal for the Establishment of a Working Group for the Development of an International Regime for the Utilization and Exploitation of Space Resources” (United Nations Office of Outer Space Affairs, 2019a), including two proposed work plans and working methods (United Nations Office of Outer Space Affairs, 2019c; United Nations Office of Outer Space Affairs, 2019f). Several States, including the United States (United Nations Office of Outer Space Affairs, 2019d, 11:11) and Canada (United Nations Office of Outer Space Affairs, 2019e, 15:46), argued that there was no consensus amongst States regarding the desire for an international regime dedicated to space resources. Furthermore, numerous States, including Mexico (United Nations Office of Outer Space Affairs, 2019d, 11:41) and Luxembourg (United Nations Office of Outer Space Affairs, 2019e, 15:15), suggested that the three-year work plan was overambitious and likely unattainable. Following extensive debate and a lack of consensus on the proposal, including its mandate and work plan, the Legal Subcommittee agreed to “scheduled informal consultations” regarding the agenda item entitled “General Exchange of Views on Potential Legal Models for Activities in Exploration,

Exploitation and Utilization of Space Resources” during the fifty-ninth session of the Legal Subcommittee (United Nations Office of Outer Space Affairs, 2019g, p. 38). Despite the lack of consensus during the fifty-eighth session of the Legal Subcommittee regarding the creation of the Working Group, there was an overarching desire to continue the discussions on the topic of space resource activities and the possibility of a dedicated Working Group. As a result, the extensive debates that occurred during the fifty-eighth session of the Legal Subcommittee laid the foundation for the sixth session of the Legal Subcommittee in 2021 as the scheduled 2020 informal consultations were rescheduled to 2021 due to emergence of the COVID-19 pandemic.

#### **4. 2021 COPUOS Legal Subcommittee Discussions on Space Resource Activities**

The sixtieth session of the COPUOS Legal Subcommittee occurred virtually between May 31<sup>st</sup>, 2021 and June 11<sup>th</sup>, 2021. There were three primary State-proposed Conference Room Papers discussed during the 2021 scheduled informal consultations, including proposals by Austria, Belgium, Czech Republic, Finland, Germany, Greece, Poland, Portugal, Romania, Slovakia and Spain (United Nations Office of Outer Space Affairs, 2021d); China (United Nations Office of Outer Space Affairs, 2021b); and Russia (United Nations Office of Outer Space Affairs, 2021c). Each State-proposed Conference Room Paper addressed the establishment of a Working Group. The Austria et al. (United Nations Office of Outer Space Affairs, 2021d) and Chinese (United Nations Office of Outer Space Affairs, 2021b) submissions provided the most detailed proposals regarding the creation of a Working Group, as the Austria et al. and Chinese working papers included detailed work plans and methods of work. The primary difference between the Austria et al. and Chinese working papers were the outcomes and timelines.



The Chinese proposal highlights the Chinese government's support for the creation of a Working Group under the Legal Subcommittee. The proposal argues that the focused discussions will "advance the global space governance," ensure that space activities align with existing international space laws and promote the long-term sustainability of space activities (United Nations Office of Outer Space Affairs, 2021b, p.1). The proposal reinforces the desire to include non-State actors concerns within the Working Group. For example, the proposal suggests that the Working Group should take submissions from "member States, permanent observers of the Committee, non-governmental organizations, industry and private sector entities" into consideration (while following "the rules of procedure, methods of work and established practices of the Committee") (United Nations Office of Outer Space Affairs, 2021b, p.2). Finally, the Chinese proposal calls for a draft report to be submitted to the Legal Subcommittee by 2026 and emphasizes the need for coordination between the Working Group and the Scientific and Technical Subcommittee during the "Finalization" stage of the work plan (United Nations Office of Outer Space Affairs, 2021b, p.3).

The primary difference between the Chinese and Austria et al. proposal was the outcomes of the Working Group. As opposed to the Chinese proposal's 2026 "draft report" outcome, the Austria et al. proposal calls for a set of "principles and practical measures for space resources activities on celestial bodies" to be adopted by the Legal Subcommittee in 2026, with the "possible adoption by the United Nations General Assembly in a dedicated resolution" (United Nations Office of Outer Space Affairs, 2021d, p.3). Notably, Canada had three primary critiques for the Austria et al. proposal (Canada, 2021b). First, it argued that the scope of the Working Group proposed in the paper is too ambitious given the 5-year time frame and recommended instead producing a "consensus on a set of principles within its 5-year term" (Canada, 2021b, p.

2). Second, Canada argued that it will be difficult to develop a legal framework without understanding the technical aspects of the issues and recommended creating a “cross-cutting (both LSC and STCS) agenda item under COPUOS” (Canada, 2021b, p. 2). Finally, the Canadian delegation emphasized that studying space resources without taking into account the broader context may lead to “undesirable consequences for these broader activities” (Canada, 2021b, p. 2).

The Russian government submitted a short proposal on June 7<sup>th</sup>, 2021 that suggests that the Working Group should focus on the applicability of existing legal frameworks, any gaps that currently exist, and establish principles and rules for the regulation of the exploration, exploitation and utilization of space resources (United Nations Office of Outer Space Affairs, 2021c). Given that this proposal was submitted toward the end of the session, it may suggest that there was still disagreement regarding the terms of reference, methods of work and workplan of a potential Working Group.

#### **a. Outcome**

Following eight rounds of informal consultations, the Legal Subcommittee agreed to establish a Working Group focused on the “potential legal models for activities in exploration, exploitation and utilization” under a five-year workplan (United Nations Office of Outer Space Affairs, 2021f, p.33). The Legal Subcommittee elected Andrzej Misztal (Poland) and Steven Freeland (Australia) as the Chair and Vice-Chair of the Working Group. The decision to establish the Working Group was only the first step, as the Chair and Vice-Chair will continue to lead consultations regarding “the mandate, terms of reference and methods of work” during the intersessional period in between official meetings of the Legal Subcommittee (United Nations Office of Outer Space Affairs, 2021f, p.33). Once the Working Group has agreed upon the

mandate and terms of reference, the Third Revised Co-Moderator's Proposal suggests that the Working Group will develop a "detailed work plan and methods of work," including the role in which non-State actors, such as the private sector, academia and civil society, should play within the Working Group (United Nations Office of Outer Space Affairs, 2021e, p.2).

The establishment of a Working Group dedicated to the legal- and policy-related issues concerning space resources demonstrates the international community's shared interest in further discussing a potential legal model pertaining to space resource activities. However, the remaining unanswered questions regarding the mandate, terms of reference and the work plan reinforce the complexity of the discussions. In particular, given the quickly advancing technology, the five-year work plan leaves significant time for national governments to continue to shape the interpretation of the OST through national legislation and bilateral and multilateral agreements. Therefore, despite the positive step inherent in the creation of the Working Group, the final outcome of the Working Group and the subsequent adoption of the outcome is yet to be determined.

### **5. Overarching Themes within State Interventions**

The scheduled informal consultations regarding potential legal models for space resource activities at COPUOS provided a glimpse into the overarching themes governing international discussions on space resources. Through written statements, States provided important insight regarding unanswered space resources questions, such as the creation of an international legal framework governing space resources, the interpretation of the OST, the significance of environmental sustainability, the role of the COPUOS Legal Subcommittee and non-State actors, and the inclusion of developing countries within future space resource initiatives. Interestingly,

the general themes from the sixtieth session of the Legal Subcommittee remain similar to previous COPUOS discussion on space resources.

First, widespread support for an international legal framework to govern space resource activities emerged amongst States. For example, Germany highlighted that an international legal regime is “warranted”, as increased “legal guidance is necessary” to oversee quickly advancing space resource activities (Government of Germany, 2021, p.1). The absence of a comprehensive international regime overseeing space resource activities is perceived as concerning given the “rapid developments” and increased feasibility of space exploration, especially space resource utilization (Government of Germany, 2021, p.1). Brazil, a recent Artemis signatory, reinforced that public and private space-related competition can lead to “improvement and development,” however, the lack of international consensus “can also lead to heightened tensions in Outer Space” (Government of Brazil, 2021, p.1). As a result, the establishment of an international legal framework dedicated to the exploration, exploitation and utilization of space resources is widely welcomed as it provides “clarity” at an international level (United Nations Office of Outer Space Affairs, 2021a, p. 9), as well as at the national level, as it pertains to national legislation and the implementation and enforcement of existing and future international space laws.

The COPUOS Legal Subcommittee was routinely cited as the most logical venue to conduct discussions regarding potential legal models for space resource activities. The exploration, exploitation and utilization of space resources directly impacts a broad range of actors, including States, private companies, academia and civil society. As a result, States, such as New Zealand (Government of New Zealand, 2021, p.2), Finland (United Nations Office of Outer Space Affairs, 2021a, p.10) and Germany (Government of Germany, 2021) argued that the COPUOS is “uniquely well positioned” to lead space resource discussions as the issue of space

resources is intrinsically multilateral (Government of New Zealand, 2021, p.2). However, some States, including Russia (Russian Federation, 2021) and Iran (Islamic Republic of Iran, 2021), called for COPUOS-led space resource discussions in response to the 2020 Artemis Accords. In reference to the Artemis Accords, Iran argued that “any multilateral space accords should be negotiated in the open-ended, transparent and democratic framework of the UN COPUOS” as space-related discussions are multilateral and require a “consensus-based” approach (Islamic Republic of Iran, 2021, p. 2). Therefore, despite slight differences in justification, many COPUOS States expressed support for the creation of a Working Group to discuss space resource activities at an international level, within the COPUOS Legal Subcommittee.

The third overarching theme from the scheduled informal consultations highlighted a growing trend, particularly amongst Artemis Signatories, to suggest that the exploration, exploitation, and utilization of space resources aligns with the OST, regardless of the lack of dedicated space resource framework. For example, the Canadian government drew on examples of terrestrial resource utilization to reaffirm that the exploration and use of space resources does not constitute national appropriation (Government of Canada, 2021b, p. 1). New Zealand reinforced the sentiment by stating that the exploration, exploitation and utilization of space resources is “permissible under existing international law” (Government of New Zealand, 2021, p. 1). Similarly, the United States reinforced that the public and commercial utilization of space resources is consistent with existing international space laws. Notably, despite the absence of a “comprehensive international regime for space resource utilization activities” the United States reinforced its claim that there is “neither a need nor a practical basis to create such a regime” (Government of the United States, 2021, p. 2). The United States’ lukewarm support of an international legal framework for space resources is intriguing, given the United States’

leadership within space resource activities, as seen through the Artemis Accords, US national legislation and government contracts with private American companies. However, the United States' position is unsurprising as it aligns with its previous statements;<sup>2</sup> furthermore, the United States has benefited from the lack of legal certainty regarding space resource utilization, as depicted by the nation's disproportionate representation in the private space sector (Koetsier, 2021).

The similarities between Artemis Signatories' approaches to space resource activities is to be expected. Section 10(4) of the Artemis Accords indicates that Signatories "intend to use their experience under the Accords to contribute to multilateral efforts to further develop international practices and rules applicable to the extraction and utilization of space resources, including through ongoing efforts at the COPUOS" ("The Artemis Accords," 2020, p.5). Despite not explicitly stating that Signatories must advocate internationally in favour of the public and private exploration, exploitation, and utilization of space resources, the Signatories' comments mirror the Accords' stance on space resources, which also states that space resource activities do not inherently contradict existing international space law ("The Artemis Accords," 2020, p.4).

Fourth, throughout the scheduled informal consultations, developing States reinforced the need for equitable access to space resources. Space activities have been found to lead to extensive socio-economic benefits for nations. For example, in a 2019 OECD report, commercial revenues, employment, productivity/efficiency gains and social welfare, were identified as the top four "types of positive effects derived from space investments" (OECD, 2019, Figure 2.2).

---

<sup>2</sup> In 2016, the United States suggested that there was neither "a practical need or basis to elaborate or establish some new multilateral mechanism" to govern space resources activities (United Nations Office of Outer Space Affairs, 2016a, 12:16). Furthermore, in 2018, the United States rejected the calls for urgent space resource-related discussions as "humanity is in the earliest days of space resource exploration, exploitation and utilization" (United Nations Office of Outer Space Affairs, 2018d, 15:27).

However, accessing the benefits associated with space activities is tied to high financial costs and extensive human capital. As a result, discussions surrounding the unequitable and unequal access to outer space have been a historical point of contention at the international level.

Similarities between the 2021 COPUOS Legal Subcommittee statements and statements made during the 1999 Special Political and Decolonization Committee of the UN General Assembly reinforce developing States' unwavering concern regarding the discrepancies between developed and developing States' access to outer space. For example, in 1999, Yemen expressed concern that developing countries would become "mere onlookers" to space developments and "risk (...) lagging behind" pre-established space-faring countries (United Nations, 1999). In 2021, States expressed similar concerns regarding the need for equitable access to the exploration, exploitation and utilization of space resources. For instance, Indonesia emphasized the need for "principles of equitable access and collaboration on the issue of space resources" to ensure that "developing countries are not left behind by spacefaring countries" (Government of Indonesia, 2021, p. 1). Developing States' unchanging commitment to equity within outer space activities suggests that the equitable access to the exploration, exploitation and utilization of space resources will be an important point of concern within the Working Group.

The fifth theme that emerged addressed the impacts of space resource activities on the space environment. As States and private companies look to advance extensive space resource initiatives, there remain numerous unanswered questions regarding the environmental impacts of space resource activities on celestial bodies and within outer space. In response to lack of environmental clarity, numerous States expressed the need to preserve the outer space environment, including celestial bodies. For example, New Zealand argued that the sole reliance upon the OST to govern space resource activities leaves significant environmental gaps going

forward. In particular, the current legal framework does “not include any explicit requirements related to the conservation and long-term management of space resources, sustainability and the space environment” (Government of New Zealand, 2021, p. 1). Similar sentiments were expressed by France (Government of France, 2021) and Ukraine, as the Ukrainian delegation argued that the lack of an international legal framework regarding space resource activities threatens the sustainable use of outer space, including through the heightened risk of the “pollution of celestial bodies and potential large amount of the extraction of the exhaustible resources beneath celestial bodies” (Government of Ukraine, 2021, p. 1). Consequently, statements made by New Zealand (Government of New Zealand, 2021, p. 1), Ukraine (Government of Ukraine, 2021, p. 1) and France (Government of France, 2021), demonstrate that some States believe that future discussions on space resource activities should address the role of environmental sustainability in relation to celestial bodies, including the Moon.

Finally, States demonstrated an overarching commitment to the inclusion of a diverse range of stakeholder perspectives during discussions regarding potential legal models for space resource activities. States, including New Zealand (Government of New Zealand, 2021, p. 2), China (United Nations Office of Outer Space Affairs, 2021b, p. 2), and Austria et al. (United Nations Office of Outer Space Affairs, 2021d, p. 3), reinforced support for the importance of non-state actors’ expertise in relation to space resource activities. Furthermore, Canada emphasized the interconnection between a possible legal framework and the technical aspects of space resource activities by calling for the establishment of a cross-cutting agenda item under COPUOS, meaning an agenda item that appears both on the Legal Subcommittee’s agenda and the Scientific and Technical Subcommittee’s agenda, regarding space resource activities (Government of Canada, 2021b, p. 2). Despite the slight differences in State stances, the recent



scheduled informal consultations demonstrate that the international community sees value in the inclusion of non-State actors' perspectives; however, the specific role of non-State actors is yet to be determined and will likely be decided in 2022 (United Nations Office of Outer Space Affairs, 2021e, p.2).

The similarities between the themes identified within the recent scheduled informal consultations on the exploration, exploitation and utilization of space resources and previous COPUOS Legal Subcommittee discussions reinforce that issues related to the creation of an international legal framework to govern space resources, national interpretations of the OST, environmental protection and sustainability, the equitable use of outer space, the significance of COPUOS, and the role of non-State actors, are important points of concern for States. Despite slight differences in State positions, the overarching themes within COPUOS space resource discussions provide a strong framework to analyze the Working Group discussions going forward.

## **6. Recommendations**

The establishment of a space resource-focused Working Group creates a unique opportunity for Canada to differentiate itself amongst Artemis countries, in order to serve as a leader within space resource activities and the Working Group going forward. In this section, I draw upon Canada's strengths regarding feminist foreign policy, scientific development, environmental sustainability and the mining sector, and Indigenous knowledge, to identify avenues for the Canadian government to positively shape the current COPUOS discussions on space resource activities.

### **a. Feminist Approach to Outer Space Policy**

Canada has emerged as an international leader within feminist foreign policy, as seen through Canada's Feminist International Assistance Policy (Government of Canada, 2020), the establishment of a Women, Peace and Security Ambassador (Government of Canada, 2019b), and the country's utilization of Gender-based Analysis Plus (Government of Canada, 2021a) within its federal departments. Therefore, I argue that the Canadian government is uniquely situated to spearhead a feminist approach to space resource activities. There is currently no State that explicitly utilizes a feminist approach to outer space policy. Therefore, leading a feminist approach to space resource activities nationally and internationally would differentiate Canada's approach to space policy globally.

The topic of gender has been largely absent from recent COPUOS space resource discussions. As a result, the lack of gender-specific arguments during COPUOS space resource debates indirectly frames space resource activities as non-gendered. However, in 2019, the OECD found that women continue to be "under-represented in all segments of the space sector...irrespective of fields" (OECD, 2019, ch. 3). The United Nations identified that women represent only "20 to 22 percent of the space industry workforce, which is on par with the percentage from thirty years ago" (United Nations Space4Women, n.d.) The gender gap within STEM fields is not a new phenomenon, consequently, the under-representation of women in "space-related fields of education" translates to women's under-representation in the space sector (OECD, 2019, ch. 3). Similarly, the under-representation of women is prevalent within terrestrial mining, as women represented 12 to 19 percent of the workforce in Canada between 2016 and 2020 (Mining Industry Human Resources Council, 2021, p.19). When analyzing the under-

representation of women within space-related fields in conjunction with terrestrial mining, the gender gap is amplified as both fields are predominately male-dominated.

The non-gendering of space resource activities inaccurately frames the sector, as well as minimizes the disproportionate gender gap within all areas of the issue. There is a common misconception that gender-based analyses are only relevant to social issues. However, as stated by the Government of Canada, gender-based analysis plus approaches can be utilized in “all federal sectors and domains,” as “all government policies and programs affect people” (Canada, 2021a). As a result, the inclusion of a gendered analysis of space resource activities aligns with the Canadian government’s pre-existing policies.

At a national level, there are numerous avenues for Canada to adopt a feminist approach to space resource activities. First, as previously stated, Canada’s strong history in feminist foreign policy positions the country well to adopt a feminist approach to outer space. As Canada moves forward in its creation of a legislative framework to govern space resources and puts forth future national space strategies, the Canadian government should consider framing future strategies, national policies and legislation through a feminist lens. Establishing an over-arching feminist approach to outer space policy within Canada will streamline the topic of gender within all aspects of the Canadian space industry and differentiate Canada amongst an increasingly crowded space sector.

From a practical level, the Canadian government should consider addressing the gender gap within space resource activities through targeted youth engagement grants for space resource activities, focusing specifically on women’s participation, similar to the Mobilizing Insights in Defence and Security (MINDS) program through the Department of Defence (Government of Canada, 2021d). Furthermore, in order to appeal to a larger pool of female applicants, the grant

program could include non-STEM fields, such as law, policy and business. Second, Canada should prioritize the professional development of young women entering the space sector through the development of a women focused mentorship program, similar to the United Nations' mentorship initiative, Space4Women (United Nations Space4Women, n.d.a). In order to address the gender gap within Canada, it is integral that the Canadian government invest directly in the professional and academic development of young women at early stages of their space-related careers to ensure women stay and lead within the space sector.

As it pertains to foreign policy, the Canadian government is well positioned to explore the interconnection between the Women, Peace and Security agenda and the future of outer space policy. United Nations Security Council Resolution 1325 on Women, Peace, and Security “urges Member States to ensure increased representation of women at all decision-making levels in national, regional and international institutions and mechanisms for the prevention, management, and resolution of conflict” (United Nations Security Council, 2000, p.2). The prevention of conflict is relevant to outer space foreign policy as the major bodies and treaties overseeing outer space activities are rooted in conflict prevention. COPUOS was established in 1958, at the height of the Cold War, through United Nations General Assembly Resolution 1348 (XIII), entitled “Question of the Peaceful Uses of Outer Space” (United Nations General Assembly, 1958). General Assembly Resolution 1348 (XIII) specifies “that outer space should be used for peaceful purposes only,” in order to “avoid the extension of present national rivalries into (outer space)” (United Nations General Assembly, 1958, p.5). Similarly, Article III of the OST states that “States Parties to the Treaty shall carry on activities in the exploration and use of outer space, ... in the interest of maintaining international peace and security” (United Nations General Assembly, 1966, Article III). Potential conflict in outer space would likely differ from

traditional terrestrial armed conflict; however, the potential differences do not negate the severity of the threat. The militarization of space is not farfetched, as seen through the United States' Space Force and the unanswered questions regarding space resource activities, including the question of private property and the proposed "safety zones" of the Artemis Accords ("The Artemis Accords," 2020, p.5). As a result, the current COPUOS discussions regarding space resource activities serve as a form of conflict prevention as the existing mechanisms overseeing outer space activities serve as a forum for conflict prevention.

Even though COPUOS and the UN Security Council are two separate bodies, Canada should capitalize upon its leadership within the Women, Peace and Security (WPS) agenda, in order to link the WPS agenda with its broader outer space foreign policy strategy. The Millennium Development Goals (United Nations General Assembly, 2000), the Sustainable Development Goals (United Nations Department of Economic and Social Affairs, n.d.) and the adoption of United Nations Resolution 1325 on Women, Peace and Security (United Nations Security Council, 2000), highlight a growing shift within international norms and policy commitments regarding the importance of gender equality and women's rights (Tiessen & Smith 2020, p.127). The Canadian government's feminist domestic and foreign policies frame the Canadian government as "a global leader in the promotion of gender equality," an issue that is top of mind internationally (Tiessen & Smith 2020, p.124). As a result, the adoption of a feminist approach to space activities in Canada represents "an expansion on an existing approach" to foreign policy, rather than a radical approach to a previously non-gendered issue (Tiessen & Smith 2020, p.128). Consequently, Canada would be applying its existing expertise on the WPS agenda to outer space activities.

Logistically, the “whole-of-government mandate for Canada’s ambassador for Women Peace and Security” (Government of Canada, 2019a) is uniquely structured to address the interdisciplinary and interdepartmental nature of outer space activities, specifically space resource activities. The novelty associated with a feminist outer space policy creates an unparalleled opportunity to foster Canadian expertise in a quickly evolving issue area. As a result, the establishment of a feminist approach to space law and policy amplifies the expertise of Canadian leaders at an international level. Even though there are few academics focused on feminist approaches to outer space internationally (Steer, 2020), this fact does not adequately represent the true scope of the potential within the Canadian academic context. Through targeted funding initiatives, the Canadian government could provide Canadian academics and research organizations with an environment that fosters nuanced and meaningful analyses of feminist outer space policy and space resource activities.

A feminist outer space policy would strengthen Canada’s position as an international feminist and space leader, as well as amplify Canadian academics’ research internationally. Domestically, a feminist outer space policy would positively impact girls and women in the short and long-term, as it would foster a professional environment that supports women entering and excelling within a disproportionately male-dominated field. Therefore, addressing the gender gap in the Canadian space industry is an investment in the Canadian economy and scientific community as it ensures that all Canadians are given the opportunity to lead within the space industry.

#### **b. Scientific Expertise in Outer Space Activities**

During the scheduled informal consultations on space resource activities, the Canadian government emphasized that space resource activities are linked to the scientific community’s

technical advancements (Government of Canada, 2021b, p. 2). Currently, Canada has world-renowned space researchers across numerous disciplines, such as “astronomy, atmospheric, Earth systems, planetary, solar-terrestrial, and space life” (Government of Canada, 2019b, p. 6). Consequently, the Canadian government has the opportunity to capitalize upon the growing number of Canadian scientific and technical space experts, in order to position Canada as a technical leader within space resource discussions. Drawing upon Canada’s commentary regarding the interconnection between space resources and the broader space context in response to the Austria et al. paper (United Nations Office of Outer Space Affairs, 2021d), Canada should consider framing the issue of space resources in reference to the broader space context as it provides greater opportunity for Canadian experts to assert leadership during discussions. The scientific study of space resource activities is still at an infancy stage in comparison to other space-related issues. Therefore, positioning the topic of space resources in relation to the broader space context increases the likelihood that Canadian-led outer space research is amplified internationally. Furthermore, it allows for greater analysis of the interconnection of space resource activities and other space activities, such as the impacts of space resource activities on the reliability of current and future research. As a result, Canada should consider pressing for the inclusion of civil society and expert voices within the Working Group, as the inclusion of the scientific community within space resource discussions would amplify Canadian expertise at an international level and allow Canada to differentiate itself from other Artemis countries through scientific and technical skill.

### **c. Environmental Sustainability and Terrestrial Mining**

As highlighted by the United States government, “humanity is in the earliest days of space resource exploration, exploitation and utilization” (United Nations Office of Outer Space

Affairs, 2018d, 15:27). As a result, the short and long-term environmental impacts of space resource activities on celestial bodies, including the Moon, have yet to be determined.

Therefore, the Canadian government has the opportunity to take a leadership role in the study and promotion of environmental sustainability on the Moon.

The Canadian government “is a global leader in mining-related science, technology, social and environmental practices” (The Canadian Minerals and Metals Plan, 2019, p. 4). Consequently, Canada is well-positioned to draw upon its strong private and public sector experience in terrestrial mining to explore avenues to adapt existing terrestrial mining environmental practices to outer space environments. *The Canadian Minerals and Metals Plan* (2019) states that “the protection of Canada’s natural environment underpins a responsible, competitive industry” (p.5) as “Canadians expect that exploration, mining, processing and related activities include measures to avoid, minimize and mitigate environmental impacts” (p. 20). Similarly, in outer space, the short and long-term profitability and utilization of space resources are related to the international community’s ability to avoid, minimize and mitigate environmental impacts on the surface of celestial bodies, including the Moon. During the 60<sup>th</sup> session of the COPUOS Legal Subcommittee, the Canadian government highlighted the similarities between “terrestrial examples of resource use” and space resource activities (Canada, 2021b, p. 1). As a result, the Canadian government should consider expanding its reliance upon terrestrial examples of resource use within COPUOS to include the interconnection between terrestrial mining regulations and future space resource activity frameworks. Therefore, drawing upon Canada’s historic leadership within terrestrial mining would enable the Canadian government to apply the country’s existing technical and policy-related expertise pertaining to



the relationship between environmental sustainability and terrestrial mining to space resource activities.

#### **d. Indigenous Perspectives**

Finally, Indigenous perspectives were largely not discussed during the COPUOS debates on space resource activities, highlighting the exclusion of a significant stakeholder, especially within a Canadian context. The Moon (Buck, 2021) and stars (Mortillaro, 2019) play an important role within Indigenous culture in Canada. In many Indigenous communities, the Moon adopts a symbolic and cultural significance through traditions, stories and teachings (Canadian Heritage Information Network, 2003; Buck, 2021). As identified in the Canadian government's *What We Heard Report: Consultation on a Framework for Future Space Exploration Activities*, due to the significance of "the Moon, Mars, and the night sky to Indigenous peoples," it is important to include Indigenous knowledge and perspectives within discussions on space resource utilization and "the development of a framework for future space exploration activities" (Government of Canada, 2021c).

The Canadian government routinely reaffirms its commitment "to achieving reconciliation with Indigenous peoples" (Government of Canada, 2018), as evidenced through the Truth and Reconciliation Commission reports (National Centre for Truth and Reconciliation, 2021), the adoption of the United Nations Declaration of the Rights of Indigenous Peoples (UNDRIP) (Government of Canada, 2021e), and the establishment of a federal National Day for Truth and Reconciliation (Government of Canada, 2021e). The inclusion of Indigenous perspectives within Canada's approach to space resource activities aligns with the country's existing policies regarding truth and reconciliation. Amplifying Indigenous perspectives

regarding the Moon and stars ensures that the Canadian government is actively seeking Indigenous knowledge and truth.

Specifically, the Canadian government should focus on the interconnection between space resource activities and the implementation and application of UNDRIP, which Canada implemented into domestic law on June 21, 2021 (Government of Canada, 2021e). In particular, given the strong cultural significance of the Moon and the night sky to many Indigenous communities in Canada, the Canadian government should be cognizant of Article 19 of UNDRIP, as it states that “States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them” (United Nations General Assembly, 2007, p. 6). The *What We Heard Report* suggests that the Canadian government received submissions regarding the importance of the Moon to Indigenous peoples. Therefore, the Canadian government should explore how future legislative or administrative measures relating to space resource activities relate to Article 19 of UNDRIP.

The inclusion of Indigenous perspectives within space resource discussions mirrors the Canadian government’s commitment to truth and reconciliation with Indigenous peoples in Canada. Therefore, when developing a domestic and international legal and policy strategy regarding space resource activities, the inclusion of Indigenous perspectives serves as an opportunity to reaffirm Canada’s commitment to reconciliation.

## **7. Conclusion**

Regardless of the novelty associated with the exploration, exploitation and utilization of space resources, the COPUOS Legal Subcommittee discussions on space resources demonstrate

the overarching desire amongst States to discuss the future of space resource activities, especially in relation to existing and future international law and principles. As a result, in this White Paper, I identified the overarching themes within COPUOS space resource discussions, in order to provide a holistic analysis of the current political environment within the COPUOS Legal Subcommittee, as well as present opportunities for leadership in future space resource discussions and initiatives in Canada. First, I situated the current COPUOS space resource discussions in relation to the broader developments in space resource activities. Second, I outlined the trajectory of space resource discussions within the COPUOS Legal Subcommittee from a single issue/item to the establishment of a COPUOS Legal Subcommittee Working Group. Third, I discussed the recent space resource developments at the sixtieth session of the COPUOS Legal Subcommittee and identified six primary themes within the discussion, including the creation of an international legal framework governing space resources, the interpretation the OST, the significance of environmental sustainability, the role of the COPUOS Legal Subcommittee and non-State actors, and the inclusion of developing countries within future space resource initiatives. Finally, I presented four recommendations for Canadian leadership within space resource activities domestically and internationally, such as, the creation of a feminist outer space policy, the reliance upon Canadian space-related scientific expertise, the importance of environmental sustainability, and the inclusion of Indigenous perspectives within the future of space resource activities.

The recent COPUOS Legal Subcommittee discussions on space resource activities demonstrate the international importance of the issue going forward. As a result, over the next five years, the Canadian government has the opportunity to further position itself as a leader in space resource activities through a dedication to innovation and historic Canadian strengths.

Even though the topic of space resource activities is still developing at an early stage in Canada, the recent establishment of a COPUOS Legal Subcommittee Working Group dedicated to space resource activities will hopefully spark nuanced and creative Canadian outer space strategies and research over the next decade.

### References

- Amos, J. (2020, December 19). *China's Chang'e-5 mission returns Moon samples*. BBC.  
<https://www.bbc.com/news/science-environment-55323176>
- The Artemis Accords: Principles for cooperation in the civil exploration and use of the moon, mars, comets, and asteroids for peaceful purposes*. (2020, October 13).  
<https://www.nasa.gov/specials/artemis-accords/img/Artemis-Accords-signed-13Oct2020.pdf>
- Boley, A., & Byers, M. (2020). U.S. policy puts the safe development of space at risk. *Science (American Association for the Advancement of Science)*, 370 (6513), 174–175.  
<https://doi.org/10.1126/science.abd3402>
- Buck, W (2021, June 18). *Indigenous Moon*. Government of Canada.  
<https://www.asc-csa.gc.ca/eng/youth-educators/objective-moon/indigenous-moon.asp>
- Canadian Heritage Information Network (2003). *Grandfather Sun, Grandmother Moon, and Mother Earth*.  
[virtualmuseum.ca/edu/ViewLoitDa.do?method=preview&lang=EN&id=5188](http://virtualmuseum.ca/edu/ViewLoitDa.do?method=preview&lang=EN&id=5188)
- European Space Agency (2020, December 12). *What is European Large Logistics Lander?*  
[https://www.esa.int/ESA\\_Multimedia/Images/2020/10/What\\_is\\_European\\_Large\\_Logistics\\_Lander](https://www.esa.int/ESA_Multimedia/Images/2020/10/What_is_European_Large_Logistics_Lander)
- Federal Law No. (12) of 2019 on the Regulation of the Space Sector, Federal Decree-Law No. 1/2014, (2019).  
<https://www.moj.gov.ae/assets/2020/Federal%20Law%20No%2012%20of%202019%20on%20THE%20REGULATION%20OF%20THE%20SPACE%20SECTOR.pdf.aspx>
- Government of Brazil (2021, June 1). *General Exchange of Views on Potential Legal Models for*

*Activities in Exploration, Exploitation and Utilization of Space Resources*. United Nations Office of Outer Space Affairs, Legal Subcommittee 60<sup>th</sup> session, 60<sup>th</sup> mtg.

[https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item\\_14\\_Brazil\\_ver.1\\_1\\_June\\_AM.pdf](https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item_14_Brazil_ver.1_1_June_AM.pdf)

Government of Canada (2021a, April 14). *What is gender-based analysis plus*.

<https://women-gender-equality.canada.ca/en/gender-based-analysis-plus/what-gender-based-analysis-plus.html>

Government of Canada (2021b, June 1). *Agenda Item 14: General exchange of views on potential legal models for activities in exploration, exploitation, and utilization of space resources*. United Nations Office of Outer Space Affairs, Legal Subcommittee 60<sup>th</sup> session, 60<sup>th</sup> mtg.

[https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item\\_14\\_Canada\\_ver.1\\_1\\_June\\_AM.pdf](https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item_14_Canada_ver.1_1_June_AM.pdf)

Government of Canada (2021c, July 30). *What we heard report: Consultation on a framework for future space exploration activities*. <https://asc-csa.gc.ca/eng/astronomy/moon-exploration/what-we-heard--report-consultation-framework-future-space-exploration-activities.asp>

Government of Canada (2021d, August 9). *Targeted engagement grants*.

<https://www.canada.ca/en/department-national-defence/programs/minds/targeted-engagement-grant.html>

Government of Canada (2021e, August 13). *Implementing the United Nations Declaration on the Rights of Indigenous Peoples in Canada*.

<https://www.justice.gc.ca/eng/declaration/index.html>

Government of Canada (2020, January 14). *Canada's feminist international assistance policy*.

[https://www.international.gc.ca/world-monde/issues\\_development-enjeux\\_developpement/priorities-priorites/policy-politique.aspx?lang=eng&\\_ga=2.190548331.1181438241.1628455794-160503482.1627666311](https://www.international.gc.ca/world-monde/issues_development-enjeux_developpement/priorities-priorites/policy-politique.aspx?lang=eng&_ga=2.190548331.1181438241.1628455794-160503482.1627666311)

Government of Canada (2019a, June 17). *Canada's ambassador for Women, Peace and Security*.

[https://www.international.gc.ca/world-monde/issues\\_development-enjeux\\_developpement/gender\\_equality-egalite\\_des\\_genres/women\\_peace\\_security-femmes\\_paix\\_securite-rep.aspx?lang=eng](https://www.international.gc.ca/world-monde/issues_development-enjeux_developpement/gender_equality-egalite_des_genres/women_peace_security-femmes_paix_securite-rep.aspx?lang=eng)

Government of Canada (2019b). *Exploration, Imagination, Innovation: A New Space Strategy for Canada*.

<https://www.asc-csa.gc.ca/pdf/eng/publications/space-strategy-for-canada.pdf>

Government of Canada (2018, February 14). *Principles respecting the Government of Canada's relationship with Indigenous peoples*. Department of Justice.

<https://www.justice.gc.ca/eng/csj-sjc/principles-principes.html>

Government of France (2021, June 1). *Débat général sur les modèles juridiques envisageables pour les activités d'exploration, d'exploitation et d'utilisation des ressources spatiales: Déclaration de la délégation française*. United Nations Office of Outer Space Affairs,

Legal Subcommittee 60<sup>th</sup> session, 60<sup>th</sup> mtg.

[https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item\\_14\\_France\\_ver.1\\_1\\_June\\_AM.pdf](https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item_14_France_ver.1_1_June_AM.pdf)

Government of Germany (2021, May 31). *Statement by Germany: Agenda Item 14 – General*

*exchange of views on potential legal models for activities in the exploration, exploitation*

*and utilization of space resources.* United Nations Office of Outer Space Affairs, Legal Subcommittee 60<sup>th</sup> session, 60<sup>th</sup> mtg.

[https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item\\_14\\_Germany\\_ver.1\\_31\\_May\\_PM.pdf](https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item_14_Germany_ver.1_31_May_PM.pdf)

Government of Indonesia (2021, May 31). *Intervention made by the Delegation of the Republic of Indonesia on the Agenda Item 14: General exchange of views on potential legal models for activities in exploration, exploitation and utilization of space resources.*

United Nations Office of Outer Space Affairs, Legal Subcommittee 60<sup>th</sup> session, 60<sup>th</sup> mtg. [https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item\\_14\\_Indonesia\\_ver.1\\_1\\_June\\_AM.pdf](https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item_14_Indonesia_ver.1_1_June_AM.pdf)

Government of New Zealand (2021, June 1). *Agenda Item 14: New Zealand Statement.* United Nations Office of Outer Space Affairs, Legal Subcommittee 60<sup>th</sup> session, 60<sup>th</sup> mtg.

<https://www.unoosa.org/oosa/en/ourwork/copuos/lsc/2021/statements.html>

Government of Ukraine (2021, May 31). *Statement of the Ukrainian delegation at the 60th session of the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space Item 14. General exchange of views on potential legal models for activities in exploration, exploitation and utilization of space resources (Anna Hurova).* United Nations Office of Outer Space Affairs, Legal Subcommittee 60<sup>th</sup> session, 60<sup>th</sup> mtg.

[https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item\\_14\\_Indonesia\\_ver.1\\_1\\_June\\_AM.pdf](https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item_14_Indonesia_ver.1_1_June_AM.pdf)

Government of the United States (2021, June 1). *U.S. statement agenda item 14 potential legal models for activities in exploration, exploitation and utilization of space resources.*

United Nations Office of Outer Space Affairs, Legal Subcommittee 60<sup>th</sup> session, 60<sup>th</sup>



mtg.[https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item\\_14\\_USA\\_ver.1\\_1\\_June\\_AM.pdf](https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item_14_USA_ver.1_1_June_AM.pdf)

International Institute of Air and Space Law (n.d.). *The Hague International Space Resources Governance Working Group*. Leiden University.

<https://www.universiteitleiden.nl/en/law/institute-of-public-law/institute-of-air-space-law/the-hague-space-resources-governance-working-group#fourth-face-to-face-meeting-of-the-second-phase,first-face-to-face-meeting,sponsors>

Islamic Republic of Iran (2021, June 1). *Agenda Item 14: General exchange of views on potential legal models for activates in exploration, exploitation and utilization of space resources* (COPUOS LSC, 60<sup>th</sup> session, 60<sup>th</sup> mtg). United Nations Office of Outer Space Affairs, Legal Subcommittee 60<sup>th</sup> session, 60<sup>th</sup> mtg.

[https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item\\_14\\_Iran\\_ver.1\\_1\\_June\\_AM.pdf](https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item_14_Iran_ver.1_1_June_AM.pdf) .

Koetsier, J. (2021, May 22). *Space Inc: 10,000 Companies, \$4T Value ... And 52% American*.

Forbes. <https://www.forbes.com/sites/johnkoetsier/2021/05/22/space-inc-10000-companies-4t-value--and-52-american/?sh=f4bdc6055ac7>

Law of 2017 on the Exploration and Use of Space Resources, Mémorial A No 90 of 1915,

(2017). <https://legilux.public.lu/eli/etat/leg/loi/2017/07/20/a674/jo/en>

Mining Industry Human Resources Council (2021, March). *Mining Year in Review: National*

*Outlook 2021*. <https://mihr.ca/wp-content/uploads/2021/03/MIHR-National-Outlook-LMI-Report-2021-E-web.pdf>

Mortillaro, N. (2019, March 30). *'We come from the stars': How Indigenous peoples are taking back astronomy*. CBC.<https://www.cbc.ca/news/science/indigenous-astronomy->

1.5077070

NASA (2021, June). *The Artemis Accords*.

<https://www.nasa.gov/specials/artemis-accords/index.html>

NASA (2020a, September). *NASA's Lunar Exploration Program Overview*.

[https://www.nasa.gov/sites/default/files/atoms/files/artemis\\_plan-20200921.pdf](https://www.nasa.gov/sites/default/files/atoms/files/artemis_plan-20200921.pdf)

NASA (2020b, October 13). *NASA, International Partners Advance Cooperation with First*

*Signings of Artemis Accords*. <https://www.nasa.gov/press-release/nasa-international-partners-advance-cooperation-with-first-signings-of-artemis-accords>

NASA (2018, May 31). *NASA Selects US Companies to Advance Space Resource Collection*.

<https://www.nasa.gov/press-release/nasa-selects-us-companies-to-advance-space-resource-collection>

National Centre for Truth and Reconciliation (2021). *Reports*.

<https://nctr.ca/records/reports/#gov-reports>

OECD (2019, July 5). *The space economy in figures: How space contributes to the global*

*economy*. [https://www.oecd-ilibrary.org/sites/c5996201-](https://www.oecd-ilibrary.org/sites/c5996201-en/index.html?itemId=/content/publication/c5996201-en&csp=ffe5a6bbc1382ae4f0ead9dd2da73ff4&itemIGO=oecd&itemContentType=book)

[en/index.html?itemId=/content/publication/c5996201-](https://www.oecd-ilibrary.org/sites/c5996201-en/index.html?itemId=/content/publication/c5996201-en&csp=ffe5a6bbc1382ae4f0ead9dd2da73ff4&itemIGO=oecd&itemContentType=book)

[en&csp=ffe5a6bbc1382ae4f0ead9dd2da73ff4&itemIGO=oecd&itemContentType=boo](https://www.oecd-ilibrary.org/sites/c5996201-en/index.html?itemId=/content/publication/c5996201-en&csp=ffe5a6bbc1382ae4f0ead9dd2da73ff4&itemIGO=oecd&itemContentType=book)

[k](https://www.oecd-ilibrary.org/sites/c5996201-en/index.html?itemId=/content/publication/c5996201-en&csp=ffe5a6bbc1382ae4f0ead9dd2da73ff4&itemIGO=oecd&itemContentType=book)

Russian Federation (2021, May 31). *Statement by the delegation of the Russian Federation at the*

*60th session Legal Subcommittee of the UN Committee on Outer Space on agenda item 3*

*"General exchange of views"* (Translated, United Nations Office of Outer Space Affairs,

Legal Subcommittee 60<sup>th</sup> session, 60<sup>th</sup> mtg.).

[https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item\\_3\\_Russian\\_Fed](https://www.unoosa.org/documents/pdf/copuos/lsc/2021/statements/item_3_Russian_Fed)

[eration\\_ver.1\\_31May\\_AM.pdf](#)

SpaceWatch (2021, June 16). *Japan fourth country in the world to pass space resources law.*

<https://spacewatch.global/2021/06/japan-fourth-country-in-the-world-to-pass-space-resources-law/>

Steer, C (2020, July 27). 'The province of all humankind' - A feminist analysis of space law

(July 27, 2020). In Henderson S. & de Zwart M. (Eds) *Military and commercial uses of outer space*. Springer.

Tiessen R., & Smith H. (2020). Canada's 'Feminist' foreign policy under the Harper

Conservatives (2006–2015) and Trudeau Liberals (2015–2019) in global perspective. In Tremblay, M. & Everitt, J. (Eds.) *The Palgrave Handbook of Gender, Sexuality, and Canadian Politics* (117-140). Springer International Publishing AG.

The Economic News (2021, February 21). *Chandrayaan-3 launch delayed further to 2022.* The

Economic News. <https://economictimes.indiatimes.com/news/science/chandrayaan-3-launch-delayed-further-to-2022/articleshow/81136332.cms>

United Nations Department of Economic and Social Affairs (n.d.). *The 17 goals.*

<https://sdgs.un.org/goals>

United Nations General Assembly (2007, October 7). *Resolution adopted by the General*

*Assembly on 13 September 2007: United Nations Declaration on the Rights of Indigenous Peoples* (61<sup>st</sup> session, UN Doc A/RES/61/295).

<https://undocs.org/pdf?symbol=en/A/RES/61/295>

United Nations General Assembly (2000, September 8). *United Nations Millennium Declaration*

(55<sup>th</sup> session, UN Doc A/RES/55/2).

<https://www.ohchr.org/EN/ProfessionalInterest/Pages/Millennium.aspx>

United Nations General Assembly (1999, October 27). *Gap between rapid outer space advances, needs of developing countries stressed by speakers in fourth committee debate* (Press release GA/SPD/169).

<https://www.un.org/press/en/1999/19991027.gaspd169.doc.html>

United Nations General Assembly (1966, December 19). *Resolution adopted by the general assembly: 2222 (xxi). Treaty on principles governing the activities of states in the exploration and use of outer space, including the moon and other celestial bodies.*

<https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html>

United Nations General Assembly (1958, December 13). *Question of the Peaceful Use of Outer Space (RES 1348 (XIII)).*

[https://www.unoosa.org/oosa/oosadoc/data/resolutions/1958/general\\_assembly\\_13th\\_session/res\\_1348\\_xiii.html](https://www.unoosa.org/oosa/oosadoc/data/resolutions/1958/general_assembly_13th_session/res_1348_xiii.html)

United Nations Office of Outer Space Affairs (2021a, May 27). *Responses to the set of questions provided by the Moderator and Vice – Moderator of the Scheduled Informal*

*Consultations on Space Resources* (LSC 60<sup>th</sup> session, 60<sup>th</sup> mtg, UN Doc

A/AC105/C.2/2021/CRP.8). [https://www.unoosa.org/documents/doc/copuos/space-resources/60\\_LSC-CRP08-Responses-of-States-on-Space-Resources-27-May-2021-](https://www.unoosa.org/documents/doc/copuos/space-resources/60_LSC-CRP08-Responses-of-States-on-Space-Resources-27-May-2021-MNr1.docx)

[MNr1.docx](https://www.unoosa.org/documents/doc/copuos/space-resources/60_LSC-CRP08-Responses-of-States-on-Space-Resources-27-May-2021-MNr1.docx)

United Nations Office of Outer Space Affairs (2021b, May 31). *The Establishment of a Working Group on Potential Legal Models for Activities in Exploration, Exploitation and*

*Utilization of Space Resources* (LSC 60<sup>th</sup> session, 60<sup>th</sup> mtg, UN Doc

A/AC.105/C.2/2021/CRP.18).

[https://www.unoosa.org/res/oosadoc/data/documents/2021/aac\\_105c\\_22021crp/aac\\_105c](https://www.unoosa.org/res/oosadoc/data/documents/2021/aac_105c_22021crp/aac_105c)

[22021crp\\_18\\_0\\_html/AC105\\_C2\\_2021\\_CRP18CE.pdf](#)

United Nations Office of Outer Space Affairs (2021c, June 7). *The Establishment of a Working Group on Potential Legal Models for Activities in Exploration, Exploitation and Utilization of Space Resources* (LSC 60<sup>th</sup> session, 60<sup>th</sup> mtg, UN Doc A/AC.105/C.2/2021/CRP.26).

[https://www.unoosa.org/res/oosadoc/data/documents/2021/aac\\_105c\\_22021crp/aac\\_105c\\_22021crp\\_26\\_0\\_html/AC105\\_C2\\_2021\\_CRP26E.pdf](https://www.unoosa.org/res/oosadoc/data/documents/2021/aac_105c_22021crp/aac_105c_22021crp_26_0_html/AC105_C2_2021_CRP26E.pdf)

United Nations Office of Outer Space Affairs (2021d, June 8). *The Establishment of a Working Group on Potential Legal Models for Activities in Exploration, Exploitation and Utilization of Space Resources* (LSC 60<sup>th</sup> session, 60<sup>th</sup> mtg, UN Doc A/AC.105/C.2/2021/CRP.22).

[https://www.unoosa.org/res/oosadoc/data/documents/2021/aac\\_105c\\_22021crp/aac\\_105c\\_22021crp\\_22\\_0\\_html/AC105\\_C2\\_2021\\_CRP22E.pdf](https://www.unoosa.org/res/oosadoc/data/documents/2021/aac_105c_22021crp/aac_105c_22021crp_22_0_html/AC105_C2_2021_CRP22E.pdf)

United Nations Office of Outer Space Affairs (2021e, June 9). *Third Revised Co-Moderators' Proposal*. <https://www.unoosa.org/documents/doc/copuos/space-resources/Third-Revised-Co-Moderators-Proposal.docx>

United Nations Office of Outer Space Affairs (2021f, June 24). *Report of the Legal Subcommittee on its sixtieth session, held in Vienna from 31 May to 11 June 2021* (LSC 60<sup>th</sup> session, 60<sup>th</sup> mtg, UN Doc A/AC.105/1243).

[https://www.unoosa.org/oosa/oosadoc/data/documents/2021/aac.105/aac.1051243\\_0.html](https://www.unoosa.org/oosa/oosadoc/data/documents/2021/aac.105/aac.1051243_0.html)

United Nations Office of Outer Space Affairs (2020, February 3). *Building blocks for the development of an international framework on space resource activities* (LSC 60<sup>th</sup> session, 60<sup>th</sup> mtg, UN Doc A/AC.105/C.2/L.315).

<https://cms.unov.org/dcpms2/api/finaldocuments?Language=en&Symbol=A/AC.105/C.2/L.315>

United Nations Office of Outer Space Affairs (2019a, March 4). *Proposal for the establishment of a working group for the development of an international regime for the utilization and exploitation of space resources* (LSC 58<sup>th</sup> session, 58<sup>th</sup> mtg, UN Doc A/AC.105/C.2/L.311). <https://undocs.org/pdf?symbol=en/A/AC.105/C.2/L.311>

United Nations Office of Outer Space Affairs (2019b, April 5). *Legal Subcommittee, 58th session - 05/04/2019*. 11:13-11:19.  
<https://conferences.unite.un.org/carbonweb/public/oosa/speakerslog/03806dc1-af87-4384-9be8-7e89f2c10840>

United Nations Office of Outer Space Affairs (2019c, April 8). *Addendum on the Working Methods and Work Plan of the Working Group proposed under document A/AC.105/C.2/L.311 entitled “Proposal for the establishment of a working group for the development of an international regime for the utilization and exploitation of space resources”* (LSC 58<sup>th</sup> session, 58<sup>th</sup> mtg, UN Doc A/AC.105/C.2/2019/CRP.22).  
[https://www.unoosa.org/res/oosadoc/data/documents/2019/aac\\_105c\\_22019crp/aac\\_105c\\_22019crp\\_22\\_0.html/AC105\\_C2\\_2019\\_CRP22E.pdf](https://www.unoosa.org/res/oosadoc/data/documents/2019/aac_105c_22019crp/aac_105c_22019crp_22_0.html/AC105_C2_2019_CRP22E.pdf)

United Nations Office of Outer Space Affairs (2019d, April 10). *Legal Subcommittee, 58th session - 010/04/2019*. 11:11-11:13; 11:41-11:45.  
<https://conferences.unite.un.org/carbonweb/public/oosa/speakerslog/c64b59c6-ff6e-4748-8d50-18ed22a6dda0>

United Nations Office of Outer Space Affairs (2019e, April 10). *Legal Subcommittee, 58th session - 010/04/2019*. 15:15-15:2; 15:46- 15:48.

<https://conferences.unite.un.org/carbonweb/public/oosa/speakerslog/8298ca6c-123a-4c83-b905-8a2221766a67>

United Nations Office of Outer Space Affairs (2019f, April 11). *Proposal for Working Methods and Work Plan of the Working Group on Legal Aspects of the Exploration, the Utilization and the Exploitation of Space Resources*, (with reference to document *A/AC.105/C.2/L.311*) (LSC 58<sup>th</sup> session, 58<sup>th</sup> mtg, UN Doc A/AC.105/C.2/2019/CRP.26).  
[https://www.unoosa.org/oosa/oosadoc/data/documents/2019/aac.105c.22019crp/aac.105c.22019crp.26\\_0.html](https://www.unoosa.org/oosa/oosadoc/data/documents/2019/aac.105c.22019crp/aac.105c.22019crp.26_0.html)

United Nations Office of Outer Space Affairs (2019g, April 18). *Report of the Legal Subcommittee on its fifty-eighth session, held in Vienna from 1 to 12 April 2019* (LSC 58<sup>th</sup> session, 58<sup>th</sup> mtg, UN Doc A/AC.105/1203).  
[https://www.unoosa.org/oosa/oosadoc/data/documents/2019/aac.105/aac.1051203\\_0.html](https://www.unoosa.org/oosa/oosadoc/data/documents/2019/aac.105/aac.1051203_0.html)

United Nations Office of Outer Space Affairs (2018a, April 12). *The Hague Space Resources Governance Working Group* (LSC 57<sup>th</sup> session, 57<sup>th</sup> mtg, UN Doc A/AC.105/C.2/2018/CRP.18).  
[https://www.unoosa.org/res/oosadoc/data/documents/2018/aac\\_105c\\_22018crp/aac\\_105c\\_22018crp\\_18\\_0\\_html/AC105\\_C2\\_2018\\_CRP18E.pdf](https://www.unoosa.org/res/oosadoc/data/documents/2018/aac_105c_22018crp/aac_105c_22018crp_18_0_html/AC105_C2_2018_CRP18E.pdf)

United Nations Office of Outer Space Affairs (2018b, April 12). *COPUOS, Legal Subcommittee, 57th session - 12/04/2018* [Audio]. 10:44-10:48.  
<https://conferences.unite.un.org/carbonweb/public/oosa/speakerslog/95a3fda5-0fb9-4a68-95b9-1fb0ea72dafb>

United Nations Office of Outer Space Affairs (2018c, April 13). *COPUOS, Legal Subcommittee, 57th session - 13/04/2018* [Audio]. 10:35-10:39; 11:03-11:11.

<https://conferences.unite.un.org/carbonweb/public/oosa/speakerslog/95a3fda5-0fb9-4a68-95b9-1fb0ea72dafb>

United Nations Office of Outer Space Affairs (2018d, April 13). *COPUOS, Legal Subcommittee, 57th session - 13/04/2018* [Audio]. 15:27-15:35.

<https://conferences.unite.un.org/carbonweb/public/oosa/speakerslog/ae4582a0-0db2-4785-900d-698b71457c33>

United Nations Office of Outer Space Affairs (2018e, April 16). *COPUOS, Legal Subcommittee, 57th session - 16/04/2018* [Audio]. 11:27-11:30.

<https://conferences.unite.un.org/carbonweb/public/oosa/speakerslog/bbe9552c-0522-4fb4-b479-8380f512e582>

United Nations Office of Outer Space Affairs (2017a, March 28). *COPUOS: Legal Subcommittee, 56th Session - 28/03/2017* [Audio]. 11:28-11:31; 11:32-11:42; 11:49-11:57. <https://conferences.unite.un.org/carbonweb/public/oosa/speakerslog/ecdbee63-c7d8-4267-a070-34155faed934>

United Nations Office of Outer Space Affairs (2017b, March 28). *COPUOS: Legal Subcommittee, 56th Session - 28/03/2017* [Audio]. 16:20-16:25; 16:27-16:31. <https://conferences.unite.un.org/carbonweb/public/oosa/speakerslog/dc656751-ffce-4b22-977e-a0244f55010e>

United Nations Office of Outer Space Affairs (2017c, March 29). *COPUOS: Legal Subcommittee, 56th Session - 29/03/2017* [Audio]. 10:53-10:57; 11:06-11:08; 11:22-11:24. <https://conferences.unite.un.org/carbonweb/public/oosa/speakerslog/293fc17d-c893-429e-9484-a3967ba4255a>

United Nations Office of Outer Space Affairs (2017d, March 29). *COPUOS: Legal*



*Subcommittee, 56th Session - 29/03/2017*[Audio]. 16:49-16:51; 16:55-16:66; 17:00-17:04. <https://conferences.unite.un.org/carbonweb/public/oosa/speakerslog/293fc17d-c893-429e-9484-a3967ba4255a>

United Nations Office of Outer Space Affairs (2016a, April 4). *COPUOS: Legal Subcommittee, 55th session - 05/04/2016* [Audio]. 11:02-11:10; 12:01-12:13; 12:16-12:23. <https://conferences.unite.un.org/carbonweb/public/oosa/speakerslog/13fdb2c5-5528-4904-8a32-4bb7284cef11>

United Nations Office of Outer Space Affairs (2016b, April 13). *COPUOS: Legal Subcommittee, 55th session - 13/04/2016* [Audio]. 15:47-15:48; 15:53-15:54; 15:59-16:00; 16:05-16:06. <https://conferences.unite.un.org/carbonweb/public/oosa/speakerslog/46446fb3-f239-40da-9c1d-ffad0223af78>

United Nations Office of Outer Space Affairs (2016c, April 27). *Report of the Legal Subcommittee on its sixtieth session, held in Vienna from 31 May to 11 June 2021* (LSC 60<sup>th</sup> session, 60<sup>th</sup> mtg, UN Doc A/AC.105/1113). [https://www.unoosa.org/oosa/oosadoc/data/documents/2016/aac.105/aac.1051113\\_0.html](https://www.unoosa.org/oosa/oosadoc/data/documents/2016/aac.105/aac.1051113_0.html)

United Nations Security Council (2000, October 31). Security Council resolution 1325, UN Doc S/RES/1325 (2000). [http://daccess-ods.un.org/access.nsf/Get?Open&DS=S/RES/1325\(2000\)&Lang=E](http://daccess-ods.un.org/access.nsf/Get?Open&DS=S/RES/1325(2000)&Lang=E)

United Nations Space4Women (n.d.). *About Space4Women*. <https://space4women.unoosa.org/about>

United Nations Space4Women (n.d.a). *About the Space4Women Mentorship Program*. <https://space4women.unoosa.org/mentorship-program>

U.S. Commercial Space Launch Competitiveness Act, Pub. L. No 114-90 (2015).

<https://www.congress.gov/bill/114th-congress/house-bill/2262/text>