

# **Norm-generating Dynamics in the Space Law Regime – An Experimental Study –**

This is a translation of an article titled “Uchuhou Taikei no Kihonteki na Seikaku ni Kansuru Shiron - Kaiyouhou oyobi Koukuhou tonon Hikaku” published in *Waseda Law Review*, 96-3 (2021) with some updates.

Kimitake Nakamura

## Norm-generating Dynamics in the Space Law Regime – An Experimental Study –

Kimitake Nakamura<sup>1</sup>

### Introduction

1. History of the Development of Regimes of Territorial Seas and High Seas
2. History of the Development of the Air Space Law
3. Norm-generating Dynamics in the Development of Space Law and its Essential Nature
4. Physical Characteristics of Outer Space and the Essential Nature of the Space Law Regime
5. Some Consequences of the Stated Characteristics of the Space Law Regime
6. Potential Factors that might Impact the Essential Nature of the Space Law Regime in the Future

### Conclusion

## Introduction

One of the aspects that differentiates the space law regime<sup>2</sup> from the maritime law regime is the fact that, in the space law regime, the physical area in which the relevant international agreements are applicable has not been fully determined. In other words, the space treaties,<sup>3</sup> including the Treaty on Principles Governing the

---

\* This is a translation of an article published in *Waseda Law Review*, 96-3 (2021) with some updates. The views expressed in this article are those of the author and do not represent his current or former employers. The author would like to thank Professor Hiroyuki Banzai (Waseda University) and Professor Henry Hertzfeld (the George Washington University) for the valuable guidance about the topic.

<sup>1</sup> Minister at the Japanese Embassy in Washington, D.C; Visiting Scholar, Space Policy Institute, the George Washington University.

<sup>2</sup> Black's Law Dictionary defines regime as "In French law, A system of rules or regulations," at <https://thelawdictionary.org/regime/> (last visited on Jun. 2, 2021). Although the applicability of the term "regime" is an important subject in the study of international relations, this article does not go into details about that.

<sup>3</sup> In this article, the term "space treaties" means the set of the following international agreements: 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, 610 UNTS 205 [OST]; Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, Apr. 22, 1968, 672 UNTS 119 [Rescue Agreement]; Convention on International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 961 UNTS 187 [Liability Convention]; and Convention on Registration of Objects

Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (OST), do not determine at what altitude above sea level outer space begins. Some countries are of the view that the international community should delimit outer space from air space, but others argue that it should not or cannot delimit it. This debate is often described academically as a confrontation between the “spatialist approach” and the “functionalist approach.” The former argues for delimiting, and authors favoring that theory refer to the effective control of countries underneath outer space, the physical characteristics of outer space, and so forth.<sup>4</sup> The essence of the functionalists’ argument is that the locus of an act needs to be of no moment to its legality or illegality, which can be determined solely by reference to its nature.<sup>5</sup> According to this argument, there is no need to determine the delimitation of outer space to clarify the physical applicability of space law.<sup>6</sup> To date, the abovementioned confrontation between the two schools represents one of the most significant debate in relation to the nature of the space law regime.<sup>7</sup>

The author of this article believes that, having in mind the necessity to think about new norms regarding multiple challenges facing the international space community, including the issues regarding orbit congestion and space resource exploration, the scholars in this field should revisit the essential nature of the space law regime in order to design effective ways to introduce such new norms. However, no matter how much the arguments of the two schools are scrutinized, it is not easy to

---

Launched into Outer Space, Jan. 14, 1975, 1023 UNTS 15 [Registration Convention].

<sup>4</sup> C. Q. Christol, *The Modern International Law of Outer Space* (Pergamon Press, 1982), pp. 441-442.

<sup>5</sup> B. Cheng, “The Legal Regime of Airspace and Outer Space: the Boundary Problem Functionalism versus Spatialism: the Major Premises,” *Annals of Air & Space Law* 5 (1980), p. 347.

<sup>6</sup> N. M. Matte (ed.), *Space Activities and Emerging International Law* (McGill University, 1984), p. 380. See also F. K. Schwetje, “Space Law: Consideration for Space Planners,” *Rutgers Computer & Technology Law Journal* 12, No. 2 (1987), pp. 254-255.

<sup>7</sup> For example, Professor Kodera, in his article titled “Nature of Space Law,” concluded that the space law regime has the aspects of both schools. See A. Kodera, *Paradigm Kokusaihou – Kokusaihou no kihon kouei*, (Yuhikaku, 2004), pp. 139, 149-150.

draw insights that help understand the legal environment surrounding the norm-setting efforts.

Thus, this article, instead of discussing the essential nature of the space law regime by looking into the delimitation-related issues, will try to elucidate that nature by comparing it with the maritime law regime and the air space regime. When comparing those different law regimes, the author will focus on the dynamics that have helped generate and develop each regime (hereafter referred to as “norm-generating dynamics”). The reader will see that the abovementioned dynamics are valuable in clarifying the differences in the nature between the different law regimes.

Then, let us first look back at the dynamics that generated and developed the maritime law regime and the air space law regime.

## 1. History of the Development of Regimes of Territorial Seas and High Seas

In the law of the sea, regimes of diverse sea areas, including internal waters, territorial seas, contiguous zones, straits used for international navigation, archipelagic waters, exclusive economic zones, continental shelves, high seas, and deep seabeds, have developed throughout several centuries. Activities in one sea area could be governed by different legal norms depending on its nature, making the law regime functional. For this article, the author will focus on the history of the development of regimes of territorial seas and high seas.

(1) In Europe of the Middle Ages, the ocean was considered a *res commune* based upon *lex naturalis*. It was considered a common property for all in both attribution and use.<sup>8</sup> However, once maritime transport developed and awareness of the importance of the ocean’s wealth grew, countries began claiming exclusive rights over it.<sup>9</sup> The most typical movements were the issuance of *Inter Caetera* by Pope Alexander VI in 1493, one year after Columbus’s first voyage, followed by the Tordesillas

---

<sup>8</sup> K. Nishimoto, “Kaiyou kankatsuken no rekishiteki tenkai -1,” *Kokkagakkaiasshi* 125-5-6, p. 18.

<sup>9</sup> A. Osawa, “Kaiyou jiyuuron no kenkyu (2) – re: Hugo Grotius’s Mare Liberum,” *Houseikenkyu*, 11-2(1941, Kyushu University), pp. 2-3.

Treaty of 1494 between Spain and Portugal, which agreed on the division of the Atlantic Ocean.<sup>10</sup> In the sixteenth century, these two countries reigned over the ocean with their strong Navy capabilities. Meanwhile, scholars such as Francisco de Vitoria argued for the freedom of the sea based on *lex naturalis*. Hugo Grotius is believed to have provided essential materials for debate that significantly impacted the development of the law of the sea. In his *Mare Liberum* of 1603, Grotius argued that the sea must be free because, by its nature, it is not susceptible to occupation.<sup>11</sup> He criticized Portugal, who attempted to alienate the East India Company of the Netherlands from trade with East India. William Welwood from Scotland counterargued Grotius's argument with the *Abridgment of All Sea-Lawes* in 1613.<sup>12</sup> In 1635, John Selden from Great Britain extended a robust counterargument against the argument of Grotius with *Mare Clausum*.<sup>13</sup> The center of Selden's view was that the seas could be subject to occupation and control by a state.<sup>14</sup>

(2) In the eighteenth and nineteenth centuries, the key tone in the sea law order was the freedom of the sea that Grotius argued for. However, coastal countries often kept a narrow band of near water under their jurisdiction<sup>15</sup> during the same period.<sup>16</sup> Cornelius van Bynkershoek of the Netherlands, in his *De Dominio Maris Dissertatio* in 1702, opined that a coastal country

---

<sup>10</sup> *Ibid.*, pp. 7-8.; D. R. Rothwell et al. (eds.), *The Oxford Handbook of the Law of the Sea* (Oxford University Press, 2015), p. 3.

<sup>11</sup> R. Feenstra (ed), *Hugo Grotius Mare Liberum 1609-2009* (Brill, 2009); Rothwell et al. *supra* note 10, p. 4.

<sup>12</sup> Osawa, *supra* note 9, p. 58.

<sup>13</sup> Rothwell et al., *supra* note 10, p. 4.

<sup>14</sup> *Ibid.*; Nishimoto, *supra* note 8, pp. 32-34.

<sup>15</sup> The author uses here the term "jurisdiction." However, Professor K. Nishimoto points out that there are two views concerning the nature of the jurisdiction mentioned above: one believes that the territorial sea is part of the national territory, and the jurisdiction the coastal countries exercise in the territorial sea is based on the territorial sovereignty. The other view opines that the territorial sea is not part of the national territory and the jurisdiction the coastal countries exercise in the territorial sea is functional. Nishimoto also points out that the confrontation between the two views mentioned above had a significant impact on the generation and development of the sea law regime. See K. Nishimoto, "Kaiyou kankatsuken no rekishiteki tenkai (4)," *Kokkagakkazasshi* 125 (11-12).

<sup>16</sup> Rothwell et al., *supra* note 10, p. 4.

possesses dominion over the near sea based on its sovereignty over its territory, and the extent of dominion is determined according to the flying distance of bullets from the coast.<sup>17</sup> This thesis was widely applied throughout the eighteenth century. However, since that range was variable due to technology development, Ferdinando Galiani, in his book published in 1782, proposed that three miles should be the extent of the dominion because the full range of bullets at that time was approximately three miles.<sup>18</sup> Sea powers such as Great Britain, the United States (U.S.), and France instituted the three-mile territorial sea rule, while others established rules of four to twelve miles. In the early twentieth century, the norm was that in the broader high seas, ships were allowed to enjoy navigation freedom under the *frang state* principle, while in the narrower territorial seas, coastal countries exercised sovereign rights but allowed the innocent passages of foreign ships, which became the customary international law.<sup>19</sup> Throughout and after WW II, the order of the law of the seas became complicated, and multilateral international agreements established functional sea areas, including contiguous zones, continental shelves, and exclusive economic zones. Overall, the law of the sea has developed in such a way that the coastal countries have gradually received enhanced jurisdiction. This was partly because of the increase in the number of coastal countries due to the independence of former colonies after WW II. The United Nations Convention on the Law of the Sea introduced a new regime for the deep seabed. In response to the calls from developing countries, the convention introduced the new concept of the common heritage of mankind, which governs the activities regarding the deep seabed.

(3) Regarding the development of the law of the sea, Rene-Jean Dupuy stated that “[t]he sea has always been lashed by two major contrary winds: the wind from the high seas towards the land is the wind of freedom; the wind from the land towards the high seas is the bearer of sovereignties,” and that “[t]he law of

---

<sup>17</sup> *Ibid*, p. 5.

<sup>18</sup> *Ibid*.

<sup>19</sup> *Ibid.*, p. 7.

the sea has always been in the middle between these conflicting forces.”<sup>20</sup> The law of the sea today is still evolving in such a manner that it is becoming even more complicated due to the introduction of tougher obligations of the coastal countries, a framework for regulating fishing in the high seas, and so forth. As Arvid Pardo pointed out,<sup>21</sup> to avoid adverse consequences of intensive ocean use, the world community needs to establish a new legal order governing ocean space as a whole. However, it is the author’s view that the most significant factor influencing the basic elements of the law of the seas, including the regime of territorial seas and that of high seas, was the adjustment of interest between the sea powers and the coastal countries.<sup>22</sup>

## 2. History of the Development of Air Space Law

(1) The Montgolfier brothers flew a hot air balloon above Paris in 1783, and in the next year, a Paris police lieutenant prohibited balloon flight in the city without prior permission for the purpose of protecting safety of the citizens.<sup>23</sup> Similar regulations were introduced in other French cities, as well as cities in Belgium and Germany.<sup>24</sup> In the late nineteenth century, operations of airships with propellers began, and in 1903, the Wright brothers carried out their first flight of a fix-wing aircraft with propellers. In early 1900, in academia, the dominant argument was that countries were allowed to prohibit flights of foreign aircraft below a certain height above their territory to make it difficult to photograph sensitive facilities such as military fortresses based on the rights derived from the principle of self-preservation but

---

<sup>20</sup> R. Dupuy and D. Vignes (eds.), *Handbook on the New Law of the Sea*, Vol. 1 (Brill, 1991), p. 247; M. Seta, “Kaiyou governance no kokusaihou – fuhentekikankatsuken wo tegakari to shite,” (Sanseido, 2006), pp. 19-20.

<sup>21</sup> A. Pardo, “Perspectives on Ocean Governance,” J. M. Van Dyke et al. (eds.), *Freedom for the Seas in the 21<sup>st</sup> Century, Ocean Governance and Environment Harmony* (Island Press, 1993), pp. 38-39.

<sup>22</sup> *Ibid.* See also, T. Scovazzi, “The Evolution of International Law of the Sea: New Issues, New Challenges,” *Collected Courses of the Hague Academy of International Law* 286(2000), p. 54; Seta, *supra* note 20, pp. 19-20.

<sup>23</sup> F. Lyall and P. Larsen, *Space Law A Treatise* (Ashgate, 2009), p. 156.; Y. Osada, “Ryouku seido to koukuu kyoutei,” Kokusihougakkai (ed.) *Nippon to kokusaihou no 100 nen* Vol. 2, (Sanseido, 2001), p. 128.

<sup>24</sup> F. Lyall et al., *Ibid.*

that the air space was not part of the territory of the countries underneath it.<sup>25</sup> According to the argument, foreign aircraft can basically fly freely over the territories of other countries.<sup>26</sup> The most representative scholar of such an argument was Paul Fauchille.<sup>27</sup> David Johnson pointed out that the free air theory was held because it was associated with the freedom of the seas.<sup>28</sup> However, as flight technology developed, countries began having stronger concerns as to the flights of foreign aircraft over their territories from defense perspectives.<sup>29</sup>

(2) The abovementioned concerns became dominant during WW I<sup>30</sup> because aircraft had been widely used as a means of carrying out military operations. After the war, at the Conference on International Air Law at Paris, 1919, the participating countries agreed on the Convention on the Regulation of Aerial Navigation (Paris Convention).<sup>31</sup> Article 1 sets out that every power has complete and exclusive sovereignty over the air space above its territory. This principle was also adopted by the Ibero-American Convention (1926)<sup>32</sup> and the Pan-American Convention on Commercial Aviation (1928).<sup>33</sup> In 1944, during WW II, the Convention on International Civil Aviation (Chicago Convention)<sup>34</sup> was adopted. Article 1 adopted the language of Article 1 of the Paris Convention. It is common understanding that the principle stipulated in Article 1 of the Chicago Convention confirms the

---

<sup>25</sup> D. Johnson, *Right in Air Space* (Manchester University Press, 1965), pp. 12-13; Y. Osada, *supra* note 23, pp. 129-130.

<sup>26</sup> *Ibid.*

<sup>27</sup> *Ibid.*

<sup>28</sup> Johnson, *supra* note 25, p. 14.

<sup>29</sup> Osada, *supra* note 23, pp. 130-131.

<sup>30</sup> Osada, *Ibid.*; Johnson pointed out that when the First World War broke out, Great Britain had twelve military aircraft, but she finished the war with twenty-two thousand. (Johnson, *supra* note 25, p. 26).

<sup>31</sup> Convention on the Regulation of Aerial Navigation, Paris, 13 Oct. 1919.

<sup>32</sup> The Ibero-American Convention, Madrid, 1 Nov. 1926.

<sup>33</sup> The Pan-American Convention on Commercial Aviation, Havana, 20 Feb. 1928.

<sup>34</sup> Convention on International Civil Aviation (Chicago Convention). Between the parties to the Chicago Convention, the Paris Convention is superseded by the Chicago Convention (Article 80, Chicago Convention).



customary international law.<sup>35</sup>

(3) Article 2 of the Paris Convention sets out that in times of peace, each contracting State undertakes to allow freedom of innocent passage above its territory to the aircraft of the other contracting States, provided that the conditions laid down in the present Convention are observed. However, there were several restrictions on the aforementioned freedom under the convention.<sup>36</sup> In addition, due to the growing concerns of many countries concerning the overflights of aircraft of other countries and the intensifying international competition among aircraft carriers,<sup>37</sup> an amendment to the Paris Convention in 1929 denied the freedom of innocent passage.

(4) Regarding the physical extent of the territorial air space, Article 2 of the Chicago Convention stipulates that the territory of a state shall be deemed to be the land areas and territorial waters adjacent thereto under the sovereignty, suzerainty, protection or mandate of such a state. Regarding the vertical limit of the air space in which the sovereignty of the countries underneath that air space is applied, John C. Cooper pointed out that the French and Italian versions of the term “air space”<sup>38</sup> stipulated in Article 1 of the Paris Convention are “espace atmosphérique” and “spazio atmosferico,” respectively, and that state sovereignty is asserted in the region of space where air is present in sufficient quantities to support balloon or airplane

---

<sup>35</sup> S. Yamamoto, “Kokusaihou shinban,” (Yuhikaku, 1994), p. 462. As to the timing of the establishment of this customary international law, there are diverse views. Lyall et al. opine that it was established by the Paris Convention (*supra* note 23, p. 160). J. C. Cooper is of the view that it was established before the First World War (J. C. Cooper, “State Sovereignty in Space: Developments 1910 to 1914,” I. A. Vlasic (ed.), *Explorations in Aerospace Law: Selected Essays by John Cobb Cooper 1946 – 1966* (McGill University Press, 1968), p. 135. Osada opines that the customary international law developed expeditiously during the WW I (Osada, *supra* note 23, p. 131).

<sup>36</sup> e.g.: restriction for military reasons or in the interest of public safety (Art. 3).

<sup>37</sup> Yamamoto, *supra* note 35, p. 463.

<sup>38</sup> Article 1 of the Chicago Convention uses the term “airspace.” The author notes that there is no substantial difference between “air space” and “airspace.”

flight above the areas that are regulated by the convention.<sup>39</sup> He also stated that international law contains no presently accepted rule as to whether usable space above and beyond the airspace is or is not part of the territory of the State below.<sup>40</sup>

(5) As mentioned above, after WW I, states moved quickly toward the establishment of sovereignty over the air space above their territories and, thus, denied the freedom of flight. To a certain extent, the Paris Convention included the freedom of innocent passage as a result of the adjustment of interests between the countries that aim at developing the commercial flight industry and the countries that fear the flights of other countries' aircraft over their territories. The freedom of innocent passage, however, was denied during the period between the two world wars. While there is a principle of innocent passage in the territorial seas in the law of the seas, in the case of air space law, aircraft can be used to conduct armed attacks from overhead and can dominate the domestic transport market because of its speed. The author believes that these characteristics of air space and aircraft had a significant impact on the nature of air space law, which is clearly different from the law of the seas.<sup>41</sup>

### 3. Norm-generating Dynamics in the Development of Space Law and its Essential Nature

As mentioned above, the essential nature of the regime of the law of the seas, in particular the regimes of the territorial seas and the high seas, has been largely determined by the adjustment of interests between the coastal countries and the sea powers. In the air space law regime, the adjustment of interests between the countries that aim to develop the air flight industry and the countries that fear the adverse effects of overflights of other

---

<sup>39</sup> J. C. Cooper, "High Altitude Flight and National Sovereignty," *International Law Quarterly* 4, No. 3 (July 1951), pp. 413-414. In this connection, Cooper explains that from the twelfth through the sixteenth century, the law of the subjacent state was always effective in space to the extent necessary to protect the legal rights to the use of such space given by the state to its citizens. (J. C. Cooper, "Roman Law and the Maxim Cujus Est Solum in International Air Law," *McGill Law Journal* 1, No. 1 (Autumn 1952), p. 44.)

<sup>40</sup> Cooper, *Ibid.* (1951), pp. 413-414.

<sup>41</sup> Osada, *supra* note 23, p. 128.

countries' aircraft was the critical determinant of its essential nature. In other words, these interests demonstrated by diverse groups of countries and the adjustment of interests among them have been the most significant norm-generating dynamics. Then, what norm-generating dynamics have determined the essential nature of the space law regime?

(1) During the first years of the Committee on the Peaceful Uses of Outer Space (COPUOS) of the United Nations, after its establishment in 1959, a significant disaccord between the U.S. and the USSR existed regarding issues such as the membership of the Committee, which made it difficult to deepen discussions on the substance. In 1962, however, they agreed on the development of a set of principles regarding space activities in the form of a United Nation General Assembly (UNGA) resolution. Thus, the UNGA adopted the resolution titled "Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space" (Legal Principles resolution).<sup>42</sup> In 1966, the two superpowers submitted their respective drafts on the OST to the COPUOS. The delegations from twenty-eight countries began negotiations at the COPUOS's Legal Subcommittee in July, which led them to the eventual adoption of the final text at the UNGA in December. At that time, there were dynamics toward detente after the Cuba crisis of 1962. In line with that trend, the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water was signed and entered into force in 1963. Because of that background, the OST had a framework for non-placement in orbit around the Earth of weapons of mass destructions.<sup>43</sup> Therefore, it was natural that the central axis of the adjustment of interest at the negotiation of the OST was between the U.S. and the USSR, which were the leaders of the two camps under the Cold War and the two largest space-faring countries. This structure was exemplified by the fact that the negotiation of the OST was substantially finalized by direct talks between them at its final stage.<sup>44</sup> All the members of COPUOS

---

<sup>42</sup> U.N. Doc. A/RES 1962 (XVIII)

<sup>43</sup> Article IV, the OST.

<sup>44</sup> F. Ikeda, "Uchutentaijouyaku no kihonkouzou," *Kokusaihougaikouzasshi*, 67-1 (1968), p. 5.

made contributions, although the space-faring countries<sup>45</sup> had dominant roles.<sup>46</sup> Professor Yamamoto pointed out in his paper of 1976 that international agreements on space activities tended to be dealt with in the context of the overall international politics between the East and the West or between the North and the South and that the negotiation of those agreements required direct talks between the U.S. and the USSR or between the North and the South.<sup>47</sup> During the negotiation of the OST, developing countries spoke against the space-faring countries' supremacy in space activities. Those arguments were basically aimed at preserving their future interests regarding space activities.<sup>48</sup> In other words, the adjustment of interests during the OST negotiation mostly took place between several advanced space-faring countries as well as between the advanced space-faring countries and the developing space-faring countries.<sup>49</sup>

(2) In the community of the countries that participated in the negotiation of the OST, there were other types of countries as well, which are the countries on which space activities of other countries might have an impact (hereinafter referred to as “impacted countries.”). One should not dismiss several provisions in the OST that are important for safeguarding the legal interests of the impacted countries. For example, Article IV stipulates the obligation not to place in orbit around the Earth any objects carrying nuclear weapons or any other types of weapons of mass destruction, and so forth. Under Article VI, the State parties shall bear international responsibility for their space

---

<sup>45</sup> By 1966, only the USSR, the U.S. and France had launched successfully orbital satellites.

<sup>46</sup> Christol, *supra* note 4, p. 49.

<sup>47</sup> S. Yamamoto, “Uchukaihatu”, Yamamoto et al. (eds.) *Miraisyakai to hou*, (Chikumashobou, 1976), p. 32.

<sup>48</sup> F. von der Dunk and F. Tronchetti (eds.), *Handbook of Space Law* (Elgar, 2015), p. 9.

<sup>49</sup> Yamamoto pointed out that there are countries which are overwhelmed for the time being by the domestic development agendas that require the introduction of conventional technologies. He also stated that such countries cannot afford to take part in space activities, and they do not tend to complain about the way in which the space-faring countries are carrying out space activities, unless their interest vis-à-vis the space exploration is secured or the space activities of the space-faring countries causes harm to them. Yamamoto, *supra* note 47, p. 4.

activities, even when performed by nongovernmental entities. Article VII sets out international liability in the case of damage to another States party. Additionally, the second sentence of Article IX stipulates that state parties shall pursue studies of outer space and conduct exploration to avoid adverse changes in the Earth's environment resulting from the introduction of extraterrestrial matter. Additionally, the Liability Convention, which supplements the OST,<sup>50</sup> establishes liability principles in the case of damage to the surface of the Earth or to aircraft in flight (Article 2).

(3) However, regarding the overall picture of space treaties, there are few provisions aimed at safeguarding the legal interests of impacted countries. As mentioned above, there are a few provisions for that purpose, but they tend to be somewhat abstract.<sup>51</sup> Regarding the process of negotiating space treaties, the adjustment of interests took place mostly among space-faring countries. It is safe to say that addressing the calls from the impacted countries to restrict space activities was not the main factor that governed the essential part of the negotiation.

(4) This structure of the norm-generating dynamics impacted the decision-making method at the COPUOS. Since the presence of the two superpowers at the COPUOS was so significant that, even though the Committee tried to make decisions by majority voting, it was not realistic that those decisions would be properly implemented unless the superpowers agreed. In 1962, the Chairperson of the COPUOS spoke in favor of making decisions in such a way that the Committee would be able to reach an agreement without the need for voting.<sup>52</sup> In response to that statement, the delegation of India stated that it was a wise decision because no solution that was not acceptable to the two space powers could be implemented.<sup>53</sup> This was the start of the

---

<sup>50</sup> L. Smith and A. Kerrest, "Article II(Absolute Liability)," S. Hobe et al. (eds.), *Cologne Commentary on Space Law* Vol.2 (Carl Heymanns Verlag, 2009), p.119.

<sup>51</sup> Yamamoto, *supra* note 47, pp. 99-100.

<sup>52</sup> U.N. Doc. A/5181, 27 Sept. 1962, para. 4.

<sup>53</sup> U.N. Doc. A/AC.105/PV.13, 13 Sept. 1962, p. 7. The Indian Delegation also stated that the other countries, including India, were also

longstanding practice of consensus-based decision making at COPUOUS.

(5) In short, the most significant characteristic of space treaties is that they are products of interest adjustments among space-faring countries, particularly the U.S. and the USSR, for the most part. There was undoubtedly an adjustment of interests between the advanced space-faring countries and the developing space-faring countries. However, the adjustment of interests between the space-faring countries and the impacted countries was not the main dynamic that shaped the treaties. Professor Yamamoto stated that there were two characteristics of the OST, which were, first, to establish an international basis and environment for space exploration<sup>54</sup> and, second, to remove its obstacles [...] and ensure free competition and mutual adjustment between the countries engaging in space activities.<sup>55</sup> The author concurs with this view, bearing in mind the norm-generating dynamics that shaped the OST.

(6) At the UNGA in December 1966, in which the draft OST was adopted, U.S. Ambassador Goldberg advised that not every detail had been accommodated and that there had been no intention to deal with every contingency that might arise in the exploration and use of outer space, many of which are unforeseeable, but rather, the intention was to establish a set of basic principles.<sup>56</sup> Then, after the space treaties were entered into force, cases in which the impacted countries began requesting larger power over the space activities of other countries emerged. Did the adjustment of interests between space-faring countries and impacted countries influence the structure of the space law regime?

---

equally interested, and it was therefore natural that they must pressure the two Powers to come to some speedy agreement. *Ibid.*

<sup>54</sup> Yamamoto, *supra* note 47, p. 5.

<sup>55</sup> *Ibid.*

<sup>56</sup> Staff of Senate Committee on Aeronautical and Space Sciences, "Report on Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies," 90<sup>th</sup> Congress, 1<sup>st</sup> Session, 16 (1967), p. 16. This was mentioned by Christol, *supra* note 4, p. 50.

(7) There were certainly cases in which the impacted countries argued for more power and influence over the space activities conducted by the space-faring countries.

(a) The first serious confrontation between the interests of the space-faring countries and that of the impacted countries broke out when the countries of the communist regimes and Islamic countries began having concerns regarding the direct broadcasting from the satellites of the Western countries. In 1972, the “Declaration of Guiding Principles on the Use of Satellite Broadcasting for the Free Flow of Information, the Spread of Education and Greater Cultural Exchange” was adopted at the General Conference of the United Nations Educational, Scientific and Cultural Organization<sup>57</sup>. It requires states, taking into account the principle of freedom of information, reach or promote prior agreements concerning direct satellite broadcasting to the populations of countries other than the country of origin of the transmission.<sup>58</sup> Western countries, including the U.S. and the United Kingdom (U.K.), were opposed to it, and the resolution was adopted by the majority without their consent. At COPUOS, too, discussions on principles vis-à-vis the use of direct satellite broadcasting began, but the negotiation of the resolution was prolonged due to the discrepancies between the interests of the countries that requested restrictions on such broadcasting and those of the space-faring countries. Finally, “Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting”<sup>59</sup> was adopted at the UNGA in 1982 by majority vote. Western countries, again, opposed it or abstained.

(b) In 1986, at the UNGA, a resolution titled “Principles relating to remote sensing of the Earth from outer space” was adopted.<sup>60</sup>

---

<sup>57</sup> Declaration of Guiding Principles on the Use of Satellite Broadcasting for the Free Flow of Information, the Spread of Education and Greater Cultural Exchange (1972), at <https://unesdoc.unesco.org/ark:/48223/pf0000002136>.

<sup>58</sup> *Ibid.*, paragraph 1, Article IX.

<sup>59</sup> U.N. Doc. A/RES 37/92, 10 Dec. 1982, Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting.

<sup>60</sup> U.N. Doc. A/RES 41/65, 3 Dec. 1986, Principles relating to remote

Its Principle XII sets out that the sensed State shall have access to the information on a nondiscriminatory basis and at reasonable cost terms. The sensed State shall also have access to the available analyzed information concerning the territories under its jurisdiction in the possession of any State participating in remote sensing activities on the same basis and terms, taking particularly into account the needs and interests of the developing countries.<sup>61</sup> This resolution was adopted without voting. It is a common view that at least a large part of it became a customary international law.<sup>62</sup>

(c) In 1992, the UNGA adopted a resolution titled “Principles Relevant to the Use of Nuclear Power Sources in Outer Space.”<sup>63</sup> Behind this resolution was an incident of radioactive contamination in Canada caused by the falling of the USSR satellite COSMOS 954 in 1978. This resolution requires states to take measures to secure the safety of the nuclear reactors of satellites.

(d) Additionally, in 1996, the UNGA adopted a resolution titled “Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries.”<sup>64</sup> This can be interpreted as an attempt to clarify the language of the first sentence of Article I of the OST (The 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, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.). Since the term “all state” does include the impacted countries, their interests, too, should be construed to

---

sensing of the Earth from outer space.

<sup>61</sup> *Ibid.*, Principle XII.

<sup>62</sup> der Dunk et al (eds.), *supra* note 48, pp. 518-519.

<sup>63</sup> S. Aoki, “Nippon no uchusenryaku,” Keio University (2006), p. 86; U.N. Doc. A/RES 47/68, 14 Dec. 1992, Principles Relevant to the Use of Nuclear Power Sources in Outer Space.

<sup>64</sup> U.N. Doc. A/RES 51/122, 13 Dec. 1996, Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries.



be covered by this resolution.

(e) There is another case in which developing countries called for an expansion of their jurisdiction to outer space. In 1976, eight countries, *i.e.*, Brazil, Colombia, Congo, Ecuador, Indonesia, Kenya, Uganda, and Zaire, issued the “Declaration of the First Meeting of the Equatorial Countries.”<sup>65</sup> In the declaration, which is famously known by its unofficial title of the Bogotá Declaration, eight countries declared that the geostationary synchronous orbit is a physical fact linked to the reality of our planet because its existence depends exclusively on its relation to gravitational phenomena generated by the earth, which is why it must not be considered part of the outer space. Therefore, the segments of geostationary synchronous orbit are part of the territory over which equatorial states exercise their national sovereignty. It also stated that the OST cannot be considered a final answer to the problem of the exploration and use of outer space, even less when the international community is questioning all the terms of international law that were elaborated when the developing countries could not count on adequate scientific advice and were, thus, not able to observe and evaluate the omissions, contradictions and consequences of the proposals that were prepared by the industrialized powers for their own benefits.<sup>66</sup> However, their argument did not receive broad support internationally. Regarding the slots on the geostationary earth orbit, there are countries that are not comfortable with the so-called “first-come-first-served” practice, and that was part of the background of inserted paragraph 2, Article 44 of the Constitution of the International Telecommunication Union, which stipulates, in its pertinent part, that in using frequency bands for radio services, Member States shall bear in mind that radio frequencies and any associated orbits, including the geostationary-satellite orbit, are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of the Radio Regulations, so that countries or groups of countries

---

<sup>65</sup> La Declaración de Bogotá, at [https://ops-alaska.com/IOSL/V1P4/1976\\_BogotaDeclaration\\_ES.pdf](https://ops-alaska.com/IOSL/V1P4/1976_BogotaDeclaration_ES.pdf).

<sup>66</sup> *Ibid.*, paragraph 4.

may have equitable access to those orbits and frequencies, taking into account the special needs of the developing countries and the geographical situations of particular countries.<sup>67</sup> Thus, it is not surprising that some countries showed some sympathy to the eight countries' argument.<sup>68</sup> However, the author believes that it was difficult for the eight countries to receive support for their arguments from broad range of countries, because the eight countries argued that the geostationary earth orbit is part of their territory; thus, countries other than the Equatorial countries, which were not entitled to such geographical locations, were not enthusiastic about the aforementioned arguments.

(f) As mentioned above, after the entry into force of the space treaties, interests' adjustments such as adopting the resolutions of the UNGA in response to the claims by the impacted countries occurred.<sup>69</sup> However, their contents are somewhat abstract, and they did not have sufficiently strong effects to ban the activities that the space-faring countries had planned to carry out. Moreover, some resolutions were adopted without the support of the advanced space-faring countries; thus, they cannot be expected to abide by such resolutions. They were not able to replace the relevant provisions of the space treaties. Thus, the author's view is that even after the resolutions above, the fundamental norm-generating dynamics that established the space law regime, that is, the adjustment of interests among space-faring countries, whether advanced or developing, have not changed substantially. In short, the essential nature of the space law regime is that it has been established basically as a consequence of the adjustment of the interests of space-faring

---

<sup>67</sup> Constitution of the International Telecommunication Union (Amendment of 1998), Art. 44-2.

<sup>68</sup> According to S. Gorove, Australia and Belgium, for example, showed some sympathy to the motivation of the eight countries. S. Gorove, "The Geostationary Orbit: Issues of Law and Policy," *American Journal of International Law* 73, No. 3 (1979), p. 454.

<sup>69</sup> V. Kopal also mentioned: "Politically, the most outstanding feature of the 1986 Principles was the attempt at compromise between the interests of the sensing States, *i.e.* States possessing the necessary space capabilities on the one hand, and the needs of sensed States, many of them developing countries, on the other hand." See "The Role of United Nations Declarations of Principles in the Progressive Development of Space Law," *Journal of Space Law* 16, No. 1 (1988), p. 15.

countries.

#### **4. Physical Characteristics of Outer Space and the Essential Nature of the Space Law Regime**

Then, why did the claims by the impacted countries to expand their power over the space activities have little influence on the structure of the space law regime? The author believes that there are two reasons, as follows:

(1) First, over the six decades after Sputnik 1, there have been scarce occasions in which space activities have harmed the legal interest of the countries underneath outer space.

In the case of the law of the seas, foreign vessels might carry out activities that coastal countries cannot tolerate. Such activities include fishing, dumping of wastes, exploration of natural resources, broadcasting, illegal trade, and armed attacks. In the case of aircraft, they can fly in three dimensions, and without restrictions, they can fly out of the territory and carry out such activities as espionage and advocacies without the consent of the country of the territory they enter. There have also been many cases of armed attacks conducted by foreign aircraft. In contrast, Earth orbit satellites generally only circulate the Earth once they are put in orbit. Unless they are geostationary satellites or Quasi-Zenith Satellites, they pass over the territories of countries underneath it quickly. Some impacted countries raised concerns against direct broadcasting from foreign satellites, but the issue was substantially cleared with the development of jamming technology.<sup>70</sup> Space objects sometimes fall and impact the Earth's surface, but not much severe damage has occurred. Additionally, human beings have not experienced an armed attack from satellites. Ballistic missiles fly through outer space, but the international community has not discussed restricting those missiles, viewing them as the exploration and use of outer space, as stipulated in the OST.<sup>71</sup> In short, human beings have

---

<sup>70</sup> Aoki, *supra* note 63, p. 83.

<sup>71</sup> It is said that “Mars 15,” a ballistic missile launched by North Korea in 2017, reached a height of beyond 4,000 km (Defense White Paper 2020, Japan Ministry of Defense, 2000, p. 97). Although the definition of outer space has not been determined and nor has the delimitation between outer space and air space been decided, it is the author’s view that it is obvious that such a missile flies through outer space.

not experienced situations where space activities pose severe threats to the countries underneath outer space.

(2) Second, in addition to the rules of thumb described above, one can point out that outer space has physical characteristics very different from that of air space. Thus, from the viewpoint of the operations of spacecrafts and aircraft, outer space and airspace should be considered isolated. Spacecraft go through the airspace, but the duration of the passage is short. There are theoretical possibilities of collisions with aircraft, but during the launching and reentry phases, spacecraft are very vulnerable, and there is little chance for spacecraft to engage in hostile activities against other countries under the current technology. On the other hand, aircraft<sup>72</sup> cannot sustain lift in the atmosphere where the air becomes too dilute. It is said that the air beyond approximately 50 km above sea level cannot support aircraft.<sup>73</sup> Regarding the lowest altitude of the perigee of Earth orbit satellites, there are diverse views, but the Committee on Space Research (COSPAR) issued a report in 1976 that refers to approximately 90 km.<sup>74</sup> Therefore, aircraft in principle cannot fly at the height at which Earth orbit satellites are under regular operation.

In summary, although outer space and airspace are physically adjacent, due to their physical characteristics, they are isolated from the viewpoint of spacecraft and aircraft operations, and the respective activities are basically completed in the respective spaces. Under such circumstances, there are few cases in which space-faring countries and other countries need to solve conflicts regarding jurisdiction over specific activities, at least for the time being. In addition, due to the scarcity of occasions in which the jurisdictions of space-faring countries and other countries overlap, calls by impacted countries to expand their jurisdictions to outer space are not strong.

---

<sup>72</sup> As to the definition of Aircraft, Annex 6 to the Chicago Convention (Ninth Edition, 2010) stipulates in its Chapter 1: "Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface."

<sup>73</sup> Matte, *supra* note 6, p. 377.

<sup>74</sup> Study on Altitudes of Artificial Earth Satellites, U.N. Doc. A/AC.105/164, Annex I (6 Jan. 1976), p. 20.

(3) In short, there has been scarce need to adjust the interests of impacted countries and space-faring countries because the former has not felt significant adverse effects from space activities and because outer space and air space are isolated. The fact that the impacted countries have not felt significant adverse effects from space activities is also derived from the physical characteristics of outer space. Therefore, the essential nature of the space law regime is significantly derived from the physical characteristics of outer space.

(4) The nature of the space law regime is significantly different from that of the sea law. The sea law has developed as a consequence of the adjustment of interests between different interest groups; i.e., coastal countries tend to think from the viewpoint of the land, and sea powers tend to think from the viewpoint of the ocean. The nature of the space law regime is also different from the nature of the air space law regime. It has developed due to the adjustment of interests between the countries that pursued international flights and the countries that wanted to secure national security.

(5) In summary, the essential nature of the space law regime is that it exists basically for the coexistence of space-faring countries. In this regime, the adjustment of interests between the impacted countries and the space-faring countries has scarcely occurred. This is significantly derived from the physical characteristics of outer space.

## **5. Some Consequences of the Stated Characteristics of the Space Law Regime**

By understanding the essential nature of the space law regime in this way, it becomes easier to understand that some of the characteristics of the space law regime are derived from the aforementioned essential nature of the space law regime.

### **(1) The Delimitation issues**

(a) The first characteristic of the space law regime is the lack of a boundary between outer space and airspace. This issue has a

long history. In 1958, a year after Sputnik's launch, the Ad Hoc Committee on the Peaceful Uses of Outer Space began studying issues such as the nature of legal problems that may arise during the implementation of programs to explore outer space. It discussed from the outset the question of determining where outer space begins.<sup>75</sup> In 1966, COPUOS member countries negotiated the OST, but this issue was not solved successfully, and the treaty did not include the definition of outer space. The UNGA, by its resolution 2222, requested that COPUOS begin examining the outstanding issues, including one relative to the definition of outer space;<sup>76</sup> thus, this has been an agenda item of the COPUOS annual meetings since 1976.

(b) Since the debate at COPUOS has a history of over fifty years, the positions of the participating countries have evolved. However, one can summarize that the U.S. has constantly been of the view that it is premature to determine the boundary. The U.S. pointed out that (i) most countries have no capability to accurately determine the altitude of space objects and therefore have no way to monitor an altitude boundary, (ii) such a boundary would substantially affect not only the sovereign rights of states but also their ability to work together as a community of nations, and there have yet been adequate examinations of the many scientific, legal, technical and political factors relevant to the drawing of any particular line in the sky, and (iii) an arbitrary line might inhibit or even stifle future efforts to explore and use space.<sup>77</sup> The USSR first believed that it was not necessary to determine the boundary. However, in 1979, it proposed that the circumterrestrial space 100 (110) km above sea level shall be defined as outer space<sup>78</sup> and that the space objects of states shall retain the right to fly over the territories of other states at altitudes lower than 100 (110) km above sea level to reach orbit or return to earth in the territory of the launching state.<sup>79</sup>

---

<sup>75</sup> U.N. Doc. A/4141, 14 Jul. 1959, pp. 67-68.

<sup>76</sup> U.N. Doc. RES 2222 (XXI), 12 Dec. 1966, para. 4.(b).

<sup>77</sup> e.g., U.N. Doc. A/AC.105/C.2/SR.316, 9 Apr. 1979, pp. 2-3.

<sup>78</sup> However, the same proposal states that the boundary shall be subject to agreement between States and shall subsequently be confirmed by a treaty at an altitude not exceeding 100 (110) km above sea level.

<sup>79</sup> U.N. Doc. A/AC.105/C.2/L.121, 28 Mar. 1979. Since 1983, the

Regarding the positions of other countries, generally, countries that prioritize freedom of space activities tend to favor functionalism, and the countries that focus on status as impacted countries tend to favor spatialism. The latter wishes to determine the boundary to ensure that the lower boundary of outer space in which they cannot exercise sovereignty<sup>80</sup> is set at a certain altitude or higher. Regarding the position of the USSR, K. M. Gorove opines that it favored the spatial approach so that other countries do not further their claims of sovereignty to include portions of space lying in outer space.<sup>81</sup> Many countries surround the USSR, and in the case of spacecraft that return to the Earth by gliding like the U.S. space shuttles, it is necessary for them to fly over other countries' territories at heights below 100 (110) km to return to their territory.<sup>82</sup> That situation is different from that of the U.S. M. Benkö et al. opine that USSR's proposal to establish the right of free passage for spacecraft below 100 (110) km through foreign airspace for taking-off and landing is aimed at securing access to outer space.<sup>83</sup>

(c) One can deem that such a debate aims at clarifying the interpretation of the term "outer space" in the OST. However, there has not been any substantial progress, and it is unlikely that the international community will reach an agreement in the foreseeable future.

(d) The author mentioned in the introduction of this article a confrontation between spatialism and functionalism regarding the delimitation between outer space and air space. However, space treaties clearly have both aspects. For example, the

---

URSS's proposal has been such that "an altitude not exceeding 110 km above sea level, and shall be legally confirmed by the conclusion of an international legal instrument of a binding nature." See U.N. Doc. A/AC.105/C.2/L.139, 4 Apr. 1983.

<sup>80</sup> Article II, the OST.

<sup>81</sup> K. M. Gorove, "Delimitation of Outerspace and the Aerospace Object – Where is the Law," *Journal of Space law* 28, no. 1 (2000), p. 16.

<sup>82</sup> M. Benkö and E. Plescher, *Space Law, Reconsidering the Definition/Delimitation Question and the Passage of Spacecraft through Foreign Airspace* (Eleven International Publishing, 2013), p. 23.

<sup>83</sup> *Ibid.*, p. 32. K. M. Gorove opines that Russia came back to the Functionalist position. Gorove, *supra* note 81, p. 17.

prohibition of national appropriation of outer space (Article II of the OST) strongly reflects spatialism, as that provision governs the order of outer space. On the other hand, the principles of liability stipulated in the liability convention reflect functionalism. This is because the liability of damages caused by space objects in air space differs regarding damage to aircraft in flight and damage to a space object, even though such damage happens in the same air space. In the former case, it is absolute liability, and in the latter case, it is fault-based liability. Therefore, it is not productive to debate which school is more persuasive than the other. There is no agreed theory to delimit the boundary between air space and outer space, but that is not because there is a confrontation between the two schools nor because functionalism is prevailing; there is another fundamental reason. The physical nature of the ocean does not change basically from internal water through the high sea, despite the changes in factors such as waves, temperature, and wind. Therefore, the ships navigate the sea areas continuously, and it is even technically possible for them to stay in a particular sea area. In other words, the different sea areas are continuous. Therefore, it is natural for coastal countries to be concerned that ships with foreign flags might carry out activities in sea areas close to the coast that might be detrimental to the legal interests of those coastal countries. Thus, it is vital to the legal interest of coastal countries that they are able to determine the range of the territorial sea and enforce their laws and regulations to regulate the activities of ships with foreign flags.

On the other hand, air space and outer space are significantly different in their physical nature, and the two spaces are isolated from the viewpoint of aircraft and spacecraft operations. In addition, the spaces between the highest altitude of aircraft operations (approximately 50 km) and the lowest perigee of Earth orbit of artificial satellites (approximately 90 km), as well as the wide band of vicinity space are not being used except for the launch and return of spacecraft. Thus, there has not been momentum to determine the boundary between air space and outer space. The lack of the boundary has not caused practical issues thus far in the operations of aircraft and spacecraft. In



addition, law enforcement is significantly restrained in air spaces at very high altitudes at the current technology level.

In short, in the case of the ocean, it was necessary to delimit the boundary between the territorial sea and the high sea because the physical nature of the sea remains virtually the same as the internal water through the high sea. On the other hand, in outer space and air space, the delimitation of boundaries has not been necessary because the two spaces are isolated.

**(2) There are few universal international agreements.**

(a) In the space law regime, there has been no international agreement that aims at universal application except in the telecommunication sector since the Moon Agreement<sup>84</sup> was adopted in 1979.

(b) This is also primarily because the space law regime basically exists for the coexistence of space-faring countries. The space treaties that form the core of the space law regime were made to set out principles regarding space activities. However, the call by impacted countries to impose restrictions on those activities has not been very strong, and space-faring countries have been able to maintain a free community that is closed to actors outside of the community. In fields such as environmental law, civil society often presses governments to form international agreements. In contrast, there has been little pressure from civil society to impose stricter restrictions on space activities. In such a legal environment, there is little momentum to induce all the major space-faring countries to form binding international agreements, which is time-consuming and requires significant human and political resources. Furthermore, within the community of space-faring countries, the countries are not equally influential. It is the political reality that the U.S., the USSR, and other powers are far more powerful than others. Unless they agree on establishing a new legal obligation, it is challenging to do so. Additionally, for most space-faring countries, space activities have significant roles in their national security. It is even more challenging for them to impose new restrictions on their space activities if such

---

<sup>84</sup> Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. Its contracting parties include 18 countries (as of 1 Jan. 2020).

restrictions are likely to negatively impact national security-related space activities. Last, there is a significant law enforcement limitation in outer space, and thus, introducing new restrictions can only be achieved within that limitation.

(c) Therefore, since approximately the 1980s, space-faring countries have maintained the order of the community and promoted cooperative activities by producing non-legally binding international documents<sup>85</sup> that were dispersed among like-minded countries. This article does not aim at comprehensively categorizing those documents, but some examples are as follows:<sup>86</sup>

(i) When there is momentum for cooperation, multiple nations or their agencies can confirm their cooperation intention through a non-legally binding international document, and they conduct such cooperative activities voluntarily. For example, the National Institute of Communications Technology of Japan (NICT) and the National Oceanic and Atmospheric Administration of the U.S. (NOAA) share space weather data since 2014 based on an agency-to-agency arrangement that is not legally binding.<sup>87</sup>

(ii) When a country introduces a regulation to streamline the behavior of private entities under its jurisdiction, that country often attempts to persuade like-minded countries to introduce the same/a similar regulation to deter evasion from such regulation and to enhance its effectiveness. Legally binding agreements can be used for this purpose, but the governments/agencies concerned often agree that a non-legally binding international document can also achieve the policy goal in question. The Space Debris Mitigation Guidelines of the Committee on the

---

<sup>85</sup> In this context, the term “soft law” is often used, but the meaning of “soft” is not necessarily clear. The author of this article uses the term “non-legally binding international document” to describe “a non-legally binding document that is made between governments or its agencies of multiple countries.”

<sup>86</sup> K. Nakamura, “Uchukoutsuukanri ga uchuhoutaikei ni teiki suru kadai,” M. Asada et al. (eds.) *Kokusaikankei to hou no shihai – Owada Hisashi kokusaishihousaibansyosaibankan taininkinen* (Shinzansya, 2021).

<sup>87</sup> National Institute of Information and Communications Technology, “Kaigai no kenkyuukikan to MOU teiketsu”, NICT News No 441 (June 2014), at [http://www.nict.go.jp/data/nict-news/NICT\\_NEWS\\_1406\\_J\\_web.pdf](http://www.nict.go.jp/data/nict-news/NICT_NEWS_1406_J_web.pdf) (last visited on Aug. 16, 2020).

Peaceful Uses of Outer Space of 2007<sup>88</sup> are an example of this category.

(iii) Space-faring countries sometimes establish codes of conduct to regulate the activities of their governments/agencies and/or their private entities by creating non-legally binding international documents. The International Code of Conduct against Ballistic Missile Proliferation of 2003<sup>89</sup> is an example of this category.

(d) Whether cooperation makes progress basically depends on the degree of mutual trust and the momentum of such cooperation among the parties concerned. The question is not simple, as "legally binding agreements can achieve the goal, but non-legally binding documents cannot."<sup>90</sup> With such mutual trust and momentum, it is often possible to achieve the desired goal without unnecessary cost and dilution of contents that the negotiation of legally binding documents might cause. There are cases, however, in which legally binding documents are indispensable to achieve the desired goals. One of the typical examples is the case where the international community necessitates an enforcement mechanism. That said, making the best of non-legally binding international documents to promote international cooperation often makes sense<sup>91</sup> when bearing in mind the essential nature of the space law regime and the rapid evolution of the relevant technologies.<sup>92</sup>

(e) On the other hand, space-faring countries have established legally binding documents when they pursue specific projects. One of the most typical examples is the Agreement on the International Space Station (ISS). The ISS project was launched as a science and technology project among the U.S., Canada, European countries, and Japan in 1984, and in 1992, an old

---

<sup>88</sup> U.N. Doc. A/62/20, 5 Dec. 2007, Annex, Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space.

<sup>89</sup> U.N. Doc. A/57/724, 6 Feb. 2003, International Code of Conduct against Ballistic Missile Proliferation.

<sup>90</sup> G. M. Goh, "Softly, Softly Catchee Monkey: Informalism and the Quiet Development of International Space Law," *Nebraska Law Review* 87, no. 3 (2009), p. 730.

<sup>91</sup> *Ibid.*

<sup>92</sup> Goh, *supra* note 90, p. 726.

version of the ISS agreement entered into force. Since Russia participated in the project in 1993, the parties concerned developed a new agreement<sup>93</sup> in 1998, which entered into force in 2001. The ISS assembly on orbit began in 1998, and the first astronauts began stationing in 2000.<sup>94</sup>

This agreement stipulates provisions regarding issues such as ownership of elements and equipment, rights and obligations on utilization, funding, cross-waver of liability, customs and immigration, intellectual property, and criminal jurisdiction. To implement this agreement, the National Aeronautics and Space Agency (NASA) of the U.S. and each contracting partner or its agency sign a Memorandum of Understandings (MOUs). In addition, when necessary, they make implementing arrangements to implement the MOUs.

(f) Currently, an international program called the Artemis Program is progressing by utilizing that framework. This program, with the aim of exploring Mars and other planets as a long-term goal, is to establish an outpost (Gateway) in lunar orbit and to land astronauts on the Moon by 2024.<sup>95</sup> For that purpose, twelve countries – Australia, Brazil, Canada, Italy, Japan, Luxembourg, New Zealand, the Republic of Korea, Ukraine, the United Arab Emirates, the U.K., and the U.S. – developed a non-legally binding international document titled “Artemis Accord.”<sup>96</sup> This document aims to establish the basic principles of cooperation for the program based on the understanding that cooperative activities will be implemented through appropriate

---

<sup>93</sup> 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 Cooperation on the Civil International Space Station (2001)

<sup>94</sup> Japan Ministry of Foreign Affairs, “International Space Station Project,” (2016) at <https://www.mofa.go.jp/mofaj/gaiko/technology/universe/iss.html> (last visited on Nov. 15, 2020).

<sup>95</sup> National Aeronautics and Space Administration, “What is Artemis,” (2019), at <https://www.nasa.gov/what-is-artemis> (last visited on Nov. 16, 2020).

<sup>96</sup> The Artemis Accords, Principles for Cooperation in the Civil Exploration and Use of the Moon, Mars, Comets, and Asteroids for Peaceful Purposes, at <https://www.nasa.gov/specials/artemis-accords/img/Artemis-Accords-signed-13Oct2020.pdf>.

instruments such as MOUs and implementing arrangements. The U.S. government is currently undertaking negotiations with other governments on the aforementioned MOUs under the ISS agreement.

(g) Regarding the exploration of lunar resources, the Moon Agreement does exist, but as mentioned above, the number of contracting parties is still limited. Moreover, countries that are to begin actual activities toward lunar exploration have not agreed to it. The U.S. objects to any attempt by any other state or international organization to treat the Moon Agreement as reflecting or otherwise expressing customary international law.<sup>97</sup>

(h) In this regard, it is worth mentioning that the Leiden University of the Netherlands established the Hague International Space Resources Governance Working Group (Hague WG) in 2016. It had discussions on potential international frameworks regarding exploring and utilizing space resources by gathering experts from diverse backgrounds.<sup>98</sup> The Hague WG published “Building Blocks for the Development of an International Framework on Space Resource Activities” (Building Blocks) in 2019, which enumerates the desired components of a future international framework.<sup>99</sup> Keeping in mind the essential nature of the space law regime that this article discussed, new norms necessary for implementing specific projects tend to be agreed upon in a reasonable time frame if they are negotiated to the extent necessary among only the participants of the projects. The Hague WG suggested that it refrains from prejudging the specific form

---

<sup>97</sup> The White House, “Executive Order on Encouraging International Support for the Recovery and Use of Space Resources,” (Apr. 6, 2020), Sec. 2.

<sup>98</sup> Universiteit Leiden, “The Hague International Space Resources Governance Working Group,” at <https://www.universiteitleiden.nl/en/law/institute-of-public-law/institute-of-air-space-law/the-hague-space-resources-governance-working-group> (last visited on Nov. 20, 2020).

<sup>99</sup> “Building Blocks for the Development of an International Framework on Space Resource Activities,” at <https://www.universiteitleiden.nl/binaries/content/assets/rechtsgeleerdheid/instituut-voor-publiekrecht/lucht--en-ruimterecht/space-resources/bb-thissrwwg--cover.pdf>.

or structure of the future international framework.<sup>100</sup> The author of this article is of the view that this approach reflects the reality derived from the essential nature of the space law regime that this article discusses.

## **6. Potential Factors that might Impact the Essential Nature of the Space Law Regime in the Future**

Will there be a possibility of any change in the essential nature of the space law regime in the future? The author is of the view that some potential factors might necessitate the adjustment of interests among actors within and outside the community of space-faring countries.

(1) First, if many impacted countries begin calling for the enhancement of their powers over space activities or requesting new restrictions on those activities, a new structure for the adjustment of interests might emerge. It is not certain in what situation such a new structure would emerge. However, if the deployment of many large constellations causes radio frequency interference with the satellites on the geostationary orbit on which some countries highly depend, those countries might begin raising concerns in such a forum as International Telecommunication Union.

(2) If the abovementioned premise (the air space and the outer space are isolated from the viewpoint of the operations of aircraft/spacecraft) breaks down, new challenges might emerge. Examples of such situations include (a) a number of operations of suborbital craft gliding through long distances of air space in which regularly aircraft fly and the need to coordinate the traffic of such suborbital craft and aircraft emerges, and (b) the operation of suborbital craft causes interference with the operation of Earth orbit satellites, and the country of the operating company of the suborbital craft claims exclusive sovereignty over the suborbital flights. The adjustment of interests among different parties would be even more difficult

---

<sup>100</sup> O. de O. Bittencourt Neto et al (eds), "Building Blocks for the Development of an International Framework on Space Resource Activities A Commentary," *Eleven International Publishing* (2020), pp. 1, 19, at <https://boeken.rechtsgebieden.boomportaal.nl/publicaties/9789462361218#0>.

when military space vehicles are involved.

(3) Large constellations are expected to become vital infrastructures for the deployment of 5G and future 6G. Since many countries are expected to be dependent on the sustainable operations of constellations, there might be cases in which a group of countries urges space-faring countries to take action to ensure the sustainable use of outer space. Those countries might be acting from neither the viewpoint of space-faring countries nor that of impacted countries.

(4) Last, there will be voices within the community of space-faring countries that urge the introduction of new restrictions on space activities. Typical examples are the ongoing debates regarding space traffic management. Additionally, in the field of disarmament, there has been little progress in the prevention of an arms race in outer space (PAROS) at the Disarmament Conference over many years. The negotiation of the International Code of Conduct for Outer Space Activities was abandoned. Under such circumstances, the U.K. submitted a draft UNGA resolution in August 2020, which called for a global discussion on what responsible behavior in space looks like to avoid conflict in space, and it was adopted at the UNGA in December 2020.<sup>101</sup> It could be a basis for the confidence building that is necessary to mitigate arms races and prevent conflict in outer space.<sup>102</sup> Additionally, one can imagine a situation where developing space-faring countries claim the preservation of their future interests regarding space resources while advanced space-faring countries progress in exploring space resources.

## Conclusion

This article conducted an experimental study regarding the essential nature of the space law regime by focusing on norm-generating dynamics. When identifying the norm-generating dynamics of the space law regime, the author compared it with

---

<sup>101</sup> U.N.Doc. A/RES/75/36, 7 Dec. 2020.

<sup>102</sup> GOV.UK, “UK push for landmark UN resolution to agree responsible behaviour in space,” at <https://www.gov.uk/government/news/uk-push-for-landmark-un-resolution-to-agree-responsible-behaviour-in-space> (last visited on Nov. 26, 2020).

the law of the sea and the air space law. Throughout the history of space activities since 1957, there have not been many occasions on which impacted countries experience strong adverse effects from space activities. In addition, although air space and outer space are adjacent, they are isolated from the viewpoint of the operation of flights in airspace and outer space activities. These two facts are consequences of the physical nature of outer space. The space law regime can be characterized as a law regime for the coexistence of space-faring countries. However, there is a possibility that new dynamics may emerge within and outside the community of space-faring countries because of the development of new technologies, the advancement of new space activities, the expanding presence of private companies conducting space business, and the adverse effects of space activities, including the growing population of space objects and space debris. There might be some changes in the regime's structure if a new type of interest adjustment occurs. It is vital to understand the essential nature of the space law regime and its reason when thinking about international rulemaking. The author of this article hopes that the experimental study attempted in this article is helpful for that purpose.

Fernand Braudel, in his book titled *The Mediterranean and the Mediterranean World in the Age of Philip II*, wrote that the sea in the sixteenth century was an immensity of water; man's efforts had only conquered a few coastal margins, direct routes, and ports of call, and that great stretches of the sea were as empty as the Sahara.<sup>103</sup> For most countries except for advanced space-faring countries, outer space might have been like the "great stretches of the sea." However, in the same sixteenth century, Spain and Portugal, the two major sea powers at that time, had already reached the opposite side of the Atlantic. Since then, other sea powers, including the Netherlands and Great Britain, have emerged, and national interest conflicts between these countries and coastal countries led to the law of the sea. This history suggests that as advanced space-faring countries further

---

<sup>103</sup> F. Braudel, *The Mediterranean and the Mediterranean World in the Age of Philip II* Vol. 1 (Harper & Row, 1966), pp. 103-104.



advance their space activities, including the exploration of lunar resources and the deployment of large constellations, and that as developing space-faring countries expand their space activities, it might become necessary to readjust the agreements due to changes in the interests of various groups, which might lead to a change in the structure of the space law regime.