

## EFFECTS OF THE BOGOTA DECLARATION ON THE LEGAL STATUS OF GEOSTATIONARY ORBIT IN INTERNATIONAL SPACE LAW<sup>1</sup>

### Abstract

*In late 1976, eight States traversed by the Equator convened in Bogotá, Colombia to canvass their rights over 'a natural resource' which in their belief, had been unfairly removed from their sovereignty. These States felt that their rights to control natural resources which nature has bestowed in their region had been unfairly abridged particularly by Article II of the Outer Space Treaty, 1967 which concretises the rule that 'outer space, including the moon and other celestial bodies, is not subject to national appropriation.' At the conclusion of the conference, these States including Colombia, Ecuador, Congo, Indonesia, Kenya, Uganda, and Zaire, with Brazil as an observer, proclaimed the Bogotá Declaration to assert their rights over the geostationary orbit (GSO). To circumvent the Outer Space Treaty's declaration that outer space is not subject to national appropriation, the Bogotá Declaration smartly categorized the geostationary orbit as a natural resource, but failed to recognise it as a region of outer space. Accordingly therefore, these States in their opinion could call on the jus cogens principle that States have absolute control over their natural resources to exercise sovereignty over the geostationary orbit. The crux of this paper is therefore to ascertain if the above Declaration has in any way altered the legal position of the geostationary orbit in relation to the present outer space regime position on free use of outer space. This article recommends, among other things, the need for a regulation that would ensure an equitable access to the orbit by all States. A doctrinal approach is adopted in the research.*

**Key words:** *Bogota Declaration, Geostationary Orbit, Outer Space Law, State Sovereignty, Non-appropriation Concept.*

### 1. Introduction

Constant progress in the field of space exploration has led to new possibilities for the use of outer space, and as a result the need for new legal regulations in this field has arisen. A significant example of this is the problem of the use of the controversial geostationary orbit. The geostationary orbit is a circular orbit located at a distance of about 35,800 kilometers over the earth's equator<sup>2</sup>, although it has been stated elsewhere that the GSO is 36,000 kilometers above the earth's equator<sup>3</sup>. A satellite placed in this orbit turns about the polar axis of the earth in the same direction and with the same period as that of the earth's rotation<sup>4</sup>. The positioning of artificial satellites in the geostationary orbit has now been proven to be of great practical importance for telecommunications. It is expected however, that this geostationary orbit will be used in the near future for several other applications.

The issue concerning utilization of the geostationary orbit presents some difficulty as a result of the fact that, due to technical considerations, the number of slots for the placement of artificial satellites in the orbit without causing mutual interferences is limited. The first artificial satellite, Syncom 2, was placed in geostationary orbit by National Aeronautics and Space Administration (NASA) on the 26th of July 1963 and by July 1977 the total number of geosynchronous satellites reached about one hundred<sup>5</sup>. Several experts in space technology have however expressed opinion that, no more than 180 space objects can be placed in geostationary orbit<sup>6</sup> at present.

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<sup>2</sup> S. Gorove, *Journal of Space Law*, Vol. 6, 1978, p.171. < [www.spacelaw.olemiss.edu/jsl/pdf/back-issues/jsl-6-2.pdf](http://www.spacelaw.olemiss.edu/jsl/pdf/back-issues/jsl-6-2.pdf) > accessed on May 9, 2016.

<sup>3</sup> The Bogota Declaration and Curious Case of Geostationary Orbit < [djilp.org/.../the-bogota-declaration-and-the-curious-case-of-geostationary-orbit/](http://djilp.org/.../the-bogota-declaration-and-the-curious-case-of-geostationary-orbit/) > accessed on May 18, 2016.

<sup>4</sup> S. Gorove, *op cit*.

<sup>5</sup> *Ibid*.

<sup>6</sup> *Ibid*.

The crucial task of developing an adequate system for the utilisation of the geostationary orbit by different States was undertaken by the International Telecommunication Union (ITU). The issue concerning utilisation of the orbit was also elaborately canvassed at the World Administrative Radio Conferences at Geneva in 1971 and 1977<sup>7</sup>, respectively. Research shows that the Final Act of the latter, signed on 13 February 1977 by the representatives of 106 countries, contains a plan assigning positions in the geostationary orbit for broadcasting satellites and frequency channels in the 11.7-12.2 GHz band to States in the ITU Region 1 (Europe and Africa) and 3 (Asia).<sup>8</sup> The juridical nature and utilization of the geostationary orbit, in our mind, has been previously treated in space law literature.<sup>9</sup> However, with the emergence of claims to exclusive sovereignty by Equatorial States over segments of this orbit, the matter has become the focus of heated debate and discussion on international realm.

In the main, ownership of empty space can be thought of as a different issue from that of land ownership on extraterrestrial bodies, because of its emptiness, the difficulty of defining its bounds, and the complexity of keeping anything within it. The United Nations 'Outer Space Treaty'<sup>10</sup> ascribes commonage principle to outer space and so reserves same for the good of mankind. Consequently therefore, the Treaty effectively prohibits private ownership of arbitrary parcels of empty space, although governments which have not signed the relevant treaties may decide to dispute/challenge the United Nation's authority in this matter.

The space ownership saga currently raises an issue of practical importance which is the allocation of slots for satellites in geostationary orbit. This is managed by the International Telecommunication Union (ITU). The 1976 Declaration of the First Meeting of Equatorial Countries, known as the **Bogotá Declaration**, signed by several countries located on the Earth's equator, however made serious attempt to assert sovereignty over those portions of the geostationary orbit that continuously lie over their national territory.<sup>11</sup> These claims did not receive wide international support or recognition and we doubt whether it has significantly altered the legal status of the geostationary orbit as an international environment as espoused in International Space Law.

## 2. The Bogota Declaration of 1976

It was Colombia, during the thirtieth session of the United Nations General Assembly in October 1975 that first laid claim to a segment of the geostationary orbit lying over its national territory. The representative of Colombia protested during the session that this segment is a part of the territory of his country and that 'it is not included in the conception of outer space alluded to in the Treaty on Principles Governing The Activities of States in The Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, signed in January 1967.'<sup>12</sup> This line of argument toed by Colombia was again expressed during the next session of UN General Assembly in 1976. At the same thirty-first session, an analogous stance was taken by Ecuador<sup>13</sup> and Panama.<sup>14</sup> To strengthen the above position, a special conference of eight Equatorial Countries was convened in Bogota, Columbia On November 29, 1976. This conference ended on December 3, 1976 with the signing of a common Declaration now known and called 'Bogota Declaration' setting forth in a systematic and detailed manner these nations' position

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<sup>7</sup>. *Ibid.*

<sup>8</sup>. *Ibid*

<sup>9</sup>. See among others, J. Busak, 'Geostationary Satellites and the Law', (1972) *Telecommunication Journal*, No. VIII.

<sup>10</sup>. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, , including the Moon and other Celestial Bodies, 1967.

<sup>11</sup> 'Text of Declaration of the First Meeting of Equatorial Countries'. Japan Aerospace Exploration Agency. 2007 01-23. Retrieved 2013-06-04 < [https://en.wikipedia.org/wiki/Bogota\\_Declaration](https://en.wikipedia.org/wiki/Bogota_Declaration) > accessed on 10 May, 2016.

<sup>12</sup>UN Doc. A/C.IIPV.2052, pp. 45-46. < [research.un.org/en/docs/ga/quick/regular/6](http://research.un.org/en/docs/ga/quick/regular/6) >, accessed on May 18, 2016.

<sup>13</sup>UN Doc. A/C. 11311PV.10, pp. 37-38. < [research.un.org/en/docs/ga/quick/regular/14](http://research.un.org/en/docs/ga/quick/regular/14) > accessed on May 18, 2016.

<sup>14</sup>.UN Doc. A/C.1/311PV.10, pp. 81-82.

on the legal status of the geostationary orbit.<sup>15</sup> As a base for their claim of sovereignty over segments of the geostationary orbit, these Equatorial States argued as follow: ‘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 and that is why it must not be considered part of the outer space’. This basic statement formed a strong opinion culminating in the Declaration - a proclamation of their national sovereignty over the respective segments of the geostationary orbit as being their ‘natural resource’. Positioning of devices in these segments shall therefore, according to the Declaration, require ‘previous and expressed authorization on the part of the concerned State’.<sup>16</sup>

The Bogota Declaration and the argument in its favour deal with the assertion that the rights of Equatorial States to treat segments of the geostationary orbit as being under their national sovereignty is founded on the fact that these segments, linked with their terrestrial territories by earth's gravitation, constitute one of the natural resources which the Resolutions of the United Nations General Assembly has recognized as belonging to States and especially to the developing countries as part of their ‘full and permanent sovereignty’.<sup>17</sup> The second argument in favour of the Declaration is formulated by way of deduction from the Space Treaty of 1967's silence on the precise definition of outer space. The geostationary orbit according to these States may be considered as being not a part of outer space in the meaning of this Treaty because the Treaty had not established a definition of outer space. From this lack of such a definition, the signatories of the Bogota Declaration seized the opportunity to draw a conclusion that Article II of the Treaty, forbidding any national appropriation of outer space, does not after all apply to the geostationary orbit.

The Equatorial Countries reiterated their claims to parts of the geostationary orbit at the ITU World Radio Conference held at Geneva in January-February 1977.<sup>18</sup> However, Several States participating in this Conference made formal declarations that ‘the assignment of positions in the geostationary orbit for broadcasting satellites are fully in conformity with the generally recognized principles and rules of international law’.<sup>19</sup> During its Sixteenth Session held in New York from March 14, to April 8, 1977, the United Nations Outer Space Legal Subcommittee for the first time debated the question relating to Bogota Declaration. It was debated in connection with two agenda items: ‘Elaboration of principles governing the use by States of artificial earth satellites for direct television broadcasting’ and ‘Matters relating to the definition and/or delimitation of outer space and outer space activities’ Three Equatorial Countries; Colombia, Ecuador and Guyana which at the time were not members of the UN Committee on the Peaceful Uses of Outer Space and of its Scientific and Technical, and Legal Subcommittees obtained at their request the right to attend the formal meetings of the latter.<sup>20</sup>

Colombian representative Mr. E. Gaviria forwarded the most extensive statement on behalf of the Equatorial Countries during the session. He presented in detail the position of the signatory States of the 1976 Bogota Declaration and proposed to convene a special international conference for considering ‘with the proper care and seriousness the definition of outer space and the special regime called for by phenomenon of the geostationary synchronous orbit’. Arguing that the proclamation of the national

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<sup>15</sup>.For a text of the Bogota Declaration, see *inter alia*‘ ITU Broadcasting Satellite Conference, Doc. No. 81-E (January 17, 1977). 6 *J. Space L.* 193 < <https://books.google.com/books?isbn=0792300912>> accessed on May 9, 2016. The representative of Brazil signed the Declaration as an observer.

<sup>16</sup>.With regard to the segments of the geostationary orbit over the open sea the equatorial States declared that they consider these segments as the ‘common heritage of mankind’ since they are beyond the national jurisdiction of States. See *ibid*.

<sup>17</sup>.To authenticate and garner required support for the Bogota Declaration, the Equatorial States cited the UN General Assembly Resolution 2692/XXV on. ‘Permanent sovereignty over the natural resources of developing countries and expansion of domestic sources of accumulation for economic development’ and the UN General Assembly Resolution 32S1/XXIX on ‘The Chatter on Economic Rights and Duties of States’. See *Ibid*.

<sup>18</sup>S. Gorove, *op cit*.

<sup>19</sup>ITU, Broadcasting Satellite Conference Doc. 266/Rev. 1 I - E<<https://books.google.com/books?isbn=3319053140>> accessed on May 9, 2016.

<sup>20</sup>.UN Doc. A/AC.105/C.2/SR. 266, p. 2. < [www.unoosa.org/pdf/transcripts/legal/AC105\\_C2\\_SR270E.pdf](http://www.unoosa.org/pdf/transcripts/legal/AC105_C2_SR270E.pdf)> accessed on May 9, 2016.

sovereignty over segments of the geostationary orbit is not contrary to the provisions of the 1967 Space Treaty, Mr. Gaviria contended simultaneously that this Treaty ‘did not take account of the interests of the developing countries’ and sought rather to ban the use of space for military purposes than to deal appropriately with the phenomenon of telecommunications.<sup>21</sup>

Ambassador M. A. Alborno from Ecuador expressed the view that a rejection of the claims of Equatorial Countries would lead to ‘a neocolonialism of outer space’. He compared these claims to national sovereignty over segments of the geostationary orbit with those concerning the admitted jurisdiction of the coastal States over the maritime economic zone of the sea.<sup>22</sup> The juridical analogy with the legal status of the maritime economic zone was also invoked by the Indonesian delegate, Mrs. I. M. Damanik who proposed to conclude a treaty stipulating ‘the granting of priority to Equatorial States in the use of the geostationary orbit.’<sup>23</sup> Mr. J. Sirnani who represented Kenya during the session stressed on the urgent need of the formulation of a definition of outer space taking into account the special position of Equatorial Countries with respect to the geostationary orbit forming part of their natural resources.<sup>24</sup>

This claim of sovereignty over segments of the geostationary orbit by Equatorial States attracted sharp criticisms by a number of delegations of member States of the United Nations Outer Space Legal Subcommittee. For example, the delegate of the Soviet Union, Mr. B. G. Maiorski, said the geostationary orbit is inseparable from outer space and the location of States did not create any right of ownership to it or to any of its segment.<sup>25</sup> The general view seems to be one that the geostationary orbit forms an integral part of outer space and unquestionably comes under the provisions of Article II of the Treaty of January 27, 1967 and therefore could not be subject to the exclusive sovereignty of States contrary to the opinion portrayed in Bogota Declaration.

### 3. Geostationary Orbit

The geostationary orbit is a circular orbit in the equatorial plane in which the period of sidereal revolution of the satellite is equal to the period of sidereal rotation of the earth and the satellite moves in the same direction as the earth's rotation<sup>26</sup>. In other word, the geostationary orbit means, an area in space which allows a satellite to remain in orbit over a single point of the earth's surface because of the gravitational pull of the earth, moon, and other planets.<sup>27</sup> When a satellite describes this particular orbit, it is said to be geostationary; such a satellite appears to be stationary in the sky when viewed from the earth, and is fixed at the zenith of a given point on the equator, whose longitude is by definition that of the satellite. That is to say, a satellite placed in this orbit turns within the same period as the earth itself and therefore remains stationary in relation to the underlying point in the earth. As viewed from a point on the earth's surface, the satellite always occupies the same fixed position in the sky. It was the famous British science fiction author, Arthur, C. Clarke, who in an article published in ‘Wireless World’ in October 1945 suggested for the first time in history the potential usefulness and advantages of the geostationary orbit for global communication purposes.<sup>28</sup> He proposed that, by placing three satellites in GSO, the earth could be blanketed with a communications net-work.<sup>29</sup>

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<sup>21</sup>.UN Doc. AI AC.105/C.2/SR. 77, p. 2-4. < [www.unoosa.org/pdf/transcripts/legal/AC105\\_C2\\_SR200E.pdf](http://www.unoosa.org/pdf/transcripts/legal/AC105_C2_SR200E.pdf)> accessed on May 9, 2016.

<sup>22</sup>.UN Doc. AI AC.105/C.2/SR.272, p. 3. < [www.unoosa.org/oosa/en/ourwork/.../moon-agreement.html](http://www.unoosa.org/oosa/en/ourwork/.../moon-agreement.html)> accessed on May 18, 2016.

<sup>23</sup>.*Ibid*, SR.272 at 6.

<sup>24</sup>.*Ibid*, SR.280 at 2. .

<sup>25</sup>.*Ibid*, SR.282, at 3; See also UN Doc. AI AC.105. L. 94 on Soviet position on the matter.

<sup>26</sup>. S. Gorove, *op cit*. p. 193.

<sup>27</sup>.Arnopolous, ‘The International Politics of the Orbit-Spectrum Issue’, (1982) 7 *ANNALS AIR & SPACE L.* 216.

<sup>28</sup>.International Telegraph Convention, May 17, 1865, 130 Consol. T.S. 198. <[www.itu.int/itudoc/about/itu/history/history.txt](http://www.itu.int/itudoc/about/itu/history/history.txt)>, accessed on May 18, 2016.

<sup>29</sup>.Clarke, ‘Extra-Terrestrial Relays: Can Rocket Stations Give World-Wide Radio Coverage?’, *WIRELESS WORLD*, Oct. 1945, at 305-08. <[lakdiva.org/clarke/1945ww/1945ww\\_oct\\_305-308.html](http://lakdiva.org/clarke/1945ww/1945ww_oct_305-308.html)>, accessed on May 18, 2016.

The importance of the geostationary orbit becomes apparent when one considers that most telecommunications, broadcasting, and weather satellites must be in an orbit over a specific point of the earth, usually over a receiving station.<sup>30</sup> Seven non-military uses for the geostationary orbit have been set forth by the United Nations Committee on Peaceful Uses of Outer Space to include: communications, meteorology, earth resources and environment, navigation and aircraft control, testing of new systems, astronomy, and data relay.<sup>31</sup> While these seven uses are by no means exclusive, they illustrate the many diversified technological activities that rely on the geostationary orbit for effective operation.

The geostationary orbit is located at an altitude of approximately 35,786 kilometers from the equator of the earth<sup>32</sup> and has a radius of 42,164 kilometers.<sup>33</sup> Although the radius of the orbit is quite expansive, it does not allow for an unlimited number of satellites. The reason for this limitation is that, while occupying a slot in space, a satellite requires a specific radio frequency in the electromagnetic spectrum.<sup>34</sup> These radio frequencies must be different and the satellites must be approximately eighteen kilometers apart in order to avoid interference between the different transmissions.<sup>35</sup> It is believed though theoretically, that the total number of satellites capable of remaining in geostationary orbit is approximately 2000.<sup>36</sup> The current number of satellites in geostationary orbit is 220.<sup>37</sup> Today, crowding of the geostationary orbit is a matter of serious concern not only among the technologically-advanced nations which are currently making use of this international resource, but also among developing countries which fear that no slot/space will be left for them to launch geostationary satellites in the future. This fear no doubt constitutes one of the basic reasons for Bogota Declaration by which means Equatorial States seek to preserve as well as protect the orbit from over encroachment by advanced nations.

#### 4. Legal Status of the Geostationary Orbit in International Space Law

The geostationary orbit over the Western Hemisphere has recently attracted serious attention from the international community due to the tensions generated by claim of sovereignty to a substantial portion of it by eight Equatorial Countries<sup>38</sup> in the so-called Bogota Declaration. In the said Declaration, it is stated that:

The geostationary orbit is a scarce natural resource, whose importance and value increase rapidly with the development of space technology and with the growing need for communication; therefore, the equatorial countries meeting in Bogota have decided to proclaim and defend on behalf of their peoples, the existence of their sovereignty over this natural resource.<sup>39</sup>

The Bogota Declaration in theory could be employed to prevent nations from launching satellites into geostationary orbit,<sup>40</sup> except probably with prior authorization by the Equatorial States. The signatories

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<sup>30</sup>M. J. Finch, 'Limited Space: Allocating the Geostationary Orbit' <scholarlycommons.law.northwestern.edu/cgi/view\_content.cgi?article> accessed on May 9, 2016

<sup>31</sup>'Physical Nature and Technical Attributes of the Geostationary Orbit': Study Prepared by the Secretariat, U.N. Doc. A/AC. 105/203, at 15-16 (1977).

<sup>32</sup>35,786 kilometers equals approximately 22,366 miles. Gehrig, 'Geostationary Orbit-Technology and Law', (1976) *19 Colloquium on the Law of Outer Space* 267, 268.

<sup>33</sup>42,164 kilometers equals approximately 26,352 miles. See *ibid*.

<sup>34</sup>Arnpolous, 'The International Politics of the Orbit-Spectrum Issue' *op. cit.* p. 216

<sup>35</sup>Arnpoulos, 'A Situation Study of the Orbit-Spectrum Issue :Model and Applications', (1983) *8 ANNALS AIR & SPACE L.* 288

<sup>36</sup>Arnpolous, 'The International Politics of the Orbit-Spectrum Issue' *op. cit.*

<sup>37</sup>'Physical Nature and Technical Attributes of the Geostationary Orbit' *op. cit.* p. 2.

<sup>38</sup>The eight countries are: Brazil, Colombia, Congo, Ecuador, Indonesia, Kenya, Uganda, and Zaire. Declaration of the First Meeting of the Equatorial Countries, Dec. 3, 1976, I.T.U. Doc. WARC-BS 81-E (1977), *reprinted in* 2 N. JASENTULIYANA & R. LEE, *MANUAL ON SPACE LAW* 383 (1979). Also known and called the 'Bogota Declaration'

<sup>39</sup>*Ibid*

<sup>40</sup>M. J. Finch, 'Limited Space: Allocating the Geostationary Orbit', *op. cit.* p. 790.

to the Declaration argue that the reason for their claim of sovereignty is that the geostationary orbit is a phenomenon caused by the gravitational pull of the earth within their territorial domains. In their opinion, the existence of the geostationary orbit depends solely on the gravitational force of the earth and therefore, it is not part of outer space. As a result of the above argument, signatories to the Declaration claim that Article II<sup>41</sup> of the Outer Space Treaty of 1967 does not apply to the segments of the geostationary orbit which according to them cannot be considered as part of outer space.

Indonesia, a signatory to the Declaration argued *inter alia* that ‘because of the special physical relationship existing between the equator and the geostationary orbit, Equatorial Countries were particularly sensitive to the presence of satellites in the orbit, at least with regard to remote sensing from such satellites.’<sup>42</sup> Such a claim of sovereignty received sharp and serious opposition from the international community both nations that have launched satellites into geostationary orbit and developing nations which have not yet launched such satellites.<sup>43</sup> A greater number of nations hold the view that the geostationary orbit forms part of outer space and, as such, is governed by the provisions of the 1967 Outer Space Treaty<sup>44</sup>, contrary to opinion expressed in Bogota Declaration. Most experts in the space field have debunked the Bogota Declaration's claim that the orbit's existence ‘depends solely on the gravitational force of the earth.’<sup>45</sup> Space technology experts are unanimous in holding that the position of an artificial satellite in the geostationary orbit is dependent upon several factors, such as: the launch and station keeping propulsion, the attraction of the earth, the moon and the sun, and the solar radiation pressure. Therefore the force of the earth's attraction merely constitutes one of such elements.<sup>46</sup>

#### 4.1 The Chicago Convention of 1944

It is interesting to note that the signatories to Bogota Declaration base their claim to segments of the orbit in modern international law. In 1944, fifty-four countries<sup>47</sup> met at the Chicago Convention on International Civil Aviation and passed resolutions in the form of a convention.<sup>48</sup> Article I of the convention proclaims that: ‘The contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory’. The definition of territory is contained in Article II of the convention which states that: ‘For the purposes of this convention, 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 State’.

The Convention however did not define airspace. Neither did it impose any territorial limitation upon a State's right to define airspace. Based on the above, the signatories to the Bogota Declaration argue that they may claim sovereignty to the geostationary orbit.<sup>49</sup> Contrary to this position however, it is argued that the Chicago Convention was drafted for the purpose of establishing the rights of aircraft and of the nations over which such aircraft fly.<sup>50</sup> The fact that the Chicago Convention was convened more than a

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<sup>41</sup>.It states *inter alia* that outer space, ‘is not subject to national appropriation by claim of sovereignty by means of use or occupation or by any other means’

<sup>42</sup>.Jakhu, ‘The Legal Studies of the Geostationary Orbit’, (1982) 7 *ANNALS AIR & SPACE L.* 8

<sup>43</sup>.*Ibid.*, pp. 333, 343.

<sup>44</sup>.Arnopolous, ‘The International Politics of the Orbit-Spectrum Issue’ *op. cit.* p. 225.

<sup>45</sup>.*Ibid.*

<sup>46</sup>.Gorbiel, ‘The Legal Status of the Geostationary Orbit: Some Remarks’, (1979) 6 *J. SPACE L.* 171, 176

<sup>47</sup>.Those 54 countries are: Afghanistan, Australia, Belgium, Bolivia, Brazil, Canada, Chile, China, Colombia, Costa Rica, Cuba, Czechoslovakia, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, France, Greece, Guatemala, Haiti, Honduras, Iceland, India, Iran, Iraq, Ireland, Lebanon, Liberia, Luxembourg, Mexico, the Netherlands, New Zealand, Nicaragua, Norway, Paraguay, Panama, Peru, the Philippines, Poland, Portugal, South Africa, Spain, Sweden, Switzerland, Syria, Thailand, Turkey, United Kingdom, United States, Uruguay, Venezuela, and Yugoslavia. See Convention on International Civil Aviation, Dec. 7, 1944, 61 Stat. 1180, T.I.A.S. No. 1591, 15 U.N.T.S. 295 [Also called Chicago Convention].

<sup>48</sup>.M. J. Finch, ‘Limited Space: Allocating the Geostationary Orbit’, *op cit.* pgs. 791-2

<sup>49</sup>.Rosenfield, ‘The Need to Distinguish Air Space from Outer Space’, (1977) 20 *COLLOQUIUM ON THE LAW Or OUTER SPACE*, 61.

<sup>50</sup>.Bowen, ‘The Chicago International Civil Aviation Conference’, (1945) 13 *GEO. WASH. L. REV.* 308.

decade before the Soviet Union launched Sputnik<sup>51</sup> makes the above argument more persuasive. Thus, while the application of the Chicago Convention to a sphere of the universe untouched at the time of the drafting of the Convention is innovative, it is also somewhat specious. Essentially however, if it is recognised that the geostationary orbit is outside the ambit of airspace and falls within the definition of outer space, other principles of international law may be applied for the purpose of defining nations' rights to use the geostationary orbit.

#### 4.2 The 1967 Outer Space Treaty<sup>52</sup>

Under the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, signed on January 27, 1967 known and called '1967 Outer Space Treaty' the signatories to the Treaty retained open access to, and free use of all parts of this international environment. Article I of this Treaty states that:

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 ... and shall be the province of all mankind. Outer space, including the moon and other celestial bodies, shall be free for exploration by all States....

With the above provision in mind, the question of whether the eight Equatorial States that signed the Bogota Declaration have a right to claim national sovereignty over the segments of the geostationary orbit that lie above their countries is best answered by first determining whether the geostationary orbit is part of a country's airspace or part of outer space. If it can be determined that the geostationary orbit is part of outer space, then the terms of the 1967 Outer Space Treaty will inevitably apply.

The signatories to the Bogota Declaration are adamant in their denial that the 1967 Outer Space Treaty applies to the geostationary orbit. In the Declaration, the Equatorial States argue that, 'there is no valid or satisfactory definition of outer space which may be advanced to support the argument that the geostationary orbit is included in outer space.'<sup>53</sup> Close examination of the Equatorial States' claim suggests that they base their stance regarding the location of the geostationary orbit more on self-interest than out of proven scientific data. In fact, the 1967 Outer Space Treaty prohibits the type of claim advanced by the signatories to the Bogota Declaration. Article II of the Treaty in particular states, *inter alia*, that outer space, 'is not subject to national appropriation by claim of sovereignty by means of use or occupation or by any other means' The implication therefore is that, a determination that the geostationary orbit is in fact part of outer space would result in the invalidation of sovereignty claims of the Bogota Declaration under the 1967 Outer Space Treaty.

#### 4.3 Demarcation of Outer Space

Contrary to the Bogota Declaration's claim that there is no satisfactory definition supporting the argument that the geostationary orbit is located in outer space, modern science provides a great deal of evidence regarding the demarcation of outer space and airspace. It is generally accepted in the international community that airspace activities cannot take place beyond an altitude of sixty kilometers.<sup>54</sup> This would suggest that the sovereignty of airspace issue, based on the international law of the 1944 Chicago Convention, terminates at a level of sixty kilometers beyond which altitude, the Convention does not apply. It is logical to argue that the boundary limit for outer space would be the lowest possible point of orbit sufficient to maintain a satellite. This approach means that all satellites

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<sup>51</sup>.Sputnik was launched into orbit by the Soviet Union on Oct. 4, 1957. N.Y. Times, Oct. 5, 1957, at 1, col. 8

<sup>52</sup>.Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967.

<sup>53</sup>. See Bogota Declaration, Art. II.

<sup>54</sup>.Although there is no express definition of outer space, one may be inferred from statements made by the International Telecommunications Union to the U.N. Secretariat limiting airspace to a sixty-kilometer altitude. The Question of the Definition and/or Delimitation of Outer Space: Background Paper prepared by the Secretariat, 5, U.N. Doc. A/AC. 105/C.2/7/ Add. 1 (1977)

launched into orbits up are in outer space and outside the realm of State sovereignty.<sup>55</sup> Thus, the starting point of outer space can be determined by calculating the lowest possible altitude of an orbiting satellite, which at present is approximately ninety to one hundred kilometers above the surface of the earth.<sup>56</sup> It is safe to argue also that by arithmetic the 36,000 kilometer altitude of the geostationary orbit is clearly above the ninety to 100 kilometer lower boundary limit set by the lowest orbiting satellites. This conclusion has been reached by the Soviet Union which advocates the demarcation of the boundary between airspace and outer space at an altitude of 100 kilometers.<sup>57</sup>

Both the United States and the Soviet Union delegations to the United Nations Committee on the Peaceful Uses of Outer Space have affirmed the same position that the geostationary orbit is located in outer space. The United States delegation has stated that:

At an altitude of approximately 35,000 km, the Geostationary Orbit was clearly subject to the provisions in the 1967 Outer Space Treaty prohibiting any appropriation by claim of sovereignty and stipulating that outer space should be free for exploration and use by all States without discrimination of any kind and on a basis of equality.<sup>58</sup>

Apart from the superpowers, several other countries have joined in declaring that the geostationary orbit falls within the bounds of outer space and thus is subject to the provisions of the 1967 Outer Space Treaty.<sup>59</sup> Such a list of countries appears impressive, not merely because of its clout, but also because of its diversity. It has been suggested that the signatories to the Bogota Declaration may have decided to give up their claim of sovereignty based on newly available scientific evidence regarding the limits of outer space. It is arguable however that these Equatorial States were never very serious about gaining property rights to the geostationary orbit, but were using the Declaration rather as a political tool to pressure technologically-advanced nations currently utilising the orbit.

An expert<sup>60</sup> has however argued that the debate as to whether or not the geostationary orbit is a part of outer space has ceased since the year 2000, when the Czech delegation presented a working paper in which the geostationary orbit was considered as being part of the outer space, opinion which was endorsed by United Nations Conference on Peaceful Uses of Outer Space (UNCOPUOS).<sup>61</sup> The reason why it is important to recognize the geostationary orbit as part of the outer space is because it would make applicable to it all the provisions of the space treaties which refer to the rights and obligations of member States towards outer space and celestial bodies. Such recognition would also validate the principle of non-appropriation of the geostationary orbit.<sup>62</sup>

In any case, the Bogota Declaration has brought into focus an important issue: Is the geostationary orbit used equitably and in the interest of all States? It is therefore doubtful as stated above whether the signatories to the Declaration truly wanted to claim property rights over the geostationary orbit or they

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<sup>55</sup> Qizhi, 'The Problem of Definition and Delimitation of Outer Space', (1982) *10 J. SPACE L.* 157, 158

<sup>56</sup> The Question of the Definition and/or Delimitation of Outer Space, *Op. Cit.* p. 22.

<sup>57</sup> Cheng, 'The Legal Regime of Air Space and Outer Space: The Boundary Problem, Functionalism versus Spatialism: The Major Premises', (1980) *5 ANNALS AIR & SPACE L.* 323, 326

<sup>58</sup> Belgium, Czechoslovakia, the Federal Republic of Germany, the German Democratic Republic, Italy, Japan, Sweden, and the United Kingdom are exponents of this position. See Jakhu, 'The Legal Studies of the Geostationary Orbit', *op. cit* p. 340.

<sup>59</sup> 21 U.N. GAOR Comm. on the Peaceful Uses of Outer Space Legal Sub- Comm. 2, U.N. Doc. A/C.105/C.2/SR.377 (1982) <[scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article...](http://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article...)>, accessed on May 18, 2016.

<sup>60</sup> I. D. Galeriu, 'Paper satellites' and the free use of outer space' <[www.nyulawglobal.org/.../paper-satellite-free-use-outer-space.html](http://www.nyulawglobal.org/.../paper-satellite-free-use-outer-space.html)> accessed on May 9, 2016.

<sup>61</sup> The most recent UN instrument that supports this view is the Report of the Legal Subcommittee on its 51st session, held in Vienna on 30 Mar 2012, A/AC.105/1003, para. 82.

<sup>62</sup> J. C. Thompson, 'Space for Rent: The International Telecommunications Union', (1996) *Space Law and Orbit/Spectrum Leasing*, p. 308.



were simply exerting political pressure on the developed States that were monopolizing the geostationary orbit and consequently restraining the use of the orbit by late-comer developing States.<sup>63</sup> It should be borne in mind that Article I of the Outer Space Treaty (OST) refers, amongst others, to the free use of outer space. The term ‘use’ has been recognized as referring to both commercial and non-commercial uses of outer space, while the word ‘free’ refers to the free access to all areas of celestial bodies<sup>64</sup> by States. It is noteworthy that access to the geostationary orbit does not imply ownership of a position or segment of the orbit, but only admittance to it.<sup>65</sup> Whether satellite communications are governed by the principles of ‘common interests’ or the ‘common heritage of mankind,’ the associated principle of non-appropriation as described in the Outer Space Treaty<sup>66</sup> does apply to the geostationary orbit.

The rationale behind this principle is that appropriation by a single State will be inconsistent with freedom of use by all States.<sup>67</sup> This is because a claim of sovereignty by any single State over the geostationary orbit, or any segment of it, by definition would only benefit the appropriating State. From the foregoing therefore, the only natural and irresistible conclusion that can stem from the application of the Outer Space Treaty is that, similar to other space resources, the spectrum in the geostationary orbit contrary to Bogota Declaration is not subject to national appropriation, but it should be used freely and equitably by all nations. However, the question whether the orbit has been equitably utilized is another issue to be discussed in a separate forum.

### 5. Effects of Bogota Declaration on Legal Status of Geostationary Orbit

The pertinent question here is whether the Bogota Declaration has in essence impacted on the legal Status of Geostationary Orbit as an international environment. An adequate juridical evaluation of the international legal status of the geostationary orbit begins with an adequate statement of its real essence.<sup>68</sup> The signatories of the 1976 Bogota Declaration classify the geostationary orbit as ‘a physical fact’ depending exclusively on the earth’s gravity. An approach which has been debunked by space technology experts who agree that the position of an artificial satellite in geostationary orbit is dependent on several factors such as: the launch and station-keeping propulsion, the attraction of the earth, the moon and the sun, and the solar radiation pressure.<sup>69</sup> Thus the force of the earth’s attraction is merely one of the many elements determining the maintenance of an artificial satellite in the geostationary orbit. In our opinion, it really makes no sense to argue that the alleged claim of sovereignty over segments of the geostationary orbit derives from the action of the gravitational force of the terrestrial territories belonging to Equatorial States. The force of the earth’s gravity derives from the mass of the whole of our planet and the sub-division demanded by the Equatorial States has been described as unfeasible and preposterous.<sup>70</sup>

Another principal plea by Equatorial States in support of their position is seeking a juridical base for the admissibility of national appropriation of segments of the geostationary orbit in the absence of an

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<sup>63</sup>.See for instance, the Bogota Declaration pt. B.IV.1, at 3 which states that, ‘In spite of the principle established by article 33[...] of the International Telecommunications Convention, of 1973, that in the use of frequency bands for space radio-communications, the members shall take into account that the frequencies and the orbit for geostationary satellites are limited natural resources that must be used efficiently and economically to allow the equitable access to this orbit and to its frequencies, we can see that both the geostationary orbit and the frequencies have been used in a way that does not allow the equitable access of the developing countries that do not have the technical and financial means that the great powers have’; See also R. Jakhu, ‘The Legal Status of the Geostationary Orbit’, (1982) 7 AA & S L, p. 341.

<sup>64</sup>.Cologne Commentary on Space Law, Volume 1, para. 36 <[www.amazon.com/Cologne-Commentary-Space-Law-Vol/.../3452271854](http://www.amazon.com/Cologne-Commentary-Space-Law-Vol/.../3452271854)>, accessed on May 18, 2016.

<sup>65</sup>. J. C. Thompson, ‘Space for Rent: The International Telecommunications Union’ *op. cit.*, p. 300.

<sup>66</sup>.Art. II, OST: ‘Outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means’

<sup>67</sup>.M. L. Smith, ‘The Role of the ITU in The Development of Space Law’, (1992) 13 AA & SL, p. 165.

<sup>68</sup>.S. Gorove, *op cit.* p. 176.

<sup>69</sup>.*Ibid*

<sup>70</sup>.*Ibid*

outer space definition or delimitation in the text of the 1967 Outer Space Treaty. This plea has also been described as juridically pointless.<sup>71</sup> This is because mere absence of the definition of the scope of the term 'outer space' in the 1967 Outer Space Treaty is not tantamount to the impossibility of determining this scope in a general manner by way of inference from the Treaty's provisions, as a whole, a task which this article has strived to achieve. An admission that States have a right to decide at choice which parts of space above the earth they will treat as outer space under the rule of the 1967 Treaty as suggested by the Declaration will be tantamount to a recognition of total arbitrariness inconsistent with the essence of international legal order.

From the foregoing, one can argue without fear of contradiction that the international legal status of the geostationary orbit has not been affected or changed by the emergence of the Bogota Declaration. The legal status of the geostationary orbit cannot be different from that of the whole outer space and as a consequence, any claim of sovereignty to segments of the orbit is inadmissible in the present international space law.

## **6. Conclusion and Recommendations**

The concept of territorial sovereignty, as exercised by the principle of prior consent, is inapplicable in outer space because outer space is free of territorial boundaries. The rights to be created and protected in outer space are not States' rights but the rights of mankind, as evidenced by a variety of international agreements. The new concept of sovereignty being non-territorial orientation holds the rights of man to be more sacred than the rights of the State and has come to be known as the Common Heritage of Mankind. It is the Common Heritage of Mankind that best represents a viable concept of sovereignty for outer space including the geostationary orbit, for it can best preserve the principle of freedom of exploration and use which is supported by the overwhelming majority of States.

International law offers protection to any space-faring country or entity to use freely and without interference by another, any part of outer space including the Moon and other celestial bodies. This should however be done with due regard to the rights of other users. The geostationary orbit and an associated frequency spectrum are adjudged an integral part of the outer space and so, subject to the foregoing principle. These principles of international space law enshrined in space treaties are considered to be part of customary international law and, as such binding on all nations whether State Parties to the space treaties or not.

Apart from the above, no States can rightly exercise claim of sovereignty, because by its very nature the geostationary orbit has no determinable boundaries and the orbit cannot be effectively controlled. The orbit is not something tangible but a corridor in the outer space with the property that satellites moving within it around the earth co-rotate with the earth, and as a consequence remain in a more or less fixed point in the sky when viewed from the surface of the earth. This situation, from the legal view point renders the claim of sovereignty by Equatorial States over segments of the geostationary orbit impossible, as no territory exists at an altitude approximately 36,000 km from the earth's surface to which such claim could be attached.<sup>72</sup>

Although as concluded above, the Bogota Declaration has not altered the legal position of the geostationary orbit as an international environment, the efforts of the Equatorial States cannot and should not be entirely dismissed just with a wave of hand. Notwithstanding the fact that even in this article, we do not expressly share the Equatorial States' claim of sovereignty over segments of the geostationary orbit, we are however deeply concerned about the possibility that the geostationary orbit as a limited resource might be unevenly overcrowded as a result of the practice of the 'first come, first served' concept. Our research has revealed that by July this year (2016), exactly 427 satellites were

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<sup>71</sup>.*Ibid.* p. 177.

<sup>72</sup>.M. Benko, W. D. Graaff, and G. C .M. Reijen, *Space Law in the United Nations*, (Dordrecht: Martinus Nijhoff, 1985) p. 139.

stationed on the geostationary orbit, but only few of these belong to technologically developing States. Rather than acceding to the Equatorial States' claims, we recommend here that equitable access to the geostationary orbit be ensured for all States especially for the developing countries. The international community perhaps, through the existing International Telecommunications Union (ITU) should come up with a better regulation for more equitable use of the geostationary orbit. Additionally, if by reason of proximity to the orbit, there exist any form of disturbing interactions between the Equatorial States and the satellites placed on the orbit, or even for mere geographic advantage these States should be granted some sort of priority in the use of the orbit. This would akin to, even though not exactly as the jurisdictional rights of coastal States over their exclusive economic zones. This recommendation no doubt, is in tandem with the text contained in the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 1982) which provided that particular geographical concerns of certain countries should be considered when assigning slots on the orbit. When this is done, it will certainly pacify the Equatorial States and quell the increasing agitations of the developing countries on the use of the geostationary orbit.