

The Application of International Human Rights Instruments in Outer Space Settlements: Today's Science Fiction, Tomorrow's Reality

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Abstract

The military and commercial exploitation of outer space has received increasing international attention since the United States of America announced its intention to establish an outer space military force to protect its interests in outer space. Simultaneously, the National Aeronautics and Space Administration (NASA) and private enterprises such as Blue Origin and SpaceX declared plans to colonise the Moon and/or Mars in the near future. While technology is advancing rapidly to make these objectives a reality, the international legal rules related to these developments are completely uncertain, and in some instances non-existent. It is evident that these developments may have a direct impact on the internationally protected human rights of individuals, taking into account the extremely adverse conditions in outer space and the dangers involved in creating sustainable human living conditions in outer space. International discussion of and action on these legal issues are needed urgently. As a starting point, this contribution discusses the question of whether existing international human rights instruments enjoy extra-territorial application in outer space, given the current status of outer space law. In answering the question, a broad overview is presented of some human rights issues that may be relevant to living in outer space, and the role that the doctrine of effective control may play in this regard is analysed.

Keywords

Commercial exploitation of outer space; outer space settlements; effective control in outer space; constitutions of outer space settlements, human rights issues in outer space; international human rights treaties in outer space

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1 Introduction

The military and commercial exploitation of outer space¹ are currently in the international spotlight, and there is a reasonable expectation that such exploitation will only rapidly increase in the future. Two very recent examples, one quite serious and even alarming, the other more light-hearted, are indicative of the importance of outer space to both states and private companies: The first example concerns President Donald Trump's directive to the Pentagon for the immediate establishment of a space force as a separate, equal and independent sixth branch of the American armed forces.² The reasons for this step are, *inter alia*, based on security considerations (seemingly to counter new weapons developed by Russia and China, which may threaten American satellites) and the need to ensure America's dominance in space. At more or less the same time, the well-known French champagne producer, Mumm International, in collaboration with the space design agency, Spade, developed a champagne bottle and glass that will allow for the pouring and drinking of champagne in zero gravity.³ It is clear from the media report that this development is aimed specifically at the future commercial utilisation (in the form of space tourism) of outer space. As part of these developments, the establishment of permanent settlements in outer space is receiving the serious consideration

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¹ For a recent overview of aspects of the military and commercial exploitation of outer space, see Ferreira-Snyman "Military Activities in Outer Space" 95-118; Abul Failat and Ferreira-Snyman "Regulation of the Space Tourism Sector" 203-242; De Man "Exploitation of Natural Resources in Outer Space" 243-255.

² Harwood 2018 <https://www.cbsnews.com/news/trump-space-force-pentagon-create-military-space-force-national-space-council-meeting-2018-06-18/>. Also see the address by US Vice-President Mike Pence as discussed by Seligman 2018 <https://foreignpolicy.com/2018/08/10/space-force-is-trumps-answer-to-new-russian-and-chinese-weapons/>.

³ Dormehl 2018 <https://www.digitaltrends.com/cool-tech/space-champagne-zero-gravity/>. To formally start the process of creating a space force, President Trump on 18 December 2018 issued an official order to establish a space command. See Erwin 2018 <https://spacenews.com/president-trump-issues-order-to-create-u-s-space-command/>.

of both state authorities⁴ and private enterprises.⁵ Elon Musk's SpaceX, and Blue Origin, established by Jeff Bezos, are currently the most active private enterprises involved in this endeavour, notwithstanding the existence of the serious doubts expressed by some scientists and by NASA as to whether the current level of technology would make especially the establishment of a Mars colony a real possibility.⁶

The current discourse in the international political and legal arena on the establishment of a human settlement in outer space in the near future is in many respects simply mind-boggling to the average person. Unbelief and doubt as to the possible realisation of such a venture primarily relate to the technical issues involved in transporting the participants to and sustaining them on the celestial body where the settlement is to be established. Many scientists are therefore doubtful that the aim by private enterprise to establish a human settlement on Mars would be realised soon.⁷ Neil Armstrong, the first man to land on the Moon, believes that the problems associated with deep space travel and the eventual establishment of a

⁴ See for example the report discussed by Seligman 2018 <https://foreignpolicy.com/2018/08/10/space-force-is-trumps-answer-to-new-russian-and-chinese-weapons/>, in which it is suggested that America should establish a gateway on the Moon as part of its efforts to eventually reach Mars. For the objectives of NASA's "Moon to Mars" missions, see NASA 2019 <https://www.nasa.gov/topics/moon-to-mars/overview>.

⁵ Elon Musk recently published an article on his vision to colonise certain parts of the solar system, including Mars: Musk 2017 *New Space* 46-71. Also see Robinson 2018 <https://www.businessinsider.co.za/elon-musk-colonization-of-mars-sxsw-2018-3?r=US&IR=T>. Jeff Bezos's Blue Origin plans to launch a lunar lander by 2020: Ecott 2018 <https://www.nowscience.co.uk/single-post/2018/06/01/Jeff-Bezos-says-BlueOrigin%E2%80%99s-Moon-colony-for-human-settlers-and-heavy-industry-will-be-built-within-decades>.

⁶ See for example Clifford 2018 <https://www.cnn.com/2018/08/02/elon-musk-defends-plans-to-build-community-on-mars-after-nasa-report.html>. It must be noted in this regard that on 13 December 2018 Richard Branson's Virgin Galactic succeeded in successfully conducting a manned flight of his space craft SpaceShipTwo, which reached a peak altitude of 83 kilometres before gliding back to a safe landing. That altitude exceeds the boundary of 50 miles, or about 80 kilometres, used by US government agencies for awarding astronaut wings. See Foust 2018 <https://spacenews.com/virgin-galactic-achieves-space-on-spaceship-two-test-flight/>. The internationally recognised boundary of outer space (the so-called Karman line) lies at the 62 miles (100 kilometres) mark. See Clark 2018 <https://spaceflightnow.com/2018/12/13/virgin-galactic-test-flight/>.

⁷ See for example Bharmal 2018 <https://www.theguardian.com/science/blog/2018/aug/28/the-case-against-mars-colonisation>. Elon Musk announced towards the end of 2018 that the outer space vehicle being built by his company SpaceX will be able to carry 100 persons and 150 tons of cargo to the surface of Mars. The first test flight is scheduled for approximately March 2019 and the first journey to Mars for 2024. See Mosher 2018 <https://www.businessinsider.co.za/spacex-big-falcon-rocket-spaceship-hopper-vehicle-launches-2018-12>.

human settlement on Mars should be conquered in measured, incremental distances by further exploring the Earth-Moon system. He substantiates his view by pointing out that the communication delays between Earth and Moon are less than two seconds, that the current travel time between Earth and Moon is more or less three days, and that spacecraft travelling to the Moon would be subjected to lower radiation levels than those involved in interplanetary flight.⁸ For the purposes of this contribution, it is accepted that it would be possible to establish a community in outer space within the not too distant future (if not on Mars, then possibly on the Moon, which would be less of a scientific and technical challenge).

From a legal perspective, however, the establishment of a human settlement in outer space presents equally challenging questions with regard to the legal nature of the settlement and the regulation of the various relationships between the participants in the planned project. Consequently, the question arises whether the current regime of outer space law, in general, and international human rights law, in particular, will be able to regulate these developments sufficiently. Discussions relating to the relationship between human rights law and outer space law have until now primarily dealt with the influence of outer space activities on the human rights of individuals on planet Earth. An example in this regard is the extent to which outer space activities (such as the launching and maintaining of communication satellites in outer space) possibly constitute a violation of the right to privacy of individuals on Earth.⁹ However, the possible establishment of a human settlement in outer space brings to the fore the application and enforcement of human rights not only on planet Earth but also in outer space itself.

In 1968, at a conference organised by the American Institute of Aeronautics and Astronautics, Carl Christol delivered a paper on human rights in outer space and observed as follows in his introductory remarks:¹⁰

While Human Rights agreements have generally been identified as being earth orientated, there is no fundamental reason for not recognizing their applicability to the space environment.

The question arises whether, under the current circumstances, this is a valid statement that may be accepted unequivocally. It is trite that the technology

⁸ Barbree *Neil Armstrong* 344-346.

⁹ See for example Craig 2007 *ND L Rev* 547-578. Also see Watson 2018 <https://www.forbes.com/sites/patrickwwatson/2018/04/26/this-is-the-end-of-privacy-as-we-know-it/#362c27c76875>.

¹⁰ Christol "Human Rights in Outer Space".

relating to the exploration of and control over outer space has since developed immensely, and that not only states but also the individual as a natural person in outer space and as part of a colony in outer space stands at the centre of it all. Although the *Outer Space Treaty* does not contain a specific provision dealing with human rights and outer space, the idea that international human rights should apply to persons while travelling or living in outer space seems nevertheless to be suggested by the Treaty itself.¹¹ In this regard reference could be made to articles IV and IX of the Treaty as examples of provisions that are sensitive to human rights. Article IV prohibits states from placing weapons of mass destruction in outer space and article IX obliges states to undertake their exploration of outer space without causing harmful contamination of the outer space environment. The importance of human rights in outer space is further underscored by the space shuttle Endeavour, launched by the United States of America on 14 November 2008, which docked at the International Space Station the following day with a copy of the Universal Declaration of Human Rights (1948) on board.¹² This symbolic act accentuated the relevance of human rights in the space environment, but also highlighted the unique and difficult legal challenges related to the application of international human rights instruments to outer space exploration and travel, to which there are not yet generally internationally agreed upon solutions. Cockell emphasises in this regard the tension between the position of the colony as a whole and the individual as a member of the settlement by pointing out as follows:¹³

As early extraterrestrial societies emerge they will contain within them an inherent tension—the friction between the collective effort needed to survive in an extreme environment and prevent instantaneous death and the deeper human urge to individual liberty and an independent state of mind. The extraterrestrial environment has a tendency to centrifugally drive these two states apart to their utter extremes.

While legal experts wrestle with these and other issues relating to the establishment and functioning of colonies in outer space, technology advances relentlessly. The particular situation this contribution wishes to investigate concerns the establishment and governing of colonies in outer

¹¹ Article III of the *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, 1967 (*Outer Space Treaty*) provides that States parties shall carry out their space activities in accordance with international law, thereby confirming the applicability of international human rights law to outer space.

¹² Dowding 2015 https://yourrightsmatter.wixsite.com/home/single-post/2015/11/27/Extra-Terrestrial-Application-of-Human-Rights?fbclid=IwAR37Xx8CzJzrcKt2_23ZC6Ev3fPOnmyA-QY3Lon8JOxtrcm3xO3WgdqLv7E.

¹³ Cockell "Freedom in a Box" 47.

space and the applicability of current human rights instruments in those colonies. At the heart of the subject matter of this article is the intersection between space law and international human rights law. To identify the most pressing legal issues relating to the theme of this contribution, the focus will be on the extra-territorial application of international human rights instruments on earth and in outer space.

2 Outer space as a unique environment requiring the protection and application of particular human rights

On 9 July 2014, BBC Future¹⁴ reported that the second International Extraterrestrial Liberty Conference, organised by Charles Cockell, an astrobiologist at the University of Edinburgh, had discussed the drafting of a constitution for an outer space colony on Mars.¹⁵ Cockell believes that the proposed constitution should contain a bill of rights that takes into account the very special circumstances under which such a colony would live and function. It is argued that the proposed constitution should, for example, make provision for the right to leave the colony and the right to have oxygen supplied to one at all times. The practical issues related to the realisation of these rights are immense. The report by BBC Future observes in this regard as follows:

Delegates also agree that the 'right to leave' should be included in the new constitution. But that raises questions over the practicalities of leaving a colony on a planet without breathable air. As going outside is not a viable option, who pays for the trip home? Even more concerning, if the colony is being run by a corporation do they have the right to sack you? To send you back to Earth or throw you out of the airlock?

¹⁴ Hollingham 2014 <http://www.bbc.com/future/story/20140709-why-mars-needs-a-bill-of-rights>. Also see Robson 2014 <http://www.bbc.com/future/story/20141002-time-to-plan-a-space-colony>.

¹⁵ Some would question the relevance of such a conference. According to the report on BBC Future by Hollingham 2014 <http://www.bbc.com/future/story/20140709-why-mars-needs-a-bill-of-rights>, Cockell "Freedom in a Box" explained the relevance as follows: "The relevance now is that there's an increasing number of nations going into space, there's an increasing number of private companies building rockets and with this renewed effort in space exploration it's becoming very important to think about who's going to control space... Will it be corporations? Will it be the state? How is the individual to have any freedom in an environment that is absolutely lethal?" Three related conferences were presented in London by The British Interplanetary Society in conjunction with the Centre for Astrobiology of the University of Edinburgh on the following topics: Extraterrestrial Liberty – What is Freedom Beyond the Earth? 13 June 2013 to 14 June 2013, Extraterrestrial Liberty II – Human Governance Beyond the Earth 12 June 2014 to 13 June 2014, and Extraterrestrial Liberty III – Dissent, Revolution and Liberty in Space 11 June 2015 to 12 June 2015. See in general British Interplanetary Society 2019 <https://www.bis-space.com>.

Another practical problem that was raised at the Conference concerns the governing of the colony. What is to be done if the governing mechanisms of the colony fail and a brutal dictatorship emerges? Whether and how any proposed constitution would be able to deal effectively with such a situation is not clear. In fact, it is trite that human nature is not fully susceptible to regulation by legislation. In this regard, Cockell in the abstract of one of his articles on extraterrestrial liberty sounds the following warning:¹⁶

The lethal environmental conditions in outer space and the surfaces of other planetary bodies will force a need for regulations to maintain safety to an extent hitherto not seen on the Earth, even in polar environments. The level of inter-dependence between individuals that will emerge will provide mechanisms for exerting substantial control. In extraterrestrial environments traditional buffers to tyranny that exist on the Earth are either absent or much weaker. Legislative and political mechanisms used to protect freedom will be needed to such a degree that they themselves are likely to become a form of despotism. Thus, the most profound irony of the settlement of space is that the endless and apparently free expanses of interplanetary and interstellar space will in fact allow for, and nurture, some of the most appalling tyrannies that human society can contrive. Thwarting this tyranny will be the greatest social challenge in the successful establishment of extraterrestrial settlements.

In order to get a better grasp on the particular legal difficulties associated with travelling to and living in outer space, the following example may serve as an illustration of the immense importance of the proper legal regulation of the project to establish a human settlement in outer space and the enormous complexity of the legal issues at hand: States A, B and C in conjunction with private enterprises X, Y and Z succeed in establishing a settlement consisting of fifty people on a celestial body, R. The inhabitants of the settlement comprise of the nationalities of states A, B, C, D, E and F. Thirty are male and twenty female. Ten of them are trained astronauts, fifteen are scientists, five are technicians, and the rest are general workers. Six of the participating individuals are selected to serve as the governing body of the settlement. A document agreed upon by all the parties contain the basic rules that apply to the rights, privileges, duties and general behaviour of all participants during their trip to and their stay on R. Companies N, O, and P provide the prescribed insurance to the participating states, private enterprises and individuals. The facilities of state G are used to launch the space vehicle that carries the participants to R.

It is not difficult to imagine the variety and complexity of the mutual legal relationships between the various role players and the processes involved

¹⁶ See in this regard Cockell 2008 *J Br Interplanet Soc* 255. Also see Cockell 2009 *J Br Interplanet Soc* 139-157.

to eventually come to an agreement as to the regulation of the legal position between the parties involved. Seeing that states, private enterprises, and individuals as citizens and as clients are involved, the nature of the various instruments containing the rules that regulate the wide-ranging legal relationship will also differ materially and will probably range from treaties to legislation to contracts to codes of conduct and even something akin to a constitution.

In the discussion that follows, several issues which primarily relate to the application and enforcement of international human rights in the outer space settlement itself are identified. These vexing issues would need clarification before the establishment of any settlement on a celestial body or an artificial, human-made habitat in outer space should be attempted. To illustrate the kinds of practicalities that would have to be dealt with in this regard, brief reference, where applicable, will be made to the so-called Constitution of the Space Kingdom of Asgardia.¹⁷

What should the legal content of the mutual relationships between the participating states, private enterprises and individuals in their various capacities be? To avoid legal uncertainty, it is clear that the legal status and role of the participating states, persons¹⁸ and entities should beforehand be determined and described. This in itself is a daunting task, as it would require the participation of all parties involved in the project and the creation of a new legal regime based on the various domestic legal systems applicable to at least the prospective participants, as well as relevant international rules and norms governing activities in outer space.

What would the legal nature of the settlement established on the celestial body be?¹⁹ Would it, for example, be a kind of nation-state endowed with a

¹⁷ A copy of the Constitution of the Space Kingdom of Asgardia is to be found at Asgardia Date unknown <https://asgardia.space/assets/doc/constitution/english.pdf>. Although one may argue that documents such as this should be viewed light heartedly as a Utopian idea of its authors without any real legal value, it is nevertheless suggested that this document at least constitutes an example of the kind of thinking of a substantial number of people regarding the future uses of outer space. See in general the website of the Space Kingdom of Asgardia (Asgardia 2018 <https://asgardia.space/en/>).

¹⁸ It is for example not clear whether participating persons would have the status of astronauts and if terms in the space treaties such as "astronaut", "personnel of a spacecraft" and "envoys of mankind" would consequently apply to all of them. For a further discussion of this issue, in the context of space tourism, see Abul Failat and Ferreira-Snyman "Regulation of the Space Tourism Sector" 215-226.

¹⁹ The Constitution of the Space Kingdom of Asgardia (Asgardia Date unknown <https://asgardia.space/assets/doc/constitution/english.pdf>) in art 2 describes the status of Asgardia as follows: "Asgardia is the first independent, free, unitary, and

type of sovereignty and governed by a kind of government in terms of a sort of constitution? The terms *kind of* and *sort of* are used intentionally to emphasise that the situation at hand could not be equated with the current situation on planet Earth, where a clear structural division between the legislature, executive and judiciary is part and parcel of most democratic nation-states, and where the actions of the state and its inhabitants are regulated by a constitution and legislation.²⁰ This issue is clearly linked to the question whether the settlers would retain their political rights in terms of the constitutions of their states of origin and in principle be allowed to participate in the political processes (especially general elections) of those states.²¹ The difficulties associated with the practical exercise of these rights (which may differ vastly) on a celestial body separated in time by many months and by distances of millions of kilometres from planet Earth are obvious. The ultimate question to be decided upon by the international community is whether a settlement should be allowed to develop into an independent nation-state. One of the most difficult issues to get clarity on is the exact nature of the legal relationship between outer space states and earthly states with regard, for example, to citizenship. Should dual citizenship, particularly from an earthly state's perspective, be allowed? If so, those earthly states which do not recognise dual citizenship will have to

social Space Nation, which is transethnic and secular, is based on morality, fairness, peace, and the equal dignity of every human being, looks to the future and the infinite Universe, and is a Kingdom." In art 5(1) the territory of Asgardia is described as follows: "From a legal perspective, Asgardia's territory is a digital nation with living citizens on planet Earth; from a scientific and technological perspective, Asgardia is a nation implemented on a low-Earth orbit in the form of a satellite or an orbital satellite constellation, on Earth, and later on the Moon and on other celestial bodies." In terms of art 5(2) Asgardia aims at expanding its territory "by obtaining new localities in space, in low-Earth orbits, and celestial bodies". In art 5(6) it startlingly reiterates that "Asgardia expands its territory by obtaining new localities *on Earth*, in space and on celestial bodies" (our emphasis).

²⁰ It is interesting to note that the so-called Constitution of the Space Kingdom of Asgardia (Asgardia Date unknown <https://asgardia.space/assets/doc/constitution/english.pdf>) in arts 33, 34 and 35 respectively clearly distinguish between a legislature, an executive and a judiciary, which are not to be fully equated with those normally found in a nation state on earth, but adapted with regard to composition and function to reflect the particular circumstances the settlement finds itself in. This is in line with the provision in art 16(f) of the Asgardian Constitution which determines that government by the people in Asgardia shall be guaranteed by the separation of powers, and art 30(2) which provides that "governance of Asgardia shall be exercised by its separation into the legislative (Parliament), executive (Government), and judiciary (Court) branches".

²¹ The Constitution of the Space Kingdom of Asgardia (Asgardia Date unknown <https://asgardia.space/assets/doc/constitution/english.pdf>) in item 9 of its introductory Declaration of Unity of Asgardia in ch 1 explicitly determines that no political parties would be allowed in Asgardia, but that every Asgardian can freely participate in the political life on earth (presumably within that person's state of origin).

be persuaded to adapt their municipal law to make it possible.²² Not only the political relationship between outer space states and earthly states but also their economic relations might pose serious problems. Mike Brown, however, does not view this as a problematic situation, but rather sees it as an opportunity to develop what he refers to as a "ground up, pure economy".²³ An interesting example of an economic issue that would probably in future need the attention of states is that of tax avoidance by individuals in outer space. A similar problem occurs in international waters on planet Earth. Individuals are currently making plans to avoid tax by living in floating tax havens such as ships which constantly travel around the world. They sail in international waters and stay in the national waters of individual countries for a very short time so as to avoid paying tax to any country.²⁴ The resemblance between the two situations is obvious.

Currently, diverse opinions exist on the nature of the envisaged space colony. In this regard, Crawford proposes that a federal model would be best suited to ensure peace and liberty between the various colonies that will eventually be established in outer space.²⁵ Wylie, in turn, argues that when it comes to the establishment of individual space colonies the focus

²² It is clear from the Asgardian Constitution (Asgardia Date unknown <https://asgardia.space/assets/doc/constitution/english.pdf>) that the Space Kingdom of Asgardia wishes to retain strong links with the earthly states of origin of the various settlers. In this regard the Declaration of Unity of Asgardia contained in ch 1 of the Constitution not only makes it clear that every Asgardian may freely participate in the political life on Earth (item 9), but also undertakes that Asgardia would respect, comply with and protect the rights of citizens of the Earth's states (item 8), expresses the wish to be recognised as having equal status as the Earth's states (item 5), and the wish to be allowed to participate in the global events on Earth (item 7). In addition the Asgardian Constitution in art 24 contains a number of provisions aimed at protecting the Earth against space-originating threats. Art 6(3) provides that "the space citizenship of Asgardia is a special type of citizenship and does not constitute dual or second citizenship for the purpose of Earth State citizenship". In terms of art 7(2) an Asgardian citizen retains his or her permanent residence in his or her earthly state. Also see ss 7 and 8 of Asgardia's Citizenship Law (Asgardia 2018 <https://asgardia.space/storage/page/publication/attach/a5/97/a597b4fdd6dc1d352c3f4a6fdbf6c4a83f93523329dd2ea8857c5528c87e7835.pdf>). S 8(2) expressly provides as follows: "Residing in Earthly States is a natural right of the citizens of Asgardia. This innate right shall not deprive or diminish their rights or freedoms, suspend or terminate their Asgardian citizenship, or annul their obligations towards Asgardia." Whether earthly states will unconditionally accept this provision as binding on them is doubtful.

²³ Brown 2019 <https://www.inverse.com/article/55060-a-mars-colony-could-be-humanity-s-best-shot-at-a-purely-designed-economy>.

²⁴ See De Hoon Date unknown <https://www.nomoretax.eu/living-in-international-waters-endless-adventure-without-taxes/>.

²⁵ Crawford "Interplanetary Federalism" 199-218. It must, however, be kept in mind that an earthly federal model usually implies a central government prevailing over the governance of individual states, a situation which in the case of outer space may not suit some of the settlements.

should be on creating a sense of community among the members of a particular settlement,²⁶ and it seems that initially at least the focus should not be primarily on the form of government the settlement should eventually develop and accept. Presson rejects a private corporation as a suitable "governing authority" for a settlement in outer space,²⁷ while the Asgardian Constitution declares the proposed state of Asgardia to be a kingdom.²⁸ As one contemplates these issues, several related problematic matters that have eventually to be decided upon come to the fore. Although it is impossible to try to find definitive answers to these problems in the scope of this article, they are at least worth mentioning. Would it, for example, be possible for the earthly international community to recognise settlements in space as states on condition that these states in outer space agree to implement earthly international human rights treaties to the extent that it is possible in their particular environments? Recognition from the international community of states, it seems, would in any case in terms of the current international legal position be necessary for the creation of new earthly states, and it is suggested, also for the establishment of new states in outer space. Finck formulates the current legal position as follows:²⁹

Thus effective control of a territory is not in and of itself sufficient for a would-be State to exist in the realities of the current international scene. Without recognition, an entity is not a State and thus not a member of the international community and a fully-fledged subject of international law; it is unable to use international law institutions and claim its protection. Recognition is a necessary but not sufficient condition of statehood. Recognition is a prerequisite of statehood, an essential criterion that may even trump weak or partial effectiveness in certain legal contexts, although not a lack of factual independence. Conversely, the effectiveness of government authority over a population and territory does not lead automatically to statehood, within the meaning of international law, in the absence of international recognition.

What should the rights, privileges and duties of the participating individuals (the settlers) in such an outer space project be? How and by whom should these rights be granted to the participants? Who will carry the final responsibility for an authoritative interpretation of these rights? One could argue that the selected rights should be formulated in detail to try to limit unnecessary problems associated with the interpretation of human rights.

²⁶ Wylie "Human Space Colonies" 251-264.

²⁷ Presson "Citizens of Mars Ltd" 121-137. This publication is part of the Space and Society series edited by Douglas A Vakoch.

²⁸ See art 2 of the Asgardian Constitution (Asgardia Date unknown <https://asgardia.space/assets/doc/constitution/english.pdf>). The Asgardian Constitution does not employ the term "king" or "queen", but simply refers throughout the document to the "Head of Nation". Art 30(3) provides that "the Head of Nation shall be the head of Government, and not of the other branches".

²⁹ Finck 2016 *Polish YB Int'l L* 81.

Conversely, as a result of the particular circumstances surrounding outer space, coupled with unforeseen situations that may arise, a too detailed formulation of these rights may actually create even more difficulties concerning their interpretation and application than a broad formulation leaving ample room for interpretation to suit specific situations. What should be clear, however, is that the final arbiter should be knowledgeable and have the necessary expertise as far as the interpretation of human rights is concerned to ensure the acceptability and authoritativeness of his, her or their decisions.

Further closely related questions concern the extent to which the limitation of these rights should be allowed in an emergency situation, as well as what would constitute an emergency and who would decide whether an emergency existed. When it comes to the interpretation and application of human rights, conflicts between individual settlers and between settlers and the governing body are certain. What yardstick should be used to decide on the extent of the limitation of a particular human right? What may be reasonable, rational and justifiable under earthly circumstances may not be so in outer space and *vice versa*. It thus seems important that some kind of conflict-regulating mechanism should be put in place. One could expect a wide variety of conflicts to arise, taking into account the possibly diverse composition of the settlement with regard to nationality, language, culture and religion.³⁰

The array of issues that need clarification before the establishment of a human settlement is embarked upon seems to be almost endless. Should

³⁰ Wylie "Human Space Colonies" 264 refers as follows to some of the issues involved: "The cultural differences could be enormous, not least in respect of language and religion. Moreover, with a colony, will there be mission objectives other than the establishment of a colony itself? Who will be eligible to go? From which nations will they come? What will the status of the colonists be - will they be 'astronauts' or 'settlers'? All of these things will, most probably, have a significant effect on the dynamics of the colony as a functioning entity. If the current activities in space are anything to go by, there could well be a large range of nationals (and cultures) involved in the establishment of a colony." In this regard it is interesting to note that the Asgardian Constitution (Asgardia Date unknown <https://asgardia.space/assets/doc/constitution/english.pdf>) prohibits political parties in Asgardia itself (Declaration of Unity of Asgardia, item 9 in ch 1 of the Constitution), but allows religious practices in Asgardia (item 11 of the Declaration). The Utopian ideals of Asgardia as reflected in its supreme values contained in art 4 include non-legal concepts such as the unity of space, humanity, community and mutual support, human happiness, love, the propagation of the human species, peace, tranquillity, respect, confidence, morality and harmony. Whether these values could be effectively realised, taking into account the conflict-creating potential of political and religious differences inherent in human nature (whether prohibited or not in Asgardia), is highly doubtful.

the settlers be allowed to procreate during their stay on the celestial body? The right to procreate would, in all probability, need to be seriously limited to prevent an undesirable growth in the settlement's population, which might eventually jeopardise the whole of the settlement's continued existence. Should a specific right to oxygen, food and water be guaranteed to all persons living in the settlement? One could probably argue that the right to life contained in international human rights instruments should be interpreted to automatically include these rights. The realisation of these rights might, however, not be without problems. It would probably be impossible to carry the necessary oxygen, food and water on the spacecraft into outer space for a prolonged stay on the celestial body. Structures and plants to provide these necessities would need to be erected as soon as possible after arrival. The current International Space Station provides an example of living and functioning in outer space to a certain extent, but the sheer scale of a full-blown settlement would require a much more extensive infrastructure. It is suggested that before people venture into outer space to establish a permanent settlement, clarity should exist with regard to the specific life-sustaining rights the members of the settlement would be able to claim. Pletser, a physicist-engineer, argues that "a manned mission to Mars is already feasible today, with the technology and knowledge that we have presently",³¹ but nevertheless outlines the technological and other dangers and problems that such an experiment poses.³² In her reaction to Pletser's viewpoint, after analysing the dangers described by him, Hikmah unequivocally claims that "sending humans to Mars is against the right to life" and recommends that "Mars colonization needs to be guarded with sufficient policy and mechanisms on multi-planetary human rights protection in order to not put humans in danger and violate their rights to life".³³ It must be remarked in this regard that it is unrealistic to expect that the point would be reached in the near future (if ever) where people could be sent to Mars without any potential danger to their lives. Exploring space is inherently a dangerous activity that could cost people their lives.

How should the right to property be regulated for the various role players (that is states, private enterprises and individuals) especially in view of the fact that international law currently prohibits ownership of celestial bodies?³⁴ Apart from the celestial body itself (or a specific area of it); to whom would the structures erected on such a body belong? In terms of Article VIII of the

³¹ Pletser *On to Mars!* xv.

³² Pletser *On to Mars!* 207-240.

³³ Hikmah 2018 http://www.unoosa.org/documents/doc/psa/activities/2018/hsti_expert_meeting_vienna/Presentations/Session4_12_Barikatul_Hikmah.pdf.

³⁴ Articles I and II of the *Outer Space Treaty*.

Outer Space Treaty, objects landed or constructed on a celestial body remain the property of the state party in whose registry the object is included. The position with regard to private installations on celestial bodies is not so clear, however. Would private individuals, for example, be allowed to own a dwelling built on a celestial body for themselves by themselves?³⁵ The Space Settlement Institute argues strongly that a distinction must be made between state and private property on celestial bodies, and argues that an unnecessarily restrictive interpretation of article VI of the *Outer Space Treaty* should be avoided. The Institute formulates its viewpoint as follows:³⁶

Certainly, launching states must ensure that their nationals' activities conform to the provisions of the treaty, and Article II of the treaty includes a prohibition on national appropriation of territory or claims of national sovereignty. Launching states must therefore prohibit their citizens from making claims of "national sovereignty" or "national appropriation" on their nations' behalf. But the requirement that nations must make sure their citizens do not violate the treaty has no bearing on private lunar land claims based on natural law's "use and occupation", for the simple reason that private ownership (i.e., ownership not based on sovereignty) is not prohibited by any provision of the treaty. More bluntly: there is no provision in the Outer Space Treaty specifically barring claims of private ownership, so recognizing a private claim based on use and occupation does conform to all the provisions that are actually in the treaty.

It was recently reported that the American federal space agency seized a small vial of lunar dust in the possession of an American woman. The woman's father was a space engineer and friend of astronaut Neil Armstrong, and the vial had been given to her by the latter when she was ten years old. As an adult, she tried to sell the vial. NASA claimed that private citizens could not own lunar material. She instituted legal proceedings against NASA for unlawful search and seizure but eventually settled out of court for \$100 000.³⁷

Furthermore, would it be possible to realise the right to general medical services to the inhabitants of the settlement on the same level as their earthly counterparts, or should they beforehand accept that rights such as these would inevitably need to be curtailed? The same question applies to a number of other rights as well. For example, to what extent would the right to be free from crime be applicable and enforceable in the settlement, taking

³⁵ Erlank "Property and Ownership in Outer Space" 77 argues that "in order for someone ... to be able to acquire property rights on or to a celestial body, he, she or it would have to be able to get there and exert direct and physical control over it."

³⁶ See Space Settlement Institute 2019 <http://www.space-settlement-institute.org/article-vi-of-the-outer-space-treaty.html>.

³⁷ Sampathkumar 2018 <https://www.independent.co.uk/news/world/americas/woman-sue-nasa-neil-armstrong-moon-dust-laura-murray-tennessee-a8396176.html>.

into account that, initially at least, no completely developed legislature, executive and judiciary would in all probability exist? The particular circumstances in which a settlement in outer space would function also suggest that the right to established fair labour practices would be in need of comprehensive adaptation. The right to privacy is another example of a right that would obviously have to be drastically curtailed in such an environment.

Currently, one of the most serious problems concerning the exploitation of outer space is the issue of space debris, as it has a direct bearing on the right to a clean, healthy and safe environment of the envisioned human settlement.³⁸ In this regard, reference must be made to the recent emergency repairs that had to be done to the International Space Station after it was hit by a piece of space debris, resulting in a two-millimetre hole through which the oxygen inside the space station leaked.³⁹ Apart from the space debris created by normal space activities, private enterprises have in recent months launched objects, which can only be described as junk, into space - the one being a huge rotating glass "disco-ball"⁴⁰ and the other a Tesla sports car,⁴¹ launched by SpaceX. If interplanetary travel becomes a regular feature of human life, space debris will inevitably increase dramatically in volume. It is estimated that the limited exploration of the Moon by the United States of America has generated space debris weighing more than 180 000 kilograms, consisting of more than a hundred manmade objects, ranging "from spacecraft to bags of urine to monumental plaques".⁴² The space debris concern is further exacerbated by the announcement by NASA on 2 May 2018 that a small nuclear plant has been developed which could be used to propel spacecraft on their interplanetary journeys.⁴³ Although scientists are currently testing technology to remove

³⁸ For a recent overview of the problem of space debris see Ferreira-Snyman "Environmental Responsibility for Space Debris" 257-283.

³⁹ Knapton 2018 <https://www.telegraph.co.uk/science/2018/08/30/international-space-station-leaking-air-hit-space-debris/>.

⁴⁰ Amos 2018 <https://www.bbc.com/news/science-environment-42808180>.

⁴¹ Dunn 2018 <https://phys.org/news/2018-02-space-sports-car-asteroid-belt.html>. Since the car had not been sterilised (as previous craft sent to Mars were) scientists described it as the "largest load of earthly bacteria to ever enter space": Bharmal 2018 <https://www.theguardian.com/science/blog/2018/aug/28/the-case-against-mars-colonisation>.

⁴² See Garber 2012 <https://www.theatlantic.com/technology/archive/2012/12/the-trash-weve-left-on-the-moon/266465/>.

⁴³ See Bennett 2018 <https://www.popularmechanics.com/space/moon-mars/a18345717/nasa-ntp-nuclear-engines-mars/>; IANS 2018 <https://www.financialexpress.com/industry/nasas-portable-nuclear-reactor-could-power-missions-to-mars/1154206/>.

debris from space,⁴⁴ it is still uncertain how the radiation of persons on board a spacecraft would be prevented and how any radioactive waste would be disposed of in outer space. The problem of ever-increasing space debris was once again highlighted by India when they recently successfully destroyed one of their own satellites in orbit by firing a test missile at it. Although only three other states (United States, Russia and China) have previously succeeded in conducting a similar experiment, India's actions have caused serious concern insofar as the space debris generated by the test potentially threatens the operation of approximately 1957 satellites currently orbiting the earth.⁴⁵

Against this background, it is interesting to note that the Constitution of the Space Kingdom of Asgardia makes provision for the protection of a number of individual rights and freedoms⁴⁶ as well as for a number of obligations.⁴⁷ Taking into account the unfamiliar and extreme circumstances space settlements are to face, as well as the resulting dependence of individuals upon each other for survival, it seems logical that a constitution aimed at the proper functioning of such a society should contain not only the rights but also the responsibilities and obligations of individuals towards one another. In this respect, situations in outer space differ vastly from those on planet Earth.

The few examples referred to above are only an indication of the nature of the legal issues facing the establishment of a properly functioning settlement in outer space, and are by no means an exhaustive list. They nevertheless raise the important question of the extent to which the current international instruments on the use and exploitation of outer space could or should be used as the basis for the development of human rights instruments specifically designed for prolonged travelling and residing in outer space. The authors are of the opinion that even before deciding on the content of such instruments, one should answer the very basic question as to the extra-territorial applicability of the current international human rights instruments in outer space. Although we believe that the current international human rights instruments could not be applied without qualification to persons residing in outer space, it is at least a step forward

⁴⁴ Pultarova 2018 <https://www.space.com/41897-satellite-fires-net-to-catch-space-junk.html>.

⁴⁵ Li 2019 <https://theconversation.com/india-destroys-its-own-satellite-with-a-test-missile-still-says-space-is-for-peace-114441>.

⁴⁶ Article 8 of the Constitution of the Space Kingdom of Asgardia (Asgardia Date unknown <https://asgardia.space/assets/doc/constitution/english.pdf>).

⁴⁷ Article 9 of the Constitution of the Space Kingdom of Asgardia (Asgardia Date unknown <https://asgardia.space/assets/doc/constitution/english.pdf>).

to establish (as a starting point) whether any existing instruments could protect persons in outer space.⁴⁸ A strong argument could be made that the legal position, as it currently stands, is in urgent need of adaptation to bring it in line with the tremendous scientific and technical advances that have been made in recent years. In this regard, it should be remembered that legal regulation normally follows a change in circumstances. The international aspects inherent in the exploitation of outer space, as illustrated by the example above, necessitate that the current outer space legal regime be reviewed as soon as possible and thereafter constantly adapted to regulate the legal implications of scientific developments related to outer space. It would in all probability be easier to reach some consensus between all role players if the legal regime agreed upon were to take the form of soft law.⁴⁹ It must, however, also be noted that due to the complexities involved and the alarmingly fast pace of technical developments relating to outer space activities, legal certainty is of the utmost importance. Hard law would ultimately be necessary to achieve this purpose.

3 The extra-territorial application of international human rights instruments on planet Earth

The background to this part of the discussion can briefly be summarised as follows: Generally, states are bound by only those international agreements that have been signed and ratified by them. However, the extent to which an instrument would bind a state would depend on the question of whether that state follows a monist or dualist approach. Moreover, although a state may not have signed and ratified an international human rights instrument, it may still be bound by specific obligations in that instrument where the obligation in question can be allocated the status of an obligation *erga omnes*,⁵⁰ or where a human right has attained the status of *jus cogens*.⁵¹

⁴⁸ See article 31(6) of the Constitution of the Space Kingdom of Asgardia (Asgardia Date unknown <https://asgardia.space/assets/doc/constitution/english.pdf>).

⁴⁹ Soft-law documents are currently the main instruments for further developing and defining outer space norms. See Tronchetti "Soft Law" 625-627.

⁵⁰ The International Court of Justice in *Barcelona Traction, Light and Power Co Ltd (Belgium v Spain)* 1970 ICJ Reports 3 described *erga omnes* norms as "the obligations of a State towards the international community as a whole" and that due to "the importance of the rights involved, all States can be held to have a legal interest in their protection" (32).

⁵¹ Article 53 of the *Vienna Declaration on the Law of Treaties* (1969) describes *jus cogens* as a "norm accepted and recognized by the international community of States as a whole ... from which no derogation is permitted and which can be

Article 1(5) of the *Vienna Declaration and Programme of Action* (1993) describes the nature of human rights and the duty of the international community and individual states towards their realisation as follows:

All human rights are universal, indivisible, interdependent and interrelated. The international community must treat human rights globally in a fair and equal manner, on the same footing, and with the same emphasis. While the significance of national and religious particularities and various historical, cultural and religious backgrounds must be borne on mind, it is the duty of States, regardless of their political, economic and cultural systems, to promote and protect all human rights and fundamental freedoms.

The key words here are "globally" and "universal". The term "global" seems to be limited geographically to describe planet Earth (the "globe"), and it is suggested that to include outer space in its ambit would be to over-extend its literal dictionary meaning. The term "universal" generally denotes that human rights "are universal, because everyone is born with and possesses the same rights, regardless of where they live, their gender or race, or their religious, cultural or ethnic background".⁵² In this sense, the term "universal" should be understood to reflect the personal character of human rights as rights accruing to the individual wherever he or she might find him- or herself. However, geographically speaking, the term "universal" according to its literal dictionary meaning might be used to denote the entire universe (planet Earth and outer space) and need not carry only the limited meaning associated with the term "global".

The basis of all human rights is the protection of the dignity of the human being. This is an inherent quality of being human and is not bestowed upon people by international human rights instruments. Article 1 of the *Universal Declaration of Human Rights* (1948) confirms that "all human beings are born free and equal in dignity and rights". It could, therefore, be argued that a human being, wherever he or she might find him- or herself, is entitled to all human rights by virtue only of being human. In this sense, human rights are inherently part and parcel of the person of the individual irrespective of time, place and circumstances. In this respect, human rights could thus be described as a form of natural law. Against this background, international human rights instruments might be viewed as solemn undertakings between states to recognise this situation and act accordingly. One could, therefore, argue that human rights instruments are merely a confirmation of an already existing legal position.

modified only by a subsequent norm of general international law having the same character."

⁵² See United Nations Population Fund *Human Rights Principles* (2005).

To get the complete picture of what precisely the territorial element linked to the application of international instruments entails, one also has to take into account the relevant provisions of the human rights treaties themselves. The following examples could serve to illustrate the uncertainty that exists in this regard:⁵³

Article 2(1) of the *International Covenant on Civil and Political Rights* (1966) determines that "each State Party to the ... Covenant undertakes to respect and to ensure to all individuals within its territory and subject to its jurisdiction the rights recognized in the ... Covenant ..." The two keywords in this provision are "territory" and "jurisdiction". The Covenant, however, does not contain any definitions of these important concepts or provide any indication of how these terms should be understood when the Covenant is applied.

Article 2(1) of the *Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment* (1984) requires that "each State Party shall take effective legislative, administrative, judicial or other measures to prevent acts of torture in any territory under its jurisdiction". Article 2(1) of the *Convention on the Rights of the Child* (1989) contains a similar provision and determines that "States Parties shall respect and ensure the rights set forth in the ... Convention to each child within their jurisdiction..." These provisions refer to "jurisdiction" only, and do not refer to "territory", and once again the meaning of the concept is not explained.

Article 2(1) of the *International Covenant on Economic, Social and Cultural Rights* (1966) simply provides that "each State Party to the ... Covenant undertakes to take steps, individually and through international assistance and co-operation, especially economic and technical, to the maximum of its available resources, to achieve progressively the full realisation of the rights recognised in the ... Covenant by all appropriate means, including particularly the adoption of legislative measures". This provision, insofar as it requires from a state to enact legislation to realise socio-economic rights, could be construed to implicitly require the state to afford those under its jurisdiction and in its territory the required socio-economic rights. The *International Convention on the Elimination of All Forms of Discrimination Against Women* (1979) in article 3 contains a similar provision insofar as it provides that "States Parties shall take in all fields, in particular in the political, social, economic and cultural fields, all appropriate measures,

⁵³ See also in this regard Wilde "Human Rights beyond Borders at the World Court" 51-70.

including legislation, to ensure the full development and advancement of women, for the purpose of guaranteeing them the exercise and enjoyment of human rights and fundamental freedoms on a basis of equality with men". Appropriate measures would include policy measures as well as legislative provisions, and the application of both these municipal instruments would normally be limited to the territory under the particular state's jurisdiction.

Some international human rights instruments place a wide variety of duties on the states that are parties to the instrument. In article 2 of the *International Convention on the Elimination of All Forms of Racial Discrimination* (1965), it is required from these states to take certain steps and perform certain duties in terms of their municipal law systems. This fact could be indicative of the limited application of the Convention, that is, application within the territorial boundaries of a state party to the Convention.

However, the position is unfortunately not that simple. On an interstate level, states sign and ratify international human rights instruments and are at least bound on the international level by the obligations contained in the particular instruments. As has been eluded to earlier, these obligations are simultaneously and directly enforceable before a state's municipal courts in terms of its municipal law, if such a state follows a monist approach. However, some states follow a dualist approach and consequently the said treaty obligations must first be incorporated into their municipal law before the specific treaty obligations could be enforced before their municipal courts. In this instance, treaty provisions are not directly applicable in some municipal legal systems. In this respect, one could argue that a monist approach is more conducive to the extra-territorial application of international instruments than a dualist approach.

Nevertheless, the wording (or lack thereof) of international instruments on their territorial application creates legal uncertainty. The examples cited above confirm this point. Wilde explains the issue at hand as follows:⁵⁴

The vagueness of the provisions in the instruments ... enables the scope of their spatial applicability to be easily disputed. 'Jurisdiction' could be regarded as a synonym for presence in sovereign territory only, thereby ruling out extraterritorial applicability. Alternatively, it could be defined in some way that includes, but is not limited to, a State's presence in its sovereign territory, but is defined in a manner that only covers a subset of extraterritorial activities (for instance, requiring a certain level of control), thereby creating the possibility for disagreements over which activities are covered. 'Free-standing' obligations could be regarded as operating in any spatial zone in which the

⁵⁴ Wilde "Human Rights beyond Borders at the World Court" 55-56.

State is present, or, alternatively, a claim could be made that a limitation to sovereign territory should be read into them.

Some guidance on the extra-territorial application of human rights treaties may be found in the opinions and decisions of international judicial organs. It must, however, be pointed out that these opinions and decisions do not concern the application of human rights treaties in outer space, but are confined to the question of the extra-judicial application of human rights treaties on planet Earth. Wilde⁵⁵ considers the *Namibia Advisory Opinion* by the International Court of Justice (ICJ)⁵⁶ to be instructive in this regard. In that opinion, the Court stated that South Africa's continued illegal presence in Namibia amounted to a breach of its own international obligations towards other states, and constituted a violation of the rights of the Namibian population as well. It is important to note that although the Court did not explicitly refer to a violation of the human rights of the inhabitants of Namibia, the illegal policy of apartheid was still applicable in the territory at that time. Therefore, there can be no doubt at all that the discriminatory nature of apartheid constituted a serious violation of the human rights of the people of Namibia. No specific international human rights instrument was involved in the case before the Court and its observations should be taken as general in terms. It is furthermore important to understand that at that time South Africa had no title over the territory of Namibia and that its presence in Namibia was thus deemed to be illegal. The international-law position was that the mandate agreement between South Africa and the League of Nations had ended and that South Africa was obliged to withdraw from the territory. Its continued presence in the territory rendered South Africa internationally responsible. The Court explicitly stated, "physical control of a territory, and not sovereignty or legitimacy of title, is the basis of State liability for acts affecting other States".⁵⁷ With reference to the question of the extra-territorial application of human rights law, it would seem that it is a valid conclusion to be drawn from the Court's observations that title of a state over a particular territory is not a prerequisite for the extra-territorial application of human rights law, but that the state's physical control over the said territory is sufficient.

⁵⁵ Wilde "Human Rights beyond Borders at the World Court" 58.

⁵⁶ *Legal Consequences of the Continued Presence of South Africa in Namibia (South-West Africa) notwithstanding Security Council Resolution 276, Advisory Opinion*, 21 June 1971, 1971 ICJ Reports 16.

⁵⁷ *Legal Consequences of the Continued Presence of South Africa in Namibia (South-West Africa) notwithstanding Security Council Resolution 276, Advisory Opinion*, 21 June 1971, 1971 ICJ Reports para [118].

The United Nations Human Rights Committee in its General Comment No 31 on the nature of the general legal obligation imposed on states parties to the International Covenant on Civil and Political Rights⁵⁸ declared as follows:

States Parties are required by article 2, paragraph 1, to respect and to ensure the Covenant rights to all persons who may be within their territory and to all persons subject to their jurisdiction. This means that a State party must respect and ensure the rights laid down in the Covenant to anyone *within the power or effective control of that State Party, even if not situated within the territory of the State Party* [our emphasis].

The European Court of Human Rights in *Bankovic v Belgium*⁵⁹ referred to the *European Convention for the Protection of Human Rights and Fundamental Freedoms* (1950) and observed as follows:

In keeping with the essentially territorial notion of jurisdiction, the Court has accepted only in exceptional cases that acts of the Contracting States performed, or producing effects, outside their territories can constitute an exercise of jurisdiction by them within the meaning of Article 1 of the Convention.

The European Court of Human Rights again followed this approach in *Al-Skeini v The United Kingdom*.⁶⁰

A State's jurisdictional competence under Article 1 is primarily territorial ... Jurisdiction is presumed to be exercised normally throughout the State's territory ... Conversely, acts of the Contracting States performed, or producing effects, outside their territories can constitute an exercise of jurisdiction within the meaning of Article 1 only in exceptional cases ... To date, the Court in its case-law has recognised a number of exceptional circumstances capable of giving rise to the exercise of jurisdiction by a Contracting State outside its own territorial boundaries. In each case, the question whether exceptional circumstances exist which require and justify a finding by the Court that the State was exercising jurisdiction extraterritorially must be determined with reference to the particular facts.

In its advisory opinion on the legality of the wall between Israel and Palestine⁶¹ erected by the former while illegally occupying territory belonging to the latter, the International Court of Justice very specifically referred to the extra-judicial application of the *Convention on the Rights of the Child* (1989) in terms of article 2(1) of the Convention. Without

⁵⁸ United Nations Human Rights Committee *General Comment No 31*, UN Doc CCPR/C/21/Rev.1/Add.13 (2004) para 10.

⁵⁹ *Bankovic v Belgium*, Application 52207/99, ECtHR (GC), Judgement, 12 December 2001 para 67.

⁶⁰ *Al-Skeini v The United Kingdom*, Application 55721/07, ECtHR (GC), Judgement, 7 July 2011 para 132-133.

⁶¹ *Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory, Advisory Opinion*, 9 July 2004, 2004 ICJ Reports 136.

advancing any reasons for its viewpoint, the Court simply took the duty laid on states in terms of article 2(1) to respect and ensure the rights of children within their jurisdictions, to mean that the Convention is therefore applicable within the Palestinian Territory occupied by Israel.⁶² In the subsequent case of *DRC v Uganda*⁶³ the Court, without elaborating on the issue, confirmed the approach followed in the advisory opinion in so far as the extra-territorial application of the *International Covenant on Civil and Political Rights* and the *International Covenant on Economic, Social and Cultural Rights* were concerned. The Court simply repeated the approach followed in the advisory opinion as follows:⁶⁴

The Court would observe that, while the jurisdiction of States is primarily territorial, it may sometimes be exercised outside the national territory. Considering the object and purpose of the International Covenant on Civil and Political Rights, it would seem natural that, even when such is the case, States parties to the Covenant should be bound to comply with its provisions. ... In conclusion, the Court considers that the International Covenant on Civil and Political Rights is applicable in respect of acts done by a State in the exercise of its jurisdiction outside its own territory. The International Covenant on Economic, Social and Cultural Rights contains no provision on its scope of application. This may be explicable by the fact that this Covenant guarantees rights which are essentially territorial. However, it is not to be excluded that it applies both to territories over which a State party has sovereignty and to those over which that State exercises territorial jurisdiction.

In this respect, it must again be noted that the Court followed a similar approach in its interpretation of both the *International Covenant on Civil and Political Rights* and the *International Covenant on Economic, Social and Cultural Rights*. This approach was followed notwithstanding the fact that the former refers to a state's obligations "within its territory and subject to its jurisdiction", whereas the latter only requires from states to take steps, including the adoption of legislation, to realise the rights in the said instrument. The concepts of "territory" and "jurisdiction" are not mentioned at all in the latter.

⁶² The ICJ stated as follows in para 113 of its advisory opinion: "As regards the Convention on the Rights of the Child of 20 November 1989, that instrument contains an Article 2 according to which 'States Parties shall respect and ensure the rights set forth in the ... Convention to each child within their jurisdiction ...' That Convention is therefore applicable within the Occupied Palestinian Territory."

⁶³ *Case Concerning Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda)*, *Judgement*, 19 December 2005, 2005 ICJ Reports 168.

⁶⁴ *Case Concerning Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda)*, *Judgement*, 19 December 2005, 2005 ICJ Reports 168 paras 109, 111-112.

In the case of *Georgia v Russian Federation*⁶⁵ decided in 2008, the *Convention on the Elimination of All Forms of Racial Discrimination* stood in the centre of the judgement of the ICJ. With reference to its extra-territorial application, the Court observed that:

[w]hereas ... there is no restriction of a general nature in CERD relating to its territorial application [and] whereas ... neither Article 2 nor Article 5 of CERD ... contain a specific territorial limitation ... the Court consequently finds that these provisions of CERD generally appear to apply, like other provisions of instruments of that nature, to the actions of a State party when it acts beyond its territory...

It must be clear from the exposition thus far that the International Court of Justice seems to follow the approach that the extra-territorial application of human rights instruments must be ensured. In some instances the Court interprets terms and phrases contained in a particular instrument itself (such as "subject to its [a state's] jurisdiction" and "within its [a state's] territory" and "any territory under its [a state's] jurisdiction" to mean that such an instrument enjoys extra-territorial application. In other instances, where the particular instrument is totally silent on the issue of extra-territorial application and does not contain any of these or similar terms and phrases, the Court still, without any explanation, accepts the extra-territorial application as a given fact. It furthermore seems clear that a state's sovereignty over a particular territory is not viewed as a prerequisite for the extra-territorial application of the international human rights instruments to which that state is a party.

At the same time, it must be kept in mind that the judicial decisions referred to above should not be interpreted to create any generally applicable norm concerning the extra-territorial application of international human rights instruments. The said decisions should be limited to the international instrument and the circumstances before the particular judicial organ, and should thus be treated only as indicative of a developing trend in international law.

4 The extra-territorial application of international human rights instruments in outer space

The international legal positions concerning the rights and obligations of states on planet Earth and in outer space are vastly different. The specific

⁶⁵ *Case Concerning Application of the International Convention on the Elimination of All Forms of Racial Discrimination (Georgia v Russian Federation) Request for the Indication of Provisional Measures*, 15 October 2008 para 109.

question here is whether states in their exploration of outer space are, as in their activities on planet Earth, under the obligation to respect, promote and enforce international human rights in terms of the various international human rights instruments. The issue thus boils down to the question whether the various international human rights instruments are also (extra-territorially) applicable in outer space.

At the outset, it must be remembered that international human rights instruments are essentially agreements between states, although the beneficiaries in these instances are mostly individual persons. Currently, the nation-state is a phenomenon limited to planet Earth. Since the *Outer Space Treaty* determines in article II that:

[o]uter 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,

it must be accepted that, for the immediate future at least, no earthly entity will be able to establish itself in outer space as a nation-state in the formal sense of the word. Even those states that have not signed and ratified the *Outer Space Treaty* are bound by this provision as it can convincingly be argued that the said Treaty's provisions have already attained the status of customary international law.⁶⁶ The question has been posed whether a group of people living on a celestial body such as the Moon or Mars (a so-called colony or settlement) could be viewed as an extension of the sending state? An important issue that requires attention in this regard is one of semantics. Drake argues convincingly that the use of concepts such as *colony* and *settlement* (as well as terms such as *frontier*, *conquest*, *occupy* and *manned*) should be avoided as they denote a violent, colonialist and sexist approach to space exploration.⁶⁷ It must nevertheless be borne in mind that apart from the fact that a future colony in outer space would in all probability be established by a number of participating states working together on the realisation of such a project, thus rendering it impossible to

⁶⁶ Dugard *International Law* 27-28 notes that: "In most cases some passage of time is required for a practice to crystallize into a customary rule. In some cases, however, where little practice is needed to establish a rule, it may come into existence very rapidly. When the General Assembly unanimously approved a resolution in 1963 declaring the legal principles governing the activities in outer space – which was promoted by the only two states capable of placing objects in outer space (the Soviet Union and the United States) – there was widespread agreement that a new rule of customary law had been created."

⁶⁷ Drake 2018 <https://www.nationalgeographic.com/science/2018/11/we-need-to-change-way-we-talk-about-space-exploration-mars/>. Erlank "Property and Ownership in Outer Space" 60 observes as follows: "The concept of a 'colony' presupposes an attachment to a sovereign nation."

identify a single participating state, the prohibition under current international law of appropriating a celestial body or establishing sovereignty on it would prevent any nation-state on Earth from extending itself in this manner into outer space. In addition, it must be taken into account that the situation might be further complicated by the fact that the state itself might not be the institution responsible for the establishment of a colony in outer space, but that a national or multi-national enterprise, with or without a state as partner, might be the driving force behind the project.

Bhatt, however, suggests that the Outer Space Treaties' prohibition with regard to sovereign national appropriation in outer space may be circumvented. He argues as follows:⁶⁸

The Outer Space Treaties do not allow the sovereign national appropriation of property on celestial bodies, or of empty space, the latter in particular being treated as part of the common heritage of mankind. If such ownership were allowed, then the only route to a sovereign statehood would be an outright declaration of independence from the sponsoring body, as any form of federalism would create shared or ambiguous ownership, unacceptable since constitutional governance requires a nation-state that is sovereign. Closer examination of the OSTs [Outer Space Treaties] show there are no restrictions on sovereign states existing in space as long as these do not derive from Earth based jurisdictions, thus bypassing the national sovereign appropriation clause, assuming that the clause probably applies only to claims arising from sovereign jurisdictions based on Earth, and that the obligations of the international treaties are not inherited or assumed by the new state. Consequently, any entity wishing to be seen as sovereign must declare itself autonomous and independent of its originating jurisdiction as a necessary step for sovereignty and constitutional governance, unless a federal system is instigated. However, a federal system would probably also be disallowed under the terms of the OSTs [Outer Space Treaties], given that there is sharing and delegation of an Earth based sovereignty.

This approach, however, does not provide the full and final answer to the question on the extra-territorial application of human rights instruments in outer space. As has been indicated in the preceding discussion, there seems to be a developing tendency to accept the extra-territorial application of international human rights instruments. In fact, it has been stated explicitly that states must ensure the protection of the human rights of those persons under their effective control even if they do not find themselves on the (sovereign) territory of the particular states. The extra-territorial application of international human rights treaties thus seems to focus not so much on the question whether the particular state has established

⁶⁸ See Bhatt "Constituting Outer Space" 166. This publication is part of the Space and Society series edited by Douglas A Vakoch.

sovereignty over the territory concerned as on whether the particular state has effective control over the persons who are present on that territory.

The "effective control" requirement with regard to the extra-territorial application of human rights on planet Earth,⁶⁹ and even more so in outer space,⁷⁰ is unfortunately not as unproblematic as it might seem at first glance. It nevertheless functions very prominently in the establishment of the international responsibility of states and international organisations. In this respect, one might refer to article 8 of the International Law Commission's *Draft Articles on the Responsibility of States for Internationally Wrongful Acts* (2001), which states as follows:

The conduct of a person or group of persons shall be considered an act of a State under international law if the person or group of persons is in fact acting on the instructions of, or under the direction or control of that State in carrying out the conduct.

Article 7 of the *Draft Articles on the Responsibility of International Organizations* (2011) similarly introduces the requirement of "effective control":

The conduct of an organ of a State or an organ or agent of an international organization that is placed at the disposal of another international organization shall be considered under international law an act of the latter organization if the organization exercises effective control over that conduct.

The requirement of "effective control" also figures prominently in the law of occupation. In this regard Tristan Ferraro⁷¹ explains its contents as follows:

IHL treaties and their *travaux préparatoires*, scholarly literature, military manuals, and judicial decisions all give proof of the pre-eminence accorded to three elements in the occupation equation, namely, the unconsented-to presence of foreign forces, the foreign forces' ability to exercise authority over the territory concerned in lieu of the local sovereign, and the related inability of the latter to exert its authority over the territory. All together, these elements constitute the so-called 'effective-control test' used to determine whether a situation qualifies as an occupation for the purposes of IHL. These three elements are also the only ones that—cumulatively—reflect the tension of interests between the local government, the Occupying Power, and the local population, which is an unchanging characteristic of a situation of belligerent occupation. In light of their importance, these elements should be established as prerequisites for the effective-control test. As such, they form the constitutive and cumulative conditions of the notion of occupation for the purposes of IHL.

⁶⁹ See in this regard the illuminating article by Tzevelekos 2014 *Mich J Int'l L* 129-178.

⁷⁰ On the application of the principle of effective control in outer space see Erlank "Property and Ownership in Outer Space" 72-73.

⁷¹ Ferraro 2012 *IRRC* 142-143.

The application of the control test in outer space law gives rise to specific problems. Firstly, as has been indicated, the *Outer Space Treaty* not only prohibits the establishment of sovereignty over any celestial body but also explicitly provides that no state may occupy any celestial body. The occupation referred to must of necessity be a permanent occupation, the reason being that in terms of the *Outer Space Treaty* states are allowed to explore outer space. Temporary occupation of a celestial body could form an inherent part of the exploration of outer space. Effective control without any form of permanent physical occupation of some sort seems to be impossible. It must also be pointed out that the *Outer Space Treaty* does not specifically employ the concept of "effective control", but rather makes use of the term "supervision" in the sense that it requires a launching state⁷² to exercise continuous supervision over the particular space activities. Whether the term supervision should be construed to imply effective control and whether continuous supervision is supposed also to include control over any settlement that might be established by the launching state as part of the particular outer space activities is unclear.⁷³

Secondly, the *Outer Space Treaty* is binding on the state parties to the treaty only, except and insofar as one could argue that the provisions of the treaty have attained the status of customary international law and are thus binding on all states, a viewpoint to which the authors subscribe. It must, however, be noted that states in many instances are not the only institutions concerned with space exploration. In fact, private institutions are currently

⁷² It is worth noting that the identification of the "launching state" may present some practical problems. In this regard, Sgrosso *International Space Law* 290 points out there could be some difficulty in identifying the launching state in instances where the space vehicle is launched in the air from the back of an aircraft. In terms of article 1(a)(c) of the Liability Convention the launching state is "(i) A State which launches or procures the launching of a space object; or (ii) A State from whose territory or facility a space object is launched". Based on this definition, Sgrosso argues that multiple launching states could be identified during the different stages of the journey: The state that launches the space vehicle from the aircraft into outer space, the state that owns the aircraft and the state that has sovereignty over the air space where the space vehicle is launched. Since there are more than one launching state, these states will jointly have to reach an agreement in terms of article II of the *Convention on Registration of Objects Launched into Outer Space* (1975) on which one of them will register the space object.

⁷³ It is also worth noting that since the meaning of the phrase "continuous supervision" has not been clarified, the manner and frequency of supervision is currently also left to the discretion of states. See further Masson-Zwaan "Article VI of the Outer Space Treaty" 543. There is also a divergence of opinion on the question whether *effective control* constitutes an effective yardstick, or whether *overall control* should be employed as the most appropriate test. Cassese 2007 *EJIL* 667 prefers the latter because the former "implies that one must show for every single action or conduct at stake that instructions or directions were issued or specific authority was exercised by the responsible authority".

actively involved in attempts to establish colonies on the Moon and Mars. States and private institutions may also be joint partners in an outer space venture.⁷⁴ An example of such well-established cooperation is the International Space Station, where not only states but also private enterprises such as Space X are involved in the maintenance of the Space Station and the transporting of goods between the Earth and the Station. A question immediately arises as to the binding nature of specifically international human rights instruments on the activities of private enterprises, the normal rule being that such instruments apply directly only to states as the primary subjects in international law.⁷⁵

A further complicating factor is the fact that a situation where a private enterprise's business concerns activities in outer space without any form of involvement of a state would probably never occur. The involvement of a state would at least concern the fulfilment of certain legal requirements before a private enterprise would be allowed to perform the said outer space activities. In that sense, the link between the state and the private enterprise could form the basis for the argument that the actions of the latter could be imputed to the state, thereby bringing it under the scope of international human rights treaties to which the state may be a party. The *Outer Space Treaty* explicitly requires in article VI as follows:

States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the Moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space, including the Moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty. When activities are carried on in outer space, including the Moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both

⁷⁴ The establishment of a human settlement on a celestial body (for example on the Moon or Mars) would, in all probability, require collaboration by a state or states and a private institution or institutions. For example, the apparent collaboration between Elon Musk's company SpaceX and NASA as reported by Mosher 2018 <https://www.businessinsider.com.au/spacex-meeting-mars-mission-planning-workshop-2018-8>. Similarly, Jeff Bezos indicated that he wanted Blue Origin to work with NASA and the European Space Agency to determine the possibilities of establishing a Moon colony and has already proposed a public-private partnership for this purpose: See Ecott 2018 <https://www.nowscience.co.uk/single-post/2018/06/01/Jeff-Bezos-says-BlueOrigin%E2%80%99s-Moon-colony-for-human-settlers-and-heavy-industry-will-be-built-within-decades>.

⁷⁵ For a recent study on the human rights responsibility of private enterprises see in general Mnyongani *Accountability of Multinational Corporations*, and more specifically on the issue of effective control (122-125).

by the international organization and by the States Parties to the Treaty participating in such organization.

This provision seems to provide a basis for arguing that it is required from both the participating state and private entity to jointly exercise effective control over the settlement through authorisation and continuing supervision by the state on the one hand, and responsibility for compliance with the *Outer Space Treaty* by both the state and private entity on the other hand. Authorisation, supervision and responsibility all point to effective control. This viewpoint is further enhanced by article VII of the Treaty, which provides that:

... a State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body.

Thirdly, a specific outer space project (for example, the functioning and maintenance of the International Space Station) often concerns, by way of agreement, the simultaneous involvement of a number of states and private enterprises. This "fragmentation" of the rights and obligations between the various parties to the agreement could create a lot of uncertainty as to who exercises control over what in terms of which legal regime.

Fourthly, reference has already been made above to the vexing question concerning the constitutional nature of a settlement in outer space. However, even before this question can be dealt with, clarity needs to be obtained as to what would constitute a colony in outer space. Literature describes these colonies as planetary settlements and artificial habitats depending on whether they are established on a planetary body, like Mars, or on an artificially-created habitat.⁷⁶ Whatever the case may be, the circumstances under which settlements in outer space would have to live differ profoundly from those on planet Earth and would need to be reflected in the constitutional arrangements applicable to them. Bhatt describes the typical circumstances a settlement in outer space would have to contend with as follows:⁷⁷

In space, all habitats beyond Earth may be considered to be inimical to human life, especially as humans are bio-fragile ... Habitats in space have their own added necessities and requirements, being dangerous in their own right,

⁷⁶ Bhatt "Constituting Outer Space" 164. Bigelow Aerospace and Axion Space plan to launch private space stations into orbit as soon as in 2020. These "habitat modules" could host a variety of inhabitants, including space tourists, scientists and NASA astronauts. See Wall 2016 <http://www.space.com/34377-private-space-stations-may-take-flight-in-2020.html>.

⁷⁷ Bhatt "Constituting Outer Space" 149-150.

where any individual activity can affect the collective safety of the general population. Such habitats, as seen in the International Space Station, may involve and contain multiple cultures with varying and differing values and beliefs, but all will share a need to obtain essential resources from outside sources at all times, despite a presumed goal of self-sufficiency. The hostile environments found off-Earth, and some on Earth demand an equitable partition of common necessities, food, water, and air at the least. All terrestrial activities and imperatives (communality, security, environment, human agency, crime etc.) are magnified and intensified in space because of the lack of readily available resources. Human habitats, whether on Earth or established off it, all require a form of administration according to some set of rules...

Against this background, it should at least be abundantly clear that due to the particular circumstances and living conditions in outer space the current human rights treaties concluded between states on planet earth are not suited for unqualified extra-territorial application to settlements in outer space.

5 Conclusion

In the current discourse on the viability of the establishment of human settlements in outer space, the emphasis is primarily on the development of the necessary technical and scientific expertise to enable states and private entities to achieve this objective. It is, however, suggested that the legal issues concerning such an endeavour are equally important for the successful accomplishment of the said objective. In this regard, the proper regulation of legal relationships is paramount, although it must at the same time be accepted that the unpredictability of human nature and the self-interest of nation-states present a major stumbling block against ensuring that everyone will at all times toe the agreed upon legal line. Nevertheless, due to the very special circumstances under which such a settlement will operate in outer space, no legal regulation whatsoever will undoubtedly make the situation much worse. The creation of the necessary legal rules on this level is a slow and complicated process, and it needs the immediate attention of the international community of states and private enterprises involved in the exploration of outer space. The rapid technical and scientific developments in this area are in stark contrast to the scant attention paid to the legal issues underpinning these developments.

The conclusion has been reached that the international human rights instruments drafted on and for planet Earth may find extra-territorial application in outer space. The reason for this is that the establishment of sovereignty by a state or states over the celestial body on which the settlement is founded is no pre-requisite for the application of human rights

treaties that were initially drafted for application on planet Earth only. Effective control over the settlement seems to be sufficient.⁷⁸

What should be clear from the example used in this discussion is that the existing earthly drafted international human rights treaties would not be sufficient to regulate the human rights position of the participating individuals in outer space projects. The particular circumstances in which the settlers would find themselves necessitate the introduction of some new human rights and the serious limitation of others.

The international context of the outer space legal regime requires that a credible international organisation with the necessary capacity and representative of the vast majority of states be the driving force behind a total review of the current and the enactment of a future outer space legal regime. The United Nations, specifically its Committee on the Peaceful Uses of Outer Space, seems to be the only body that can successfully undertake such a mammoth task within the near future. After all, the United Nations achieved this with the law of the sea in a relatively short period. In this respect valuable lessons could be learned from the drafting of the treaty on the law of the sea. One of the most important, we suggest, is avoiding the pitfall of using existing and known earthly concepts and definitions to explain and regulate activities and relationships in outer space. The particular and distinctive nature of and circumstances prevailing in outer space must be taken into account. Any legal arrangements concerning the establishment of settlements in outer space will of necessity be only preliminary as it can be expected that as the process unfolds and technology develops adaptations and amendments will have to be made, sometimes fairly rapidly. The current legal arrangements concerning the exploration and use of outer space contained in the relevant treaties are not much more than broad principles. The need for more detailed, clear and binding legal rules is evident, also with regard to the protection of the fundamental rights of individuals. The difficulties still encountered in defining certain key concepts (such as an *artificial island* and a *permanent establishment*)⁷⁹ in the application of the law of the sea might be instructive in this regard. Similar issues would without a doubt also form part of any endeavour to codify outer

⁷⁸ The legal position has developed substantially since the middle of the twentieth century (see in this regard Jacobini 1958 *J Pub L* 97) but is in urgent need of further clarification.

⁷⁹ See Galea *Artificial Islands in the Law of the Sea* 39-56; Stubbe Gelineck 2016 https://www.ibfd.org/sites/ibfd.org/files/content/pdf/bit_2016_04_int_3.pdf 1-11.

space law. The task at hand is technically and legally complicated and time is of the essence!

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List of Abbreviations

EJIL	European Journal of International Law
ICJ	International Court of Justice
IRRC	International Review of the Red Cross
J Br Interplanet Soc	Journal of the British Interplanetary Society
J Pub L	Journal of Public Law
Mich J Int'l L	Michigan Journal of International Law
NASA	National Aeronautics and Space Administration
ND L Rev	North Dakota Law Review
Polish YB Int'l L	Polish Yearbook of International Law