

# Nationality of the Space Object as an Indispensable Device for the Exploitation of the Moon and Mars

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## Abstract

This article is to study to what extent the liability and responsibility regime developed under the UN space treaties could reasonably address private activities of the Moon and Mars using a hypothetical case and state practice of the UN registration of satellites deployed from the International Space Station. The survey shows that neither the liability regime nor the unique international responsibility regime would be sufficient to address “newspace” activities, and it is concluded that the nationality for space object is needed for the orderly exploitation of the Moon and Mars, as it is not necessarily possible to identify the nationality of a private person who is responsible for a business activity due to the inevitably complicated investment and operation schemes and persons of various nationalities staying in one self-contained space station or facility.

## 1. Introduction

The new era of space exploration and use of outer space seems to have flourished in the second decade of the 21<sup>st</sup> century, which is sometimes described as “newspace”. Among a wide variety of achievements made by “newspace”, one of the most conspicuous is the private development of manned space transportation systems that enables non-governmental human space activities. Private space stations and structures in the low earth orbits (LEO) are likely to be established in the 2020s. Further, the progress of private space activities today envisages private and human space activities in the Moon orbits and on the Moon by the end of the first half of the 21<sup>st</sup> century, let alone these in the Earth orbits.

Increased private activities would inevitably lead to increased accidents and conflicts in outer space including the Moon and other celestial bodies. As outer space is the area beyond national jurisdiction, state jurisdiction may

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only be exercised in accordance with established rules of international space law. The three fundamental rules in the United Nations (UN) treaties on outer space<sup>1</sup> constitute the core of the rights and duties of States carrying out the exploration and use of outer space as below. First, the Outer Space Treaty (OST) provides that a State of registry shall retain jurisdiction and control over an object launched into outer space and over any personnel thereof.<sup>2</sup> Second, States shall bear direct international responsibility for their “national activities in outer space” conducted also by non-governmental entities.<sup>3</sup> Third, a launching State shall be liable for damage caused by its space object.<sup>4</sup> Different from ships and aircraft, nationality is not accorded to space objects through the act of registration.<sup>5</sup> This article is to study to what extent liability and responsibility regime developed under the UN treaties on outer space could reasonably address private activities in the Moon orbits and on the Moon using a hypothetical case study below. Then, a proposal is made to maintain and enhance the orderly exploration and use of outer space towards the mid-21st century.

## 2. A Case Study

### 2.1. A Hypothetical Case

Granting that spacecraft X put in a cargo transfer bag and placed in a launch vehicle Y is launched from the territory of State A and transported to a multinational space station Z in the Moon orbit, which consists of modules registered by several States. Launch vehicle Y is owned by a private company L established pursuant to the company law of State A. Arriving at the

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- 1 There are five treaties adopted by the UN General Assembly (UNGA): Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, opened for signature 27 January 1967, entry into force 10 October 1967, 610 UNTS 205 [OST]; Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, opened for signature 22 April 1968, entry into force 3 December 1968, 672 UNTS 119 [Rescue and Return Agreement]; Convention on International Liability for Damage Caused by Space Objects, opened for signature 29 March 1972, entry into force 1 September 1972, 961 UNTS 187 [Liability Convention]; Convention on Registration of Objects Launched into Outer Space, opened for signature 14 January 1975, entry into force 15 September 1976, 1023 UNTS 15 [Registration Convention]; Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, opened for signature 18 December 1979, entry into force, 11 July 1984, 1363 UNTS 3 [Moon Agreement].
  - 2 OST, *supra* note 1, Art. VIII; Registration Convention, *supra* note 1.
  - 3 OST, *supra* note 1, Art. VI.
  - 4 *Ibid.*, Art. VII; Liability Convention, *supra* note 1.
  - 5 See, e.g., Bin Cheng, “Nationality for Spacecraft?”, in *Studies in International Space Law* (Clarendon Press, 1997), pp. 475-491.

station Z, spacecraft X is moved to a module registered by State B and deployed (“launched”) through the airlock owned by a private company M of State C (one of the member States of the space station Z). Spacecraft X is landed on the planned location on the Moon, and is installed in a private manufacturing factory W with other three big space objects. While these three objects are registered, spacecraft X remains unregistered. Spacecraft X is owned and operated by a private company N of State D that is not involved with any of the Moon exploration or exploitation programs. Nor does State D constitute a member State of the space station Z. In case that spacecraft X causes a physical damage to factory V (registered by State E) near to the factory W, which State or States are responsible and liable for this? Will the answer be different depending the ratification status of State D with respect to the UN space treaties?

In order to make an analysis simpler, at first, it is assumed that State D is a Party to the OST, the Rescue and Return Agreement,<sup>6</sup> the Liability Convention<sup>7</sup> and the Registration Convention.<sup>8</sup> Then, the case that State D is also a Party to the Moon Agreement<sup>9</sup> is assessed, which is to be followed the case that State D is not a Party to any of the UN space treaties.

## 2.2. Liability Assumed by the Launching States

UN space treaties established unique liability regime that the special category of State(s), named “launching State(s)” shall be liable to pay compensation for damage caused by its/their space object.<sup>10</sup> As the case study mentioned above refers to damage caused on the Moon, fault-liability by a launching State of spacecraft X is pursued.<sup>11</sup> In case that there are two or more States jointly launched spacecraft X, all launching States shall be jointly and severally liable for any damage caused to the damaged State.<sup>12</sup> Thus, before assessing whether or not the fault existed, it is to be determined which State or States is/are the launching States(s) for spacecraft X.

The spacecraft X is “launched” twice. The first launch is from State A to space station Z, and then it is “launched” therefrom toward the Moon. With respect to the first “launch”, it is evident that State A is one of the launching States,<sup>13</sup> but it remains uncertain as to whether State D regards itself as a procuring launching State because this is not a governmental project. Another

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6 Rescue and Return Agreement, *supra* note 1.

7 Liability Convention, *supra* note 1.

8 Registration Convention, *supra* note 1.

9 Moon Agreement, *supra* note 1.

10 OST, *supra* note 1, Art. VII; Liability Convention, *supra* note 1.

11 Liability Convention, *supra* note 1, Art. III.

12 *Ibid.*, Art. V (1).

13 *Ibid.*, Art. I (c); Registration Convention, *supra* note 1, Art. I (a).

issue is if the status of the launching State continues for State A after the launch vehicle Y successfully arriving at the space station Z. In general, it is construed that the status of the launching State continues during the operation of a space object (satellite) launched in outer space, and also after its mission phase, but this is a case of a simple launching from the Earth and the resultant operation of a satellite in the Earth orbit. There seems no established understanding in case of a “re-launching” of a spacecraft after it arrived at a space station in outer space.

As there is almost a decade practice of the satellite deployment from the International Space Station (ISS),<sup>14</sup> state practice of the registration of satellites is studied below to have knowledge on which States are considered launching States. Since “(a) Name of launching State or States; --- (c) Date and territory or location of launch” are included in the required items to furnish information to the UN Secretary-General in the Registration Convention,<sup>15</sup> survey of the UN registration data would reveal the scope of launching States recognized by States of registry of satellites jettisoned from the ISS.

### 2.3. State Practice on the Deployment of Satellites from the ISS

Since 2012, more than 300 CubeSats have been jettisoned/deployed/launched from the airlock of the Japanese Experiment Module (JEM), known as “Kibo” (means “Hope” in Japanese) of the ISS.<sup>16</sup> This had been the only airlock in the ISS which was able to move the hardware in and outside the ISS until December 2020, when the first commercial airlock “Bishop” of a US Company Nanoracks was installed on the Tranquility module of the ISS.<sup>17</sup> As of 31 December 2021, no satellite was deployed from the Bishop airlock. CubeSats are transported to the Kibo module of the ISS (“ISS/Kibo”) either from the US or Japanese territory, and then placed in the JEM Small Satellite

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14 Agreement among the Government of Canada, Governments of Member States of the European Space Agency, the Government of Japan, the Government of the Russian Federation, and the Government of the United States of America Concerning the Cooperation on the Civil International Space Station, opened for signature 29 January 1998, entry into force 27 March 2001. TIAS 12927.

15 Registration Convention, *supra* note 1, Art. IV (1).

16 262 Satellites had been deployed by a US private company, Nanoracks as of 14 June 2021 (<https://nanoracks.com/nrcsd20-deployment/>, last accessed 23 October 2021) and 58 satellites were deployed as the projects of Japan Aerospace Exploration Agency (JAXA) as of October 2021(<https://humans-in-space.jaxa.jp/kibouser/provider/j-ssod/72631.html>, last accessed 16 November 2021). “NanoRacks” was renamed as “Nanoracks” in 2021.

17 <https://nanoracks.com/bishop-airlock/>, last accessed 16 November 2021.

## NATIONALITY OF SPACE OBJECT AS AN INDISPENSABLE DEVICE FOR THE EXPLOITATION OF THE MOON AND MARS

Orbital Deployer (J-SSOD)<sup>18</sup> owned by Japan Aerospace Exploration Agency (JAXA) or NanoRacks CubeSat Deployer (NRCSD) or Kaber Microsatellite Deployer (KABER), owned by a US company Nanoracks.<sup>19</sup> Once moved into the space environment through the airlock in the ISS/Kibo, such a self-contained satellite deployer is captured by the robot arm of the Kibo module and then, satellites are finally released into orbit. The command and control of the robot arm is conducted either by the computer placed in the ISS/Kibo or from the JAXA's Tsukuba Space Center in Japan.

From the standpoint of the determination of launching States, State practice of the satellite deployment from the ISS/Kibo is not firmly consistent, but it shows some tendency.

Survey of the UN registration data of Japan and the US demonstrates that both countries select the date of deployment of a satellite from the ISS as the "date of launch".<sup>20</sup> With respect to the place of launch, while Japan consistently specifies that "[t]erritory or location of launch: International Space Station (ISS)",<sup>21</sup> the US cites either from "ISS: Kibo",<sup>22</sup> "[d]eployed off ISS (Kibo)"<sup>23</sup> or "[d]eployment from the International Space Station".<sup>24</sup> The difference is important as the Kibo Module with a robot arm is registered by Japan,<sup>25</sup> and because of this, only Japan may be a facility-based launching State if "ISS/Kibo", not the "ISS" as a whole is regarded as the "[t]erritory or location of launch".

The fact that the deployment of a satellite from outer space does not fall under the definition of "launch" in the national space law of the either country<sup>26</sup> would imply that the ISS or ISS/Kibo is selected as the compromised/deemed location of the launch to register a space object because "the date and the territory or location of launch" is the obligatory notification items specified in Article IV (1) of the Registration Convention. This may explain that the US uses the word "deployed/deployment" off/from

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18 J-SSOD is designed in accordance with 10 cm x 10 cm x 10cm (= 1U) CubeSat design specification. J-SSOD's capacity became 6 U to 12 U in 2017.

19 The NRCSD, have been used since 2014, is capable of deploying eight times greater number of 1U CubeSats than the J-SSOD, and KABER can jettison up to 100 kg satellites.

20 See, e.g., *infra* notes 21- 24.

21 See, e.g., ST/SG/SER.E/693, 30 January 2014, pp. 2-4; ST/SG/SER.E/812, 31 August 2017, pp. 5-6; ST/SG/SER.E/862, 31 October 2018, pp. 2-5.

22 See, e.g., ST/SG/SER.E/736, 15 January 2015, p. 5.

23 See, e.g., ST/SG/SER.E/745, 17 August 2015, pp. 4-6 & 8.

24 See, e.g., ST/SG/SER.E/951, 16 September 2020, p. 10.

25 ST/SG/SER.E/556, 15 March 2010, pp. 2-3.

26 51 USC, §50902 (7); Japan's Act on Launching on Spacecraft, etc. and Control of Spacecraft, promulgated 16 November 2016, Act No.76 of 2016, entered into force 15 November 2018, Art. 2(v).

the ISS/Kibo instead the usual term of “launch”.<sup>27</sup> The importance of the use of the term “launch” in their description of the date and place of “launch” is in any case diminished because both the US and Japan register such CubeSats only when they procure satellites. Their registration is not influenced by the location of “launch”.

Looking into the state practice other than Japan and the US, Bhutan does not use the term “launch” but just “deployment” in its registration form sent to the UN Secretary-General, with the added information that the launch vehicle was “Falcon 9 Full Thrust”.<sup>28</sup> This seems to show that Bhutan did not consider the releasing a satellite from the ISS as “launch”. Mongolia registered its satellite with the statement that “other launching States: Japan, United States of America” and the “[d]ate and territory or location of launch” as “3 June 2017 --- Florida, United States of America”.<sup>29</sup> From the fact that Japan is also a launching State, for Mongolia, “launch” was conducted twice both from the Earth and the ISS, although only the US was cited as the location of launch. In case of Belgium, it is set out that both Belgium and the US are launching States, and Japan is not included in the list of the launching States. In the column of the date and territory or location of the launch, after the “launch” from the Earth (“4 December 2019 - Cape Canaveral, United States”) is cited, the “deployment” from outer space (“[d]eployment: 19 February 2020 - deployed from the International Space Station”) is specified.<sup>30</sup> Belgium might have assessed the deployment of a satellite from the ISS as an independent category of activity. Less clear, but the Philippines’ practice seems similar to that of Belgium. The Philippines informed both stages’ “launch” information using the term “launch” and “deployment”: from the ground (“[i]t was launched into space on 23 March 2016, then linked with the ISS until deployment into orbit through the “Kibo” module on 27 April 2016”) and from the ISS (“27 April 2016 UTC, International Space Station (ISS)”).<sup>31</sup>

State practice differ, but at least some States such as Mongolia seem to suggest all three are launching States: i) territorial launching State (USA); ii) the facility-based launching State (Japan); and iii) a procuring launching State (Mongolia). According to this interpretation, no cessation of the act of “launch” is recognized. In contrast, the practice of Belgium may be construed that there is only one “launch” that is conducted from the Earth. It is less clear, but Bhutan and the Philippines may also have interpreted that way. In

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27 ST/SG/SER.E/745, *supra* note 23, pp. 4-6 & 8; ST/SG/SER.E/951, *supra* note 24, p. 10.

28 A/AC.105/INF/437, 10 July 2019, p. 2.

29 ST/SG/SER.E/827, 24 November 2017, p. 2.

30 ST/SG/SER.E/930, 13 March 2020, p. 2.

31 A/AC.105/INF/429, 26 April 2017, p. 2.

cases of most countries, it is largely unclear if the deployment of satellites from the ISS is thought as the launch or a different action.

Even if it is assumed that the deployment of a satellite from the ISS as a “launch”, despite the fact that most common practice is to cite the “ISS” as “the territory or location of launch”, it is unclear if it means the “ISS as a whole” or “ISS/Kibo”, i.e. if all partner States of the ISS are thought facility-based launching States or only Japan is regarded one.<sup>32</sup> Further, an airlock or a self-contained satellite deployer which can be attached to another space station may be thought as an independent facility concerning “launch”. Accordingly, there are at least three possibilities as the deemed location of launch: i) ISS as a whole; ii) Kibo module of the ISS; or iii) self-contained deployer of satellites. If the third concept applies, currently, Japan as the owner State of the J-SSOD through JAXA, or the US as the national State of the Nanoracks which owns NRCSD, KABER, Bishop, etc. is the facility-based launching State. While there is no case in the UN Register that a specific satellite deployer is specified as the facility from where a satellite is deployed, such practice is found in the registration records/catalogues made by private entities: one example would be “2015-104/NanoRacks CubeSats Deployer/ International Space Station”.<sup>33</sup>

#### **2.4. Possible Answers to the Hypothetical Case**

In the hypothetical case mentioned above, all of the States below could be thought as a launching State: i) State A as a territorial launching State; ii) State B as a launching State from whose facility (a registered module of the space station Z) a space object is “launched”; iii) State C as a launching State from whose facility (airlock, a self-contained satellite deployer) a space object is launched; iv) all member States of the space station Z as facility-based launching States; and v) State D as a procuring launching State of a satellite. Not having registered spacecraft X would not exempt State D from being considered a launching State. For State D, it is not critical if the “deployment” from outer space is a launch, because the launch from the Earth is anyway concerned with its possible status of a procuring launching State. In contrast, it is of critical importance for States B, C and other member States of the space station Z, for this is the exact point to decide if they are jointly liable or not.

If State D is a launching State is not a new question, but almost a classical one having been asked since the last decade of the 20<sup>th</sup> century when

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32 See, e.g., ST/SG/SER.E/718, 11 August 2014, pp. 2-3 (Lithuania); A/AC/105/INF/433, 24 January 2019, p. 2 (Kenya); A/AC.105/INF/440, 5 November 2020, p. 2 (Guatemala).

33 <https://www.zarya.info/Diaries/Launches/Launches.php?year=2015>, last accessed 16 September 2021.

increased commercial satellite operators or makers procured the launch from foreign launch providers. This is an important issue mainly for damage caused on the Earth due to the absolute liability regime.<sup>34</sup> For damage caused in outer space, the impact being a procuring launching State is much smaller due in part to the fault-liability regime and because the similar liability is imposed anyway to the State which could qualify as a procuring launching State under Article VI of the OST. In this hypothetical case, since State D bears international responsibility for the conduct of company N, it is under the obligation to pay compensation to the damaged State E in accordance with Article VI of the OST. Thus, even if it does not recognize itself as a launching State, eventually State D would not be able to avoid its liability to the damaged State E. Considering that only fault-liability is incurred in case of the damage caused to space object in outer space, and that the victim State has to prove the fault by a launching State, merits finding a launching State is not nearly as great as the case that the damage is caused by space object “on the surface of the Earth or to aircraft in flight”.<sup>35</sup>

In case if State D is a Party to the Moon Agreement, without registration, State D might retain jurisdiction and control over spacecraft X, for it is provided that “States Parties shall retain jurisdiction and control over their personnel, vehicles, equipment, facilities, stations and installations on the Moon”.<sup>36</sup> One interpretation of this provision is that this is implicitly based on Article VIII of the OST and Article II of the Registration Convention and as a result, no new legal regime has been established.<sup>37</sup> Another interpretation is that States could exercise jurisdiction and control on personnel and space objects “either directly or through their nationals by establishing facilities, stations and installations on the moon”.<sup>38</sup> In case the former interpretation is taken, State D is responsible for its “national activities in outer space” under Article VI of the OST, and it would be obligated to pay compensation to State E if company N’s fault is proved. According to the latter interpretation, State D is responsible for the damage caused to factory V as State responsibility is the corollary of the State jurisdiction and control. This would lead to State D to pay compensation to State E if the fault of company N is recognized. As long as Article VI of the OST is applied, Article 12 of the Moon Agreement seems irrelevant on this case.

If State D is not a party to any one of the UN treaties on outer space, customary international law of State responsibility would be applied. In

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34 Liability Convention, *supra* note 1, Art. II.

35 *Ibid.*

36 Moon Agreement, *supra* note 1, Art. 12 (1).

37 Stephan Hobe, Bernhard Schmidt-Tedd & Kai-Uwe Schrogl (eds.), *Cologne Commentary on Space Law*, Vol. II (Carl Heymanns Verlag, 2013), p. 401.

38 Cheng, *supra* note 5, p. 486.



principle, Company N should pay compensation to the owner of factory V, and depending on the circumstances, due diligence of State D in respect of its national N could be questioned.<sup>39</sup>

### 3. Responsible States Rather Than Launching States

Following the UNGA resolution on the application of the concept of the “launching State”,<sup>40</sup> the 2007 UNGA resolution entitled “Recommendations on enhancing the practice of States and international intergovernmental organizations in registering space objects” (“Registration Practice Recommendations”)<sup>41</sup> was adopted, which solved to some extent the issue to identify the State(s) to assume responsibility and liability over an unregistered space object.<sup>42</sup> However, a compromised solution by the Registration Practice Recommendations to use the link “supervision” over a private person in case of the non-registration of space objects seems to have further shifted the significance of the link from registration (space objects) to nationality (makers or operators of space objects).<sup>43</sup> Preponderance of Article VI has also been found in national registration due to the difficulty and unreasonableness in determining a procuring launching State.

The UK uses two national registries: the first is the normal national registry on which space objects are carried where the UK is a procuring launching State.<sup>44</sup> The other is the UK supplementary registry onto which space objects are entered where the launch license was issued under the UK Outer Space Act but the UK does not regard itself as a (procuring) launching State, or it was jointly decided that another launching State would register a space object.<sup>45</sup> The UK does not seem to regard itself as a launching State when it grants a procured launch license to its satellite maker which would eventually

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39 Should Art. VI of the OST has become a rule of customary international law, the conclusion would not be changed from the case that State D is the Party to the four of the UN space treaties.

40 A/RES/59/115, 10 December 2004.

41 A/RES/62/101, 17 December 2007.

42 *Ibid.*, paras. 3- 4.

43 *Ibid.*, para. 4 (a)(b).

44 UK Space Agency (UKSA), UK National Registry of Outer Space Objects, May 2021, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/988206/UK\\_Registry\\_of\\_Space\\_Objects\\_May\\_2021.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/988206/UK_Registry_of_Space_Objects_May_2021.pdf), last accessed 15 September 2021.

45 UKSA, UK Supplementary Registry of Outer Space Object, October 2020, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/925089/UK\\_Supplementary\\_Registry\\_of\\_Space\\_Objects\\_-\\_October\\_2020.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/925089/UK_Supplementary_Registry_of_Space_Objects_-_October_2020.pdf), p. 3, last accessed 15 September 2021 [UK Supplementary Registry].

transfer the control of a launched satellite to a foreign operator;<sup>46</sup> and when a UK satellite operator that obtains a launch license is found under the substantial control of a foreign parent company.<sup>47</sup>

The Netherlands has a national registry comprising two subregistries: the first is “the United Nations subregistry” and the second is “the national subregistry” that contains data on space objects for which the Netherlands is not a launching State and therefore not to be the State of registry, but in respect of which it bears international responsibility and “has jurisdiction and control – in accordance with Article VIII” of the OST.<sup>48</sup> The Dutch practice is innovative as this effectively avoids the prerequisite condition imposed by the Registration Convention that one of the launching States is the State of registry,<sup>49</sup> and yet it furnishes the same information as that furnished under the Registration Convention under Article XI of the OST.<sup>50</sup>

As the UK supplementary registry and the Dutch national subregistry are publicized on the internet,<sup>51</sup> the purpose of identification of space object pursued under the Registration Convention is secured. Thus, while the efforts to find a procuring launching State which leads to the State of registry may be given up, the efforts to find the responsible State(s) which could pay compensation for the damage have been reasonably made.

#### 4. Conclusion

Private exploration and use in the Moon orbits and on the Moon have been envisioned, and it would ultimately extend to Mars and beyond. The mechanism to determine one State of registry among several launching States has not long functioned sufficiently to guarantee the liability in space activities and it may be said that it has gradually been replaced by the unique international responsibility regime under Article VI of the OST. This seems reasonable because the merits of the liability regime under the Liability Convention would be diminished due to the fault liability in outer space and the final result would not be different by the application of Article VI of the OST.

In pursuit of international responsibility, focus is not placed on the status of a space object, but on the nationality of a private person. Since the UN space

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46 See, e.g., ST/SG/SER.E/575, 4 November 2009, p. 2; UK Supplementary Registry, *supra* note 45, p. 33.

47 See, e.g., ST/SG/SER.E/389, 28 March 2001, p. 1; UK Supplementary Registry, *supra* note 45, p. 68.

48 A/AC.105/806, 29 July 2003, p. 2.

49 Registration Convention, *supra* note 1, Art. I (c).

50 See, e.g., A/AC.105/1168, 4 December 2018, p. 1.

51 UKSA, *supra* note 45; ST/SG/SER.E/INF.24, 20 August 2009, p. 2.

## NATIONALITY OF SPACE OBJECT AS AN INDISPENSABLE DEVICE FOR THE EXPLOITATION OF THE MOON AND MARS

treaties explicitly regulate the liability in outer space only between space objects, Article VI of the OST and customary international law on responsibility shall inevitably be applied to address conflicts such as those between persons not involved with the damage of a space object. Article VI of the OST would solve potential conflicts to the extent that a space object is owned by a person whose national State is clearly determined. In the near future, this may be possible, but in around the mid-21<sup>st</sup> century where cislunar space would be in the midst of construction, a space station would be operated by complicated investment and business schemes that would make it impossible to identify the nationality of the juridical person(s) responsible for the project in question. Further, this situation would be exacerbated by then the normal situation that persons of different nationalities would stay in a private station in the Moon orbits or on the Moon.

Under such circumstances, “it would not be best to revert to well-established concept of nationality in linking space objects to the subjects of international law”?<sup>52</sup> It seems that only a long-established rule of the exercise of national jurisdiction, based on territoriality and nationality, could solve legal conflicts involving a space station, that is a self-contained unit in which persons of different nationalities would stay, as with the cases of ships and aircraft.

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52 Cheng, *supra* note 5, p. 490.