Cosmopolitan Approach to the Issue of Space Debris

Report

Nicol Svárovská

"We […] need new mechanisms to ensure accountability – the accountability of States to their citizens, of States to each other, of international institutions to their members and of the present generation to future generations."[1] (Kofi Annan, *In Larger Freedom*)

There has been a proliferation of discussions on climate change in the last couple of years. What has changed is the sense of urgency and the involvement of the public. Climate change has turned into an issue that concerns everyone, not only a small group of experts and scientists. Throughout the paper, the issue of space debris is treated as a part of the broader discussion about climate change and given equal attention.

If the chain reaction predicted by the Kessler syndrome theory ever began, we could imprison ourselves on Earth until we find a way to clean up the billions of pieces of space debris. Dreams of space travel might be set back centuries. We would also lose our space infrastructure and the technology we rely on every day. Dr. Kessler wrote a few years ago that not even the 25-year rule for debris removal after the end of life of spacecraft and the non-binding, voluntary rules adopted by COPOUS are sufficient; he expressed the opinion that debris will accumulate just because of collisions among existing debris.

There is a consensus among lawyers and scientists that the international community should introduce new methods and procedures to decrease the space debris build-up. The question is *how*, in which framework can the issue of space debris be tackled. The premise of this paper is that space debris pollution is an environmental issue which requires a *cosmopolitan* framework, embodied in the principle of Common but Differentiated Responsibilities (CBDR).

The origins of cosmopolitanism are in ancient Greece: when Diogenes Laërtius was asked where he was from, he said that he was a citizen of the world or the cosmos (*kosmou polite*). His answer reflected the source from which identity was constructed at the time: the city-state. This concept, elaborated on by the Stoics, was articulated in Hierocles' "circle model", in which an individual finds himself or herself in webs of compassion and obligation, expanding from family to community and, finally, to the whole world. The Renaissance and the Enlightenment articulated cosmopolitanism as planetary awareness among the European elites; the world was perceived as unity, creating a new sense of compassion for victims of the capitalist order. Immanuel Kant envisioned a cosmopolitan world order as a federation of states promoting international trade and abolishing

[1] United Nations, "A /59/2005," *Human Rights* 27078, no. March (2005).

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war; in *Perpetual Peace: A Philosophical Sketch* (1795), Kant speaks about humanity entering a universal community which means that if one violates laws in a certain part of the word, this violation is experienced everywhere.[2] Kant establishes *ius cosmopoliticum* (cosmopolitan law) as a foundation for global society to guarantee lasting peace.[3]

Kant's proposal towards peace was weaved into the architecture of the League of Nations as well as the contemporary United Nations. The ideal world order which would lead to global peace was resurrected after the cold war and after the two world wars. The International Criminal Court (ICC) introduced a new version of cosmopolitanism that transcends Kant's concept of 'cosmopolitan law'; it reflects the tendency of international law to weaken the postulate of state sovereignty or one's absolute subjection to the state and give people rights and responsibility under international law.[4] Global institutions such as the United Nations or the ICC respond to threats to our collective existence. This paper is built on the promise that just like the atomic bomb or global warming, space debris pollution poses a threat to the collective existence of humanity. Once upon a time, our environment was our village. The cosmopolitan thinking overcomes geographical boundaries: our world is no longer limited to our village; it extended to our city, our country, and, finally, the entire world. Being a citizen of the world stopped being a phrase. With the internet and other technological advances, we can be anywhere. Through actual or virtual presence, we can feel the pain of refugees on Manus Island or the joy of one of them, Behrouz Boochani, who after six hellish years finally obtained asylum. Together with Gadamer,[5] we can say that the hermeneutics of our understanding expands by moving in greater and greater circles; the next circle we should extend our consciousness to is that around our planet.

This "hermeneutic cosmopolitanism" resonates with Burke's notion of security cosmopolitism. Burke brings cosmopolitanism to the field of security, ranging from threats to the survival of humankind to global peace. According to Burke, cosmopolitanism could improve and create transnational institutions and norms and therefore has the potential to reduce and respond to such threats. If offers a framework within which states participate in solving global security problems. Security cosmopolitanism offers a reform of national as well as collective security policies. Burke understands global security as "a universal good", meaning that the security of all human beings and states is of equal importance. This logic results from the fact that all security actors make decisions with a global impact. Security cosmopolitanism is of key importance, given the number of states which continue to be sources of insecurity. In today's world, security challenges are omnipresent: climate change, forced migration, nuclear threats, armed conflicts, arms trade, the militarization of space, increase in robotic military technology, global terrorism. Those concerns are deeply interconnected and no state or organization can ignore them. In the light of these developments, Burke puts forward the argument that "the globalization of

[2] Barney Warf, "Cosmopolitanism and Space," *Geographical Review* 102, no. 3 (2012), https://doi.org/10.1111/j.1931-0846.2012.00151.x.

[3] Robert S. Taylor, "Kant's Political Religion: The Transparency of Perpetual Peace and the Highest Good," *Review of Politics* 72, no. 1 (2010): 1–24, https://doi.org/10.1017/S0034670509990945.

[4] Pauline Kleingeld and Eric Brown, "Cosmopolitanism," in *The Stanford Encyclopedia of Philosophy*, n.d.

[5] Hans-Georg Gadamer, "The Problem of Historical Consciousness," *Graduate Faculty Philosophy Journal 5:1*, n.d., 8–52.

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insecurity in such complex interconnected forms must be acknowledged and better understood, and requires both a change in state approaches and commitments, and serious efforts to extend and improve global security governance".[6] In order to do so, a normative agency critically reflecting the cosmopolitan approach is needed. Equally important in this regard is to transform the ontologies and narratives of security.[7]

Governance of global security serves the interests of powerful states. The concept of "collective security" is set up to protect the rich and powerful. It shines a light on the problematic nature of the state-centric collective security, reflected in the structure of the UN Security Council and states' approaches towards issues such as transnational terrorism, nuclear weapons, and climate change. Another issue arises when the concept of security and humanitarian protection is used to pursue geopolitical interests. Despite being mistaken for cosmopolitanism, such policies are not truly cosmopolitan.[8] "Globalized human existence", Burke argues, should be understood as "a networked set of interdependencies and obligations beyond all borders".[9] It is reflective of the view that our existence is constituted in relation to others, following Lévinas, Butler, Esposito, and Connolly. States share common experiences, such as climate change, and rely on the same global prices; they transit weapons to other countries and affect the lives of people on the other side of the globe. Burke speaks about a "common space of life and death that we have created".[10]

The ecological crisis, climate change – a cascade of irreversible damages – is the most alarming of all crises.[11] The atmosphere is borderless and climate change, whose effects on our security are massive, is a result of millions of daily actions in one's life, government, agriculture, and industry. Derrida and Esposito speak about "autoimmunization" which refers to an immune response threatening to – rather than protect – annihilate the social body.[12] Along those lines should be perceived the cascading damages predicted by the Kessler syndrome. It is time to extend the concept of cosmopolitanism to outer space, recognize the urgency of space debris pollution, and take collective action to safeguard the rights of both the present and future generations. Space debris pollution is an element of environmental degradation of and around our planet and it deserves attention equal to any pressing environmental issue humanity is facing. Just like marine pollution, Earth's orbit pollution is an environmental issue that manifests itself in cascading events.

Nuclear bomb poses a similar problem; nation states seeking security via nuclear threats turned into a threat to humankind as such. The nuclear threat is the ultimate autoimmunization, the deterrence logic

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[6] Anthony Burke, "Security Cosmopolitanism," *Critical Studies on Security* 1, no. 1 (2013): 14, https://doi.org/10.1080/21624887.2013.790194.

[7] Burke, 14.

[8] Burke, 15; Anthony Burke, Katrina Lee-Koo, and Matt McDonald, "An Ethics of Global Security," *Journal of Global Security Studies* 1, no. 1 (2016): 64–79, https://doi.org/10.1093/jogss/ogv004.

[9] Burke, "Security Cosmopolitanism," 17.

[10] Burke, 17.

[11] Anthony Burke, "Security Cosmopolitanism: The next Phase," *Critical Studies on Security* 3, no. 2 (2015): 192, https://doi.org/10.1080/21624887.2015.1065109.

[12] Burke, "Security Cosmopolitanism," 19.

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maneuvers at the brink of pre-emption and therefore irremediable disaster.[13] Günther Anders recognized the indifference of many towards the nuclear peril.[14] Among the few who fully understood the monstrous dimensions of the danger the humanity was facing was Albert Einstein. Anders was shocked by the lack of panic towards which he responded by the concept of "blindness to the apocalypse".[15] Similarly, states and private companies are blinded by national interests or financial gains while the public remains indifferent to the catastrophic implications of space debris pollution. Is it comparable, though? Can we compare space debris pollution or any environmental issue to apocalypse implied in the existence of the atomic bomb?

In answering this question, we will evoke Lindberg's concept of "technologies of the end of the world".[16] Just like the atomic bomb, global warming and, by extension, space debris pollution are technologies of the world's end. According to Lindberg, technologies of the world's end have the potential to annihilate the Earth. Bertrand Russell calls it "universal death". With regards to global warming, the 21st-century philosophers have to refer to the Intergovernmental Panel on Climate Change (IPCC) Assessment Reports. Without an alarming tone, the dry prose of the Assessment Reports uncovers the impact of the rise in global temperature on the world: the polar caps melting, sea level rising, extreme weather, shortage of water and soil resources, the disappearance of species, worsening of living conditions in the poorest regions, resulting in migration, among other issues. This paper reviews the literature predicting the dangers of space debris pollution and multiplication to both outer space and the Earth. Neither climate change / space debris nor nuclear war has ended the world; however, they have suffocated and annihilated certain elements of the world. Both climate change / space debris and atomic bomb raise the question of the world's end *through technology* since they confront us with the possibility of total annihilation of the world by human beings.

Sciences refrain from this sort of apocalyptic imagination. Imaging the end of the word is not on their agenda, it is a matter of metaphysics. The question of the end of the world is inherent to theologies, such as the apocalypses of Judaism and Christianity, and mythologies. The modern adaptation of such apocalyptic thinking is Lars von Trier's *Melancholia*. With the atomic bomb on one hand and global warming and space debris on the other, we are facing a different kind of apocalypse: it is no longer a fatal destiny imposed on the man from the outside, the end of the world is initiated and perpetuated by the man himself. Through technology. Unlike the spectacle of the atomic explosion, global warming progressively suffocates the planet and space debris progressively suffocates its orbit. Global warming slowly changes the world into a place that is inhospitable and ultimately impossible to live in. Space debris pollution changes the Earth's orbit into a place that becomes increasingly inhospitable and dangerous for space objects; if no collective action is taken to ameliorate the

[13] Burke, 19; Anthony Burke, "Nuclear Reason: At the Limits of Strategy," *International Relations* 23, no. 4 (2009): 506–29, https://doi.org/10.1177/0047117809348697.

[14] Günther Anders, "Die Antiquiertheit Des Menschen: Über Die Seele Im Zeitalter Der Zweiten Industriellen Revolution" 1 (1968): 353.

[15] Jason Dawsey, "After Hiroshima : Günther Anders and the History of Anti-Nuclear Critique," 2016, 150.

[16] Marcia Sa Cavalcante Schuback and Susanna Lindberg, *The End of the World: Contemporary Philosophy and Art* (Rowman & Littlefield Publishers, n.d.).

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situation, it will eventually become impossible for new space objects to be placed in Earth's orbit.[17] Both Lindberg and Burke put a great emphasis on our imagination. Whereas Lindberg underlines the necessity to imagine the consequences of our actions, the end of the world through technologies, Burke stresses that need to imagine the solution, saying that security cosmopolitanism is not going to happen, it has to be imagined and then created.[18]

Lindberg calls global warming a "technological fact"; even though global warming is not a system deliberately built by man. It can be regarded as a "technological fact" as it only exists because of human technological and industrial activity, as described in length by IPCC reports. Similarly, space debris pollution has a life of its own; despite not being deliberately created by man, it only exists due to technological and industrial activity. Contrary to the nuclear power that is concentrated in a single point, global warming reinvents the world into a network of intertwined forces rising from nature on one hand and technology on the other. Global warming conceptualizes the world as a space for all living things, not only humans. Global warming is a reaction to the technological and industrial activity of human beings; these natural processes would never have been triggered if it had not been for human activity. In return, the new natural process causes socio-political and technological responses that would not have come into existence without global warming (climate refugees, the "right to pollute" commerce or the carbon-neutral housing projects). Space debris pollution also results from the interaction between natural (space) and technological; it is a reaction to techno-industrial human activity. Conversely, the processes triggered by space debris cause socio-political and technological responses that would not have occurred without it. What once upon a time was nature has been reconfigured into "technonature" that is equally unpredictable and ambivalent as ancient *physis*. As opposed to Hiroshima and Nagasaki which were directly experienced by human beings, global warming and space debris have to be mediated through science and technology.[19]

The complexity of global warming dilutes the concept of guilt, personal responsibility, or existential crises (suffered from those who participated in the Manhattan Project). The scientists who are active in IPCC deal with a phenomenon that is abstract, imperceptible and so complex that it is impossible for one person to verify in its entirety the scientific aspects that lead to IPCC's conclusions. The origin of global warming is techno-industrial; the scientists who were contributors to global warming are not the scientists who focus on proving it exists. Correspondingly, the space debris scientists and researchers do not bear responsibility for its creation. The phenomenon of global warming or space debris pollution is so complex that one is unable to understand, be responsible, and take responsibility for it. Similarly, the science describing it has to be *collective*.[20]

[17] Lindberg.

[18] Burke, "Security Cosmopolitanism," 20.

[19] Lindberg, *The End of the World: Contemporary Philosophy and Art*.

[20] Lindberg.

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It is only logical that the responsibility for global warming and space debris pollution has to be collective as well. An individualistic approach, driven by national or commercial interests, is not sustainable from the long-term perspective. The only sustainable solution is built on *cosmopolitanism* in the original sense of the Greek *kosmou polite*, a citizen of the world or the cosmos, a citizen who is aware of the interconnectedness of today's world and understands the global implications of individual actions. The ultimate example is the invention of the atomic bomb, an action which has forever changed our world and ourselves; every person on this planet can be impacted by this invention that will never go anywhere. We – as humanity – are stuck with it until the end of time. The atomic bomb and other inventions responsible for fueling climate change and space debris pollution are the embodiment of Friedrich Nietzsche's concept of "eternal recurrence"[21] that is put into historical context by Milan Kundera:

„Putting it negatively, the myth of eternal return states that a life which disappears once and for all, which does not return, is like a shadow, without weight, dead in advance, and whether it was horrible, beautiful, or sublime, its horror, sublimity, and beauty mean nothing. We need take no more note of it than of a war between two African kingdoms in the fourteenth century, a war that altered nothing in the destiny of the world, even if a hundred thousand blacks perished in excruciating torment. Will the war between two African kingdoms in the fourteenth century itself be altered if it recurs again and again, in eternal return? It will become a solid mass, permanently protuberant, its inanity irreparable. […] [T]he idea of eternal return implies a perspective from which things appear other than as we know them: they appear without the mitigating circumstance of their transitory nature. […] In the world of eternal return the weight of unbearable responsibility lies heavy on every move we make."[22]

Kundera captured the essence of Nietzsche's concept of eternal return which lies in "unbearable responsibility" for one's actions. Both Lindberg and Burke capture the suffocating weight and impact one single action can have on the entire world and beyond. Whereas Lindberg focuses on the issue of responsibility and interconnectedness from the perspective of time, Burke puts greater emphasis on the perspective of space. While both perspectives are inseparable, the historical perspective reflects the concept of *inter*generational equity and the contextual perspective reflects the concept of *intra*generational equity. The invention of the atomic bomb, the rise of technologies and actions contributing to climate change and space debris pollution have to be assessed from a cosmopolitan perspective, taking into account both inter- and intragenerational equity, the rights of current as well as future generations. The impact of technologies of the end of the world is not only far-ranging but eternal, in Nietzsche's sense of the word. The atomic bomb will eternally return, we can say with Hegel, in its potentiality or actuality. The technologies of the end of the world cannot be uninvented. As

[21] Friedrich Nietzsche, *Also Sprach Zarathustra: Ein Buch Für Alle Und Keinen* (Germany: Ernst Schmeitzner, n.d.); Friedrich Nietzsche, *Die Fröhliche Wissenschaft*, 1882.

[22] Milan Kundera, "The Unbearable Lightness of Being" (Harper Perennial Modern Classics, 2009), 19–21.

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mentioned above, Einstein understood the immense responsibility such technologies bear to humankind and Anders could not understand the indifference of the public towards issues that deeply concerned every individual on this planet. The cosmopolitan approach attaches new sensitivity to universal or global issues, issues towards which people learned to be desensitized; furthermore, it encourages every individual and every state to reclaim their responsibility to and engagement with such issues. No matter the nationality of the scientists who invented a technology with a potentially global impact, the invention at stake concerns humanity as a whole since its impact stretches across space and time and concerns all the living as well as the unborn.

In this regard, the CBDR principle is the embodiment of cosmopolitanism as it stretches responsibility across space and time. There is a need to evolve a legal regime for debris mitigation,[23] a regime that would follow Kyoto Protocol and the CBDR principle.[24] The CBDR principle is perfectly applicable to the current space debris pollution, which is an environmental problem on a global scale. States which only recently initiated their space activities or which are about to, face environmental degradation for which they bare no responsibility but whose consequences they have to deal with. These negative consequences pose an obstacle to future space missions. A way forward in the context of space debris pollution, which would achieve equity, would be for States which are responsible for having created space debris pollution over the years to work towards cleaning up debris, for instance by active debris removal. This solution is in accordance with the perspective which was expressed in COPUOS – "mitigation of existing debris should take into consideration the principle of [CBDR]"[25] – while the future debris creation should be avoided by the adoption of space debris mitigation measures.[26]

Together with Burke, we underline the need to create a global society system, enabling universal human security, and the importance of states and security actors to behave responsibly with regards to future generations and sustainability of the global ecosystem. Burke's revisioned cosmopolitanism acknowledges that pursuing universal values and global ends is determined by the transformation of states and international law, by reconfiguration of power and cooperation for tackling global issues.[27] The nuclear bomb and climate change are just two instances of the way our collective decisions determine the potential of future generations' security. To this end, Burke speaks about a "global categorical imperative", refining Kant's categorical imperative as follows: "act as if both the principles and consequences of your action will become global, across space and through time, and act only in ways that will bring a more secure life for all human beings closer".[28] In other words, governments, international organizations, and other international actors must act as if their actions have a global impact (as they are very likely to). The global categorical imperative puts actions into a perspective of their global

[23] Joseph N Pelton, *SPRINGER BRIEFS IN SPACE DEVELOPMENT New Solutions for the Space Debris Problem*, n.d., 69–81.

[24] S. Prasad Gopalakrishnan, V., "SPACE DEBRIS REMEDIATION- COMMON BUT DIFFERENTIATED RESPONSIBILITY" 13, no. E7.4.8 (2013): 11.

[25] UN doc. A/AC.105/891, para. 27

[26] Peter STUBBE, "Common but Differentiated Responsibilities for Space Debris – New Impetus for a Legal Appraisal of Outer Space Pollution," *European Space Policy Institute*, no. 31 (2010): 5–10.

[27] Anthony Burke, "The Good State, from a Cosmic Point of View," *International Politics* 50, no. 1 (2013): 57–76, https://doi.org/10.1057/ip.2012.28.

[28] Burke, "Security Cosmopolitanism," 22–23.

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consequences and causalities. It asks the security actors to look into and take responsibility for the future. The global categorical imperative demands us to assess pain, fear, radicalization – resulting from insecurity, violence, and conflict – against their future multiplications and mutations. The proliferation of ideas, doctrines, weapons constitutes the long-term security concern.[29]

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[29] Burke, 23.

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