The idea of good faith as source of international law seems to be endorsed by the decision of the International Court of Justice in the *Nuclear Tests Case*.[106] According to the Court:

> Trust and confidence are inherent to international co-operation, in particular in an age when this co-operation in many fields is becoming increasingly essential. Just as the very rule of *pacta sunt servanda* in the law of treaties is based on good faith, so also is the binding character of an international obligation assumed by unilateral obligation.[107]

By using the principle of good faith to attribute legal effects to a State's unilateral declaration,[108] the Court set the basis not only for the recognition of the normative role of this principle, but also for its extended application to the mere unilateral pronouncements of States.[109] Logically then, a formal multilateral Declaration can, in the same way or even more strongly, assume legal relevance through the application of the good faith principle.

Some authors, however, have contested the normative role of the good faith principle in international law.[110] In general, these scholars see good faith not as a source of international law, but rather only as a moral guiding principle in the application of existing legal rules.[111] They base their view on the word-

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[106] Nuclear Tests Case (N.Z. v. Fr.), 1974 I.C.J. 457 (Dec. 20); *cf.* Kolb, *supra* note 103, at 21–23 (arguing that the idea of good faith as a source of law also informed other judgments of the International Court of Justice, for example, Fisheries Case (U.K. v. Nor.), Judgment, 1951 I.C.J. 116 (Dec. 18) and Temple of Preah Vihear (Cambodia v. Thai.), Merits, Judgment, 1962 I.C.J. 6 (June 15)).

[107] *Nuclear Tests Case*, *supra* note 106, at 473.

[108] D'Amato, *supra* note 105, at 601.

[109] *Id.*

[110] MALCOLM SHAW, INTERNATIONAL LAW 98 (2003); *see also* Andrew Mitchell, *Good Faith in WTO Dispute Settlement*, 7 MELB. J. INT'L L. 339, 345 n.44 (2006) (*quoting* Disa Sim, *The Scope and Application of Good Faith in the Vienna Convention on Contracts for the International Sale of Goods*, *in* REVIEW OF THE CONVENTION ON CONTRACTS FOR THE INTERNATIONAL SALE OF GOODS (CISG) 2002–2003 19, 61 (PACE INT'L L. REV. ed., 2004), *available at* http://www.cisg.law.pace.edu/cisg/biblio/sim1.html).

[111] *Cf.* Sim, *supra* note 110 (arguing that "[o]ne should thus treat good faith as a moral aspiration, but not as a substantive legal doctrine"); *see also* SHAW, *supra* note 110, at 98.

ing of Article 2(2) of the United Nations Charter,[112] the Declaration on Principles of International Law Concerning Friendly Relations and Co-operation among States,[113] and the jurisprudence of the International Court of Justice.[114] Each of these sources refers to good faith as the basic principle informing States' compliance with *existing* legal obligations. Contrary to the view quoted above, the *Nuclear Tests Case* could, in theory, be used to support this argument, when one recognizes that the Court looked first to the intentions of the declaring State[115] when it determined the legal value of a unilateral declaration. In addition, it acknowledged that good faith is a "basic principle governing the *creation and performance of legal obligations, whatever their source*" (emphasis added),[116] thereby appearing to implicitly exempt good faith as one of these sources. In practice, however, the Court ultimately used the good faith principle as a foundation on which a unilateral declaration can assume legal relevance. Thus, it seems that the Court further expanded the scope of good faith in international law, not only encompassing a general principle governing the application of existing legal obligations, but also including its role as a source of law.

In any event, even if one denies that the good faith principle acts as a source of international law, a case can be made that it endows General Assembly Resolutions with a "quasi-legal" status. Indeed, even if a General Assembly Resolution does not by itself legally oblige compliance, good faith forms the basis for a general duty of States to act in accordance with it. This difference is only one "of degree rather than of kind."[117] Consequently,

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[112] U.N. Charter art. 2 para. 2 (stating "All Members, in order to ensure to all of them the rights and benefits resulting from membership, *shall fulfil in good faith the obligations assumed by them in accordance with the present Charter*" (emphasis added)).

[113] Principle 1, according to which all States shall, among other duties, "comply *in good faith with their obligations* under the generally recognized principles and rules of international law with respect to the maintenance of international peace and security, and shall endeavour to make the United Nations security system based on the Charter more effective" (emphasis added).

[114] *See, e.g.*, Border and Trans-border Armed Actions (Nicar. v. Hond.), Jurisdiction and Admissibility, Judgement, 1988 I.C.J. 69, 105–06 (Dec. 20); *see generally*, SHAW, *supra* note 110, at 98.

[115] *Nuclear Tests Case*, *supra* note 106, at 472.

[116] *Id.* at 473.

[117] Johnson, *supra* note 48, at 101.

according to the terms of the Declaration on Space Benefits, a quasi-legal duty to engage in international cooperation in space activities would rest on the adopting States by virtue of good faith.

E. Shortcomings

Despite the possible legal effects that one could attribute to the Declaration on Space Benefits by means of custom, good faith, or as authoritative means of interpretation of pre-existing treaty law, the vagueness of its wording and the solely "moral" dimension of most of its provisions prevent this instrument from having *practical* legal value. Its language encourages States to adopt certain conduct, rather than declaring mandatory rules.[118] This is confirmed by the fact that this is a "should," rather than a "shall" declaration.[119] The principles expressed are "general and reflect desiderata,"[120] defining "more rights, than [they do] obligations."[121] Furthermore, even when these principles present a certain mandatory dimension, essential expressions such as "on an equitable and mutually accepted basis" and "in the modes that are considered most effective and appropriate by the concerned States" are not defined. On top of that and in addition to the fact that no enforcement mechanism is provided for in the text of the Declaration, its imprecise language and its vague content impede any practical enforcement of the provisions.

Under these circumstances, it is evident that any attempt to affirm the potential role of the Declaration on Space Benefits in consolidating pre-existing customs or leading to the formation of new customary law stalls due to the impossibility of identifying the exact content of the related obligations.

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[118] Jitendra S. Thaker, *The Development of the Outer Space Benefits Declaration*, 22 ANNALS AIR & SPACE L. 537, 555 (1997).

[119] *See* H. A. Wassenbergh, *The International Regulation of an Equitable Utilization of Natural Outer Space Resources*, *in* 39TH PROC. COLLOQ. L. OUTER SPACE 138, 139 (1996).

[120] *Id.*

[121] Thaker, *supra* note 118, at 555.

Similarly, when looking at the Declaration as an authoritative means of interpretation of Article I(1) of the Outer Space Treaty, there is still a question as to whether, and to what extent, this new instrument has clearly interpreted the vague terminology of the "benefit of mankind provision," thus ending the controversy over its moral or legal nature and the extent of its scope. Although it is apparent from the text of the Declaration that cooperation should be on an "equitable and mutually acceptable basis,"[122] and therefore that any interpretation of Article I(1) of the Outer Space Treaty that is based on a concrete sharing of economic benefits needs to be rejected, no further *clear* indication is given as to the terms by which States should determine their participation in international cooperation in the exploration and use of outer space.

The same reasoning applies when the legal or "quasi-legal" value of the Declaration comes from the general duty of States to act in good faith, to satisfy the legitimate expectations created by their adoption of the Declaration. Again, the Declaration does not possess the clarity sufficient to inform States of their precise legal duties. Thus, if States adhere to the principles of the Declaration, this observance appears to be mainly based on their moral and political convictions.

Nonetheless, despite its lack of clear legal obligations, there is nothing to suggest that the Declaration on Space Benefits has failed to contribute to the development of international space law or that it has been an inadequate instrument in regulating international space relations. Because of these legal shortcomings, the true essence of the Declaration on Space Benefits is, to a large extent, as a political manifesto. Yet since law and politics are closely intertwined, international law reflects the reality of political agreements between States, which are usually informed by moral considerations. Therefore, despite the murky legal character with which the Declaration is endowed, its ultimate contribution to the evolution of space law rests strongly on its political and moral value.

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[122] Declaration on Space Benefits, *supra* note 42, at ¶ 2.

IV. THE MORAL AND POLITICAL VALUE OF THE DECLARATION ON SPACE BENEFITS

While the legal nature of United Nations General Assembly resolutions (and in particular, the Declaration on Space Benefits) is debatable and has been analyzed in the previous section of the present Article, the political nature of declarations of this sort is generally not disputed.[123] When Member States adopted the Declaration in the General Assembly, this action was the result of a political body exercising a political function, rather than a juridical one. States use resolutions to make a point,[124] rather than to legislate. Furthermore, because States know that resolutions are not legally binding, they may be more willing to enter into a compromise and to silence their objections.[125] Thus, the real question is not whether the Declaration is a political instrument, but rather the extent to which it exerts its influence.

The result of ten years of negotiations, the Declaration marked the end of the debate between States over the meaning and scope of international cooperation in space. The developing nations had lost their initial strong-arm attempt to establish mandatory technology transfers, and after their concessions in the Declaration, shifted their focus away from these demands.[126] In this way, they abandoned the claim that outer space, as the "common heritage of mankind," demanded the sharing of economic benefits that come from outer space activities,[127] and reaffirmed Article I(2) of the Outer Space Treaty, which provides for the free exploration and use of outer space. In return for the right to determine the nature and level of participation in coop-

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[123] *See, e.g.*, Terekhov, *supra* note 49, at 98.

[124] *But see* Schwebel, *supra* note 56, at 302 (stating the argument that Member States of the UN General Assembly "don't meaningfully support what a resolution says").

[125] *Cf.* Onuma Yasuaki, *Is the International Court of Justice an Emperor Without Clothes?*, 8 INT'L LEGAL THEORY 1, 16–17 (2002) (arguing that because States know that General Assembly resolutions "have only hortatory force, they vote in the affirmative when otherwise they would not").

[126] *See* TRONCHETTI, *supra* note 31, at 80 (describing this process as an abandonment of the "Common Heritage of Mankind" principle).

[127] *Id.*

erative ventures, however, the space powers reiterated their commitment to using space for the benefit of all countries through international cooperation, which while not obligatory as a legal duty, at least carries moral weight. This implies that the States that agree to the arrangement are making an earnest guarantee that they will work to modify state practice or effect national legislation on the issue. These political and moral obligations, while not binding,[128] can nonetheless be very strong, and are surely tied to a State's reputation in the larger realm of international relations.

The Declaration on Space Benefits also had important consequences in light of its effect on UNISPACE III. The focus of this international conference was "Space Benefits for Humanity in the Twenty-first Century."[129] Because the debate that had underscored the creation of the Declaration on Space Benefits was formally resolved, the discussion at UNISPACE III could focus on the substance of how to share those benefits for all of humanity,[130] rather than becoming mired again in ideological debates.[131] In order to assist with the implementation of the recommendations it proposed, UNISPACE III established a new voluntary fund to support projects that "increase the level of awareness of space technology development and its impact on social and economic development."[132] At the conclusion of UNISPACE III, the Committee adopted the "Space Millennium: Vienna Declaration on Space and Human Development,"[133]

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[128] *Cf.* Johnson, *supra* note 48, at 114–15 (concluding that "while Resolutions of the General Assembly may have 'political effect,' they do not give rise to political obligations").

[129] Its primary objectives were "(a) to promote effective means of using space technology to assist in the solution of problems of regional or global significance and (b) to strengthen the capabilities of Member States, in particular developing countries, to use the applications of space research for economic, social and cultural development." Comm. on the Peaceful Uses of Outer Space, Sci. & Tech. Subcomm, *Rep. on its 34th Sess., Feb, 17-28, 1997*, ¶ 18, U.N. Doc. A/AC.105/672, Annex II, (Mar. 10, 1997).

[130] *See* UNISPACE III, *supra* note 79, at ¶¶ 377–410.

[131] UNISPACE I (1968) and II (1982) were marked by political conflicts over the distribution of resources that prevented substantive discussion of the benefits of space. *See* Marietta Benkö & Kai-Uwe Schrogl, *Space Law at UNISPACE III (1999) and Beyond*, *in* 40TH PROC. COLLOQ. L. OUTER SPACE 157, 157–58 (1997).

[132] UNISPACE III, *supra* note 79, at ¶ 396.

[133] Adopted by the Conference at its 10th plenary meeting on July 30, 1999.

which "[r]eaffirm[ed]" the Declaration on Space Benefits in its preamble and "[r]ecognize[d] that the promotion of bilateral, regional and international cooperation in the field of outer space must be guided by General Assembly resolution 51/122 [the Declaration on Space Benefits]."[134]

At the same time that delegations in the Legal Subcommittee were working towards the finalization of the terms of the Declaration on Space Benefits, a consistent understanding of the essence of international cooperation permeated the entire work of COPUOS.[135] The Secretary-General issued a *note verbale* on August 4, 1995 and another on July 19, 1996 to all permanent representatives to the United Nations,[136] requesting that they submit information "about those space activities that were or could be the subject of greater international cooperation, with particular emphasis on the needs of the developing countries."[137] These requests were made in the shadow of the debate in the Legal Subcommittee, and when the Declaration was finally adopted, it cemented the commitment of nations to consider existing issues related to international cooperation and to think about how to tackle new ones.

The political commitment expressed by States through the adoption of General Assembly declarations may also contribute to the development of international law by influencing the future law-making process.[138] The Declaration on Space Benefits expresses the political commitment of States to the principles of

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[134] UNISPACE III, *supra* note 79, at Res. 1, pmbl., and ¶ 5.

[135] In 1995, the Scientific and Technical Subcommittee re-established the Working Group of the Whole to Evaluate the Implementation of the Recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82). This Working Group recommended that COPUOS "should request all States, particularly those with major space or space-related capabilities, to continue to inform the Secretary-General annually, as appropriate, about those space activities that were or could be the subject of greater international cooperation, with particular emphasis on the needs of the developing countries." Comm. on the Peaceful Uses of Outer Space, Sci. & Tech. Subcomm, *Rep. on its 32nd Sess., Feb. 6–16, 1995*, ¶ 9, U.N. Doc. A/AC.105/605, Annex II, (Feb. 24, 1995).

[136] International cooperation in the peaceful uses of outer space: activities of Member States, Note by the Secretariat, ¶ 3, U.N. Doc. A/AC.105/614 (Nov. 8, 1995); International cooperation in the peaceful uses of outer space: activities of Member States, Note by the Secretariat, ¶ 4, U.N. Doc. A/AC.105/661 (Dec. 5, 1996).

[137] U.N. Doc. A/AC.105/605, *supra* note 135, at Annex II, ¶ 9.

[138] *See* Terekhov, *supra* note 49, at 105.

mutual and equitable cooperation in space. Thus, as they already have on a bilateral basis,[139] the principles expressed in the Declaration are likely to be confirmed if a new multilateral treaty governing space activities is drafted in the Legal Subcommittee. Like the 1963 Declaration that underscored the Outer Space Treaty, the terms of the Declaration on Space Benefits are at the same time vague enough, yet comprehensive enough that they may serve as a backdrop to any future development in space law.

The Declaration on Space Benefits, like other resolutions that "guide States in situations where specific treaty norms have not yet been adopted or are too general[,] . . . contribute[s] to ensuring orderly and dispute-free interaction of States in various areas of human activities in outer space."[140] As has been noted, "[b]enefit sharing is part of space policy . . . . Whether or not it is judicially enforceable is not as important as whether it is a good idea."[141] Today, States, non-governmental, and intergovernmental organizations have the opportunity to present their activities in this area under the agenda item of "Ways and means of maintaining outer space for peaceful purposes."[142] Although this reporting is voluntary, it can nonetheless serve as a metric for whether States are fulfilling the bargain of the Declaration on Space Benefits and can provide a forum for States to demonstrate their political promise to uphold the spirit of the Declaration.

More generally, the role of the Declaration in expressing and informing States' political commitment towards international cooperation in outer space is evidenced by the yearly United Nations General Assembly Resolution, "International

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[139] *See, e.g.*, Framework Agreement between the Government of the Federative Republic of Brazil and the Government of the People's Republic of China on Cooperation in the Peaceful Applications of Outer Space Science and Technology, Nov. 8, 1994, 2036 U.N.T.S. 35218.

[140] Terekhov, *supra* note 49, at 105.

[141] Declan J. O'Donnell, *Benefit Sharing: The Municipal Model*, *in* 39TH PROC. COLLOQ. L. OUTER SPACE 151, 157 (1996).

[142] *See, e.g.*, Comm. on the Peaceful Uses of Outer Space, *Rep. on its 53rd Sess., June 9–18, 2010*, ¶ 32, U.N. Doc. A/65/20; GAOR, 65th Sess., Supp. No. 20 (2010).

cooperation in the peaceful uses of outer space,"[143] which recalls the Declaration on Space Benefits, and reiterates the importance of extending the benefits of outer space to developing countries.[144] The resolution goes on to note the achievement made in national and cooperative space projects and highlights the "importance of further developing the legal framework to strengthen international cooperation in this field."[145] In addition, the resolution emphasizes "that regional and interregional cooperation in the field of space activities is essential to strengthen the peaceful uses of outer space [and to] assist States in the development of their space capabilities."[146] This language is echoed in the 2010 COPUOS Report, where it states that the "Committee had made concrete efforts to promote regional and interregional cooperation and coordination in space activities for the benefit of all countries."[147]

It is apparent that international cooperation has increasingly developed according to the principles laid down in the Declaration on Space Benefits. Despite divergent views on the specific requirements of benefit sharing present during the negotiation of the Declaration and remaining to this day, States still provide access to the benefits of space technology, albeit in ways that mirror their understanding of the Declaration. The United States, for example, while opposed to the mandatory technology transfer that was first proposed by the developing countries, has nonetheless provided access to its remote sensing data from Landsat.[148] Similarly, the Chinese-Brazilian Earth Resources

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[143] *See, e.g.*, U.N. Doc. A/RES/65/97 (Jan. 20, 2011); U.N. Doc. A/RES/64/86 (Jan. 20, 2010); U.N. Doc A/RES/63/90 (Dec. 18, 2008); U.N. Doc A/RES/54/67 (Feb 11, 2000).

[144] U.N. Doc. A/RES/65/97 (Jan 20, 2011), at pmbl..

[145] *Id.*

[146] *Id.* at ¶ 18.

[147] U.N. Doc. A/65/20, *supra* note 142, at ¶ 32; *see also* U.N. Doc. A/AC.105/973, *supra* note 84 and accompanying text, at ¶ 36 (reiterating that States should act in accordance with the Declaration on Space Benefits when "building up national infrastructure to use space-derived geospatial data for sustainable development").

[148] U.N. Doc. A/65/20, *supra* note 142, at ¶ 291; *see also, Annex of Early Achievements to the Report on Progress 2007: Cape Town Ministerial Summit, in* GROUP ON EARTH OBSERVATIONS, § 5 (Nov. 30, 2007), http://www.earthobservations.org/documents/geo_iv/30_%20Annex%20of%20Early%20Achievements%20to%20the%20Report%20on%20Progress.pdf [hereinafter *Annex of Early Achievements*].

Satellite (CBERS), a joint venture between China and Brazil,[149] has resulted in the distribution of free satellite images to African countries.[150] The year before China announced this dissemination of Earth observations to African nations, a white paper describing the Chinese National Space Administration's activities in 2006, stated:

> International space cooperation should adhere to the fundamental principles stated in the "Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries." China maintains that international space exchanges and cooperation should be strengthened on the basis of equality and mutual benefit, peaceful utilization and common development.[151]

In the next section of the white paper, the Chinese National Space Administration emphasized their policies toward developing international cooperation in space activities, including "[r]einforcing space cooperation with developing countries, and valuing space cooperation with developed countries."[152]

V. CONCLUSIONS

In the fifteen years since the Declaration on Space Benefits was adopted, international cooperation in space activities among nations of all levels of technological development has increased. Although the Declaration has no practical *legal* relevance (regardless of whether one attributes legal effects to it), it has contributed to this development as a political instrument, serving to reinforce and delineate a common approach towards international cooperation in outer space. Moving forward, it remains to be seen whether the Declaration will continue to exert

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[149] *See Cooperação Internacional*, AGÊNCIA ESPACIAL BRASILEIRA, http://www.aeb.gov.br/indexx.php?secao=cooperacao_internacional (last visited May 12, 2012).

[150] *Annex of Early Achievements*, *supra* note 148, § 4.

[151] White Paper issued by the Information Office of China's State Council, *China's Space Activities in 2006*, (Oct. 12, 2006), *available at* http://www.cnsa.gov.cn/n615709/n620682/n639462/79381_2.html.

[152] *Id.* at 1.

the same influence in light of future developments in the exploration and use of outer space.

In an era where more and more countries are becoming involved in the exploitation and use of outer space, principles of international cooperation begin to take on ever greater significance. In addition, the increasing global dependence on space activities and satellite data will continue to challenge the interpretation of using and exploring outer space for the benefit of all countries.

International cooperation will continue to grow in relevance, as space projects become increasingly far-reaching and ever more expensive. Budgets are tightening, and despite the spin-off benefits, the national prestige, and the scientific discoveries that come from space activities, even space powers like the United States are beginning to cut back their activities. Yet, as governments look for ways to share the costs of their space activities, continuing privatization and commercialization of many space activities mean that there will be a far greater role for governmental and non-governmental entities to work together in the coming years. This need was foreseen by the Declaration, which specifically mentions in paragraph 4, "governmental and non-governmental; commercial and non-commercial" as viable modes of cooperation that States are free to choose. In order to enjoy the benefits of space, regardless of whether that means in the purely technological or the economic sense, nations and private enterprise will need to work together.

Despite this attempt to address the need to cooperate, however, the Declaration has no binding force, and thus takes its value from the political willingness of States to determine that its principles are followed. In the face of this rapid expansion of activities in outer space, it would be useful to codify the principles embodied in the Declaration into formal treaty obligations. Any attempt at codification, however, brings with it its own questions and challenges: Can States agree on common definitions that are clear enough to overcome the shortcomings of the Declaration? Are States even ready to reach a binding compromise and end the soft law phase in space law making? Can any definition of international cooperation foresee further technological developments in space?

For these reasons, codification is unlikely now. As the Declaration has served fundamentally as a political and moral instrument over the last fifteen years, it will likely remain so, at least in the near future. One of the goals of the Declaration was to fill the legal gaps caused by technological developments;[153] with continued technological growth, this rift may soon widen to the point that States feel that further gap filling is necessary. The future remains uncertain, but even without formal codification of the principles of the Declaration, strong signals can be found that nations will continue to uphold the political commitment they made. For example, in the "Declaration on the Fiftieth Anniversary of Human Space Flight and the Fiftieth Anniversary of Committee on the Peaceful Uses of Outer Space"[154] from June 2011, COPUOS Member States stressed once again the fundamental principles of the Declaration on Space Benefits by "reaffirm[ing] the importance of international cooperation in developing the rule of law, including the relevant norms of space law, and of the widest possible adherence to the international treaties . . ."[155] and "emphasiz[ing] that regional and interregional cooperation in the field of space activities is essential to strengthen the peaceful uses of outer space, assist States in the development of their space capabilities and contribute to the achievement of the goals of the United Nations Millennium Declaration."[156]

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[153] *See* U.N. Doc. A/AC.105/C.2/L.162, *supra* note 47 and accompanying text.
[154] U.N. Doc. A/AC.105/L.281/Add.2 (June 6, 2011).
[155] *Id.* at ¶ 10.
[156] *Id.* at ¶ 14.

RIGHTS OVER AREAS VS RESOURCES IN OUTER SPACE: WHAT'S THE USE OF ORBITAL SLOTS?

Philip De Man[1]

INTRODUCTION

In 1995, Robert Jones identified the following issues as top priorities for optimising the use of orbits for space services during his tenure as head of the Radiocommunication Sector of the International Telecommunication Union (ITU):

> The single most important issue [for the ITU] is the reservation of capacity without actual use . . . . Eliminating or minimizing the opportunity to acquire uncommitted resources could help alleviate the current orbital congestion. . . . Recent experience indicates that unrealistically long operational lifetimes are notified, leading to almost permanent occupation of orbital positions,[2]

The reservation of orbital capacity without actual use is frequently referred to as the 'paper satellite' problem,[3] or as slot 'warehousing.'[4] The issue has plagued the ITU for a number of years and has only recently started to be addressed, mainly through the adoption of administrative and financial due dili-

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[2] *ITU tries to solve new problems without interfering with national sovereignty*, SATELLITE WK. (May 29, 1995), *available at* 1995 WLNR 2939225.

[3] Director Radiocommunication Bureau, *Report on Resolution 18 of the Plenipotentiary Conference Kyoto*, 1995, at 3 (on file with author). "Paper satellites" are defined as "satellite networks in coordination or recorded in the Master Register that are not in operation and will never be brought into use", *see* David M. Leive, *Rapporteur Group SC-4 Report to the Special Committee on Regulatory/Procedural Matters Devoted to Resolution 18 (Kyoto, 1994)*, Doc. SC-RG4/54 (Nov. 25, 1996), at 3 & 11 [hereinafter *Rapporteur Group SC-4 Report*].

[4] *See, e.g.*, Janata C. Thompson, *Space for Rent: the International Telecommunications Union, Space Law, and Orbit/Spectrum Leasing*, 62 J. AIR L. & COM. 279-331 (1996).

gence measures.[5] The impact of these measures is not unequivocal. While ITU press releases are generally optimistic as to the progress achieved so far,[6] other sources remind us that the problem has still not been overcome entirely,[7] Regardless of the effectiveness of the measures, however, the strong reaction of the ITU to combat paper satellites highlights the need to actually use orbital slots that are registered for the use of satellite networks. The widespread qualification of such slots as 'limited natural resources'[8] only underscores the apparent unlawfulness of their reservation without subsequent use. At the same time, however, the history of the ITU is replete with denunciations of the actual, prolonged use of slots by those States having the capacity to launch satellites into orbit around Earth. As indicated in the above statement, such practices of continued use are regularly denounced as an unlawful form of permanent occupation that precludes States currently lacking launching capabilities from optimally exercising their correspondent freedom to use these slots at a future point in time.

The perceived unlawfulness of two diametrically opposed practices that nevertheless originate in the same legal regime highlights the need to clarify the limits of the permissible types of use (and non-use) of orbital slots. The present article aims to contribute to this discussion by offering a thorough analysis of the applicable legal rules, in order to shed some light on the broader underlying philosophy of the free use of outer space. To

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[5] *See infra*, section III.D.2.

[6] *See, e.g.*, ITU, *Paper chase* (Sept. 30, 2009), http://www.itu.int/newsroom/media-kit/ITU-R/story2.html (in which it is argued that "[t]he system has proved an effective answer").

[7] Francis LYALL & Paul B. LARSEN, SPACE LAW: A TREATISE 236 – 237 (London, Ashgate, 2009); Ram S. Jakhu, *Legal Issues Relating to the Global Public Interest in Outer Space*, 32 J. SPACE L.74 – 76 (2006); Ram S. Jakhu, *Legal Issues of Satellite Telecommunications, the Geostationary Orbit and Space Debris*, 5 *Astropolitics* 133,182 – 184 (2007),; Patrick A. Salin, *Orbites, fréquences et asteroïdes à l'heure de la commercialisation des activités spatiales - vers une appropriation graduelle du patrimoine de l'espace?*, 26 ANN. AIR & SPACE L.179, 183(2001). ITU reports note that the member states are not always conscientious in paying their financial dues. See the various Statements of amounts owed in connection with invoices for the processing of satellite network filings on the ITU website, www.itu.int.

[8] Constitution of the International Telecommunication Union, art. 44 (2), Dec. 22, 1992, *entered into force* July 1, 1994, 1825 U.N.T.S. 31251 [hereinafter ITU CS]. *See further infra* n.20 and accompanying text.

this end, the first section of the article will sketch out a general overview of the issues that have preliminary been identified in this introduction. The section will establish the relevance of both the Outer Space Treaty and the ITU regime for regulating the use of orbital slots. The second and third section will then in turn elaborate in detail on both prongs of said legal regime in an analysis that will call attention to the actual use of reserved orbital slots under both strands. A fourth section focuses on the limits of such actual slot usage, in particular with respect to purported temporal restrictions thereto. A fifth section of the article will then merge the lessons drawn from all previous sections in a general hypothesis on the use of orbital slots, based on their actual use as natural resources. The article will conclude with some pertinent final thoughts.

I. SETTING THE STAGE: THE LEGAL REGIME AND PRACTICE OF ORBITAL SLOT USAGE

A. The Basic Legal Regime of Orbital Sots

The use of orbital positions around Earth is governed, first of all, by the fundamental principles codified in the 1967 Outer Space Treaty.[9] Despite earlier controversy, it is now uncontested that orbits form an intrinsic part of outer space.[10] The funda-

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[9] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

[10] S. Houston LAY and Howard J. TAUBENFELD, THE LAW RELATING TO ACTIVITIES OF MAN IN SPACE: AN AMERICAN BAR FOUNDATION STUDY 67 (Chicago, University of Chicago Press, 1970); K.G. Gibbons, *Orbital Saturation: the Necessity for International Regulation of Geosynchronous Orbits*, 9 CAL. W. INT'L L.J. 139, 149 (1979). The vehement reaction of the international community to the 1976 Bogotá Declaration (*see infra* nn.33-39 and accompanying text) and the manifold references to orbits in the UN space treaties are unequivocal in their confirmation of the applicability of the Outer Space Treaty to orbits. *See, e.g.,* Ram S. Jakhu, *The Legal Status of the Geostationary Orbit*, 7 ANN. AIR & SPACE L.333 (1982). One authoritative strand in the delimitation discussion even rests on the premise that outer space begins at the lowest possible perigee of satellites. *See* John Cobb Cooper, *Fundamental Questions of Outer Space Law*, *in* Gbenga Oduntan, *The Never Ending Dispute: Legal Theories on the Spatial Demarcation Boundary Plane Between Airspace and Outer Space*, 1 HERTFORDSHIRE L.J., 64, 79 (2003); J.F. McMahon, *Legal Aspects of Outer Space*, 38 BRIT. YB. IN'L L. 339, 343 (1962); Lubos Perek, Scientific Criteria for the *Delimitation of Outer Space*, 5 J. SPACE L.111,

mental provisions of the Outer Space Treaty on the use of outer space in general are therefore applicable to the specific use of orbital segments for positioning satellites. Article I, paragraph 2, Outer Space Treaty provides that

> Outer space, including the Moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.

The main goal of the legal regime on orbital usage as defined by this provision is thus to guarantee the free use of orbital positions by all States, limited only by the correlative freedom of other States to act correspondingly. This free use of orbital positions is further circumscribed by article I, paragraph 1, Outer Space Treaty, requiring that outer space be used for the benefit and in the interests of all countries, by article II of the Outer Space Treaty, proscribing the national appropriation of outer space, and by article IX, establishing the principles of cooperation and mutual assistance as lodestars for the permissible uses of outer space (see further *infra* section II).

Space law does not operate in a legal vacuum. Article III of the Outer Space Treaty postulates the applicability of general international law to the activities of States in outer space. The lawful usage of orbital points in space is thus also curbed by other international provisions than by those contained in the UN space treaties, including, most importantly, the rules promulgated by the International Telecommunication Union.[11] To be sure, the ITU initially concerned itself only with the regulation

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121 (1977); Vladimir Kopal, *The Question of Defining Outer Space*", 8 J. SPACE L.154 (1980).

[11] Carl Q. Christol, *The Legal Status of the Geostationary Orbit in the Light of the 1985-1988 Activities of the ITU, in* 32 PROC. COLL. L. OUTER SPACE 215 (1989) [hereinafter *The Legal Status of the Geostationary Orbit*]; Ram S. Jakhu, *The Principle of Non-Appropriation of Outer Space and the Geostationary Orbit, in* 26 PROC. COLL. L. OUTER SPACE 21 (1983) [hereinafter *The Principle of Non-Appropriation of Outer Space*]; Adrian Copiz, *Scarcity in Space: the International Regulation of Satellites*, 10 COMM. L. CONSPECTUS 207, 216 (2002); Joseph Wilson, *The International Telecommunication Union and the Geostationary Orbit: an Overview*, 23 ANN. AIR & SPACE L.241, 262–263 (1998).

of pertinent uses of the radio-frequency spectrum (RFS). As the RFS cannot reasonably be deemed a natural resource or other element originating in outer space, the relevance of the ITU regime for determining the lawful uses of orbital slots as a space resource may appear questionable.[12] Nevertheless, the legal principles developed by the ITU with respect to the regulation of terrestrial radio services were transposed almost immediately and with relatively minor alterations to the regulation of space services as soon as States started to develop activities in outer space.[13] As these early activities consisted almost solely of placing satellites into orbital positions, the pertinence of the ITU regime for regulating the use of orbital slots can hardly be ignored. Moreover, given the intrinsic linkage between the use of the radio spectrum and the use of orbital slots, the very applicability of the ITU regime to the regulation of the RFS in itself also shows its appositeness for the management of orbital slots. The assignment of any of both resources without the other would render the satellite useless for most practical purposes. While the regulation of orbital slots thus might be incidental to the regulation of radio frequencies, the rules applicable to the latter *ipso facto* also circumscribe the use of the former.[14]

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[12] The RFS is arguably not even a natural resource *per se*, as it is not part of the natural environment and its existence does not entirely depend on nature as separate from human activity. Stull and Alexander therefore rightly point out that only certain electromagnetic waves can be considered part of the natural environment. *See* Mark A. Stull and George Alexander, *Passive Use of the Radio Spectrum for Scientific Purposes and the Frequency Allocation Process*, 43 J. AIR L. & COM. 459, 517–518 (1977). *See also* Milton L. SMITH, INTERNATIONAL REGULATION OF SATELLITE COMMUNICATION 190 (Martinus Nijhoff, Dordrecht, 1990).

[13] Marco G. MARCOFF, TRAITÉ DE DROIT INTERNATIONAL PUBLIC DE L'ESPACE 581 – 582 (Fribourg, Editions Universitaires Fribourg Suisse, 1973). *See also* Erik M. Valters, *Perspectives in the Emerging Law of Satellite Communication*, 5 STAN. J. INT'L STUD. 53, 76–77 (1970); David M. LEIVE, INTERNATIONAL TELECOMMUNICATIONS AND INTERNATIONAL LAW: THE REGULATION OF THE RADIO SPECTRUM 72-73 (Dobbs Ferry, Oceana, 1970) [hereinafter INTERNATIONAL TELECOMMUNICATIONS AND INTERNATIONAL LAW]. See further on the regulatory history of the ITU and its relevance for present-day space activities, George A. CODDING, THE INTERNATIONAL TELECOMMUNICATION UNION: AN EXPERIMENT IN INTERNATIONAL COOPERATION (Leiden, *s.n.*, 1952); Anthony R. MICHAELIS & G. C. GROSS, FROM SEMAPHORE TO SATELLITE (Geneva, International Telecommunication Union, 1965); Francis LYALL, LAW AND SPACE TELECOMMUNICATIONS (Aldershot, Dartmouth, 1989).

[14] The inseparability of slots and frequencies was stressed in an article by then-Deputy Secretary-General of the ITU, Richard Butler. *See* R.ichard E. Butler, *World*

The applicability of the ITU regime to the use of orbits has over time been formalized in the legal framework of the ITU. In 1971, Resolution Spa 2-1 for the first time linked the regulation of the frequency spectrum with the use of satellite orbits.[15] In 1973, the powers of the ITU were expressly enlarged to include also the orderly management of orbital positions, in conjunction with the RFS.[16] For understandable yet misguided fears of scarcity, the ITU rules were initially tailored only to the use of the geostationary satellite orbit (GSO).[17] The regime is now indubitably applicable to space services operated by satellites placed in *any* orbit, and the jurisdiction of the ITU in relation to all orbits was finally formalized on the occasion of the 1998 Minneapolis Plenipotentiary Conference.[18] The comprehensive scope of the ITU regime with relevance for the regulation of orbital usage clearly follows from the formulation of its main principles.

The main ITU principles with relevance for orbits focus on the need to avoid harmful interference between the activities of States in using orbital slots, the duty to implement the best

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Administrative Radio Conference for Planning Broadcasting Satellite Service, 5 J. SPACE L. 93 (1977). *See also* Martin A. Rothblatt, *Satellite Communication and Spectrum Allocation*, 76 AM. J. INT'L L. 56 (1982).

[15] Rita Laurie WHITE & Harold M. WHITE, THE LAW AND REGULATION OF INTERNATIONAL SPACE COMMUNICATION 148 (Boston, Artech House, 1988). *See further infra* note 260 and accompanying text.

[16] Carl Q. CHRISTOL, THE MODERN INTERNATIONAL LAW OF OUTER SPACE 551 (New York, Pergamon Press, 1982). Even prior to these formalizations, the information to be provided to the ITU by a registering administration already included data on the orbital positions projected for use by the relevant satellite network. *See* Abram CHAYES ET AL., SATELLITE BROADCASTING 18 (London, Oxford University Press).

[17] A geostationary satellite is a geosynchronous satellite whose circular and direct orbit lies in the plane of the Earth's equator and which thus remains fixed relative to the Earth. *See* International Telecommunication Union, World Administrative Radio Conference Radio Regulations, art. 1.189 (1979, 2008 ed.) [hereinafter ITU RR]. The perceived need to regulate the GSO was guided by fears of scarcity that have since turned out to be, if not entirely fictitious, severely overstated and non-specific for this orbit. *see* Stephen E. Doyle, *Space Law and the Geostationary Orbit: the ITU's WARC-ORB 85-88 Concluded*, 17 J. SPACE L. 13, 15 (1989) [hereinafter *Space Law and the Geostationary Orbit*]; W. R. Hinchman, *Issues in Spectrum Resource Management, in* TWENTIETH CENTURY FUND (ed.), THE FUTURE OF SATELLITE COMMUNICATIONS, RESOURCE MANAGEMENT AND THE NEEDS OF NATIONS 51 (1970). *See also* SPACE LAW: A TREATISE, *supra* note 7, at 256 (noting that "the legal status of the geostationary orbit cannot be different from that of any other part of space").

[18] SPACE LAW: A TREATISE, *supra* note 7, at 234 (referring to ITU CS, *supra* note 8, at arts. 1.2, sub. a and b, 12.1.1 & 44.2).

technologies available to States in the use of these slots as soon as possible and the obligation to efficiently and economically use the orbits associated with all radio frequencies for the operation of space services.[19] Most of these principles are codified in article 44, paragraph 2 of the ITU Constitution (ITU CS).[20] This fundamental provision on the use of orbital position provides that

> In using frequency bands for radio services, Member States shall bear in mind that radio frequencies and any associated orbits, including the geostationary-satellite orbit, are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of the Radio Regulations, so that countries or groups of countries may have equitable access to those orbits and frequencies, taking into account the special needs of the developing countries and the geographical situation of particular countries.[21]

The original text of this provision only applied the qualification of 'limited natural resource' to the GSO, thus ostensibly limiting the scope of the concomitant principles of efficient use and equitable access to this orbit.[22] The current provision, however, clarifies that the same guiding principles circumscribe the placement of satellites in non-geostationary orbits as are applicable to the use of the GSO.[23]

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[19] *Id.* at 202; Donald J. Fleming et al., *State Sovereignty and the Effective Management of a Shared Universal Resource: Observations Drawn from Examining Developments in the International Regulation of Radiocommunication*, 10 ANN. AIR & SPACE L. 327, 332-336 (1985); Ram S. Jakhu, *The Evolution of the ITU's Regulatory Regime Governing Space Radiocommunication Services and the Geostationary Satellite Orbit*, 8 ANN. AIR & SPACE L. 381, 382-392 (1983) [hereinafter *The Evolution of the ITU's Regulatory Regime*].

[20] ITU CS, *supra* note 8, at art. 44, para. 2

[21] *Id.*

[22] Convention of the International Telecommunication Union of 25 October 1973, at art. 33, para. 2, *entered into force* April 7, 1976, 28 U.S.T. 2495 [hereinafter 1973 ITU CV].

[23] To be sure, the corollary provision in the ITU Radio Regulations (art. 0.3 RR) again narrows the scope to the GSO, but the explicit reference in this rule to the concomitant provision in the ITU CS reveals that the omission of other orbits in art. 0.3 RR is likely due to a drafting error. Art. 0.3 RR states that, "[i]n using frequency bands for radio services, Members shall bear in mind that radio frequencies and the geostationary-satellite orbit are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of these Regulations, so that countries or groups of countries may have equitable access to both, taking into

The provisions of the ITU Constitution identifying the primary functions of the organisation also fail to discriminate on the basis of the type of orbit to be regulated. The main functions of the ITU are to

> (a) effect allocation of bands of the radio-frequency spectrum, the allotment of radio frequencies and the registration of radio-frequency assignments and, for space services, of any associated orbital position in the geostationary-satellite orbit or of any associated characteristics of satellites in other orbits, in order to avoid harmful interference between radio stations of different countries; (b) coordinate efforts to eliminate harmful interference between radio stations of different countries and to improve the use made of the radio-frequency spectrum for radiocommunication services and of the geostationary-satellite and other satellite orbits (Article 2 ITU CS).[24]

The comprehensive scope of this fundamental provision confirms that the legal regime of all orbital positions, while necessarily diverging on some points,[25] must essentially abide by the same fundamental principles, determined by their qualification as 'limited natural resources'. The responsibilities of the Director of the Radiocommunication Bureau and the Radio Regulations Board of the ITU are of similarly encompassing nature.[26] Moreover, the express association in these provisions between registered frequencies and related orbital points constitutes a

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account the special needs of the developing countries and the geographical situation of particular countries (No. 196 of the Constitution)" (emphasis added). ITU RR, *supra* note 17, at art. 0.3. In any case, the Constitution prevails in case of inconsistency between one of its provisions and a provision of the Administrative Regulations. *See* ITU CS, *supra* note 8, at art. 4, para. 4.

[24] These criteria are replicated in the description of the functions of the IRU Radiocommunication Sector:

[t]he functions of the Radiocommunication Sector shall be . . . to fulfil the purposes of the Union, as stated in Article 1 of this Constitution, relating to radiocommunication . . . by ensuring the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including those using the geostationary-satellite or other satellite orbits, subject to the provisions of Article 44 of this Constitution. ITU CS, *supra* note 8, at art. 12.

[25] *See* ITU RR, *supra* note 17, at apps. 30, 30A & 30B, and *infra* section III.B.2.

[26] Convention of the International Telecommunication Union of 22 December 1992, art. 12, para. 2, sub. 2, indent e, and sub. 4, indent a, *entered into force* July 1, 1994, 1825 U.N.T.S. 31251 [hereinafter 1992 ITU CV].

legal expression of the abovementioned intrinsic linkage of the RFS and orbits in space.[27]

B. Efficiency, Economy, Equity

Pursuant to the above provisions, the ITU regime requires that all orbital slots that are registered in combination with a given frequency band are used efficiently and economically, with a view to guaranteeing equitable access thereto. In and of themselves, the requirements of efficiency, economy, and equity are too vague to unequivocally determine the lawful uses of orbital points in every given situation, and their meaning, rank, and mutual compatibility has since long been subject to varying interpretations.[28] The literal phrasing of article 44, paragraph 2, ITU CS may offer some exegetical guidance, however, being as it is the codification of the most fundamental rules on the use of orbital points under the ITU regime. The provision, it is recalled, requires that frequencies and associated slots be used "efficiently and economically, . . . so that countries or groups of countries may have equitable access to those orbits" (emphasis added). The language of this provision appears to imply that the efficient and economic use of orbits is a prerequisite condition for attaining the ultimate yet necessarily subsequent goal of equitable access. This makes sense: after all, the efficient utilization of a 'limited natural resource' is likely to increase the chances of equitable access by decreasing the scarcity of the resource concerned. Conversely, an approach that would sacrifice efficiency for the sake of equity would, due to the inevitable waste of a scarce resource, never be able to attain either goal. Article 44, paragraph 2, ITU CS thus appears to require that, first, orbits be used actually and efficiently by those having the capacity to launch satellites, in order to guarantee equitable access to these resources for countries currently incapable of using them. Such stress on efficiency does not imply that the

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[27] INTERNATIONAL REGULATION OF SATELLITE COMMUNICATION, *supra* note 12, at 62.

[28] Director Radiocommunication Bureau, *supra* note 3, at 3-4 (refers to the requirements of efficient utilization and equitable access as "two somewhat conflicting objectives").

equity requirement should be ignored, but, on the contrary, is based on the understanding that the latter can only be attained through the former.[29]

The requirements of efficiency, economy, and equity are thus not necessarily mutually exclusive, but can be interpreted as complementary conditions for circumscribing the allowable uses of orbits.[30] Even if one insists that the accurate interpretation of the guiding criteria on the use of orbital slots remains susceptible to divergent views among reasonable readers, this does not detract from the uncontested observation that, taken together, the criteria of efficiency, economy, and equity in fact set out the limits of lawful orbital usage. It follows that State practices and interpretations of these requirements cannot be condoned if they are incompatible with all three criteria, regardless of how they should be interpreted individually or in correlation with each other. As such, it is evident that administrations staking claims in orbital slots while lacking the capacity and the intention to actually use them, do not act in accordance with the overriding goals of efficiency and economy. Moreover, it is difficult to see how the mere act of claiming faraway slots can contribute to equitable access if the State concerned is not capable of accessing them.[31] Such acts should therefore in principle be dismissed as a violation of both the letter and the spirit of the applicable ITU regime on the use of orbits. Nevertheless, past and present practices of telecommunications are riddled with

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[29] This was also one of the general conclusions of the UNISPACE '82 conference. *see* Report of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space, U.N. Doc. A/CONF.101/10, at 70 (1982). *Compare* Copiz, *supra* note 11, at 222 ("Although the principle of efficient and economic operation and the principle of equitable access may not be in harmony, of the two principles, greater force ought to be given to the principles of efficient and economic operation").

[30] *See also* Martin L. Stern, *Communication Satellites and the Geostationary Orbit: Reconciling Equitable Access with Efficient Use*, 14 L. & POL'Y INT'L BUS 859, 882 (1982) ("ultimately, efficient utilization is not in conflict with equitable access; it is one means towards achieving that end"). This interpretation is in line with art. 44, para. 1, ITU CS, which only emphasizes the efficient use of slots. *See* ITU CS, *supra* note 8, at art. 44, para. 1.

[31] *See also* Stern, *supra* note 30, at 880 ("equitable access does not guarantee access without the ability to launch a satellite"); Thompson, *supra* note 4, at 300 ("'access' in terms of equitable access presupposes reaching the geostationary orbit, which thus requires space launch capability"), *citing* Stephen GOROVE, DEVELOPMENTS IN SPACE LAW: ISSUES AND POLICIES 59 (Dordrecht, Martinus Nijhoff, 1991).

apparent acts of slot warehousing and they have only intermittently been condemned by the international community as contravening the legal rules on orbit usage.[32]

C. *Reservation of Orbital Capacity without Use*

The Bogotá Declaration arguably constitutes the most widely refuted instance of States staking claims in orbital positions without having the intention or capacity to actually use them.[33] In this declaration, eight equatorial States argued that the alleged territorial connection between their national territories and the corresponding segments of the GSO granted them full and permanent sovereignty over the natural resources of these segments, pursuant to pertinent resolutions of the United Nations General Assembly (UNGA) on the natural resources of developing countries.[34] The Declaration was largely premised on a presumed violation of current article 44, paragraph 2, ITU CS, as it was argued 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."[35]

It is generally accepted that, while the concerns expressed by the equatorial countries regarding lack of access to orbital slots are legitimate and sensible, the actual claims made in the

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[32] Warehousing, whether under planned or unplanned bands, may very well violate the ITU rules in spirit, if not in practice, as it very possibly conflicts with the concepts of efficiency *and* equitable access. *See* Thompson, *supra* note 4, at 299. *See also* Glen O. Robinson, *Regulating International Airwaves: the 1979 WARC*, 21 VA. J. INT'L. L. 1, 45 (1980) (an unplanned assignment system would ensure better that all future needs would be met, because it would conserve over time more of the resource for distribution as needed and it is commonly accepted that warehousing acts serve no goal of the ITU/Outer Space Treaty regime on the use of the RFS or orbits).

[33] Declaration of the First Meeting of Equatorial Countries of 3 December 1976, ITU Doc. WARC-BS (1977) 81-E, *available at* http://www.jaxa.jp/library/space_law/chapter_2/2-2-1-2_e.html [hereinafter Bogotá Declaration].

[34] *See* Permanent Sovereignty over Natural Resources, G.A. Res. 1803 (XVII), 17 U.N. GAOR Supp. (No.17), at 15, U.N. Doc. A/5217 (1962); Permanent sovereignty over natural resources of developing countries and expansion of domestic sources of accumulation for economic development, UNGA Res. 2692 (XXV) (Dec. 1970); *see also* UNGA Res. 3281 (XXIX) (Dec. 12, 1974), at Charter of Economic Rights and Duties of States, at art. 2, sub. i.

[35] Bogotá Declaration, *supra* note 33, §1 (the geostationary orbit as a natural resource).

Bogotá Declaration were untenable from both a scientific and a legal perspective, as the claims of sovereignty ignored the basic laws of physics and violated the non-appropriation principle of article II of the Outer Space Treaty.[36] The Declaration should thus likely be interpreted as a policy document that gives expression to the fears generally prevalent among developing countries at the time that they would be pre-empted in their exploitation of the most valuable orbital positions by those States currently having the capacity to engage in such uses. To be sure, there is ample reason to assume that, given their geographical proximity, competition for orbital slots is more likely to arise among developing nations than between a developed country and a developing one,[37] and that many developing nations will often be better off by acting through a multi-user satellite organisation such as Intelsat.[38] Nevertheless, it has at times indeed proven particularly arduous for latecomers in outer space to use the slots of their interest due to prior usage by other States, given the prevalent features of the ITU registration procedure, which is often wrongly characterised as adopting a 'first-come, first-served' or *a posteriori* approach (see *infra* section III.A).[39]

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[36] Thompson, *supra* note 4, at 307; Michel G. Bourély, *Quelques Réflexions au Sujet de l'Orbite Géostationnaire [Reflections on the Geostationary Orbit]*, 13 ANN. AIR & SPACE L. 229-245 (1988); Adrian Bückling, *Rechtsprobleme des Synchronkorridors [Legal problems of the Synchronous Corridor]*, 27 ZEIT. LUFT- & WELTRAUMR 76-85 (1978); Thomas Gangale, *Who Owns the Geostationary Orbit?*, 31 ANN. AIR & SPACE L. 425-446 (2006); *The Legal Status of the Geostationary Orbit*, *supra* note 10, at 333-351.

[37] *Regulating International Airwaves: the 1979 WARC*, *supra* note 32, at 32-33. *Compare* Alex G. Vicas, *An Economic Assessment of CCIR's Five Methods for Assuring Guaranteed Access to the Orbit-Spectrum Resource*, 7 ANN. AIR & SPACE L. 431, 434-435 (1982).

[38] For an excellent analysis of this issue, *see* Steven A. Levy, *Institutional Perspectives on the Allocation of Space Orbital Resources: the ITU, Common User Satellite Systems and Beyond*, 16 CASE W. RES. J. INT'L L. 171-202 (1984). Smith also notes that, in the history of the regulation of orbital slots through the ITU, the developing country actors did not act as a homogeneous group, but were rather divided in two groups with different political motivations. *See* Milton L. Smith, *Space WARC 1985: the Quest for Equitable Access*, 3 BOSTON U. INT'L L.J. 229, 234-235, n.18 (1985) [hereinafter *Space WARC 1985*].

[39] The example of India, Indonesia, Pakistan and Vietnam spring to mind. *See Legal Issues of Satellite Telecommunications, the Geostationary Orbit and Space Debris*, *supra* note 7, at 187-188.

The ITU *a posteriori* system was not only alleged to prejudice the legal position of developing countries, it also purportedly caused States to hoard orbital slots they never had the intention of using. While these allegations again ignore the many subtleties of the ITU regime in force,[40] they are grounded in instances of warehousing slots that have actually occurred in practice. Most notoriously, in 1991 the tiny kingdom of Tonga in the South Pacific filed for an extravagant number of 31 slots, which it clearly did not intend to use and some of which it later even leased to other States.[41] These actions outraged the international community, as the country evidently "lacked a genuine need"[42] for so many slots, even though it was "apparently uncontested that Tonga properly followed the publishing procedure mandated by the ITU."[43] It follows that, while practices of overfiling within the ITU are seemingly not in violation of any rule in particular, they are deemed, due to the lack of subsequent actual use of the slots claimed, to constitute a form of abuse. Indeed, overfiling is often cited as one of the root causes of paper satellites.[44] To be sure, some cases of overfiling are merely inspired by strategic motivations of States wishing to hedge against future concessions during the coordination phase with

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[40] *Infra* section III.C.1.

[41] *See* Jonathan Ira Ezor, *Costs Overhead: Tonga's Claiming of Sixteen Geostationary Orbital Sites and the Implications for U.S. Space Policy*, 24 L. & POL'Y INT'L BUS. 915-942 (1993); Don Riddick, *Why Does Tonga Own Outer Space?*, 19 AIR & SPACE L. 15-29 (1994); Albert N. Delzeit & Robert F. Beal, *The Vulnerability of the Pacific Rim Orbital Spectrum Under International Space Law*, 9 NY INT'L L. REV. 69-83 (1996); Lawrence D. Roberts, *A Lost Connection: Geostationary Satellite Networks and the International Telecommunication Union*, 15 BERK. TECH. L.J. 1095-1144 (2000). Other examples include Papua New Guinea and Gibraltar. *See also Legal Issues Relating to the Global Public Interest in Outer Space*, *supra* note 7, at 74-76 (noting that Intelsat, the US and Russia frequently engage in overfiling as well).

[42] Delzeit, *supra* note 41, at 71.

[43] Ezor, *supra* note 41, at 933; Thompson, *supra* note 4, at 297.

[44] *See* Carl Q. Christol, *Satellite Power System (SPS) International Agreements* 28 (U.S. Department of Energy White Paper, Contract No. EG-77-C-014024, Oct. 27, 1978), *available at* http://www.nss.org/settlement/ssp/library/1978DOESPS-InternationalAgreements(Christol).pdf. [hereinafter *Satellite Power System*]; Director Radiocommunication Bureau, *supra* note 3, at 4; SPACE LAW: A TREATISE, *supra* note 7, at 236; *Rapporteur Group SC-4 Report*, *supra* note 3, at 11.

other users.[45] To the extent that it amounts to cheap acts of profiteering, however, malicious overfiling should be combatted as it fails to contribute to any of the goals strived for by the ITU, much like the Bogotá Declaration.[46] Unlike this Declaration, however, acts of overfiling do not appear to violate any particular ITU rules and do not expressly amount to claims of sovereignty over segments of a particular orbit.[47] Therefore, despite their similar effects in practice, the reservation of capacity without subsequent use through overfiling has not been attacked with the same vigour as the Bogotá Declaration and has only been combatted through the adoption of soft administrative and financial due diligence measures. Nevertheless, some authors do consider them a violation of the Outer Space Treaty, amounting even to acts of sovereignty.[48]

The above examples have shown that the reservation or orbital capacity without use is mainly inspired by the apparent need to redress the imbalance in equitable access to scarce orbital slots between space-resource States and those countries at present lacking the capacity to independently use outer space. The unilateral nature of the Bogotá Declaration and acts of slot warehousing, however, has provoked reactions denouncing these practices as unlawful either under the ITU or the Outer Space Treaty framework, or both. In the 1970s, non-spacefaring nations therefore set out to change the ITU regime from within,

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[45] For example, Leive differentiates between pre-emptive, protective, safeguard, and obsolete paper satellites. *See Rapporteur Group SC-4 Report*, *supra* note 3, at 11-12, 29-30. *See also* Gibbons, *supra* note 10, at 153.

[46] *See in general*, Francis Lyall, *Paralysis by Phantom: Problems of the ITU Filing Procedures*, *in* 39 PROC. COLL. L. OUTER SPACE 187-193 (1996) [hereinafter *Paralysis by Phantom*].

[47] For example, INTELSAT argued that the actions of Tonga (only) contravened the spirit of Article 29 of the 1989 ITU Convention, Article 33 of the 1982 ITU Convention, and Resolutions 2 and 4 of the ITU 1979 WARC. *See* Second Letter on the issue of INTELSAT Director-General Dean Burch to the ITU International Frequency Registration Board, *cited in relevant part in* René Oosterlinck, *Tangible and Intangible Property in Outer Space*, *in* 39 PROC. COLL. L. OUTER SPACE 279 (1996).

[48] Thompson, *supra* note 4, at 282; Ezor, *supra* note 41, at 935; Riddick, *supra* note 41, at 21. Freeland and Jakhu consider the hoarding of slots through the registration of paper satellites with the ITU "at least a form of semi-appropriation", *see* Stephen Freeland and Ram S. Jakhu, *Article II*, *in* Stephen HOBE, Bernherd SCHMIDT-TEDD & Kai-Uwe SCHROGL (eds.), COLOGNE COMMENTARY ON SPACE LAW, 1: OUTER SPACE TREATY, at para. 72 (Cologne, Heymann, 2009); Copiz, *supra* note 11, at 223.

in order to adapt the system itself to better suit their needs. These efforts resulted in the adoption of a number of so-called *a priori* plans that allocate and assign frequencies and orbits to all States, regardless of their capacity to use them at present. As these plans expressly disconnect the reservation of orbits from their actual use, their practical impact is similar to that of other forms of paper satellites discussed in the paragraphs above. Indeed, when the 1974 ITU World Administrative Radio Conference (WARC) adopted an *a priori* plan for the regulation of maritime services, it resulted in a flood of unwelcome paper entries as every country systematically overstated its own requirements.[49] While the effects of *a priori* planning of frequency and slots usage are thus redolent of a number of practices that have been denounced as violations of the legal regime on orbital usage, their institutionalization through formal adoption by the ITU theoretically precludes them from being qualified as 'unlawful practices' that should be countered through remedial measures. Nevertheless, given the similarities in underlying motivations and practical effects between these plans and other forms of orbital reservation without actual use, some authors do consider them a violation of the spirit of the ITU regime and/or article II of the Outer Space Treaty.[50]

The three cases of orbital reservation without subsequent use as described in this section have in common that their proclaimed goal of equitable access for all countries is negated by their wasteful inefficiencies. By sacrificing the goal of efficient and economic use of a limited natural resource, they reduce the potential for arriving at an equitable distribution of the access thereto. Despite these similarities in impact, however, the reac-

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[49] Fleming, *supra* note 19, at 343.

[50] *See, e.g.*, Perrine Delville, *Réflexions sur le Principe de Non Appropriation de l'Espace Extra Atmosphérique et des Corps Célestes [Reflections on the Principle of Non-Appropriation of Outer Space and Celestial Bodies]*, 63 REV. FR. DR. AÉR. & SPATIAL 137, 149 (2009); Bourély, *supra* note 36, at 244; Susan Cahill, *Give Me My Space: Implications for Permitting National Appropriation of the Geostationary Orbit*, 19 WIS. INT'L L.J. 231, 246 (2001) (Cahill likens the wasteful inefficiencies of *a priori* plans to paper satellites); A.M. Rutkowski, *Six Ad-Hoc Two: the Third World Speaks its Mind*, 4 SATELLITE COMMUNICATIONS 22, 25 (1980) [hereinafter *Six Ad-Hoc Two*] (citing the views of the US delegate to the ITU WARC at the time); Oosterlinck, *supra* note 47, at 278; Gibbons, *supra* note 10, at 153.

tion of the international community to the above practices has proven rather inconsistent to say the least. The response ranged from outright dismissal of the Bogotá Declaration to actual institutionalisation of several *a priori* plans, while malicious overfiling is still treated almost solely as a mere management issue. Nevertheless, it is clear that, while diverging in some important respects, all three types of reservation of orbital capacity without actual use essentially amount to claims of legal rights over an area in outer space, qualified as a limited natural resource, by administrations that do not have the intention or capacity to actually use the segments claimed. These similarities are corroborated by the observation that scholars have raised legal issues regarding each of these practices, qualifying them as violations of the spirit of the ITU regime or even as acts of sovereignty barred by the Outer Space Treaty.

D. Continued Use as Sovereignty?

While it remains to be determined whether each of the practices described under the above section indeed amounts to a violation of the legal framework on orbital usage, the fundamental criteria underlying the ITU regime and the broadly formulated principle of free use of outer space in the Outer Space Treaty appear to warrant the general conclusion that, while non-use of claimed slots is unlawful, conversely any type of actual use of orbits reserved through the proper procedures amounts to a lawful exercise of rights granted under the respective regimes. This general conclusion, though tempting, fails to take into account, however, that instances of actual, continued use of orbits by States are frequently subjected to the same legal criticisms as practices of non-use. As such, immediately after the adoption of the Outer Space Treaty, the delegate of France, in a well-known intervention on the interpretation of article II of the Treaty, noted that

> The rule of non-appropriation . . . in itself implies a limitation on the complete freedom of states in space. In fact, the very use of geostationary satellites can be regarded as an "appropriation" of the equatorial orbit, which is a privileged portion of space. In return for such a *de facto* appropriation, the State

> responsible for the satellite should agree to submit to certain rules. The same applies to the use of a frequency band for broadcasting.[51]

Though it is doubtful that the GSO is indeed a 'privileged portion' of outer space as alleged by the delegate of France (see *supra* section I.A.), a non-spacefaring nation at the time of the statement, the concerns voiced are revealing for the far-reaching interpretation they offer of the non-appropriation principle of the Outer Space Treaty. Ultimately, the statement amounts to a denunciation of most uses of space as unlawful under the UN space law regime. The United States, one of the two space-resource States at the time, therefore countered this extravagant statement by arguing that

> [T]he use of space or a celestial body for activities that are peaceful in character and compatible with the provisions of the Outer Space Treaty is, by definition, entirely legitimate. Using a favorable orbit for a legitimate activity cannot reasonably be classified as a prohibited national appropriation in the sense of Article II.
>
> The point I wish to make is that using a favorable geostationary orbit is no more an 'appropriation' or '*de facto* occupation' than using a particularly favorable area of the lunar surface . . . for a manned landing.[52]

The fact that satellites had already been placed in orbit around Earth at the time of the negotiation and adoption of the Outer Space Treaty lends credence to the interpretation offered by the US delegate. It would be absurd to adopt a treaty based on the principle of free use of outer space while at the same time declaring the most common activity in this environment unlawful under the same regime. Some authors have therefore argued

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[51] Working Paper Submitted by France to the Second Session of the Working Group on Direct Broadcast Satellites, UN Doc. A/AC.105/62 (June 1969), at 3-4, *referred to in Satellite Power System*, *supra* note 44, at 84 and *The Principle of Non-Appropriation of Outer Space*, *supra* note 11, at 22.

[52] *Satellite Power System*, *supra* note 44, at 84 (statement of the United States delegate to the second session of the Working group on direct broadcast satellites on 31 July 1969).

that the French declaration merely intended to denounce the *prolonged* or *continued* use of a particular orbital position. Such use would disproportionately limit the freedom of others to use the same slot, hence amounting to a *de facto* occupation of outer space in violation of article II of the Outer Space Treaty.[53]

The reactions by States and scholars to the use and non-use of reserved orbital positions present the reader with a remarkable conundrum, as comparable legal problems are raised with respect to diametrically opposed practices, which are nevertheless based on the same legal rules and principles. While the reservation of capacity by administrations lacking the intention or capacity to use them is arguably an abuse of the ITU regime, the continued actual use of registered slots by those States *having* the capacity is equally lambasted for violating fundamental Outer Space Treaty provisions. An accurate assessment of the limits of lawful orbital usage thus necessitates an analysis of both the Outer Space Treaty and the ITU regime.

II. THE OUTER SPACE TREATY REGIME ON THE USE OF ORBITAL SLOTS[54]

As noted earlier, the primary provisions with relevance for the use of outer space by States, including the placement of satellites in orbital positions, are codified in articles I, II, and IX of the Outer Space Treaty. Article I postulates the freedom to use outer space as the foundation of all activities of States beyond airspace. This freedom is qualified, *inter alia*, by the obligation to duly take into account the corresponding freedoms of other States. This principle of reciprocal equality is further elaborated upon in article IX of the Outer Space Treaty, which States that

> In the exploration and use of outer space, including the Moon and other celestial bodies, States Parties to the Treaty . . .

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[53] *See, The Principle of Non-Appropriation of Outer Space, supra* note 11, at 22-23; J. Henry Glazer, *Domicile and Industry in Outer Space*, 17 COL. J. TRANSNAT'L L. 67, 81 (1978).

[54] This section summarizes and elaborates on the main findings of the author's talk at the 53rd annual IISL Colloquium on the law of outer space. *See* Philip De Man, *The Commercial Exploitation of Outer Space and Celestial Bodies – A Functional Solution to the Natural Resource Challenge, in* 53 PROC. COLL. L. OUTER SPACE (Sept. 28, 2010).

> shall conduct all their activities . . . with due regard to the corresponding interests of all other States Parties to the Treaty.

To this effect, States are instructed to avoid harmful interference with the activities of others in the peaceful exploration and use of outer space, including orbital slots. Finally, the non-appropriation principle of article II of the Outer Space Treaty holds that

> 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.

While it is clear that the provisions of article I and IX of the Outer Space Treaty impose limitations on the lawful uses of orbital positions by any particular State, the restrictive impact of the non-appropriation principle depends on whether article II of the Outer Space Treaty can be deemed applicable to orbits. This in turn hinges on the interpretation of such notions as 'outer space,' 'celestial bodies,' 'by means of use,' and 'appropriation.' The specific formulation of the scope of the Outer Space Treaty, referring to 'outer space, including the Moon and other celestial bodies,' reveals that the outer space concept in this treaty is an inclusive notion that covers both celestial bodies and the space in between, or 'outer space *sensu strictu*.'[55] Both outer space *sensu strictu* and celestial bodies are physical entities or 'areas' in space. At the same time, these entities and their constituent parts are commonly qualified as 'natural resources.' Regarding outer space *sensu strictu*, we have seen that article 44, paragraph 2, ITU CS qualifies the GSO and other orbits as natural resources. Further, the 1979 Moon Agreement notoriously stipulates that celestial bodies and their natural resources 'in place' shall not be subject to appropriation.[56] The legal categorisation

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[55] Compare the notion "outer void space" as suggested by Cheng. *See* Bin Cheng, *Outer Void Space: the Reason for this Neologism in Space Law*, 1999 Austl. Int'l L.J. 1-8 (1999); Bin Cheng, *Introducing a New Term to Outer Space Law: "Outer Void Space"*, 11 KOREAN J. AIR & SPACE L. 321-327 (1999).

[56] Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, art. 11, para. 3, *opened for signature* Dec. 18, 1979, 1363 U.N.T.S. 21 [hereinafter Moon Agreement]. *See infra* notes 76 *et seq.* and accompanying text.

of spatial phenomena may thus occur along one of two lines, depending on whether they are qualified as areas or natural resources. A distinguishing criterion between the two categories is lacking and may well be impossible to find if one is determined to classify outer space and celestial bodies solely on the basis of their physical characteristics. One need only think of the possibility of a celestial body being 'exploited out of existence' through the extensive exploitation of its natural resources to grasp the complexities of the conceptual quandary.[57]

The issue at hand is not merely a theoretical problem of classification, as it is oftentimes argued or implied that the legal regime applicable to the component particles of outer space at least partially depends on its categorisation as areas or as natural resources. In particular, it is commonly asserted that, while celestial bodies as such cannot be appropriated pursuant to article II of the Outer Space Treaty and the relevant provisions in the Moon Agreement, their natural resources escape this proscription.[58] The classification issue is even more pertinent when one tries to define the legal regime of orbital points in space, as these segments are, from a physical point of view, intrinsic parts of outer space *sensu strictu*. Contrary to mineral reserves on the Moon, orbits lack a clear material manifestation that would justify a distinction between their qualification as areas and as natural resources. It is apparently this practical difficulty of orbital delimitation that has inspired many authors to apply the same legal regime to orbital slots as natural resources and as areas in space. While the lawfulness of the appropriation of celestial body parts may depend on their classification as an

[57] See, in general, the writings of Ernst Fasan on this topic and its implications for the definition of the celestial body concept. Freeland and Jakhu argue that such exploitation would violate art. I of the Outer Space Treaty, but not the non-appropriation principle: Freeland & Jakhu, *supra* note 48, at para. 39.

[58] *See, e.g.*, Eugene Brooks, *National Control of Natural Planetary Bodies - Preliminary Considerations*, 32 J. AIR L. & COM. 315, 323-324 (1966); R.V. Dekanozov, *Juridical Nature and Status of the Resources of the Moon and Other Celestial Bodies*, *in* 23 PROC. COLL. L. OUTER SPACE 5 (1980); Georg W. Rehm, *Das Aneignungsverbot [The Adoption Ban]*, *in* K.-H. BÖCKSTIEGEL (ED.), HANDBUCH DES WELTRAUMRECHTS [HANDBOOK OF SPACE LAW] 114 (Cologne, Heymann, 1991); VIRGILIU POP, WHO OWNS THE MOON? EXTRATERRESTRIAL ASPECTS OF LAND AND MINERAL RESOURCES OWNERSHIP 138-142 (Berlin, Springer, 2009), and cited references. SPACE LAW: A TREATISE, *supra* note 7, at 185.