

# GIVE ME MY SPACE: IMPLICATIONS FOR PERMITTING NATIONAL APPROPRIATION OF THE GEOSTATIONARY ORBIT

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Space law can be defined as law arising from human activity in outer space.<sup>1</sup> The 1967 *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies* provides that space technology shall be used for the benefit of all countries, and that outer space is to be the province of all humankind, not subject to national appropriation.<sup>2</sup> Despite this language, the current assignment system of geostationary orbital sites<sup>3</sup> to individual nations has created an orbital market.<sup>4</sup> Only a fixed number of satellites may occupy the geostationary orbit at one time, transforming such orbits into a limited resource.<sup>5</sup> The geostationary orbit is strategic for telecommunication and broadcasting, fueling an increasing demand for its orbital slots.<sup>6</sup> The United States Department of Commerce has estimated that the satellite market in the U.S. alone will reach \$201 billion.<sup>7</sup> However, no consensus has been reached on the legal status and regulation of its orbits. Developing countries characterized the geostationary orbits as a limited resource, and have advocated for a special equitable legal regime to replace the current satellite

<sup>1</sup> STEPHEN GOROVE, DEVELOPMENTS IN SPACE LAW 17 (1991).

<sup>2</sup> Outer Space Treaty, Jan. 24, 1967, 18 U.S.T. 2410 (entered into force Oct. 10, 1967) [Outer Space Treaty or OST]. The Outer Space Treaty was signed by 125 nations and is considered the most persuasive document of international law governing the outer space law. Don Riddick, *Why Does Tonga Own Outer Space?*, 19 AIR & SPACE L. 15, 16 (1994).

<sup>3</sup> Geostationary orbits are fixed orbits above the equator that allow continuous contact between a satellite and a single ground station. The advantage of a satellite placed in the geostationary orbit is that it does not need a land based tracking transmitter. Henry Wong, *Comment, 2001: A Space Legislation Odyssey - A Proposed Model For Reforming the Intergovernmental Satellite Organizations*, 48 AM. U. L. REV. 547, 558 (1998). Three satellites operating in relay can provide worldwide coverage. *Id.* "The electromagnetic spectrum is the range of frequencies capable of transmitting signals from satellites." Michael J. Finch, *Comment: Limited Space: Allocating the Geostationary Orbit*, 7 NW. J. INT'L L. BUS. 788, 788 (1986).

<sup>4</sup> Jonathan Ira Ezor, *Costs Overhead: Tonga's Claiming of Sixteen Geostationary Orbital Sites and the Implications for U.S. Space Policy*, 24 LAW POL'Y INT'L BUS. 915, 917 (1993).

<sup>5</sup> *Id.* at 915. A satellite uses a specific radio frequency in the electromagnetic spectrum that must differ from surrounding satellite frequencies in order to avoid interference between neighboring satellite transmissions. Finch, *supra* note 3, at 789. In addition, satellites must be distanced from one another to avoid overlapping electronic transmissions, which cause the signals to become jumbled and incomprehensible. This is termed "spillover." Riddick, *supra* note 2, at 25. Therefore, satellites need to be assigned both a radio frequency and an orbit, which limits the number of satellites that may be effectively placed in the geostationary orbit. Jannat C. Thompson, *Comment, Space for Rent: The International Telecommunications Union, Space Law, and Orbit/Spectrum Leasing*, 62 J. AIR L. & COM. 279, n.2 (1996). A maximum of 2000 spots is estimated for the geostationary orbit. Finch, *supra* note 3, at 788.

<sup>6</sup> Riddick, *supra* note 2, at 17.

<sup>7</sup> *Id.*

slot allocations used by the International Telecommunication Union (ITU).<sup>8</sup> In contrast, developed nations and large corporate entities oppose the imposition of the pre-designated allotment that developing nations desire.<sup>9</sup>

This comment analyzes the current trend in geostationary orbit allotment. First, background on the ITU is discussed, along with its treatment of satellite organizations (ISOs) in orbital assignment. Second, the principles of free use, non-appropriation, and equity embodied in the Outer Space Treaty (OST) are introduced. Third, ITU allotment procedure is discussed. Fourth, the difficulties presented by ITU allotment are analyzed in the context of sovereignty, national appropriation and equitable access.<sup>10</sup> Specifically, this comment uses the example of Tonga's acquisition of six geostationary orbit positions to show how property rights are implicated through national appropriation. Additionally, issues of need, efficiency and ability to use the resource are considered in assessing equitable access to geostationary positions. Finally, this comment concludes that the current ITU allocation system needs to strike a better balance between the necessity of equitable allocation with the efficient use of space-orbits in order to give full effect to the OST's principles.

## I. SATELLITE REGULATORY ORGANIZATIONS

### A. THE INTERNATIONAL TELECOMMUNICATIONS UNION (ITU)

The specialized body of the ITU is the sole agency regulating international telecommunications within the United Nations.<sup>11</sup> It is a technical, rather than legislative body.<sup>12</sup> Its resolutions and recommendations, while not binding, are almost always complied with in practice.

The two binding international agreements that define the organization and operations of the ITU and govern orbit-spectrum use are the International Telecommunication Convention (ITC) of Nairobi (1982) and

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<sup>8</sup> The ITU is a specialized regulatory body that allocates orbital sites. See Milton L. Smith, *The Role of the ITU in the Development of Space Law*, 17 ANNALS AIR & SPACE L. 157, 157 (1992).  
<sup>9</sup> *Id.* at 18.

<sup>10</sup> GOROVE, *supra* note 1, at 113. Three principles of international space law that bear on ITU actions concerning the geostationary orbit are: freedom of use of outer space, common interest, and non-appropriation. See Smith, *supra* note 8, at 163.

<sup>11</sup> Smith, *supra* note 8, at 157.

<sup>12</sup> Thompson, *supra* note 5, at 287.

the 1982 Radio Regulations.<sup>13</sup> Satellite spectra are allocated through the use of global conferences conducted by the ITU, called "World Administrative Radio Conferences" (WARCs).<sup>14</sup> Results of WARC, known as "final acts," are incorporated into existing regulations.<sup>15</sup> Once approved by the member countries, these final acts receive the legal status of international treaties.<sup>16</sup> Both the ITC and Radio Regulations are frequently amended at the annual Plenipotentiary Conference.<sup>17</sup> The U.N. Committee on the Peaceful Uses of Space (UNCOPUOS), which has been the main drafter and interpreter of international space law, has shown strong deference to the technical regulations of the ITU.<sup>18</sup>

In 1971, the World Administrative Radio Conference for Space Telecommunications adopted a resolution that declared that frequencies and orbits were to be classified as a limited resource, endowing all countries with equal use rights to space radio communication services and the geostationary satellite orbit.<sup>19</sup> Since that time, the ITU has struggled to strike a balance between equitable allocation and efficient use of the geostationary orbit.<sup>20</sup> Developing states have emphasized principles of open data exchange and equitable sharing of space benefits to promote their countries' needs, rights, and interests in geostationary orbit allocation.<sup>21</sup> These concerns mirror those embodied in the OST of equal access and non-appropriation of outer space and celestial bodies by sovereign nations.<sup>22</sup>

Consequently, the Final Act of the 1988 WARC assigned an orbital position to each nation, regardless of the nation's affiliation with WARC.<sup>23</sup> The act allowed countries with satellites already in orbit to be "grandfathered-in," thereby preserving their current slots.<sup>24</sup> In Section 3.2.3(b), the 1988 Final Act emphasized that although there was no prohibition on the amount of time a nation could continue to occupy a slot, no permanent priority would

<sup>13</sup> Michael S. Straubel, *Telecommunication Satellites and Market Forces: How Should the Geostationary Orbit Be Regulated by the F.C.C.?*, 17 N.C. J. INT'L L. & COM. REG. 205, 208 (1992). GOROVE, *supra* note 1, at 56.

<sup>14</sup> Thompson, *supra* note 5, at 288. WARC (ITU administrative conferences) are not legally binding and only act as an expression of ITU's aspirations. GOROVE, *supra* note 1, at 56.

<sup>15</sup> Thompson, *supra* note 5, at 288.

<sup>16</sup> See *id.*

<sup>17</sup> *Id.* 1989 Nice Convention the ITU adopted a Constitution and Convention to replace the 1982 Nairobi Convention, which kept much of the same language and added that the natural resource was to be used rationally. GOROVE, *supra* note 1, at 61 n.31.

<sup>18</sup> Riddick, *supra* note 2, at 19.

<sup>19</sup> GOROVE, *supra* note 1, at 47.

<sup>20</sup> Thompson, *supra* note 5, at 285.

<sup>21</sup> Finch, *supra* note 3, at 796.

<sup>22</sup> Richard Berkley, *Space Law Versus Space Utilization: The Inhibition of Private Industry in Outer Space*, 15 WIS. INT'L L. J. 421, 424 (1997).

<sup>23</sup> Riddick, *supra* note 2, at 18-19.

<sup>24</sup> *Id.* at 19.

be given to any allocation.<sup>25</sup> In addition, the allotments were not to be used by private operators unless they owned national satellites that provided domestic service for the state allotted the orbital slot.<sup>26</sup> Although it granted slots, the 1988 allotment plan never required that the nations use them.<sup>27</sup>

Article (G) of the allotment plan guarantees access to a specific position for twenty years.<sup>28</sup> One clause provides that changes in current user slots could be made if a developing country demonstrated the need for a particular position.<sup>29</sup> The WARC also determined that slot assignments would be provided based on "need."<sup>30</sup> The definition of "need" therefore became a hotly contested issue because developing countries and developed countries had widely divergent views of how "need" should be viewed. Developing nations defined "need" as economic or overall need, while developed countries saw "need" as technological-need and program-based need.<sup>31</sup> In addition, some nations argued that developing nations that were unable to use their allotted orbits should be allowed to lease their allotted orbit-space to other countries.<sup>32</sup> Ultimately, ITU sought to recognize that developing countries were being excluded from both monetary and scientific benefits of geostationary orbit.<sup>33</sup>

#### B. INTERGOVERNMENTAL SATELLITE ORGANIZATIONS (ISOs)

ITU legislation has disallowed private claims to geostationary orbits.<sup>34</sup> The present allocation system ignores the rights of non-governmental entities to use space by confining slot assignments only to nations.<sup>35</sup> However, the Outer Space Treaty does not distinguish between private individuals and countries.<sup>36</sup> The Outer Space Treaty only bans "national appropriation," leaving open the possibility of appropriation to individuals.<sup>37</sup> Perhaps this is why ITU assignments are primarily restricted to nations.

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<sup>25</sup> *Id.* at 18.

<sup>26</sup> *Id.* at 19.

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

<sup>28</sup> *Id.*

<sup>29</sup> *Id.*

<sup>30</sup> *Id.* at 20.

<sup>31</sup> Riddick, *supra* note 2, at 21.

<sup>32</sup> *Id.*

<sup>33</sup> *Id.*

<sup>34</sup> *Id.* at 24.

<sup>35</sup> *Id.*

<sup>36</sup> *Id.*

<sup>37</sup> GOROVE, *supra* note 1, at 114.

Intergovernmental Satellite Organizations (ISO's), such as Communications Satellite Corporation (COMSAT), the world's largest satellite operating consortium, the International Telecommunications Satellite Organization (INTELSAT) and the maritime INMARSAT are influential bodies in the satellite industry.<sup>38</sup> INTELSAT is made up of two groups: national governments called "parties" that sign the organization's international treaties, and actual owners and operators of satellite systems called "signatories."<sup>39</sup> Some countries only allow their affiliated ISO to service their territory.<sup>40</sup> This allows the provider to charge large markups for satellite service.<sup>41</sup>

In applying for geostationary slots, ISO's may bypass national regulatory authorities, such as the U.S. Federal Communications Commission (FCC).<sup>42</sup> In contrast, private operators must first file for evaluation with the appropriate national authority before their application is forwarded to the ITU for coordination.<sup>43</sup> ISO dominance has expanded into developing markets, making it difficult for private operators to obtain financing when their prospective systems compete with an ISO.<sup>44</sup> Private operators are also required to divulge sensitive information to ISO's upon coordinating their systems.<sup>45</sup>

In considering the implications of ITU allotment procedures, it must be understood that the procedures are inextricably tied to the general OST principles of free use, non-appropriation, and equity. Therefore, a general look at governing outer space principles is necessary before advancing into an explanation of ITU allotment procedures.

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<sup>38</sup> The United States has proposed legislation "ORBIT" Bill s. 376 Proposed satellite services competition and privatization act of 1999 calling for the privatization of all treaty established ISO's for 2001. Wong, *supra* note 3, at 547.

<sup>39</sup> Often nations act as both signatories and parties. *Id.* at 555. Signatories are usually national governments or government sanctioned monopolistic private companies. *Id.* For more information on INTELSAT, see Alexandra M. Field, *INTELSAT at a Crossroads*, 25 LAW & POL'Y INT'L BUS. 1335 (1994).

<sup>40</sup> *Id.* at 557.

<sup>41</sup> *See id.*

<sup>42</sup> *Id.* at 558.

<sup>43</sup> *Id.*

<sup>44</sup> Wong, *supra* note 3, at 559.

<sup>45</sup> *Id.* at 558.

## II. PRINCIPLES OF THE 1967 OUTER SPACE TREATY

### A. THE FREE USE PRINCIPLE

The free use principle is expressed in Article I of the Outer Space Treaty, which declares that outer space "shall be free for exploration and use by all States...on the basis of equity and in accordance with international law[.]"<sup>46</sup> Ratified ITU Radio Regulations are binding international law and a legitimate limitation on the use of outer space.<sup>47</sup> Therefore, "free use" is qualified under the OST. However, certain operations of ISOs seem to violate the principle of free use in resource exploitation, monopolistic actions and freeze out of independent public and private initiatives by limiting who may operate satellites in orbital slots.<sup>48</sup>

### B. THE PRINCIPLE OF NON-APPROPRIATION

The non-appropriation principle in Article II of the Outer Space Treaty establishes that space "is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means."<sup>49</sup> Appropriation is the exercise of control over property.<sup>50</sup> This principle was adopted to implement the freedom of use principle, as appropriation undermines freedom of use.<sup>51</sup> Appropriation of outer space, therefore, is "the exercise of exclusive control or exclusive use" with a sense of permanence, which limits other nations' access to it.<sup>52</sup>

One view is that orbital allotments do not constitute appropriation because the exclusivity requirement is not met.<sup>53</sup> According to this perspective, duration of the occupation is not permanent, and satellites can operate within the same area of outer space.<sup>54</sup> Pursuant to this view, each nation is offered an equal chance to be the first one to obtain an orbital

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<sup>46</sup> Smith, *supra* note 8, at 163.

<sup>47</sup> *Id.*

<sup>48</sup> The organization's operational decisions are made by a committee in which signatory's voting power is determined by its investment in and utilization of INTELSAT. Therefore, developed countries possess more control over the operation of INTELSAT. S. LAY & H. TAUBENFELD, *LAW RELATING TO THE ACTIVITIES OF MAN IN SPACE*, 73-74 (1970).

<sup>49</sup> Smith, *supra* note 8, at 165.

<sup>50</sup> Bryan A. Garner, Ed. *BLACK'S LAW DICTIONARY*, "appropriation" 98 (1999).

<sup>51</sup> Smith, *supra* note 8, at 165.

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

<sup>53</sup> Similar areas of operation may be utilized by using different frequencies and serving separate geographical areas. *Id.* at 166.

<sup>54</sup> *See id.*

position.<sup>55</sup> Therefore, all states are treated equally because the basis for use is the same for each.<sup>56</sup> However, this cannot create actual equity because it fails to empower a state to make use of its rights.<sup>57</sup>

### C. THE PRINCIPLE OF EQUITY

As a general rule, there can be no exclusive title to specific frequencies.<sup>58</sup> Although the concept of equitable access is recognized in several international space agreements, it is never defined.<sup>59</sup> However, there is general acceptance that equitable does not mean equal.<sup>60</sup> Arguably, the word "access" presupposes the technical ability to reach the geostationary orbit.<sup>61</sup> It does not indicate ownership, but simply implies admittance to the orbit.<sup>62</sup> In practice, equity analysis is fact-sensitive. "Although the Convention specifies certain factors relevant to equitable access, it does not state that they are intended to be exclusive."<sup>63</sup>

Other factors to be considered include the ability to use the resource and the needs of current users.<sup>64</sup> The needs of current users must be taken into account because "[t]he current users of the orbit/spectrum resource undertook that use, and the great expense underlying it, with an expectation of protection by the existing ITU regulatory regime."<sup>65</sup> Thus, "notions of fairness inherent in the concept of equity require that those users be accommodated in a guarantee of equitable access."<sup>66</sup> According to developing nations, "ability should be viewed as relevant to equitable access only to the extent that it pertains to the time of use."<sup>67</sup> It would then become acceptable to give a present guarantee for future access, thereby assuring equitable access, while allowing current use by another country capable of utilizing the slot.<sup>68</sup> Arguably, the principles of the OST appear to support this contention, as it seems to indicate that no permanent priority should be given to any country for access and use of a particular orbit.<sup>69</sup>

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<sup>55</sup> Smith, *supra* note 8, at 167.

<sup>56</sup> *Id.*

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

<sup>58</sup> J.E.S. FAWCETT, OUTER SPACE: NEW CHALLENGES TO LAW AND POLICY 51 (1984).

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

<sup>60</sup> Smith, *supra* note 8, at 158.

<sup>61</sup> GOROVE, *supra* note 1, at 59.

<sup>62</sup> *See id.*

<sup>63</sup> Smith, *supra* note 8, at 161.

<sup>64</sup> *Id.*

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

<sup>66</sup> *Id.*

<sup>67</sup> *Id.* at 162.

<sup>68</sup> *Id.*

<sup>69</sup> GOROVE, *supra* note 1, at 59.

Issues of need and technological capability are continuing considerations in determining the equity of allocations.<sup>70</sup> Newer provisions addressing the special needs of developing countries do not eliminate the relevance of countries' technical needs and abilities in achieving a balance between "efficient and economical use" and "equitable access."<sup>71</sup> Resolution No. 3 of the 1979 WARC recognized that the need for equitable access was to be tempered by the need for efficient and economical use by incorporating the present need for near-term capability in order to use the geostationary resource.<sup>72</sup> According to Resolution No. 2, all countries have the right to use an orbital resource at differing periods, depending upon "the requirements and readiness of technical facilities of countries."<sup>73</sup> Thus, prior slot registration with the ITU was not intended to create an obstacle to the establishment of other countries' space systems.<sup>74</sup> The future-oriented nature of the regulations implies that current uses should encourage, not inhibit, the future use of orbits.<sup>75</sup>

### III. ALLOCATION ISSUES

#### A. ITU ALLOCATION METHODS

The ITU utilizes two methods of allocation: the *a posteriori* system, and the *a priori* system.<sup>76</sup> Under the *a posteriori* system, the registration process is a "first-come, first-served" method of assignment.<sup>77</sup> This system protects satellites already in operation from interference by later orbit users, and grants orbital rights as the need arises.<sup>78</sup> By contrast, the *a priori* approach grants future rights to each nation based upon predetermined principles.<sup>79</sup> The WARCs of 1985 and 1988 settled on a dual allocation system that employed both the *a posteriori* and the *a priori* methods.<sup>80</sup>

<sup>70</sup> GOROVE, *supra* note 1, at 57.

<sup>71</sup> *Id.*

<sup>72</sup> Smith, *supra* note 8, at 159.

<sup>73</sup> *Id.* at 159-60.

<sup>74</sup> *Id.* at 160.

<sup>75</sup> *Id.*

<sup>76</sup> Thompson, *supra* note 5, at 290.

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

<sup>78</sup> *Id.*

<sup>79</sup> *Id.*

<sup>80</sup> *Id.* at 295. The two-tiered allotment system came into force March 1990. GOROVE, *supra* note 1, at 61.



Conventional bands, used by most telecommunications satellites, remained on the *a posteriori* system.<sup>81</sup> On the other hand, "expansion" bands in the fixed satellite services (FSS) received *a priori* planned allotment, which guaranteed each nation at least one predetermined frequency and orbital position.<sup>82</sup> However, fixed satellite spots comprise only one percent of the total spectrum allocated.<sup>83</sup> The allotment plan adopted at the WARC-ORB-85/88 gives each ITU member sufficient geostationary positions to provide complete national coverage.<sup>84</sup> It also accommodated satellite systems that were in current use and those that were planned for future use in the expansion bands.<sup>85</sup> The Final Act also allowed for some flexibility, permitting compromise agreements where one country consents to another nation's consumption of its allotment.<sup>86</sup>

Under the *a priori* system, the major problem is that a potential user need not demonstrate need or technical capability to obtain an assignment.<sup>87</sup> This gives any developing nation the capacity to lock up multiple orbital slots that they will never use.<sup>88</sup> *A posteriori* procedures become problematic with the increase of uncoordinated launches into a pre-registered slot.<sup>89</sup> Other problems with the allotment system include inefficient use of space, administrative costs, and finding a fair method to evaluate countries' orbital needs.<sup>90</sup>

Developing countries tend to favor the *a priori* system, as it ensures a strict allocation of pre-determined slots.<sup>91</sup> This preference is rooted in the fear that they will ultimately lose access to the resource due to their lack of technology.<sup>92</sup> Currently, factors considered in allocation include: geographical location of particular countries, technological ability to use the resource, and needs of existing users.<sup>93</sup> However, considerations of economic efficiency often conflict with those concerning equity.<sup>94</sup> In response to this conflict, "block allotment planning" offers a compromise solution, allowing for the allocation of "a 'block' or continuous position of frequency."<sup>95</sup> Under this

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<sup>81</sup> Thompson, *supra* note 5, at 295.

<sup>82</sup> *Id.*

<sup>83</sup> *Id.*

<sup>84</sup> Straubel, *supra* note 13, at 212.

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

<sup>86</sup> *Id.* at 213 n.43.

<sup>87</sup> Thompson, *supra* note 5, at 299.

<sup>88</sup> *Id.*

<sup>89</sup> *Id.*

<sup>90</sup> Riddick, *supra* note 2, at 16.

<sup>91</sup> Thompson, *supra* note 5, at 291.

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

<sup>93</sup> Thompson, *supra* note 5, at 294.

<sup>94</sup> *Id.* at 299.

<sup>95</sup> Finch, *supra* note 3, at 800.

possible allotment plan, nations can purchase or lease unused blocks from other nations.<sup>96</sup> This would enable small nations to combine their resources and create a multinational system, as long as international safeguards eliminated the possibility of cartel formation.<sup>97</sup> However, it would be difficult to determine the specific number of blocks each country should receive.<sup>98</sup>

## B. DIFFICULTIES ENCOUNTERED IN ALLOTMENT

### 1. Sovereignty Rights

Several developing equatorial nations asserted their sovereignty over geostationary orbital points in the Bogota Declaration of 1976.<sup>99</sup> These countries contended that the geostationary orbit was a natural resource connected to the country below it.<sup>100</sup> This conflicted with international customary law, which had developed the understanding that satellites move outside the national jurisdiction of the underlying state.<sup>101</sup> Nonetheless, the Bogota Declaration was effective as a political device that brought attention to developing countries' concerns over being prohibited access to the geostationary orbit by developed countries who already possessed the technological skills and resources necessary to utilize the resource.<sup>102</sup> To further achieve an equitable distribution of space benefits, developing nations advocated for systematic and coherent regulation of geostationary orbital use.<sup>103</sup> As a result, Article 33 of the ITU's Radio Regulations was amended in 1982, to require that the ITU take into account "the special needs of developing countries and the geographical situation of particular countries."<sup>104</sup> This provision expanded equitable considerations beyond the simple terms of efficiency and economy.<sup>105</sup>

Although NATO dismissed the sovereignty claims made in the Bogota Declaration, it may not be necessary to assert national sovereignty rights over the geostationary orbit to grant property rights to a state's citizens.

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<sup>96</sup> *Id.*

<sup>97</sup> *Id.* at 800-01.

<sup>98</sup> *Id.* at 801.

<sup>99</sup> Finch, *supra* note 3, at 790 n.3. The countries were: Brazil, Colombia, Congo, Ecuador, Indonesia, Kenya, Uganda, and Zaire. *Id.* See also, International Telecommunication Union, Broadcasting Satellite Conference, Doc. No. 81-E (Jan. 17, 1977), Annex 4, reprinted in 6 J. SPACE L. 193 (1978).

<sup>100</sup> GOROVE, *supra* note 1, at 21.

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

<sup>102</sup> Finch, *supra* note 3, at 796.

<sup>103</sup> Riddick, *supra* note 2, at 17.

<sup>104</sup> Thompson, *supra* note 5, at 289.

<sup>105</sup> *Id.* at 294.

For example, the U.S. has asserted ocean mining rights in international common areas of the high seas, even where "the seas" have been designated as a "stateless" location.<sup>106</sup> It is also significant that a close reading of the OST only limits "national appropriation."<sup>107</sup> This language leaves open the possibility of appropriation to individuals.<sup>108</sup> Nonetheless, any concept of appropriation may be challenged on the basis that usage rights of a geostationary orbit do not constitute permanent property that can be allocated.<sup>109</sup> According to Article 33(c) of the ITU Radio Regulations, "members shall bear in mind that radio frequencies and the geostationary satellite orbit are limited natural resources, that they must be used efficiently and economically so that countries or groups of countries may have equitable access to both[.]"<sup>110</sup> Therefore, "access" does not grant ownership; only use of the resource.<sup>111</sup> However, the ITU's action of confining access to nations, to the exclusion of private individuals can, in itself, be perceived as contrary to the concept of free access under the OST.<sup>112</sup>

Two main principles of Article I of the Outer Space Treaty conflict with the allotment system. The first principle, "free exploration and use" means free from regulations regarding the use of space.<sup>113</sup> A system of allotment seems to directly contradict this principle.<sup>114</sup> Second, Article II of the OST states that no sovereignty claims can be gained in space.<sup>115</sup> However, supporters of the allotment system claim that all nations have a right to outer space.<sup>116</sup> Therefore, it follows that limited claims of sovereignty must be appropriate.<sup>117</sup> The ability to buy, sell or lease an orbital position makes the orbit a marketable commodity, resulting in a system of "functional property rights" very similar to traditional sovereignty rights.<sup>118</sup> This raises another contradiction with the equal access and free use clauses of the treaty. "The primary issue of sovereignty is not how the right is characterized, but whether

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<sup>106</sup> Berkley, *supra* note 11, at 436, 439 n.112.

<sup>107</sup> Article II of the Outer Space Treaty states that "appropriation by a single State is inconsistent with freedom of use by all States."

<sup>108</sup> GOROVE, *supra* note 1, at 114-15.

<sup>109</sup> *Id.* at 55.

<sup>110</sup> Thompson, *supra* note 5, at 289.

<sup>111</sup> *Id.* at 300.

<sup>112</sup> Riddick, *supra* note 2, at 24.

<sup>113</sup> *Id.* at 22.

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

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

<sup>116</sup> Riddick, *supra* note 2, at 22.

<sup>117</sup> *Id.*

<sup>118</sup> *Id.*

States can exercise control over other States in a certain region of space."<sup>119</sup> Durational limits do not lessen the reality of the sovereignty rights allowed.<sup>120</sup>

The "common heritage of mankind" principle incorporated into the Moon Treaty offers another way to view the geostationary orbit.<sup>121</sup> The common interest principle refers to the provision that the use of outer space "shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development[.]"<sup>122</sup> Under this concept, telecommunication satellites may be seen as embodying the basic premises of common heritage, thereby entitling all nations to benefit from their existence.<sup>123</sup>

Great controversy exists over the designation of space resources as the "common heritage of mankind." The WARC's have yet to apply the common heritage of mankind principle to the geostationary orbit.<sup>124</sup> Additionally, interpretation of the phrase varies widely. Developing countries interpret it to embody the principle that resources are the common property of all nations and require international regulation controlling redistribution among nations. They view space resources in the same manner as they do resources of the sea where there is "complete international control over access to, and the disposition of important resources so as to effect the transfer of wealth, technology and political control from the industrialized countries to the developing countries."<sup>125</sup> As common owners, each nation would be entitled to a voice in determining the use, share, and allocation of the resource.

By contrast, developed nations consider the common heritage principle to mean unlimited access to explore and exploit space resources. Arguably, the benefit of mankind principle was not intended to give profit rights from resource development to nations that contribute neither capital nor technology, nor share in the risk of venture because it would cripple the free

<sup>119</sup> *Id.* at 23.

<sup>120</sup> *Id.* at 24.

<sup>121</sup> Thompson, *supra* note 5, at 304, citing Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, G.A. Res. 43/68, U.N. GAOR, 34<sup>th</sup> Sess., Supp. No. 46, at 77, U.N. Doc. A/43/664. (1979).

<sup>122</sup> Smith, *supra* note 8, at 164.

<sup>123</sup> Thompson, *supra* note 5, at 305.

<sup>124</sup> *Id.*

<sup>125</sup> Statement of Marnes A. Dubs, Chairman, American Mining Congress Committee on Undersea Mineral Resources. U.N. Doc. No. A/AC.105/C.2/SR.231 (1975).

use principle.<sup>126</sup> This laissez-faire interpretation conflicts greatly with that of developing countries.<sup>127</sup>

## 2. National Appropriation: Outer Space Property Rights?

The current reservation system appears to support the notion of property interests in outer space. This is because current procedure allows a nation to pre-empt another nation's use of an orbital location through the International Frequency Registration Board's (IFRB) system of publication, coordination and notification.<sup>128</sup> First, a nation must publish its intentions to use a section of the orbit in the IFRB's weekly circular.<sup>129</sup> Second, if any country foresees that such use would be harmful, they are allowed to comment and arrange a possible settlement with the publishing nation.<sup>130</sup> Finally, if no technical hindrances are found on review, the assignment is recorded in the International Frequency Register.<sup>131</sup> Benefits of using the system of registration include international recognition and the rights that correspond to a registered position.<sup>132</sup> Once properly registered, the assignment is entitled to international recognition and protection against harmful interference for the duration of its operation.<sup>133</sup> This demonstrates how proper registration guarantees vested interests in particular slots.<sup>134</sup> This system protects users on a "first-come, first-served" basis, much akin to the "prior-right in law" principle of real property.<sup>135</sup>

From 1988 - 1990, the Pacific nation of Tonga gained the right to use six geostationary orbits by working within IFRB's allocation

<sup>126</sup> The benefit of mankind principle, though vague, was intended to acknowledge that states must take into account the common interest in their exploration and exploitation of space, which translates into representation of this principle in governing international institutions. O. OGUNBANWO, *INTERNATIONAL LAW AND OUTER SPACE ACTIVITIES*, xiii, 214 (1975).

<sup>127</sup> The United States in particular has consistently asserted its right to control the resources it exploits. For instance, the United States attached an understanding to its ratification of the Outer space treaty that "nothing in the treaty diminishes or alters the right of the United States to determine how it shares the benefits and results of its space activities." S. Rep. No. 90-8, at 4 (1967).

<sup>128</sup> Ezor, *supra* note 4, at 932.

<sup>129</sup> Ezor, *supra* note 4, at 932, n.103.

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

<sup>131</sup> *Id.*

<sup>132</sup> Straubel, *supra* note 13, at 210.

<sup>133</sup> Thompson, *supra* note 5, at 298.

<sup>134</sup> Henry Wong, Comment, *The Paper "Satellite" Chase: The ITU Prepares For Its Final Exam in Resolution 18*, 63 J. AIR L. & COMM. 849, 864 (1998). Although new satellites may be launched into pre-occupied slots, they may only occupy such slots as existing satellites become inoperable. Furthermore, new satellites are required to have the exact same technical characteristics as the ones they replace. *Id.*

<sup>135</sup> Finch, *supra* note 3, at 800.

framework.<sup>136</sup> Tonga, as one of the poorest countries, argued that it could supplement its GNP with revenue generated from geostationary positions.<sup>137</sup> However, satellite operators in developed countries felt that Tonga's acquisition of orbital slots denied them technologically needed space.<sup>138</sup> INTELSAT argued that Tonga's application for slots in excess of the country's needs broke customary law of satellite allocation.<sup>139</sup>

After Tonga was granted six positions in November 1991, the company Tongasat managed Tonga's satellites. It purchased two Soviet satellites to use in the newly assigned slots, rented some slots to the Colorado company Unicom, and then auctioned each of Tonga's remaining slots for \$2 million per year.<sup>140</sup> This rental and auctioning of slots supports the perception that property rights do exist with respect to individual orbits.

As a result of Tonga's rental activity, INTELSAT, asked the ITU to change the regulations and deny Tonga access to its slots, insisting that Tonga's warehousing of excess slots contravened the purpose of the ITU's rules for orbit allocation.<sup>141</sup> Ultimately, Tonga did acknowledge that its acts contravened the purpose of the ITU.<sup>142</sup> As a result, the ITU now requires that a majority of slots applied for be used directly by the requesting country.<sup>143</sup> This new requirement emerged in attempt to discourage the leasing and sale of geostationary orbits.<sup>144</sup>

### 3. *Balancing Equitable Access With Efficiency*

Obtaining a key spot in the geostationary orbit would enable developing nations like Tonga to claim immediate benefits from outer space development.<sup>145</sup> The lack of terrestrial infrastructure costs has created a demand for satellite capabilities in developing countries.<sup>146</sup> However, the creation of an orbital market might also increase the costs of operating telecommunication satellites by favoring high bidders for orbit leases, thereby

<sup>136</sup> Ezor, *supra* note 4, at 915.

<sup>137</sup> Riddick, *supra* note 2, at 20.

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

<sup>139</sup> *Id.* at 20-21.

<sup>140</sup> *Id.* at 20; see also Thompson, *supra* note 5, at 281.

<sup>141</sup> Thompson, *supra* note 5, at 282.

<sup>142</sup> Riddick, *supra* note 2, at 21.

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

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

<sup>145</sup> Ezor, *supra* note 4, at 917. Telecommunications is a crucial part to the development and functioning of modern nations. *Id.* Satellite communication has become the most commercialized use of outer space. Smith, *supra* note 8, at 157. The control of geostationary orbits is intertwined with current telecommunications technology, encompassing television, radio, telex, phone, facsimile, and direct data exchange. Ezor, *supra* note 4, at 917.

<sup>146</sup> Wong, *supra* note 3, at 549.

precluding many developing countries from launching and maintaining satellites.<sup>147</sup> A proposed solution to high rental costs is the creation of a board that would require and enforce regulations concerning the efficient use of the orbitals.<sup>148</sup> This panel would have the power to limit or strip allotments from states charging exorbitant rental fees.<sup>149</sup>

Another problem inherent in permitting the rental of outer-space positions is that the monetary incentive accompanying such rentals and leases may discourage developing countries from using their orbit-allotments for their own space activities.<sup>150</sup> In addition, although developing countries have been guaranteed orbitals, they have generally been assigned to positions that are unattractive.<sup>151</sup> This frustrates the objective of the outer Space Treaty to involve all countries in space development.<sup>152</sup> It will therefore be important to require member states to use financial gains to promote ITU goals if the leasing of unused space is allowed.<sup>153</sup> Only by keeping the funds controlled by UN agencies can the ITU be assured that the funds are not misappropriated as they have been in Tonga.<sup>154</sup> In Tonga, space rental revenues went to its king, princess and American entrepreneur.<sup>155</sup> This presents an example of how funds from leasing of outer-space orbitals can be abused and withheld from the country's people.<sup>156</sup>

Time restraints on guaranteed slot access also present a problem by functioning as a disincentive to build efficient and lasting satellites.<sup>157</sup> To solve this problem, variable time limits need to be applied based upon the proposed use of the allotment.<sup>158</sup> Such a system would base allotment on function rather than territorial control.<sup>159</sup>

The auctioning of orbital positions create a barrier to cash-poor industry innovators and undeveloped markets.<sup>160</sup> Therefore, if there is a free-market approach to allocation, there must be international authority charged

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<sup>147</sup> Ezor, *supra* note 4, at 935.

<sup>148</sup> Riddick, *supra* note 2, at 26.

<sup>149</sup> *Id.*

<sup>150</sup> Riddick, *supra* note 2, at 26.

<sup>151</sup> *Id.*

<sup>152</sup> *Id.*

<sup>153</sup> *Id.* "The purse strings on the benefits reaped from the 'Heritage of Humankind' should remain with the agency that purports to regulate it. Only by keeping the funds controlled by UN agencies can the ITU be assured that the funds are not misappropriated as they have been in Tonga." *Id.* at 27.

<sup>154</sup> *Id.* at 28.

<sup>155</sup> *Id.*

<sup>156</sup> *Id.*

<sup>157</sup> *Id.* at 19.

<sup>158</sup> Riddick, *supra* note 2, at 25.

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

<sup>160</sup> Thompson, *supra* note 5, at 302.

with its regulation.<sup>161</sup> One possible solution is for the ITU to include private representatives at its policy-making conferences, such as bankers and insurers. These individuals could then provide the organization with the technical market expertise beyond that of the governmental delegations.<sup>162</sup> This would offer the additional insight needed in drafting these complex financial regulations.

Ultimately, the ITU must grapple the problem of reservation capacity without actual use.<sup>163</sup> The current *a priori* system has induced nations to seek assignments that are often beyond their capability to utilize in the foreseeable future, at the possible detriment to other nations.<sup>164</sup> Abuse of the first-come, first-served reservation process has caused a congestion of satellite projects that exist on paper, but not in reality.<sup>165</sup> In order to ensure access to space when desired, numerous nations file for more orbital positions than needed, creating a congestion of "paper satellites."<sup>166</sup> INTELSAT commonly registers for more slots than it needs, justifying their practice as insurance against the risk of satellite failure.<sup>167</sup> In effect, however, such practice prevents competitors from obtaining orbital slots necessary to operate their systems.<sup>168</sup> The lack of filing fees, sanctions for frivolous filings, and progress-report accountability to the ITU, all contribute to the increasing practice of excessive filings.<sup>169</sup> Additionally, allocating space to nations that have no foreseeable need for a satellite system raises the concern that scarce resources will be wasted.<sup>170</sup> Developing nations' desire for guaranteed access to the geostationary orbit creates additional tension.

#### IV. PRESENT IMPLICATIONS OF ITU'S ALLOCATION SYSTEM

The recent push by developing countries to exercise collective power where they were previously inactive in resource exploitation indicates the growing significance of third world concerns in space-orbit allocations.<sup>171</sup> Many commentators view Tonga's actions as a warning that developed

<sup>161</sup> *Id.* at 309.

<sup>162</sup> Wong, *supra* note 134, at 875-76.

<sup>163</sup> Thompson, *supra* note 5, at 310.

<sup>164</sup> *Id.*

<sup>165</sup> Wong, *supra* note 3, at 559.

<sup>166</sup> Thompson, *supra* note 5, at 299-300; *see also* Wong, *supra* note 134, at 849.

<sup>167</sup> Wong, *supra* note 3, at 558.

<sup>168</sup> *Id.*

<sup>169</sup> Wong, *supra* note 134, at 865.

<sup>170</sup> Thompson, *supra* note 5, at 300.

<sup>171</sup> *Id.* at 19.



nations "can no longer rest assured that when they get to space, it will be unclaimed and unoccupied, because smaller nations may have already arrived and set up shop."<sup>172</sup> It is important to note that ITU allotments have been challenged by Asian-Pacific nations.<sup>173</sup> Indonesia's Palapa Satellite Organization, Hong Kong's Asia Satellites, and Thailand's Shinawatra Satellites have all launched satellites into areas allotted to other countries.<sup>174</sup> In January 1993, Indonesia not only disregarded an ITU allotment and transferred their Palapa B1 satellite into a Tongan slot, but claimed that the ITU's Regulatory Board lacked the power to stop them.<sup>175</sup> This magnifies the need for revising the present allocation system.

The ITU has sought to ensure equal sharing of benefits from the geostationary orbit by incorporating special consideration of the needs of developing countries in its allocation process. According to one commentator:

[I]t is important to remember that...[this is] a system that has resulted from international give-and-take at a conference attended by over 100 nations. Most of the attending nations are Parties to the outer Space treaty. Therefore, their actions at the Space WARC are entitled to great weight in evaluating the WARC results *vis-à-vis* the Outer Space Treaty. Absent clear evidence to the contrary, these regimes are entitled to a presumption that they comport with the Outer Space Treaty.<sup>176</sup>

Yet, sovereignty and ownership concerns arise because history demonstrates that nations may actually control access to, and use of, orbital slots.<sup>177</sup> This allows for claims of acquired economic interest in a specific orbit. In addition, such control violates the non-appropriation principle, since use of the resource is limited. The non-appropriation principle was intended to prevent the application of sovereignty claims to space and preclude territorial claims by any country, thereby guaranteeing free access to all nations.<sup>178</sup> While the prohibition negates the possibility of ownership by one nation or entity, it does not affirmatively grant ownership rights to all nations

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<sup>172</sup> Thompson, *supra* note 5, at 311.

<sup>173</sup> *Id.* at 20.

<sup>174</sup> *Id.*

<sup>175</sup> *Id.* at 20-21.

<sup>176</sup> Smith, *supra* note 8, at 168.

<sup>177</sup> LAY, *supra* note 48, at 73-74.

<sup>178</sup> The United Nations adopted by resolution the non-appropriation principle. G.A. Res. 1721, U.N. GAOR, 16<sup>th</sup> Sess., Supp. No. 17, at 6, U.N. Doc. A/5100 (1961).

in common or to mankind as a whole.<sup>179</sup> Space resources will not be properly developed without a legal framework that is consistent with existing principles of space law and which provides a sufficient degree of certainty and security in the established rules.

Nevertheless, one positive aspect of the ITU is the autonomous nature of the organization. Although it is difficult to develop a regulatory scheme in which no particular nation's interests are unduly advanced, the ITU has clearly attempted to give weight to non-dominant countries' concerns. Maintenance of free access is important in assuring that lesser-developed countries have access to geostationary orbits when they acquire the capability to use them. In order to ensure efficiency, the ITU should establish criteria upon which an orbital allocation could be subject to renewal or revocation. If slot positions were subject to review, it would strengthen innovation incentive and bolster the idea that no permanent property rights exist over slot assignments. The primary goal of the allocation procedure should be to limit the domination of investing nations to an area that they can profitably exploit over a limited period of time, and in a manner consistent with the principles of the OST to prevent nationalistic interference. The IFRB should also be insulated from conflicts between competing nations over specific slot allocations. Genuine adherence to the OST requires orbital assignments to be made in the interests of all nations, without regard to the political or economic impact on any one sovereign. Nations must forego the privilege of exercising sovereignty and property rights over the geostationary orbit in order to achieve a more homogeneous distribution of outer space benefits.

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<sup>179</sup> *Id.*