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# **The Potential End to Space Diplomacy: How Biden can Preserve it and Expand Cooperation**

Padraig Delaney\*

## **I. Introduction**

The International Space Station (“ISS”) has been a beacon of international space cooperation and diplomacy for nearly twenty-five years. However, that light is set to dim. Russia announced in July 2022 that it plans to withdraw from the ISS in 2024.<sup>1</sup> On the other hand, the United States extended their own operations on the ISS until 2030 at which point the National Aeronautics and Space Administration (“NASA”) plans to de-orbit the station into the southern Pacific Ocean.<sup>2</sup> However, one of the main founding partners and key actors in the ISS’s success as an international symbol of diplomacy—Russia—will be absent from the program after 2024.<sup>3</sup> Questions remain whether the ISS can operate without the Russian modules and whether Russia will actually follow through,<sup>4</sup> since the ISS is currently their only ongoing space mission. Considering the ongoing war in Ukraine and the broader diplomatic issues with Russia and the People's Republic of China (“China”), space cooperation has been declining. Thus, if the Biden Administration wants to continue space cooperation—something that is necessary to prevent military conflict in space—it must take more action.

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<sup>1</sup> Kenneth Chang and Ivan Nechepurenko, *Russia Says It Will Quit the International Space Station After 2024*, N.Y. TIMES (July 26, 2022), <https://www.nytimes.com/2022/07/26/science/russia-space-station.html>.

<sup>2</sup> CHIPS Act of 2022, H.R. 4346, 117th Cong. (2022).

<sup>3</sup> Vladimir Isachenkov & Marcia Dunn, *Russia to Drop Out of International Space Station After 2024*, BLOOMBERG (July 2022), <https://www.bloomberg.com/news/articles/2022-07-26/russia-to-opt-out-of-international-space-station-after-2024>.

<sup>4</sup> Tim Fernholz, *Could the International Space Station survive without Russia?*, QZ (March 3, 2022), <https://qz.com/2140396/how-the-iss-could-stay-in-orbit-without-russia> (noting that it might take a significant amount of time, money, and effort to keep operating the ISS if Russia leaves and how Russian spacecraft will be grounded until the 2030s when China’s lunar project is up and running).

The Biden administration has focused primarily on the Artemis Program and released various strategies on space.<sup>5</sup> However, none of the actions meaningfully alleviate the growing isolationism in space. Aside from the ISS, what remains of space cooperation is mainly that between traditional partners. Furthermore, laws like the Wolf Amendment, barring cooperation with China, have fostered noncooperation and contributes to the deterioration of space cooperation that has existed since the end of the Cold War.<sup>6</sup> However, it is not too late to salvage space diplomacy. This paper will attempt to illustrate why programs like the ISS are vital for preserving peace on Earth and why the Biden administration must focus on renewing the ISS program by laying the groundwork for an international Moon base.

Part II lays out the history of space cooperation, primarily focusing on applicable treaty law and the ISS. Part III explores the recent actions that the Biden administration has taken. Finally, Part IV explains what the Biden administration can do to alleviate tensions with Russia and China, primarily by continuing the ISS's goal of fostering cooperation through common goals, such as establishing a permanent international Moon base. The focus will be on what Biden can glean from the ISS's success to ensure a more permanent source of international cooperation in space that will remain and not succumb to the divisions back on Earth. Space cooperation is necessary to ensure diplomacy and conflict remain in a post-Cold War state. Missions like the ISS remind us all that we are in this together – the survival and prosperity of humanity.

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<sup>5</sup> Joseph R. Biden, Jr., *United States Space Priorities Framework*, THE WHITE HOUSE, (Dec. 2021), <https://www.whitehouse.gov/wp-content/uploads/2021/12/united-states-space-priorities-framework--december-1-2021.pdf>.

<sup>6</sup> Makena Young, *Bad Idea: The Wolf Amendment (Limiting Collaboration with China in Space)*, Ctr. for Strategic and Int'l Studies (Dec. 4, 2021), <https://defense360.csis.org/bad-idea-the-wolf-amendment-limiting-collaboration-with-china-in-space/>.

## **II. The History of International Cooperation in Space and of the International Space Station.**

While space has always had a tremendous impact on society, even before we ventured in it,<sup>7</sup> relevant law to the legal landscape today began in the 1960s when the United Nations created the Outer Space Treaty.<sup>8</sup> Subsequently, numerous other treaties were proposed and ratified.<sup>9</sup> However, the most recent treaty, the Moon Agreement, adopted in 1984, only has eighteen parties to the agreement, far fewer than the 112 nations that are party to the Outer Space Treaty.<sup>10</sup> These treaties laid the foundation of cooperation in space as the underpinning of space activities.

The ISS was established in a post-Cold War world with the purpose of developing a cooperative science and engineering program to bring together the leading space-faring nations at the time.<sup>11</sup> The ISS agreement governing the creation of the ISS is called the International Space Station Intergovernmental Agreement (“IGA”).<sup>12</sup> Under the IGA, each nation party to the Agreement signed a bilateral memorandum of understanding (“MOU”) with the United States and each nation promulgated domestic regulations to effectuate the mission of cooperation that the IGA prescribes.<sup>13</sup> However, besides these nation to nation

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<sup>7</sup> *How ancient astronomy mixed science with mythology*, Nat'l Geographic (Feb. 10, 2021), <https://www.nationalgeographic.com/history/article/how-ancient-astronomy-mixed-science-with-mythology>.

<sup>8</sup> Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 (entered into force Oct. 10, 1967) [hereinafter Outer Space Treaty].

<sup>9</sup> *Space Law Treaties and Principles*, UNOOSA, <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties.html> (last visited Oct. 29, 2022).

<sup>10</sup> *Id.*

<sup>11</sup> *Id.*

<sup>12</sup> Agreement among the Government of Canada, Governments of Member States of the European Space Agency, the Government of Japan, and the Government of the Russian Federation, and the Government of the United States of America Concerning Cooperation on the Civil International Space Station, Jan. 29, 1998, at <https://www.state.gov/wp-content/uploads/2019/02/12927-Multilateral-Space-Space-Station-1.29.1998.pdf> (last visited Oct. 19, 2022) [hereinafter IGA].

<sup>13</sup> *Id.*

agreements, the international legal landscape has remained stagnant since the Moon Agreement.<sup>14</sup>

### A. Applicable Treaty Law

The nations of the world have ratified multiple treaties and agreements since the 1960s that regulate human activities in space. Most of these treaties arose out of the United Nations and are implemented and managed by a United Nations body.<sup>15</sup> In 1958, the United Nations established the Office for Outer Space Affairs (“UNOOSA”) to support nations in developing and coordinating space activities.<sup>16</sup> The body within the United Nations that oversees the implementation of the treaties governing space is the Committee on the Peaceful Uses of Outer Space (“COPUOS”).<sup>17</sup> The United Nations General Assembly established COPUOS in 1959 with the purpose of easing tensions and fostering peace after the success of Sputnik entering low-Earth orbit.<sup>18</sup> Its mandate and mission has been to promote peace in space to maximize the benefits reaped from space activities for humankind.<sup>19</sup>

Since the establishment of COPUOS, the members of the United Nations have instituted five main treaties on space. Those being: the aforementioned “Outer Space Treaty” of 1967; the “Rescue Agreement” of 1968; the “Liability Convention” of 1972; the “Registration Convention” of 1976; and most recently the “Moon Agreement” of 1984.<sup>20</sup> The United States and Russia were among the original members of COPUOS, and both were original signatories of the Outer Space Treaty.<sup>21</sup> The United States, Russia, and China are

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<sup>14</sup> *Partners Sign ISS Agreements*, NASA (Jan. 29, 1998),

[https://www.nasa.gov/mission\\_pages/station/structure/elements/partners\\_agreement.html](https://www.nasa.gov/mission_pages/station/structure/elements/partners_agreement.html).

<sup>15</sup> Sophie Goguichvili, et al., *The Global Legal Landscape of Space: Who Writes the Rules on the Final Frontier?*, Wilson Ctr. (Oct. 1, 2021), <https://www.wilsoncenter.org/article/global-legal-landscape-space-who-writes-rules-final-frontier>.

<sup>16</sup> *Id.*

<sup>17</sup> *Id.*

<sup>18</sup> The Antarctic Treaty, Dec. 1, 1959, 12 U.S.T. 794, 402 U.N.T.S. 71 (entered into force June 23, 1961).

<sup>19</sup> *Committee on the Peaceful Uses of Outer Space and its Subcommittees*, UNOOSA, <https://www.unoosa.org/oosa/en/ourwork/copuos/comm-subcomms.html> (last visited Oct. 19, 2022).

<sup>20</sup> *Space Law Treaties and Principles*, *supra* note 9.

<sup>21</sup> UNOOSA, *supra* note 19.

parties to all the treaties except the Moon Agreement due to the potential implications that ratifying the Moon Agreement would have over mining rights on the Moon.<sup>22</sup> The most important and influential treaty to this day is the Outer Space Treaty of 1967, which created the basic legal framework governing activity in space.<sup>23</sup> Today, 112 nations are party to the Treaty, including all the major space-faring nations.<sup>24</sup> The Outer Space Treaty laid out the principles of space cooperation that has undergirded space activities since the Space Race.<sup>25</sup>

The Outer Space Treaty begins by affirming the “importance of international cooperation in the field of activities in the peaceful exploration and use of outer space.”<sup>26</sup> One of the main goals of the Outer Space Treaty is to prevent the militarization of space and to ensure and recognize that space is for the common.<sup>27</sup> Article II stipulates that outer space is not “subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”<sup>28</sup> Further, Article IV lays out that the signatories shall use the Moon and other celestial bodies “*exclusively for peaceful purposes*” and that no weapons of mass destruction shall be placed in orbit, on a celestial body or on a station.<sup>29</sup> The Outer Space Treaty also forbids the establishment of military bases of any kind, the testing of weapons, and prohibits military maneuvers on celestial bodies.<sup>30</sup> However, Article IV expressly allows the “use of military personnel for scientific research or for any other peaceful purposes,” but *does not* prevent the “use of *any* equipment or facility *necessary for peaceful exploration*.”<sup>31</sup>

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<sup>22</sup> Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Dec. 18, 1979, 1363 U.N.T.S. 21 (entered into force July 11, 1984) [hereinafter Moon Agreement]; *see also*, Irmgard Marboe, *What, if any, relevance does the Moon Agreement have to activities in space today?*, UPENN Perry World House (May 26-27, 2021), [https://global.upenn.edu/sites/default/files/perry-world-house/Marboe\\_SpaceWorkshop.pdf](https://global.upenn.edu/sites/default/files/perry-world-house/Marboe_SpaceWorkshop.pdf) (noting that Article 11 of the Moon Agreement, pertaining to natural resources on the Moon, as the main issue that caused nations to not sign the agreement).

<sup>23</sup> *Id.*

<sup>24</sup> *List of Parties to the Outer Space Treaty*, U.N. Treaty Collection, <https://treaties.un.org/pages/showdetails.aspx?objid=0800000280128cbd> (last visited Oct. 16, 2022).

<sup>25</sup> Outer Space Treaty, *supra* note 8.

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> *Id.* at Art. II.

<sup>29</sup> *Id.* at Art. IV (emphasis added).

<sup>30</sup> *Id.*

<sup>31</sup> *Id.* (emphasis added).

This provision may prove to be problematic in the near future because the potential to hide a nation's true intentions of a base, on the Moon for example, to be for military purposes rather than its publicly stated scientific purpose.<sup>32</sup> Regardless, Article X emphasizes that the main goal of the Outer Space Treaty is to promote international cooperation.<sup>33</sup> Thus, nations shall, whenever its feasible and practicable, notify the Secretary-General of the United Nations of their activities in space.<sup>34</sup> Finally, Article XII states that "all stations, installations, equipment, and space vehicles" shall be open to all parties to the treaty on the basis of reciprocity.<sup>35</sup>

While the Outer Space Treaty and the existing legal framework has averted meaningful conflict, it has become outdated as access to space has expanded. Back in the 1960s, when much of the legal landscape that now governs space was created, only Russia and the United States were actors in space.<sup>36</sup> However, today some thirty-eight countries have space programs,<sup>37</sup> and three private companies had spaceflight missions in 2021.<sup>38</sup> Those numbers are likely to grow with the expanded interest in the commercialization of space.<sup>39</sup> Since the dynamics in space have changed greatly since the 1960s, the Biden Administration should account for that in any action they take if they want to maintain space cooperation for the long term.

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<sup>32</sup> See, Ellen Knickmeyer, *A New Space Race? China Adds Urgency to US Return to Moon*, Military.com (Sept. 15, 2022), <https://www.military.com/daily-news/2022/09/15/new-space-race-china-adds-urgency-us-return-moon.html>.

<sup>33</sup> Outer Space Treaty, *supra* note 8 at Art. X.

<sup>34</sup> *Id.* at Art. XI.

<sup>35</sup> *Id.* at Art. XII.

<sup>36</sup> *A History of Space – UNOOSA*, UNOOSA, <https://www.unoosa.org/oosa/en/timeline/index.html> (last visited Nov. 5, 2022).

<sup>37</sup> *Worldwide Space Agencies*, UNOOSA, <https://www.unoosa.org/oosa/en/ourwork/space-agencies.html> (last visited Nov. 5, 2022).

<sup>38</sup> Svetla Ben-Itzhak, *Companies are commercializing outer space. Do government programs still matter?*, Wash. Post (Jan. 11, 2022), <https://www.washingtonpost.com/politics/2022/01/11/companies-are-commercializing-outer-space-do-government-programs-still-matter/>.

<sup>39</sup> Mathew Weinzierl & Mehak Sarang, *The Commercial Space Age Is Here*, Harv. Bus. Rev. (Feb. 12, 2021), <https://hbr.org/2021/02/the-commercial-space-age-is-here> (describing the growing space to space commercialization and the existing space to earth commercial activity that exists and why it will continue to expand).

## B. The International Space Station

After the first launch into space by the Soviet Union and the ensuing space race, the United States and the Soviet Union established various independent space stations to conduct scientific research.<sup>40</sup> The Skylab Station was launched by NASA in 1973 to research how humans could live in space.<sup>41</sup> However, NASA only launched three six-month expeditions.<sup>42</sup> The Mir Station, on the other hand, was launched in 1986 by the Soviet Union for a five-year mission.<sup>43</sup> The mission lasted for fifteen years, finally deorbiting in 2001, making it the longest spaceflight in history at the time.<sup>44</sup> Those missions were intended to be short-term missions and did not involve other nations. This changed with the ISS, which foresaw a long-term space station with the aspiration of bringing together foes to further science for the world.<sup>45</sup>

The ISS became a reality in part due to the collapse of the Soviet Union. In 1993, the Clinton Administration announced plans to jointly develop a space station with Russia and to further cooperation in numerous ways, from the United States utilizing the Mir station to an exchange of technology.<sup>46</sup> This agreement ultimately led to the development of the ISS in 1998 and started a new chapter in space, one of cooperation and not of division,<sup>47</sup> effectively ending the space race.

In 1998, Canada, the European Space Agency (“ESA”), Japan, Russia, and the United States signed the IGA.<sup>48</sup> The IGA established “a long-term international cooperative framework” to develop an international space station that would be permanently inhabited for

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<sup>40</sup> *Mir Space Station*, NASA <https://history.nasa.gov/SP-4225/mir/mir.htm> (last visited Oct. 19, 2022).

<sup>41</sup> *Space Stations*, NASA, <https://www.nasa.gov/centers/marshall/history/stations.html> (last visited Oct. 19, 2022).

<sup>42</sup> *Id.*

<sup>43</sup> NASA, *supra* note 40.

<sup>44</sup> *Id.*

<sup>45</sup> IGA, *supra* note 12.

<sup>46</sup> Steven A. Holmes, *U.S. AND RUSSIANS JOIN IN NEW PLAN FOR SPACE STATION*, N.Y. TIMES (Sept. 3, 1993), <https://www.nytimes.com/1993/09/03/world/us-and-russians-join-in-new-plan-for-space-station.html>.

<sup>47</sup> *Partners Sign ISS Agreements*, *supra* note 14.

<sup>48</sup> *Id.*



peaceful purposes to further science and technology of the world.<sup>49</sup> Further, the station was conceived as “having an evolutionary character.”<sup>50</sup> The IGA stipulated that the United States would have the lead role of management and coordination, but that both the United States and Russia would produce the foundational elements of the station.<sup>51</sup> Thus, Russia and the United States became the bedrock of the ISS technically and legally. Meanwhile, the other signatories would build their own elements to “significantly enhance the Space Station's capabilities.”<sup>52</sup> Even though the ISS is a collaborative effort, each nation is still responsible for managing their own programs and the safety of their elements.<sup>53</sup> They are also committed to support and assist the United States in coordinating activities on the station for the integrated operation of the station.<sup>54</sup>

Key provisions of the agreement illustrate the importance of cooperation in the project. Under Article 6, each partner assumes the risks that are inherent in participating in the program.<sup>55</sup> Regarding data and goods on the station, Article 12 says that each party has the right to access the station using governmental or private transportation systems.<sup>56</sup> Each party further agreed to respect the “proprietary rights in and the confidentiality” of data and goods in transportation.<sup>57</sup> Article 21 specifies that activity that occurs on a Partner's element shall be considered as having occurred in their territory.<sup>58</sup> The applicable intellectual property law is hence that of the operator of that element. For example, if a Canadian scientist creates an invention on a Russian element, Russian intellectual property law would apply to it. This does not affect ownership and is only about where the invention took place. Notwithstanding

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<sup>49</sup> IGA, *supra* note 12.

<sup>50</sup> *Id.* at Art. 1.

<sup>51</sup> *Id.*

<sup>52</sup> *Id.*

<sup>53</sup> *Id.*

<sup>54</sup> *Id.*

<sup>55</sup> *Id.* at Art. 6.

<sup>56</sup> *Id.* at Art. 12.

<sup>57</sup> *Id.*

<sup>58</sup> *Id.* at Art. 21.

intellectual property rights, each partner has an obligation to transfer all technical data and goods necessary for the fulfillment of the implementing agreements.<sup>59</sup> This data, though, undergoes a marking procedure to ensure the protection of the proprietary rights.<sup>60</sup> All of these articles are there to ensure that cooperation and collaboration remain, as it is at the core of the agreement.

Beyond obligations and rights about data and goods, Article 14 sets forth the principle of evolutionary cooperation.<sup>61</sup> That is, each partner should strive to cooperate and give opportunity to the development of evolutionary capability so long as it is in keeping with the peaceful purpose of the station,<sup>62</sup> and that capacities on the station used in common shall be funded on an equitable basis.<sup>63</sup> However, each nation has jurisdiction over their personnel, whether they are on their own portion of the station or on another's portion.<sup>64</sup> If the conduct of their personnel either "affects the life or safety" of another partner's national or causes damage to another partner's element, the affected party may engage in a consultation with the alleged perpetrator's State to determine if they shall be subjected to the criminal jurisdiction of the impacted state.<sup>65</sup>

Finally, recognizing the complexity of long-term cooperation and operation of the station, Article 24 implemented a mechanism requiring that every three years after 1999 the parties to the agreement would meet to review cooperation and to promote space cooperation.<sup>66</sup> Each partner is thus required to keep the others informed of "developments which might affect . . . cooperation."<sup>67</sup> Each partner state also signed a MOU with the United States pursuant to Article 4 of the IGA, laying out specific responsibility and procedures on

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<sup>59</sup> *Id.*

<sup>60</sup> *Id.*

<sup>61</sup> *Id.* at Art 14.

<sup>62</sup> *Id.*

<sup>63</sup> *Id.* at Art. 15.

<sup>64</sup> *Id.* at Art. 22.

<sup>65</sup> *Id.*

<sup>66</sup> *Id.* at Art. 24.

<sup>67</sup> *Id.*

the station.<sup>68</sup> If any partner to the IGA wishes to leave, under Article 28, they must provide at least a one-year written notice and come to an agreement with the other partners before withdrawal.<sup>69</sup> Any withdrawal must still ensure that the program can continue without them.<sup>70</sup> A question remains how that would work if Russia does withdraw, since their modules are part of the foundation that the ISS is built upon and the modules are necessary for the operation of the station.<sup>71</sup>

Beyond the IGA and bilateral agreements, the parties also agreed upon a Crew Code of Conduct (“CCOC”) for all crew aboard the ISS, pursuant to the IGA, codified under United States law under 14 CFR § 1214.403.<sup>72</sup> The CCOC subjects ISS crewmembers to additional flight rules, disciplinary policy, and requirements during transport to the station from Earth.<sup>73</sup> One of the primary responsibility of the commander of the ISS is to “maintain a harmonious and cohesive relationship” between crewmembers of the station, recognizing the “international and multicultural nature of the crew and mission.”<sup>74</sup> The ISS strove to bring people together – a mission that has been successful as far as the crew members go, since no noteworthy issues have arisen in its twenty-three years of operation. Since its establishment in 1998, the ISS been a symbol of international cooperation in space and has also yielded major breakthroughs in science and in our understanding of space.<sup>75</sup>

This cooperation manifests in how the parties get to the ISS. Before 2011, the United States got to the ISS mostly through the NASA space shuttle program, but since 2011 the

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<sup>68</sup> *Id.* at Art. 4.

<sup>69</sup> *Id.* at Art. 28.

<sup>70</sup> *Id.*

<sup>71</sup> Christian Davenport, *NASA is working to keep space station going despite bluster from Russia*, Wash. Post (July 27, 2022), <https://www.washingtonpost.com/technology/2022/07/27/nasa-space-station-russia/>.

<sup>72</sup> 14 C.F.R. § 1214.403 (2021).

<sup>73</sup> *Id.*

<sup>74</sup> *Id.*

<sup>75</sup> *International Space Station Benefits For Humanity 2022*, NASA (Sept. 19, 2022), [https://www.nasa.gov/sites/default/files/atoms/files/iss\\_benefits\\_for\\_humanity\\_2022\\_book.pdf](https://www.nasa.gov/sites/default/files/atoms/files/iss_benefits_for_humanity_2022_book.pdf) (noting that over 3,300 investigations have been conducted since 2000, including “approximately 50 science and technology investigations” conducted by Americans and Russians during the first expedition).

United States has relied on Russian Soyuz rockets to get to the ISS after the United States shut down the shuttle program.<sup>76</sup> The United States was paying close to eighty-six million per seat to get the ISS.<sup>77</sup> However, this changed in 2020 with NASA shifting to SpaceX's Dragon spacecraft.<sup>78</sup> The cost per seat on a SpaceX rocket is estimated to cost fifty-five million dollars, far less and is significantly more advanced than the Russian Soyuz rockets.<sup>79</sup>

Even though the United States made this shift in 2020, they have not completely abandoned cooperation with Russia. In July 2022, in keeping with this long-standing cooperation, Russia and the United States signed an agreement to have a cosmonaut on a SpaceX flight and a NASA astronaut on a Soyuz rocket on expeditions to the ISS.<sup>80</sup> Despite this agreement, Russia announced plans to end their involvement in the ISS come 2024.<sup>81</sup> While the ISS has an eventual end date due to orbital decay, NASA's analysis of the station, based on the continual improvement to the station, concluded that the station can continue to operate until 2030.<sup>82</sup> Accordingly, the United States affirmed in the latest NASA authorization, passed in late July 2022, their intention to continue operating the ISS through 2030.<sup>83</sup>

### **III. The Biden Administration and Space Cooperation**

The Biden administration has recently taken several actions on space, but they do not do enough to address the slow deterioration of cooperation in space that has occurred over the

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<sup>76</sup> Daniel Oberhaus, *The US Hitches Its Final Ride to Space From Russia—for Now*, WIRED (April 8, 2020), <https://www.wired.com/story/the-us-hitches-its-final-ride-to-space-from-russia-for-now/>.

<sup>77</sup> *Id.*

<sup>78</sup> NASA's *SpaceX Crew-5 Launches to International Space Station*, NASA (Oct. 5, 2022), <https://www.nasa.gov/press-release/nasa-s-spacex-crew-5-launches-to-international-space-station/>.

<sup>79</sup> Oberhaus, *supra* note 76.

<sup>80</sup> Joey Roulette, *NASA, Russian space agency sign deal to share space station flights – Roscosmos*, REUTERS (July 15, 2022), <https://www.reuters.com/business/aerospace-defense/nasa-russian-space-agency-sign-deal-share-space-station-flights-roskosmos-2022-07-15/>.

<sup>81</sup> Kenneth Chang & Ivan Nechepurenko, *Russia Says It Will Quit the International Space Station After 2024*, N.Y. TIMES (July 26, 2022), <https://www.nytimes.com/2022/07/26/science/russia-space-station.html>.

<sup>82</sup> *NASA Provides Updated International Space Station Transition Plan*, NASA (Jan. 31, 2022), <https://www.nasa.gov/feature/nasa-provides-updated-international-space-station-transition-plan>.

<sup>83</sup> CHIPS Act of 2022, *supra* note 2.

last decade. Some actions include affirming the commitment to the Artemis Accords, releasing the Space Priorities Framework, announcing a unilateral ban on antisatellite weapon tests (“ASAT”), and expanded NASA funding in the latest NASA authorization attached to the CHIPS Act passed in August 2022. The most concrete and impactful one of these actions is the Artemis Accords, signed in 2020.<sup>84</sup> One through line in all of Biden’s actions is his commitment to continue the ISS’s goal of cooperation as the foundation of his policy towards space.

#### **A. The Artemis Accords**

The Artemis Accords is a product of the Artemis Program started under the Trump administration in 2017.<sup>85</sup> While the Biden administration did not create this program, Biden has fully embraced it. As recently as July 2022, the United States, under the Biden administration, welcomed Saudi Arabia as the latest member of the Artemis Accords, joining twenty other signatories.<sup>86</sup> The first meeting of the signatories took place in Paris on September 19, 2022, where the Biden administration reiterated their goal of ensuring that “space exploration is carried out for the benefit of all countries and of all humankind.”<sup>87</sup>

The purpose of the Artemis Accords is to create principles and guidelines to advance the Artemis Program and to further exploration of the Moon, with a planned crewed Moon landing in 2025.<sup>88</sup> The four primary members of the Artemis Accords are Japan, Canada, the

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<sup>84</sup> The Artemis Accords: Principles for Cooperation in the Civil Exploration and Use of the Moon, Mars, Comets, and Asteroids for Peaceful Purposes, § 1, Oct. 13, 2020, NASA, <https://www.nasa.gov/specials/artemis-accords/img/Artemis-Accords-signed-13Oct2020.pdf> [hereinafter Artemis Accords].

<sup>85</sup> *Id.*

<sup>86</sup> Office of the Spokesperson, *Kingdom of Saudi Arabia Signs the Artemis Accords*, U.S. Dep’t of State (July 16, 2022), <https://www.state.gov/kingdom-of-saudi-arabia-signs-the-artemis-accords/>.

<sup>87</sup> Office of the Spokesperson, *First Meeting of Artemis Accords Signatories*, U.S. Dep’t of State (Sept. 19, 2022), <https://www.state.gov/first-meeting-of-artemis-accords-signatories/>.

<sup>88</sup> Elizabeth Howell, *NASA’s Artemis 3 mission: Landing humans on the moon*, SPACE.COM (Aug. 18, 2022), <https://www.space.com/artemis-3-moon-landing-mission>.

ESA, and the United States, who are all parties to the ISS program.<sup>89</sup> However, Russia is not involved in Artemis. In 2021, Ukraine became a signatory to the Artemis Accords, making any potential of Russia joining the accords a difficult proposition so long as Russia's war in Ukraine continues.<sup>90</sup>

The Artemis Accords claims to be grounded in the Outer Space Treaty and that its purpose is to foster cooperative activities regarding exploration and the use of outer space.<sup>91</sup> However, while the Artemis Accords stipulates that its goal is to promote the Outer Space Treaty, Section 10 of the Accords affirm an interpretation of Article II of the Outer Space Treaty that space resources do not “inherently constitute national appropriation.”<sup>92</sup> The criticism of the Artemis Accords by Russia has been that the Accords is a means for the United States to cement their interpretation of the Outer Space Treaty for the United States' gain.<sup>93</sup> While fostering cooperation might have been a goal of the United States,<sup>94</sup> it has mostly been with their traditional partners.<sup>95</sup> With all that said, there may be a grain of hope for cooperation with China and Russia when it comes to the shared interest in the Moon, or it may turn out to be a source of conflict if nothing changes from the present course.<sup>96</sup> Thus, any extraction of resources or habitation of the Moon should not be done unless the Outer Space treaty is modified in a way that reflects the change in space activities to avoid any

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<sup>89</sup> Press Release, NASA, *International Partners Advance Cooperation with First Signings of Artemis Accords*, NASA (Oct. 13, 2020), <https://www.nasa.gov/press-release/nasa-international-partners-advance-cooperation-with-first-signings-of-artemis-accords>.

<sup>90</sup> U.S. Embassy in Ukraine, *Ukraine becomes the 9th country to sign the Artemis Accords*, U.S. Dep't of State (Nov. 17, 2020), <https://ua.usembassy.gov/ukraine-becomes-the-9th-country-to-sign-the-artemis-accords/>.

<sup>91</sup> Artemis Accords, *supra* note 84.

<sup>92</sup> *Id.*

<sup>93</sup> Almudena Ortega, *Artemis Accords: A Step Toward International Cooperation or Further Competition?*, LAWFARE (Dec. 15, 2020), <https://www.lawfareblog.com/artemis-accords-step-toward-international-cooperation-or-further-competition>.

<sup>94</sup> Office of the Spokesperson, *Artemis Accords Foster Peaceful Space Cooperation*, U.S. Dep't of State (May 11, 2022), <https://www.state.gov/artemis-accords-foster-peaceful-space-cooperation/> (explaining that the hope of the Artemis Accords is to facilitate further peaceful collaboration in space).

<sup>95</sup> Artemis Accords, *supra* note 84.

<sup>96</sup> See, John Pickrell, *These six countries are about to go to the Moon — here's why*, nature (May 11, 2022), <https://www.nature.com/articles/d41586-022-01252-7>.

potential conflict. The Biden administration can only avoid this conflict through a collaborative process, like through COPUOS.

In addition, there is a potential conflict with the Artemis Accords and the Moon Agreement, which says that the “moon and its natural resources are the common heritage of mankind.”<sup>97</sup> However, the United States, Russia and China have not signed the Moon Agreement.<sup>98</sup> Regardless, the issue of resource extraction in outer space is something that has to be contented with and likewise the divergent understandings of Article II of the Outer Space Treaty must be reconciled with.

### **B. The Biden Administration’s Policy in Space**

Beyond the Artemis Accords, the Biden administration laid out in 2021 the United States Space Priorities Framework.<sup>99</sup> The Framework reaffirms the benefits the United States gets from investing in space, from creating jobs to spurring innovation.<sup>100</sup> Further, the Framework argues that “[s]pace inspires us,” through the ambitiousness of space programs.<sup>101</sup> That ambitiousness was seen in the ISS, which brought together the two foes of the decades long Cold War in the name of research and cooperation. The Framework recognizes that “[s]pace activities broaden and deepen our international partnerships” and that the United States will “maintain its leadership in space exploration and space science.”<sup>102</sup> The Biden administration affirmed that they would continue to foster cooperation with space-faring nations and engage in new partnerships with those nations.<sup>103</sup>

The Biden administration National Security and Technology Council has also released a report in November 2022 detailing the White House’s strategy on Cislunar activity,

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<sup>97</sup> Moon Agreement, *supra* note 22.

<sup>98</sup> *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, UNODA, <https://treaties.unoda.org/t/moon> (last visited Oct. 19, 2022).

<sup>99</sup> Biden, *supra* note 5.

<sup>100</sup> *Id.*

<sup>101</sup> *Id.*

<sup>102</sup> *Id.*

<sup>103</sup> *Id.*

building upon the Artemis Accords and the Space Priorities Framework.<sup>104</sup> The strategy is intended for “all space-faring entities” for the purpose of “advancing a sustainable ‘Cislunar ecosystem.’”<sup>105</sup> The report lays out several objectives. One objective is to expand “international [science and technology] cooperation in Cislunar space.”<sup>106</sup> The strategy argues this can be achieved through the success of the Artemis Accords by showing nations the benefits that such programs can yield.<sup>107</sup> The document’s purpose is not to supplant any existing legal regimes, but rather to build upon them.<sup>108</sup> For example, the strategy proposes that the United States lead an initiative to “establish an International Lunar Year (ILY) built upon the historical examples of past International Polar Years.”<sup>109</sup> An International Polar Year is essentially a time when nations coordinate expeditions to the Arctic zone to study it from a global perspective, which has assisted NASA in planning in for their return to the Moon.<sup>110</sup> The International Polar Years are examples where the benefit to other nations were shown. Biden hopes to do the same in space.

Beyond strengthening cooperation, the strategy aims to, in collaboration with international partners, conduct research to make any settlement on the Moon more successful.<sup>111</sup> For example, to develop technology to enable permanent settlement on the near and far side of the Moon.<sup>112</sup> This will require the development of innovative technologies. For that reason, the strategy argues the United States should look to “increase the speed of science and avoid duplication” due to the importance of the Moon.<sup>113</sup> Finally, it suggests that

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<sup>104</sup> NAT'L SCI. & TECH. COUNCIL, NATIONAL CISLUNAR SCIENCE & TECHNOLOGY STRATEGY (Nov. 2022), available at <https://www.whitehouse.gov/wp-content/uploads/2022/11/11-2022-NSTC-National-Cislunar-ST-Strategy.pdf>.

<sup>105</sup> *Id.*

<sup>106</sup> *Id.*

<sup>107</sup> *Id.*

<sup>108</sup> *Id.*

<sup>109</sup> *Id.*

<sup>110</sup> *NASA and the International Polar Year*, NASA, <https://www.pmel.noaa.gov/arctic-zone/ipy.html> (last visited Nov. 25, 2022).

<sup>111</sup> NAT'L SCI. & TECH. COUNCIL, *supra* note 104.

<sup>112</sup> *Id.*

<sup>113</sup> *Id.*



any communication system derived from the Artemis program should be implemented in a way to enable “cooperative and sustainable ecosystem” on the Moon.<sup>114</sup> Thus, any system designed for the Moon shall be “scalable and interoperable with systems operated by private and international actors.”<sup>115</sup> The Biden Administration recognizes that they should “leverage bottom-up approaches” that build upon the existing legal regime.<sup>116</sup>

However, with all that said, the Biden administration cannot, by law, even engage with the country that will be the most engaged space-faring nation in the upcoming years – China.<sup>117</sup> Furthermore, considering Russia’s invasion of Ukraine, cooperation is at an all-time low. If the United States wants to keep its leadership in Space, they must involve all the space-faring nations to ensure that the United States maintains their leadership in space. The Biden administration cannot let the ideals of cooperation deteriorate because the risks are perilous.<sup>118</sup>

### **C. Other Bilateral and Unilateral Space Developments**

While the ISS is decommissioning by 2030,<sup>119</sup> other nations and actors have begun developing their own programs. For example, China is currently building the Tiangong space station.<sup>120</sup> In addition, Russia and China signed a memorandum of understanding to begin a Lunar Research Station.<sup>121</sup> China states that the Lunar Research Station is open to all

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<sup>114</sup> *Id.*

<sup>115</sup> *Id.*

<sup>116</sup> *Id.*

<sup>117</sup> Steven Lee Myers, *The Moon, Mars and Beyond: China’s Ambitious Plans in Space*, N.Y. TIMES (Oct. 15, 2021), <https://www.nytimes.com/article/china-mars-space.html>.

<sup>118</sup> Micah Zenko, *Dangerous Space Incidents*, Council for Foreign Rel. (April 2014), <https://www.cfr.org/report/dangerous-space-incidents> (discussing space incidents that potentially run the risk of escalating to a greater armed conflict in space and lays out the preventive and mitigatory actions the United States could take).

<sup>119</sup> *Id.*

<sup>120</sup> Wanyuan Song & Jana Tauschinski, *China space station: What is the Tiangong?*, BBC NEWS (July 26, 2022), <https://www.bbc.com/news/world-asia-china-61511546> (explaining that the station will be a permanent space station where “biological and life science research” will be conducted).

<sup>121</sup> *China and Russia sign a Memorandum of Understanding Regarding Cooperation for the Construction of the International Lunar Research Station*, China Nat’l Space Admin. (March 9, 2021), <http://www.cnsa.gov.cn/english/n6465652/n6465653/c6811380/content.html>.

interested countries and international partners.”<sup>122</sup> China’s program has already yielded scientific discoveries, such as a new mineral on the Moon discovered in September 2022.<sup>123</sup> If China and the United States are both successful in their lunar programs in the next ten years, they will potentially conflict.<sup>124</sup> This is mainly due to divergent views that each nation has of Article II of the Outer Space treaty, that states outer space is “not subject to national appropriation.”<sup>125</sup> Given this reality, and the potential problems with so-called research bases on the Moon, there is a potential it will lead to the militarization of space under the guise of research because the Outer Space Treaty does not prohibit military personnel from operating the base.<sup>126</sup>

Further, private actors will become more involved in space because of commercialization.<sup>127</sup> The commercialization of space extends beyond the Moon—to even the ISS. In 2021 NASA selected three companies to develop modules for the ISS to potentially serve as platforms for new private space stations.<sup>128</sup> NASA’s stated reason to continue operating the ISS until 2030, beyond the original goals of the ISS to conduct research and foster cooperation, is for the potential expansion of commercialization of low-Earth orbit.<sup>129</sup> Currently, NASA plans to shift from the IGA to bilateral government to

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<sup>122</sup> *Id.*

<sup>123</sup> Christine Chung, *China’s Discovery of Lunar Mineral Could Add to Fuller View of the Moon*, N.Y. TIMES (Sept. 16, 2022), <https://www.nytimes.com/2022/09/16/science/new-moon-mineral-china.html>.

<sup>124</sup> Johnson, Kaitlyn, *Key Governance Issues in Space*, Ctr. for Strategic and Int’l Studies (July 21, 2021), [https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/200901\\_Johnson\\_GovernanceInSpace\\_WEB.pdf](https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/200901_Johnson_GovernanceInSpace_WEB.pdf).

<sup>125</sup> Outer Space Treaty, *supra* note 8.

<sup>126</sup> Def. Intelligence Agency, *2022 Challenges to Security in Space* 10-12 (2022), [https://www.dia.mil/Portals/110/Documents/News/Military\\_Power\\_Publications/Challenges\\_Security\\_Space\\_2022.pdf](https://www.dia.mil/Portals/110/Documents/News/Military_Power_Publications/Challenges_Security_Space_2022.pdf) (describing how China is designing their space technology to serve both military and civilian purposes, a so called “military-civil fusion,” blurring the line and obfuscating the true purpose of the technology).

<sup>127</sup> Svetla Ben-Itzhak, *Companies are commercializing outer space. Do government programs still matter?*, Wash. Post (Jan. 11, 2022), <https://www.washingtonpost.com/politics/2022/01/11/companies-are-commercializing-outer-space-do-government-programs-still-matter/>.

<sup>128</sup> *NASA Selects Companies to Develop Commercial Destinations in Space*, NASA (Dec. 2, 2021), <https://www.nasa.gov/press-release/nasa-selects-companies-to-develop-commercial-destinations-in-space>.

<sup>129</sup> *International Space Station Transition Report*, NASA (Jan. 2022), [https://www.nasa.gov/sites/default/files/atoms/files/2022\\_iss\\_transition\\_report-final\\_tagged.pdf](https://www.nasa.gov/sites/default/files/atoms/files/2022_iss_transition_report-final_tagged.pdf).

government agreements and to work directly with industry after 2030 when the ISS ends.<sup>130</sup> For example, in 2021, the first commercial astronauts went to the ISS under a new program started in 2019 by NASA to allow private astronauts aboard the ISS.<sup>131</sup> However, even if private actors have more of a role in space because of commercialization, funding from governments will still drive most their development.<sup>132</sup> While such developments may foster technological development, it must be done carefully to ensure that other nations who are not directly involved or those that do not have a burgeoning space industry are not ostracized in the process.

#### **IV. What the Biden Administration can do to Maintain Space Cooperation**

The Biden administration must take action in light of the planned decommissioning of the ISS and the risk of competing Moon programs, which will potentially conflict with each other, threatening the peace that has existed in space since the 1990s.<sup>133</sup> The Biden administration needs to focus on developing cooperative peaceful projects, like an ASAT ban or the creation of a new international project. The actions that Biden has taken to date are a good starting place, but there is still a risk of outer space relations returning to a pre-ISS situation where nations develop competing programs. The Biden administration needs to make more of an effort to bring in non-traditional partners to ensure that these projects are for the benefit of humanity, in keeping with the obligations under the Outer Space Treaty and are not solely for the national security interests of the United States. Actions like banning China, a rising space power, from participating in NASA led civil and scientific projects are not

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<sup>130</sup> *Id.*

<sup>131</sup> *See, Opens International Space Station to New Commercial Opportunities, Private Astronauts*, NASA (June 7, 2019), <https://www.nasa.gov/press-release/nasa-opens-international-space-station-to-new-commercial-opportunities-private>; *see also, Axiom Private Astronauts Headed to International Space Station*, NASA (April 8, 2022), <https://www.nasa.gov/press-release/axiom-private-astronauts-headed-to-international-space-station>.

<sup>132</sup> *Id.*

<sup>133</sup> Mike Wall, *Not just Artemis: China and Russia plan to put boots on the moon, too*, SPACE.COM (Sept. 03, 2022), <https://www.space.com/china-russia-moon-base-ilrs>

tenable when the consequences of armed conflict in outer space are so severe.<sup>134</sup> The United States, arguably, has the most to lose because so many satellites that currently orbit the Earth are owned and operated by the United States government.<sup>135</sup> Further, Russia and other countries may seek to align themselves with China, reflecting the greater geopolitical divide that is slowly developing terrestrially. Thus, the Biden administration must begin the process to develop an international Moon base framework to ensure that peace is maintained as competing lunar programs are developing.

#### **A. Why Multilateralism is Necessary and the Risk of Forgoing Multilateralism**

Russia being a foundational partner in the ISS has helped its scientific achievements by bringing together Russian and American expertise in space, and it lowered geopolitical temperatures since following the end of the Cold War. As some academics have written, international cooperation in the ISS saves money, generates diplomatic prestige, increases political sustainability, and enables workforce stability.<sup>136</sup> For that reason, any future project in space must not restrict other international partners to noncritical functions. For example, currently in the ISS only the United States and Russia perform critical functions even though the landscape in space activities has changed significantly since the creation of the ISS.<sup>137</sup> Currently, countries like Japan and Canada rely on Russia or the United States to perform critical functions on the ISS.<sup>138</sup> In other words, Russia and the United States steer the ship. If cooperation is to persist for the long term, allowing other partners to perform critical functions ensures longevity by creating redundancy in the operation if one nation can no

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<sup>134</sup> Thomas González Roberts, *Why We Should Be Worried about a War in Space*, *The Atlantic* (Dec. 15, 2017), <https://www.theatlantic.com/science/archive/2017/12/why-we-should-be-worried-about-a-war-in-space/548507/> (explaining the cascading effects that armed conflict in space would have on the satellite network around Earth).

<sup>135</sup> *Id.*

<sup>136</sup> David Broniatowski & Vincent Sabathier, *The Case for Managed International Cooperation in Space Exploration*, Ctr. for Strategic and Int'l Studies (Sept. 18, 2006), <https://www.csis.org/analysis/case-managed-international-cooperation-space-exploration>.

<sup>137</sup> See generally, *International Space Station Overview*, ESA, [https://www.esa.int/esapub/br/br137/Br\\_137-1.pdf](https://www.esa.int/esapub/br/br137/Br_137-1.pdf) (last visited Oct. 19, 2022).

<sup>138</sup> *Id.*

longer perform their function. The ISS is facing this problem today due to Russia potentially leaving and the difficulty of getting funding from the United States Congress for NASA.<sup>139</sup> While politics and turmoil may cause programs to end, having a legal structure in place at inception ensures that the program can last the test of time. The ISS success is emblematic of that idea, despite the issues with the agreement.

One area of concern if multilateralism does decline, for example if Russia does stop cooperating with the United States in space, is that it may potentially limit access to space for Americans.<sup>140</sup> This risk was most pronounced in 2011 after the United States retired the Space Shuttle Program.<sup>141</sup> However, this risk has diminished the last three years with the success of SpaceX and the development of the Artemis program by the United States. For most of the 2000s, the United States and Russia shared about an equal percentage of payloads.<sup>142</sup> However, in recent years the United States accounts for more than ninety percent of all payload launches,<sup>143</sup> with, a large percentage of those launches, some seventy-five percent of them, are attributed to SpaceX's Starlink program.<sup>144</sup> Notwithstanding that, many expeditions to the ISS are still of Russian origin due to the foundational nature of Russia's involvement in the ISS.<sup>145</sup> Given that, there is a question as to what the ISS and international cooperation in space will look like if Russia is no longer involved.

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<sup>139</sup> *NASA Contingency Plan for Lapse in Appropriations*, NASA (June 9, 2021), [https://www.nasa.gov/sites/default/files/atoms/files/nasa\\_shutdown\\_plan\\_due\\_to\\_a\\_lapse\\_in\\_funding\\_june\\_9\\_2021.pdf](https://www.nasa.gov/sites/default/files/atoms/files/nasa_shutdown_plan_due_to_a_lapse_in_funding_june_9_2021.pdf) (explaining how projects in operation will continue with essential elements but that unfunded projects would be suspended if it could be done safely).

<sup>140</sup> Joel Achenbach, *U.S. military, national security agencies vexed by dependence on Russian rocket engines*, Wash. Post (May 30, 2014), [https://www.washingtonpost.com/national/health-science/us-military-national-security-agencies-vexed-by-dependence-on-russian-rocket-engines/2014/05/30/19822e40-e6c0-11e3-8f90-73e071f3d637\\_story.html?tid=ss\\_tw](https://www.washingtonpost.com/national/health-science/us-military-national-security-agencies-vexed-by-dependence-on-russian-rocket-engines/2014/05/30/19822e40-e6c0-11e3-8f90-73e071f3d637_story.html?tid=ss_tw).

<sup>141</sup> Jonathan O'Callaghan, *The Last Soyuz - NASA Ends Reliance On Russia With Final Launch Before Crew Dragon*, Forbes (April 9, 2020), <https://www.forbes.com/sites/jonathanocallaghan/2020/04/09/the-last-soyuznasa-ends-reliance-on-russia-with-final-launch-before-crew-dragon/?sh=3c9e898f235a>.

<sup>142</sup> *Space Environment: Payloads Launched by Country*, Ctr. for Strategic and Int'l Studies (last updated Sept. 1, 2022), <https://aerospace.csis.org/data/space-environment-total-payloads-launched-by-country/>.

<sup>143</sup> *Id.*

<sup>144</sup> *Id.*

<sup>145</sup> *See, e.g., Astronaut, Two Cosmonauts Launch to Join Station Crew*, NASA (Sept. 21, 2022), <https://blogs.nasa.gov/spacestation/2022/09/21/astronaut-two-cosmonauts-launch-to-join-station-crew/>.

While the war in Ukraine presents a challenge to cooperating with Russia, space and Russia's interest in space may provide an avenue of negotiation, particularly if the Biden administration is willing to accommodate Russia in the Accords for peace in Ukraine. However, Russia has already made their choice by aligning more closely with China. In 2021 Russia signed a memorandum of understanding with China to jointly develop a lunar research base in the next twenty years, lending their rocket and space expertise to China.<sup>146</sup> One reason why Russia is lending their expertise to China's lunar program is because Russia will have virtually zero presence in space once they leave the ISS, and they have no clear program that continues their presence in space.<sup>147</sup> Being involved with China ensures that they remain relevant once the ISS de-orbits. China, on the other hand, cannot be involved in the Artemis Accords, in part because of the Wolf Amendment, which prohibits direct cooperation with China in space, and the geopolitical issues that the United States faces with China.<sup>148</sup>

One concrete step that the Biden administration can do is to lobby Congress to repeal the Wolf Amendment. The Wolf Amendment prohibits NASA and other agencies from cooperating with China on science for the purpose of preventing China from acquiring research done by NASA and for national security reasons.<sup>149</sup> However, the United States and China have goals that align when it comes to lunar scientific exploration.<sup>150</sup> If the ISS has been successful in fostering innovation and discoveries, as the Biden administration says, why would the United States not do the same with their lunar program? Collaborating with non-traditional parties not only deepens diplomacy but brings in more perspectives and minds

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<sup>146</sup> Scott Neuman, *China, Russia Announce Plan to Build Moon Research Station*, NPR (March 10, 2021), <https://www.npr.org/2021/03/10/975579975/china-russia-announce-plan-to-build-moon-research-station>.

<sup>147</sup> *Id.*

<sup>148</sup> Leonard David, *Can the U.S. and China Cooperate in Space?*, SCIENTIFIC AMERICAN (Aug. 2, 2021), <https://www.scientificamerican.com/article/can-the-u-s-and-china-cooperate-in-space/>.

<sup>149</sup> George Whitford, *Trouble in the Stars: The Importance of US-China Bilateral Cooperation in Space*, Harvard International Review (Oct. 27, 2019, 12:00 PM), <https://hir.harvard.edu/trouble-in-the-stars-the-importance-of-us-china-bilateral-cooperation-in-space/>.

<sup>150</sup> Elizabeth Howell, *Are China's moon missions a threat to the US? Space experts don't think so*, SPACE.COM (March 27, 2020), <https://www.space.com/china-moon-missions-us-national-security.html>.

that benefits the people of both nations. China has continued expanding their space program,<sup>151</sup> despite the lack of assistance or cooperation from the United States. For example, just as recently as this past September, Chinese astronauts completed their second space walk from their new space station that is set to be completed this year.<sup>152</sup> China also has already selected experiments from numerous countries to be conducted on their station, from India, Saudi Arabia to ISS members such as Russia, Italy, and Germany.<sup>153</sup> That is and has been one of the problems of the original space station. There was not a genuine mechanism to expand its scope beyond the founding members nor to change which nations performed critical functions beyond the United States and Russia.

Where cooperation has occurred, like with Russia on the ISS for more than twenty years, the program has been a resounding success, even though all throughout that time tensions back on Earth had their difficulties, from the Russo-Georgian War to now the war in Ukraine.<sup>154</sup> For example, when the United States did not even have a way to get to the ISS, NASA astronauts used Russian Soyuz rockets to get to the ISS.<sup>155</sup> However, now that the United States has alternatives to Russian rockets, such as SpaceX and Artemis, the necessity of cooperation has diminished in certain respects. Thus, with Russia stepping back from the ISS, and no sign of future cooperation with the United States in a similar vein, Russia may not engage with the United States in space anymore.

Furthermore, the ISS mission itself might have to come to an untimely end, despite Biden's commitment to keep it in operation until 2030 because of the vital nature of the Russian components in the Station. John Kirby, the National Security Council Spokesman,

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<sup>151</sup> Neuman, *supra* note 146.

<sup>152</sup> *Chinese astronauts go on spacewalk from new station*, AP NEWS (Sept. 17, 2022), <https://apnews.com/article/astronomy-science-china-f95b03a501e414a4571f96668155b226>.

<sup>153</sup> Smriti Mallapaty, *China's space station is preparing to host 1,000 scientific experiments*, *nature* (July 23, 2021), <https://www.nature.com/articles/d41586-021-02018-3>.

<sup>154</sup> Alex Knapp, *While War In Ukraine Rages Below, Astronauts Cooperate Above*, *Forbes* (Feb. 24, 2022), <https://www.forbes.com/sites/alexknapp/2022/02/24/while-war-in-ukraine-rages-below-astronauts-cooperate-above/?sh=472fe6a61255>.

<sup>155</sup> Oberhaus, *supra* note 76.

acknowledged as much, stating that the Administration is exploring measures to mitigate the impact if Russia does intend to leave by 2024.<sup>156</sup> Part of the issue is that Russian components cannot simply be disconnected, since they are part of the foundation of the ISS.<sup>157</sup> However, if Russia does follow through, Russian cosmonauts may no longer have a presence in space until the Chinese lunar project is in full swing. The good news is that there is still time to fix this problem, and Biden must do everything in his power to maintain Russia's involvement in space so long as they are a major space-faring nation. This may prove difficult given the escalating conflict in Ukraine that sees no end in sight.

One symbolic mission that has garnered international attention in the midst of the Ukraine war is the recent NASA and SpaceX ISS launch on October 5, 2022.<sup>158</sup> This mission included a Russian cosmonaut on a United States based exhibition for the first time since the Columbia space shuttle disaster in 2003.<sup>159</sup> Likewise, two weeks earlier on September 21, 2022, a Russian rocket carrying two cosmonauts and one NASA astronaut began a mission to the ISS.<sup>160</sup> Such missions should not end notwithstanding the ongoing conflicts back on Earth because it shows what can be accomplished when the two nations work together and that progress does not stop even in the face of conflict.

While there is some indication that a new space race is afoot between China and the United States,<sup>161</sup> it has not devolved into one comparable to the race to the Moon in the 1960s yet. Most experts refer to a modern space race between private actors, trying to be the first to commercialize space.<sup>162</sup> However, what the original Space Race between the Soviet Union

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<sup>156</sup> Christian Davenport, *NASA is working to keep space station going despite bluster from Russia*, Wash. Post (July 25, 2022), <https://www.washingtonpost.com/technology/2022/07/27/nasa-space-station-russia/>.

<sup>157</sup> *Id.*

<sup>158</sup> Associated Press, *Russian Launches to Space From US, 1st Time in 20 Years*, VOA (Oct. 5, 2022), <https://www.voanews.com/a/russian-launches-to-space-from-us-1st-time-in-20-years-/6777122.html>.

<sup>159</sup> *Id.*

<sup>160</sup> *New Crew Enters Station and Begins Six-Month Mission*, NASA (Sept. 21, 2022), <https://blogs.nasa.gov/spacestation/2022/09/21/new-crew-enters-station-and-begins-six-month-mission/>.

<sup>161</sup> Knickmeyer, *supra* note 32.

<sup>162</sup> *See, e.g.*, Daniel Lyons, *How the Billionaire Space Race Benefits Us All*, Am. Enter. Inst. (Aug. 26, 2021), <https://www.aei.org/technology-and-innovation/how-the-billionaire-space-race-benefits-us-all/>.



and the United States showed is that, “[w]hat began in deadly competition has helped us to see that global cooperation is the essential precondition for our survival.”<sup>163</sup> It appears in some courtiers of the Biden administration view a space race on the horizon, with Bill Nelson, the current NASA administrator, saying in July 2022 that “[t]here is a new space race - this time with China.”<sup>164</sup> However, that concern is mostly with the perspective that China’s lunar program is not for solely scientific and peaceful purposes, but also to further their military space program.<sup>165</sup>

Notwithstanding that issue, the Biden administration has recently taken unilateral action that shows a good faith effort to keep military programs out of space by announcing a commitment to not conduct “destructive, direct-ascent anti-satellite” missile testing.<sup>166</sup> While this is a non-binding commitment, the Biden administration is the first nation to make such a commitment publicly.<sup>167</sup> Thus, it presents an opportunity to turn such a unilateral ban into a multilateral treaty. However, actions do not always follow commitments. For example, China and Russia have in the past proposed a treaty that would ban the placement of weapons in outer space to the United Nations,<sup>168</sup> but China’s subsequent action did not follow that proposed commitment.<sup>169</sup> For those reasons, the Biden administration must take diplomatic steps to avoid the further militarization of space by creating a binding agreement.

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<sup>163</sup> Carl Sagan, *Pale Blue Dot* 172 (1994).

<sup>164</sup> Kristin Fisher, *Artemis launch could help NASA secure early lead in moon race with China*, CNN (Aug. 24, 2022), <https://www.cnn.com/2022/08/24/world/artemis-1-nasa-moon-race-china-scni/index.html>.

<sup>165</sup> *Id.*

<sup>166</sup> Press Release, *FACT SHEET: Vice President Harris Advances National Security Norms in Space*, THE WHITE HOUSE (April 18, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/04/18/fact-sheet-vice-president-harris-advances-national-security-norms-in-space/>; *see also*, Aamer Madhani, *White House commits to barring anti-satellite missile tests*, AP NEWS (April 19, 2022), <https://apnews.com/article/russia-ukraine-space-exploration-science-business-navy-414dae576de185368afc94c655bc013f>.

<sup>167</sup> *Id.*

<sup>168</sup> *Draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects*, Ministry of Foreign Affairs of the People’s Republic of China (Feb. 12, 2008), [https://www.fmprc.gov.cn/mfa\\_eng/wjw\\_663304/zzjg\\_663340/jks\\_665232/kjfywj\\_665252/200802/t20080212\\_599554.html](https://www.fmprc.gov.cn/mfa_eng/wjw_663304/zzjg_663340/jks_665232/kjfywj_665252/200802/t20080212_599554.html).

<sup>169</sup> *Military and Security Development Involving the People’s Republic of China*, U.S. Dep’t of Defense, <https://media.defense.gov/2020/Sep/01/2002488689/-1/-1/1/2020-DOD-CHINA-MILITARY-POWER->

Biden can take small steps to prevent militarization, such as banning certain weapons in space, like ASATs, and to renew a commitment to create and foster multilateral cooperation to create space programs for peaceful purposes to advance science and technology for humanity as whole. The Biden administration has opened the door to a broader ASAT ban by unilaterally declaring that the United States will no longer do such tests, the first nation to do so.<sup>170</sup> However, any steps that the Biden administration takes should be multilateral and not unilateral like the ASAT announcement. This is to ensure that all parties are accountable for their commitments by legal force, i.e., an international agreement. The Biden administration sought to make this commitment a global one by submitting a memo declaring their intention to put a treaty before the United Nation's First Committee at the seventy-seventh session of the United Nations General Assembly.<sup>171</sup> Hopefully, the United States is willing to tailor the document so that the concerns and interests of all parties can be accounted for and that it is not simply political grandstanding.

The risk of conflict in space runs a far greater consequence than almost any other area of global cooperation back on Earth.<sup>172</sup> Cooperation is important to prevent escalation. The war in Ukraine presents a problem to cooperation because it may prove difficult to negotiate with Russia in continuing their involvement in the ISS, let alone any new project. The same problem does not exist with China.<sup>173</sup> However, no cooperation can occur, even if China

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REPORT-FINAL.PDF (last visited Oct. 20, 2022) (noting that China has operational ASAT missiles capable of targeting low-Earth orbit satellites and intends to pursue ASAT weapons cable of destroying satellites up to geosynchronous).

<sup>170</sup> Press Release, *supra* note 166.

<sup>171</sup> U.S. Mission Geneva, *Proposed UN General Assembly Resolution on Destructive Direct-Ascent Anti-Satellite Missile Testing*, U.S. Dep't of State (Sept. 21, 2022), <https://geneva.usmission.gov/2022/09/21/proposed-un-general-assembly-resolution-on-destructive-direct-ascent-anti-satellite-missile-testing/>.

<sup>172</sup> *Mutually Assured Destruction in Low Earth Orbit*, Georgetown Univ. Space Initiative (Aug. 17, 2020), <https://www.gospaceinitiative.org/contentmaster/mutually-assured-destruction-in-low-earth-orbit> (explaining the cascading effects that destruction of satellites would have and how it would make access to space impossible for potentially centuries rendering the communication and navigation systems that propels commerce today inoperable).

<sup>173</sup> See, Stuart Lau, *Putin admits China has 'questions' and 'concerns' about Ukraine war*, POLITICO (Sept. 15, 2022), <https://www.politico.eu/article/putin-admits-china-has-questions-and-concerns-about-ukraine-war/>;

shifts away from Russia because of the Wolf amendment. Thus, the United States must lead cooperative democratic initiatives that seek common interests, building upon the legal framework created in the ISS of fostering cooperation. The Biden administration must do this to constrain the growing militarization of space.

**B. How an International Moon Base Can Alleviate Tensions and Continue the Legacy of the ISS.**

The Biden Administration should use the success and longevity of the ISS program as a template to develop a more permanent and inclusive space cooperative program on the Moon. The Moon is set to be the next space frontier not only in the public sector but also in the private sector.<sup>174</sup> Given that, it is of the utmost importance that the legal regime that govern relations on the Moon are extensive, especially once more actors have a more permanent presence on it. The Biden Administration is in a unique place where they have committed to cooperating and are developing their own lunar program at the same time as China. The two nations can use those aligning interests to help ensure that the ISS's mission of promoting space cooperation for the benefit of Earth extends beyond its decommissioning. The Biden Administration stated in the Space Priorities Framework that it is their goal to ensure "space exploration is carried out for the benefit of all countries and of all humankind."<sup>175</sup> Biden can achieve this. The foundation is there.

For starters, the Biden Administration has stated that the goal of the Artemis Program is to expand the scientific mission on the Moon by expanding the robotic mission to it and to eventually return humans to the Moon.<sup>176</sup> China and Russia also plan to develop a Moon

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*see also, China says protracted Ukraine crisis not in the interests of all parties*, REUTERS (Sept. 22, 2022), <https://www.reuters.com/world/china-says-protracted-ukraine-crisis-not-interests-all-parties-2022-09-22/>.

<sup>174</sup> Jessica F. Green, *The Final Frontier Soon May No Longer Belong to All of Us*, N.Y. TIMES (July 28, 2022), <https://www.nytimes.com/2022/07/28/opinion/russia-us-outer-space.html>.

<sup>175</sup> Biden, *supra* note 5.

<sup>176</sup> Artemis Accords, *supra* note 84.

base.<sup>177</sup> Furthermore, there is great commercial interest in the Moon due to the potential resources that may be extracted not only from the Moon but from other celestial bodies.<sup>178</sup> For example, as part of China's lunar program, they have discovered a new mineral as early as this year.<sup>179</sup> Given this interest in the Moon, and the variety of actors that have an interest in it, the legal ambiguity that exists creates a potential for conflict that can be entirely avoided.<sup>180</sup>

While there is a Moon Agreement, only eighteen countries are party to it, which includes none of the major space-faring nations.<sup>181</sup> Part of the reason most countries did not ratify it is because of the view that they would be ceding authority to an international regime and that it would place restrictions on their ability to mine on the Moon.<sup>182</sup> However, if commercialization and habitation of the Moon is to be accomplished, the parties involved need to work together.<sup>183</sup> If the parties come together with their specializations and strengths, then the benefits that might be yielded from the program can be reaped for the benefit of all or not at all if division continues to plague us.<sup>184</sup> This ensures that the Moon remains for the benefit of all. It must be a transparent and collaborative process because the Moon is a public domain for all,<sup>185</sup> and any permanent structure must account for that. The Biden administration can begin that process by calling a summit in COPUOS.

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<sup>177</sup> Neuman, *supra* note 146.

<sup>178</sup> Cindy Mahler, *Lunar commercialization is on the horizon*, BOEING (June 11, 2021), <https://www.boeing.com/features/innovation-quarterly/2021/06/moon-shop.page> (noting that resource extraction on the Moon might include rare earth metals used in electronics such scandium, yttrium, the 15 lanthanides, and two dozen other elements and compounds that those on the Moon can use to further space operations or brought back to Earth).

<sup>179</sup> Chung, *supra* note 123.

<sup>180</sup> Paul B. Larsen, *ARTICLE: IS THERE A LEGAL PATH TO COMMERCIAL MINING ON THE MOON?*, 83 U. Pitt. L. Rev. 1 (2021).

<sup>181</sup> Moon Agreement, *supra* note 22.

<sup>182</sup> *Id.*

<sup>183</sup> Mahler, *supra* note 178.

<sup>184</sup> *Id.*

<sup>185</sup> Outer Space Treaty, *supra* note 8 at Art. I (stating that "exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries . . . and shall be the province of all mankind").

The IGA can serve as the foundation of any future agreement in space—like in an international Moon base. Some provisions from the IGA have proved successful in its application to the ISS and should be applied to any new agreement. For starters, Article 6 of the IGA, where each partner assumes the risks that are inherent in participating in the program, ensures that all parties understand that it is they are the ones taking the risk.<sup>186</sup> Further, including such a provision works in tandem with Article 12 that preserve the right of each nation to access their components.<sup>187</sup> Article 21 of the IGA addresses the issue of jurisdiction, specifying that activity that occurs on your portion of the station is subject to your laws.<sup>188</sup> This provision ensures that nations would take part in a cooperative project while retaining some control. It has proved a success in the ISS, and it will be necessary to include such provision in any international Moon base agreement. However, some nations may have conflicting obligations vis-à-vis occupying the Moon, given that the Moon Agreement states that the Moon and its resources are for the whole.<sup>189</sup> For that reason, although this conflict is beyond the scope of this paper, the Moon Agreement, the Artemis accords, and the Outer Space Treaty need to be reconciled. Regardless, this will be an issue that Biden needs to address because of the planned missions to the Moon by the United States and China.

Another part of the ISS that is ingrained in space law is that of cooperation. If an international Moon base is successful, it must put the interest of humanity over that of any individual nation. Having rules that impose an obligation to promulgate the principle of evolutionary cooperation is important, especially with a potential Moon base because its permanence will be far greater than a space station. That is why rules of conduct by crew

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<sup>186</sup> IGA, *supra* note 12.

<sup>187</sup> *Id.*

<sup>188</sup> *Id.*

<sup>189</sup> Moon Agreement, *supra* note 22.

members, like the CCOC's rule of "maintain[ing] a harmonious and cohesive relationship" between crewmembers of the station are necessary.<sup>190</sup>

The Biden Administration has recognized the importance of multilateralism of space in the United States Space Priorities Framework stating that "[s]pace activities broaden and deepen our international partnerships" and that the United States will "maintain its leadership in space exploration and space science."<sup>191</sup> The Framework recognizes that "[s]pace inspires us" and that is not limited to the United States.<sup>192</sup> By including more nations in the program, unlike the ISS which only had five members and no real mechanism of adding partners, an international Moon base will be more successful because the impact that such a program would have on the world.

Unlike a space station that suffers from orbital decay,<sup>193</sup> a Moon base would have more permanence by the sheer fact that it cannot suffer from orbital decay and would be more akin to a building on Earth. For that reason, having a framework implemented in the founding document ensures that the base is permanent. The Biden administration should expand provisions of the IGA, such as Article 24 of implementing meeting requirements,<sup>194</sup> and have teeth if nations are not compliant by imposing consequences for not meeting those obligations.

Within the IGA, there are several issues that the Biden administration can address if it is used as a framework for an international Moon base. For starters, there is ambiguity in the agreement over what happens if a non-complying States does not withdraw and what constitutes "peaceful purposes."<sup>195</sup> Because of that ambiguity in text, and any other

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<sup>190</sup> 14 C.F.R. § 1214.403 (2021).

<sup>191</sup> Biden, *supra* note 5.

<sup>192</sup> *Id.*

<sup>193</sup> NASA, *supra* note 82.

<sup>194</sup> IGA, *supra* note 12.

<sup>195</sup> Yun Zhao, *ARTICLE: Legal Issues of China's Possible Participation in the International Space Station: Comparing to the Russian Experience*, 6 JEAIL 155 (2013).

ambiguities that might exist in a new agreement, the agreement should stipulate that a neutral party should oversee binding dispute settlement.<sup>196</sup> COPUOS could be one of the bodies given that authority because it already has the framework and mandate to strengthen the international legal regime governing outer space by promoting the use of space for the benefit of all humanity.<sup>197</sup> Bilateral agreement should not be a basis of a Moon base. No agreement is perfect, but the Biden administration is in the position to learn and improve on those flaws. One of the areas that the IGA went wrong with is that it is rigid and does not have any provision to allow new partners to join. Thus, if the IGA is to serve as a groundwork for an international Moon base, parties to the agreement must update the IGA.

The Artemis Accords and the competing lunar programs run the risk of creating divergent legal landscapes with different interpretations of the treaties at issue.<sup>198</sup> Such a result would diminish space operations and it would undermine the foundation of space programs of cooperation.<sup>199</sup> The Artemis Accords have forced nations to finally confront this issue by bringing it front and center.<sup>200</sup> At present, the Artemis Accords does not make a commitment to establish a permanent Moon base, but rather focuses on taking smaller steps that might eventually lead to a base.<sup>201</sup> The Artemis Accords can still serve as a starting point for the governance structure by putting forward an adaptive governance model rather than anticipatory regulation that has governed space governance.<sup>202</sup> However, the Artemis Accords omits any mention of how benefits will be shared nor does it envision dispute

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<sup>196</sup> *Id.*

<sup>197</sup> *Committee on the Peaceful Uses of Outer Space and its Subcommittees, supra* note 19.

<sup>198</sup> Jack Wright Nelson, *The Artemis Accords and the Future of International Space Law*, AM. SOC'Y OF INT'L LAW (Dec. 10, 2020).

<sup>199</sup> *Id.*

<sup>200</sup> *Id.*

<sup>201</sup> Mark R. Whittington, *NASA needs to commit to a permanent lunar base*, THE HILL (April 3, 2022), <https://thehill.com/opinion/technology/3257542-nasa-needs-to-commit-to-a-permanent-lunar-base/>.

<sup>202</sup> Rossana Deplano, *The Artemis Accords Evolution or Revolution in International Space Law?*, 70 *International and Comparative Law Quarterly*, 799–819 (2021).

resolution,<sup>203</sup> although, the Artemis Accords does commit to periodic review.<sup>204</sup> Biden has made commitments to be a leader in strengthening global governance of space activities.<sup>205</sup> Biden must follow through on these commitments. COPUOS serves as the best forum to delve into these issues and to come to comprises since it involves all nations with an interest in space and not just partnering nations.

Some have noted that under the existing legal regime, there is no way for the United States, or any other nations for that matter, to grant property rights to mining the moon.<sup>206</sup> The Moon Agreement also adds a source of the uncertainty, particularly for those nations that are a party to it.<sup>207</sup> To address this problem of commercialization, any Moon base agreement must provide some guidance to commercial actors that they would not remain in legal limbo. Further, because the Moon is understood to be shared by humanity, no country can give mining rights independently nor should they.<sup>208</sup> That means that no government, including the United States, can legally grant property rights to mining sites on the Moon.<sup>209</sup> This creates uncertainty as to the legal right to mine on the Moon.<sup>210</sup> If a Chinese company moves in on a mining site worked by a United States based company, the United States Government cannot expel the Chinese company.<sup>211</sup> While the Artemis Accords attempts to clarify this ambiguity, it adds its own ambiguity.<sup>212</sup> Thus, whatever rights may exist for nations to extract resources, the ambiguity that exists under existing treaty law runs the risk of conflict over mining rights, where some nations extract resources that contravenes another's understanding of the Outer Space Treaty.

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<sup>203</sup> *Id.*

<sup>204</sup> Artemis Accords, *supra* note 84.

<sup>205</sup> Biden, *supra* note 5.

<sup>206</sup> Larsen, *supra* note 180.

<sup>207</sup> *Id.*

<sup>208</sup> William T. Gordon, et al., *The Artemis Accords Seek to Propel a New Industry*, 6 Pratt's Government Contracting Law Report § 68.06 (2022).

<sup>209</sup> *Id.*

<sup>210</sup> *Id.*

<sup>211</sup> *Id.*

<sup>212</sup> *Id.*



Biden should clarify this legal ambiguity through COPUOS’s collaborative process. One area of law that can be looked at for guidance is the United Nations Convention on the Law of the Sea (“UNCLOS”), which created an international regulatory body that promulgates rules governing activities at sea.<sup>213</sup> UNCLOS may be a model for space mining rights because it established rules for deep sea mining where domestic law does not apply.<sup>214</sup> This is somewhat analogous to the situation on the Moon. While there are some challenges to extraction of minerals unique to the Moon,<sup>215</sup> any Moon base agreement must create a regulatory framework that can evolve with the progressive process of establishing human presence on the moon. However, while other treaties, such as UNCLOS, may be more relevant to mining rights on the Moon, the IGA’s goal of fostering cooperation should be the underpinning and bedrock of any agreement.

One way to make any Moon agreement more permanent is to grant authority to a body to have some jurisdiction over the actions of nations on the Moon. Some argue that a polycentric model will work best since it is not a rigid model and allows for flexible solutions.<sup>216</sup> A polycentric model is the idea of having independent centers of governance that have overlapping jurisdiction.<sup>217</sup> An example of this is the Antarctica Treaty.<sup>218</sup> Under the polycentric model, an additional overlapping layer of jurisdiction would be added on top of the preexisting legal regime, like COPUOS and the Outer Space Treaty.<sup>219</sup> This is desirable because more parties that have an interest in the Moon would have a say in how the legal regime develops, ensuring the diverse interests are accounted for. The current legal regime

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<sup>213</sup> United Nations Convention on the Law of the Sea, opened for signature Dec. 10, 1982, 1833 U.N.T.S. 396 (entered into force Nov. 16, 1994) [hereinafter UNCLOS].

<sup>214</sup> Scot W. Anderson, et al., *Part 12: Space Mining*, 12-2 Rocky Mt. Min. L. Fdn. (2021).

<sup>215</sup> Scot W. Anderson, et al., *THE DEVELOPMENT OF NATURAL RESOURCES IN OUTER SPACE*, 51 ELR 10857 (Oct. 2021) (explaining that mining in space present issues of “(1) debris; (2) pollution of earth’s atmosphere; (3) contamination; and (4) nuclear contamination”).

<sup>216</sup> Eytan Tepper, *ARTICLE: THE BIG BANG OF SPACE GOVERNANCE: TOWARDS POLYCENTRIC GOVERNANCE OF SPACE ACTIVITIES*, 54 N.Y.U. J. Int’l L. & Pol. 485 (2022).

<sup>217</sup> *Id.*

<sup>218</sup> *Id.*

<sup>219</sup> *Id.*

governing space also already is polycentric because the evolving nature of the activities that occur in space.<sup>220</sup> For example, as contemporary issues have arisen, COPUOS has instituted new treaties, five in total, although the most recent one was in 1979 and had few signatories.<sup>221</sup> Regardless, given the interest in the Moon,<sup>222</sup> it is time to create a new treaty or agreement that governs activity in space, specifically on the Moon.

The Biden administration has already hinted at support of a polycentric model. In the Cislunar strategy released in November 2022, there is a commitment to build upon the legal regime that already exists.<sup>223</sup> For example, the strategy establishing an International Lunar Year similar to the International Polar Years.<sup>224</sup> Such commitments by Biden seem to suggest that they recognize the Moon cannot have one governing legal regime that covers all activities. Rather, as they recognized, any strategy about governance on the Moon must be flexible and reflect a bottom-up approach.<sup>225</sup> This type of approach is necessary due to the nature and difficulties of inhabiting the Moon,<sup>226</sup> but it is also to ensure the advancement of science is done efficiently to avoid duplicative research.<sup>227</sup> Any permanent habitation on the Moon requires collaboration with international partners and a flexible regime. The Biden administration recognized this in their Cislunar Strategy and are signaling that they support polycentric governance of space.<sup>228</sup>

Under a polycentric model, interested parties would create a new separate area specific governance centers as new separate specific issues arise.<sup>229</sup> Creating a legal regime that embraces flexibility to allow for development is the best regime to accommodate existing

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<sup>220</sup> *Id.*

<sup>221</sup> *Space Law Treaties and Principles*, *supra* note 9.

<sup>222</sup> Pickrell, *supra* note 96.

<sup>223</sup> NAT'L SCI. & TECH. COUNCIL, *supra* note 104.

<sup>224</sup> *Id.*

<sup>225</sup> *Id.*

<sup>226</sup> Rebecca Boyle, *Can a Moon Base Be Safe for Astronauts?*, SCIENTIFIC AMERICAN (Oct. 22, 2020), <https://www.scientificamerican.com/article/can-a-moon-base-be-safe-for-astronauts/>.

<sup>227</sup> NAT'L SCI. & TECH. COUNCIL, *supra* note 104.

<sup>228</sup> *Id.*

<sup>229</sup> *Id.*

legal interests and to account for potential future ones. Furthermore, given the reality of politics in Washington and the political perils of seeming soft on China, having a polycentric model of governance allows other parties, like China or Russia, to eventually join the agreement. The 112 nations that are party to the Outer Space Treaty can progressively reaffirm their obligation to uphold their treaty obligation to not militarize space by committing to a cooperative legal framework to govern human activities on the Moon.<sup>230</sup> However, while at present there are divergent programs, the interest in the Moon is largely a shared one of prosperity and scientific advancements. The Biden Administration can harness that shared interest for the benefit of all.

## V. Conclusion

The Biden administration should and must put more of a focus on international space cooperation, and there are actions that they can do to renew space diplomacy as a means of resolving conflicts back on Earth. The global community sorely needs this, especially in a time when the major powers are slowly retreating into their corners, slowly returning to the state of the world that existed before the ISS. If Biden is not successful in preventing cooperative retreat, the risk of a renewed space race is great considering the alignment of China and Russia and the conflict that their program might have with the Artemis Accords. There is still time to salvage space cooperation. Russia will remain involved in the ISS until 2024. These next two years will determine what the next twenty years of space cooperation looks like.

To conclude, as Carl Sagan asked:

[O]ur global civilization is . . . on the edge of failure in the most important task it faces: to preserve the lives and well-being of the citizens of the planet. Should we not then be willing to explore vigorously, in every nation, major changes in

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<sup>230</sup> Outer Space Treaty, *supra* note 8.

the traditional ways of doing things, a fundamental redesign of economic, political, social and religious institutions?<sup>231</sup>

The answer is clearly yes, major changes are necessary, and Biden can be that change. Biden must make a real effort to ensure that we, as a planet, “preserve and cherish the pale blue dot, the only home we've ever known.”<sup>232</sup> The United States showed such a good faith in 1998 when they agreed to the IGA with Russia. Biden can do the same today with initiating dialogue to begin the process of creating a legal framework for an international Moon base, building upon the Artemis Accords, the IGA and his previously stated commitments to multilateralism and space cooperation.

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<sup>231</sup> Carl Sagan, *Cosmos* 391 (1980).

<sup>232</sup> Sagan, *supra* note 163 at 7.