**Promoting Peace and Security** 

# **Horizon Insights**

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Iran: The Beginning of a Feminist Revolution

South Sudan's vulnerability to floods

Increased Militarisation of Space - A New Realm of Security

Book Review: Nomad Century: How to Survive the Climate Upheaval Beyond the Horizon International Strategic Studies Group (BtH) is an independent next-generation think & do tank in Belgium. BtH aims to promote glocal (global & local) peace and security by its strong in-house capacity and extensive network of partners throughout the world.

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#### Foreword

#### Dear Reader,

We are happy to be with you in this last issue of 2022. We again had to make hard choices in selecting the articles to make it to the journal. The Russian invasion of Ukraine and its repercussions on the global geopolitical landscape are hard to escape. Yet, our preference to keep important issues alongside the war in Ukraine pushed us to make a selection, that you will judge on its soundness while going through the journal.

As became tradition, this issue also brings deep insight into three different issues of our select. The first article is in fact a reminder or more precisely a policy brief that evaluates the latest protests in Iran. Clearly different in both composition and reciprocity within Iranian society, the protests will leave their mark in the history of modern Iran. The authors attracting attention to these two aspects, reflect what really happens in Iran and their potential of success in their demands for regime change.

The second article is about global climate change and how this phenomenon is faced by some of the poorer countries, lacking necessary coping mechanisms and resources. Drawing attention of the audience to the link between natural disasters and societal developments, the author showcases South Sudan to make his point. Accordingly, having experienced its fourth year of record-breaking rainfalls, directly affecting over 900.0000 people and flooding two-thirds of the country as of October 2022, South Sudan was also labeled as a pressing humanitarian crisis by World Bank in 2022 due to its political instability and poverty. The author operationalises Wisner et al.'s Pressure and Release Model (PAR) to identify the factors that make certain people vulnerable to hazards. This makes it possible to address those issues, increasing these peoples' safety and security.

The third and the last article tackles issues revolving around increased militarization of space. Already a new war-fighting domain, space becomes a target for many nations to develop and test sophisticated space capabilities, including kinetic and non-kinetic weapons. Although a conventional war in space is not expected, the stakes are high as the world has grown increasingly reliant on the information and connectivity that the military, civil, and commercial space systems provide, creating new realms of vulnerability. The article drawing attention to the weaknesses in the existing legal framework posits the UN General Assembly, the Open-Ended Working Group might potentially decrease further space tensions.

Finally, we have a review of Gaia Vince's book « Nomad Century: How to Survive the Climate Upheaval » made by the author herself. The author drawing attention to the estimation that over the next fifty years, hotter temperatures combined with more intense humidity will make large swathes of the globe lethal for 3.5 billion people, concludes we will be among them, or we will be receiving them. To manage or survive, she posits, a planned and deliberate migration of a kind humanity will be necessary. A planned, managed, peaceful transition to a safer, fairer world. Accordingly, with international cooperation and regulation, we could and should make the Earth liveable.

Sincerely yours, Beyond the Horizon ISSG

## Iran: The Beginning of a Feminist Revolution

#### by Mats Radeck<sup>\*</sup> and Avin Khodakarim<sup>\*\*</sup>

For about four weeks, the people of Iran have been taking to the streets and were met by the extraordinary force of the Islamic regime. Often, these protests are dealt with in a limited way either called "hijab protests" solely demanding less strict clothing rules for women or brushed aside by Western media completely. However, the current protest movement deserves more attention considering that we are likely witnessing the beginning of a feminist revolution.

#### Background

- On September 16, Mahsa (Jina) Amini, a young Kurdish woman of 22 years died in police custody after having been arrested by the morality police in Tehran three days earlier for an alleged incorrect wearing of her hijab. The ministry of the interior announced an investigation of what Amnesty International called an "arbitrary arrest."<sup>1</sup> Government voices claim Amini has died due to medical conditions. Her family denies these allegations.<sup>2</sup> The arrest of journalist Niloofar Hamedi,<sup>3</sup> known for publishing evidence from the hospital, underscores this.
- Amini's death sparked protests all over the country starting in Amini's hometown of Saqez, the capitol of the Iranian province of Kurdistan. Many protestors carried pictures of Amini, took off their hijabs and cut their hair as acts of protest. Since mid-September, the protests have not died down, but instead sustained and grew. At least 201 people have been killed by security forces in the nationwide protests, with underreporting being likely.<sup>4</sup>
- The protests are notably organised and led by women.<sup>5</sup> Although emphasising the message of women's self-determination by, for instance, the popular slogan "women, life, freedom," the protests extend beyond that and challenge the legitimacy of the regime as a whole.
- On September 21, the Iranian regime restricted internet access in the country after shocking images of the protests appeared on social media.<sup>6</sup> The internet shutdown also targets media platforms like Instagram or WhatsApp hindering the flow of information between protestors, and between Iran and the rest of the world which impedes reporting and the organisation of protests. The restriction of internet access had been used to cover up protests by the Iranian regime in the past and has been serving as a tool for regime survival.<sup>7</sup>
- On September 30, security forces shot down protests in the Zahedan, Sistan and Baluchistan provinces in Southern Iran, killing at least 41 people. Iranian human rights groups have termed the incident "bloody Thursday" and accused the regime of crimes against humanity.<sup>8</sup>
- 70 percent of Iran's population is under the age of 30 making students a significant part of the protests. Aimed at intimidation, students and staff members of the elite Sharif university in Teheran, as well as other universities, were attacked by security forces on campus starting on October 2.<sup>9</sup> According to eyewitnesses, the police has also not refrained from using sharp ammunition. In rapid succession, the protests expanded to universities and high schools all over Iran.<sup>10</sup>
- Starting on October 9, security forces cracked down on the protests in the Kurdish-populated city of Sanandaj.<sup>11</sup> Using violence indiscriminately,<sup>12</sup> the police killed at least 5 people and injured more than 400.
- Iranian leader Ayatollah Khamenei played down the protests by calling them riots that have been orchestrated by external actors like the US and Israel.<sup>13</sup> Iran's leadership called for "decisive actions".<sup>14</sup> In an attempt to change the narrative of the protests, the regime has organised counter-protests exhibiting support for the theocratic establishment.<sup>15</sup>
- Several international governments have condemned the regime's line of action. The EU and the US are
  expected to tighten their sanctions regime on Iran.<sup>16</sup> In several cities across the world, people have protested to express their solidarity with the people in Iran.<sup>17</sup>

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#### Analysis

#### 1. Apparent Similarities to Earlier Protests

Iran has a history of revolutions, protests and discontent. When assessing the recent protests, one might be reminded of the country's past. In 1979, Ayatollah Ruhollah Khomeini led a revolution from exile in Paris. Supported by Islamist and leftist factions, Khomeini ultimately managed to overthrow the autocratic rule of Shah Mohammad Reza Pahlavi and established himself as the Supreme leader of the country. Welcomed back in Tehran by cheering crowds, Khomeini initially spread hope for the country to overcome its history of political disappointment, shaped by disadvantageous concessions, repression, and economic distress. Yet, the theocratic regime he tried to establish created as many grievances and challenges. To consolidate the power of the Islamic establishment, the regime attempted to eliminate political dissidents. In a shocking practice of political cleansing, leftists, mujahideen, and neutral intellectuals were either killed, exiled or arrested. This process culminated in the mass executions of 1988 killing more than 3800 people.<sup>18</sup> In a modified form, this practice of regime consolidation is still being followed today.

Throughout its history, the Islamic Republic has been ridden by discontent. Especially students and young people have repeatedly called for reform. In 1999, university students protested a decision to prohibit a reformist newspaper, yet the regime reacted with enormous force, a pattern of regime survival tactic which can be traced throughout Iran's history.<sup>19</sup> Using militias, the authorities raided student dormitories and killed and arrested students. The protests extended beyond campus turning into the biggest popular challenge to the regime until then. The protests today are to a great extent carried by students as well, bringing back memories of 1999.

In 2009, the so-called Green Movement, also referred to as Persian Awakening in Western media grew into the biggest series of mass demonstrations in Iran until today. After opposition candidate Mir Hossein Mousavi, who was considered a reformer, lost the presidential election to the conservative hardliner Mahmood Ahmadinejad, tens of thousands of people took to the streets to express their discontent and call for a recount of votes. "Where is my vote?" was the motto of the Green Movement protests which blamed the elections fraudulent.<sup>20</sup> Similar to today's protests, the regime reacted by force and organised counter-demonstrations.<sup>21</sup> Eventually, the movement, however, lost momentum.

Ten years later, a hike in the price of gasoline of up to 200% sparked renewed civil upheaval which soon challenged the regime as a whole. Besides the known patterns employed as a response, the regime shut down the internet for six days causing the flow of news about the protests to be disturbed.<sup>22</sup> Further, internet platforms such as Facebook or Instagram are crucial for information gathering and protest organisations. The tactic is also employed in the recent protests leading to the scant availability of data.

Thus, the recent protests seem to exhibit similarities with former uprisings, both in narratives employed and regime responses. However, such a comparison is arguably a bit erroneous. The scope of the protestor's demands and several distinctive factors still differ.

#### 2. Grievances Beyond Hijab Rules: What is Different in Today's Protests?

The recent protests exhibit some similarities with former big protest movements in Iran. However, these alleged similarities are, in general, overridden by the major differences that exist. First and foremost, while the people used to call for reforms to the country and the theocratic regime in earlier uprisings, the recent protests have turned into a question of survival. As often repeated, the protests are not only about relaxing hijab rules or demanding an independent investigation of Mahsa Amini's death. Chants like "Down with the Islamic Republic" are what is heard across Iran. The survival of the theocratic regime as a whole is at stake and the enormous vehemence of the protests has shown that its fall is high on the people's agenda.

Second, the protests can hardly be demographically classified. People of different ages and different social groups can be seen to have mobilised signalling broad solidarity between segments of society and a broad support base for the protests.<sup>23</sup> This includes wealthier segments that would have not taken to the streets in earlier protests about economic grievances.<sup>24</sup> Further, this protest is in great parts carried out by young Iranians, many of which have never experienced life under any regime else than the current one. Besides, different ethnic groups close ranks on the streets and university students are joined by workers and trade unions.<sup>25</sup> Especially the latter group holds great symbolic power reminding of the collective worker's actions that once helped to bring down the Shah in 1979.<sup>26</sup> Notable is the strike of workers in oil refineries,<sup>27</sup> posing a real challenge to the regime economically and symbolically.

Although garnering supported by a broad social base, the role women play in this movement is noteworthy.<sup>28</sup> From the beginning, women have been leading the protests marching in the first row of protest masses and being most vocal in their calls upon the regime. Especially in high schools and universities, the crucial role that women play in fuelling and sustaining these protests is easily observable. Besides their revolutionary nature, demanding fall of the theocratic regime, the protests are also of feminist nature, denouncing the structural oppression of women by a misogynist regime.<sup>29</sup>

Third, the protests are intersectional countering various levels of discrimination. Especially Kurds and the Kurdish

question have moved to the epicentre of the protests.<sup>30</sup> Besides being a Sunni woman, Mahsa Amini was one of the 10 % of Kurds living in Iran, being called by her Kurdish first name Jina. The protests started in Saqez on the day of her funeral and quickly spread to the whole of Iran. Yet, they have remained especially fierce within the Kurdish provinces in Northern Iran. The chant voiced by protesters: "women, life, freedom" once originated in the Kurdish independence movement and again highlights especially the centrality of Feminism and the Kurdish identity in the protests. It is arguably also the reason why the Iranian regime has been acting especially harsh in cracking down on the protests in the Kurdish region, including the massive use of live ammunition and <u>drone</u> attacks, as well as shelling of Kurdish homes, also in neighbouring Iraq.<sup>31</sup> Hence, the death of Mahsa Amini has become a symbol of anti-Kurdish discrimination, the oppression of women, and the maltreatment of Sunnis by the Shi'ite regime, all together emphasizing the intersectionality of the movement.

Fourth, the protests have sparked solidarity worldwide.<sup>32</sup> While earlier protests like the Green Movement have only set off sporadic rallies abroad, demonstrations can now be witnessed in many cities. Noteworthy is also the impact of social media. Whoever uses platforms like Instagram or Twitter currently can hardly get around videos, pictures and texts that are being shared about the situation in Iran, given that these make it past the strong internet control set up by the regime. Particularly, the Iranian diaspora is more networked than ever, fuelling the protests from abroad.<sup>33</sup> Needless to say, the social media sphere can only support, not replace protests.<sup>34</sup>

Altogether, this demonstrates how the current protests in Iran are different from what the country has experienced before. Since former protests hardly provide comparativist value, it is pivotal to closely observe and analyse the movement.

#### 3. Prospects for Iran: Survival of the Authoritarian Regime or a Feminist Revolution?

The situation in Iran is chaotic. With the internet having been massively restricted, analyses are difficult as information hardly manages to exit the country and comprehensive media coverage is missing. The latter is also due to the lack of press freedom in Iran in general.<sup>35</sup> However, much of the data that makes it out, can be found on social media platforms like Instagram and Twitter where accounts like @1500tasvir share it.<sup>36</sup> By using first-hand video material of the protests, secondary sources, and drawing on theories of regime survival and protest movements, an impression of the bloody polarity that plays out between protestors and the Mullah regime on the streets of Iran can be inferred.

The response of the regime has been harsh. While the protest movement grows, the regime responds through two notable tactics: Strict state control of the narrative and coercion. First, the regime claims foreign forces to be responsible for the protests and the violence and, therefore, calls upon the people to maintain national unity and fight against the unrest.<sup>37</sup> This tactic also includes the organisation of counter-demonstrations aimed to signify the size of support that the Islamic regime enjoys.<sup>38</sup> However, this tactic has arguably failed. When President Raisi visited the Women's University Alzahara on October 8 to produce pictures of reconciliation and repeat the claim of foreign agents being responsible for the protests, women took off their hijab and chanted "murderer" in the direction of Raisi.<sup>39</sup> The narrative that the regime attempts to establish is hardly believed and therefore crumbles, showing how one of the major tactics of regime survival has failed.

Second, however, the regime has massive power of coercion at its disposal. Videos on social media serve as evidence of the violence that is leveraged to contain the protests. So far, this tactic has caused hundreds of deaths and certainly spreads fear. Aiming to end the protests, the regime has ratcheted the scope of its response using the full spectrum of coercion including lethal force, live ammunition, drones, rockets and torture. Such comprehensive coercion mechanisms have contained protests in the past in other countries and blighted revolutions. Also in Iran, coercion has supported regime survival.

Videos demonstrate how the regime uses both indiscriminate and selective violence. While indiscriminate violence can spread fear and raise protestors' inhibition threshold to join on the streets, selective violence is also used by the regime to, for example, hinder the protest movement to carve out leadership figures which would arguably heighten the chance of the protests to turn out successful. An example of this is the case of Shervin Hajipour, a singer who published a song based on "outpouring public anger."<sup>40</sup> The song went viral and turned into an anthem of the protests. After his song hit 40 million views in less than two days, it was removed from Instagram and Hajipour was arrested and detained. The use of selective violence is nothing new in Iran and has been practised as a modus operandi for regime survival ever since.

The use of coercion is contingent on the support of the coercive institutions connected to the regime. With officers of the army pre-emptively refusing to use violence against protestors,<sup>41</sup> and police officers seen joining protest marches,<sup>42</sup> this support, however, can increasingly be questioned. Yet, these signs should not be overstated, considering that authoritarian regimes often secure themselves from internal coups through multiple coercive institutions. Similarly, the Iranian regime commands the Islamic Revolutionary Guards Corps intended to secure the survival of the Islamic regime.<sup>43</sup> If the military decided to close ranks with the protestors, bloody fights could follow of which the outcome is uncertain.

The incidents showcase how the regime's survival tactics are not fully working out to quickly and decisively contain the protests. Furthermore, the protestors still have at least three cards up their sleeve which will affect the protests' success. First, the protestors' collective action will likely reach a critical mass at which regime resistance

#### 4 👸 Mats Radeck and Avin Khodakarim

becomes increasingly difficult.<sup>44</sup> The fact that people risk their lives to stand up for their demands showcases the fundamental interests which the people have in the success of their protests. The heterogeneity and broadness of the support base even increase this effect on the collective action and raises the pressure exerted on the regime. This effect will likely increase in the future with more people jumping on the bandwagon as the likelihood of the overall success of the protest rises.

Furthermore, the protestor's tactics are promising and support the thesis of successful protests. These include, besides others, two things. Protestors thwart the regime's coercive capabilities by enticing the police away from certain protest sites. This is being done by attacking police stations directly which concentrates police forces at one site while being forced to neglect others.<sup>45</sup> Furthermore, with fast-moving tactics, the protestors manage to repel police forces and breach through police lines and, though unarmed, overwhelm the coercive apparatus of the state in parts.<sup>46</sup> Such tactics have shown to be key moments for the initially successful protest movements in the Egyptian Arab Spring.<sup>47</sup> A respective comparison thus increases the likelihood of success of protestors in Iran as well.

Moreover, international support is clearly on the side of the protestors who stand up towards an oppressive regime. Considering how international sanctions have already wracked havoc on Iran in the past,<sup>48</sup> the regime also puts its economic well-being at stake when increasing coercion against its people. While fighting on its domestic front against its people, pressure on the regime also increases from the diplomatic sphere.

An overview of the situation in the Iranian protests, therefore, gives an impression of imbalance with the protestors developing slight advantages over the regime forces, which will likely even increase in the future. Given the nature of the protests' support group and their demands, the movement is likely to become a feminist revolution about to heavily challenge the Islamic regime.

#### Conclusion

The Iranian people have now been taking to the streets for the fourth consecutive week and the protest against the Islamic regime is not seen to die down. While earlier protest movements, like the Green Movement, have still been asking for reform, the current protests have abandoned this approach and now demand systemic change including the abolishment of the regime in its current form. This factor is one of the differences which make today's protest movements distinct from earlier ones. Furthermore, especially the central role of women is noteworthy assigning the whole protest a feminist nature.

The regime is seen to respond with narratives of blaming external actors, as well as extraordinary force. However, the broad support base for the protests does neither allow believing the constructed accusations nor is it discouraged by the coercive tactic of the regime. This shows how the regime struggles to contain the protest movement.

Furthermore, the growing protests are likely to reach a critical mass soon, and the diverse civil society will address an increasingly weakened regime. The protestors' fast-moving tactics and their capability to push back police forces even increases the likelihood of success. Lastly, the protestors are backed by the international community which has the ability to weaken regime representatives economically.

The positive foresight sketched here is susceptible to being upended by the coercive capability of the revolutionary guard corps and their strong bonds to the regime. Furthermore, the protest movement still lacks leading figures to bundle ambitions. Yet, these risks do not totally preclude the possibility of the protests to turn into a revolution.

To support the protests in Iran, announcement of new sanctions can be an option for European governments and the European Union.<sup>49</sup> These should be targeted at regime representatives rather than general Iranian society. Those could include denial of entry to the EU for regime top officials, confiscation of their assets in European bank accounts. Furthermore, the EU could facilitate entry for ordinary Iranians and stop deportations to Iran. This way, the EU would show solidarity with the protestors and underline a serious stance against the brutality of the regime.

#### **Endnotes**

1 "Iran: Deadly Crackdown on Protests Against Mahsa Amini's Death in Custody Needs Urgent Global Action." Human Rights Watch, September 21, 2022. <u>https://www.amnesty.org/en/latest/news/2022/09/iran-deadly-crackdown-on-protests-against-mahsa-aminis-death-in-custody-needs-urgent-global-action/</u>.

2 Wintour, Patrick. Weronika Strzyżyńska, and Agencies. 2022. "Head of Iran's Morality Police Reportedly Suspended Amid Protests." The Guardian, September 19, 2022. <u>https://www.theguardian.com/world/2022/sep/19/mahsa-amini-iran-protests-enter-third-day-after-kurdish-womans-death-in-custody?CMP=firstedition\_email</u>.

3 Hafezi, Parisa. 2022. "Iranian Journalist Who Broke News on Mahsa Amini Pays Heavy Price." *Reuters*, October 11, 2022. <u>https://www.reuters.com/world/middle-east/iranian-journalist-who-broke-news-mahsa-amini-pays-heavy-price-2022-10-11/</u>.

4 Iran Human Rights. Accessed October 10, 2022. https://iranhr.net/en/.

5 Graham-Harrison, Emma, and Akhtar Mohammad Makoii. 2022. "Women Are in Charge. They Are Leading' Iran Protests Continue despite Crackdowns." The Guardian. October 2022. <u>https://www.theguardian.com/</u> world/2022/oct/01/women-are-in-charge-they-are-leading-iran-protests-continue-despite-crackdowns.

6 Shelton, Tracey. 2022. "Internet Restricted in Iran as Protests Spread." ABC News, September 22, 2022. https://www.abc.net.au/news/2022-09-22/internet-restricted-in-iran-as-protests-spread/101464480.

7 Mohades, Esmail. 2022. "UN Human Rights Experts Have Raised Concerns Regarding Internet Restriction in Iran | Supporters of MEK Iran." Supporters of the People's Mojahedin Organization of Iran (MEK/PMOI). March 8, 2022. <u>https://mek-iran.com/2022/03/08/un-human-rights-experts-have-raised-concerns-regarding-internet-restriction-in-iran/</u>.

8 "Iran Protests: Death Toll Rises to 133/40+ Killed in Zahedan's "Bloody Friday." 2022. *Iran Human Rights.* October 2, 2022. <u>https://iranhr.net/en/articles/5506/</u>.

9 2022. "Mit Gewalt gegen Studierende." 2022. *TAZ*, accessed October 10, 2022. <u>https://taz.de/Feminis-tischer-Protest-im-Iran/!5885152/</u>.

10 Hein, Shabhan von. 2022. "Iranian Students Stand up to Regime" *Dw.com*. October 6, 2022. <u>https://www.dw.com/en/iranian-students-stand-up-to-regime/a-63349413</u>.

11 "Iran Protests: Sanandaj Becomes Latest Killing Zone amid Worsening State Violence." 2022. *Center for Human Rights in Iran*. October 10, 2022. <u>https://iranhumanrights.org/2022/10/iran-protests-sanandaj-be-comes-latest-killing-zone-amid-worsening-state-violence/</u>.

12 Gritten, David. 2022. "Iran Protests: Alarm at Crackdown by Security Forces in Kurdish City." *BBC News*, October 11, 2022, sec. Middle East. <u>https://www.bbc.com/news/world-middle-east-63218965?at\_medi-um=RSS&at\_campaign=KARANGA</u>.

13 "Recent Riots in Iran Orchestrated by US, Israeli Regime." 2022. *Mehr News Agency*. October 3, 2022. <u>https://en.mehrnews.com/news/192053/Recent-riots-in-Iran-orchestrated-by-US-Israeli-regime</u>.

14 "Iran Pledges 'Decisive Action' as Mahsa Amini Protests Continue." 2022. *Aljazeera*. September 25, 2022. https://www.aljazeera.com/news/2022/9/25/iran-vows-decisive-action-as-mahsa-amini-protests-continue.

15 Motamedi, Maziar. 2022. "Iran's Pro-Government Counter-Protesters Try to Change Narrative." *Aljazeera*. September 25, 2022. <u>https://www.aljazeera.com/news/2022/9/25/iran-organises-counter-demonstra-</u> <u>tions-as-protests-continue</u>.

16 "Germany, Others in EU Plan Iran Sanctions over Protests Clampdown -Source." 2022. *Euronews*. October 4, 2022. <u>https://www.euronews.com/2022/10/04/iran-women-eu-sanctions</u>; Collins, Kaitlan. 2022. "US Response to Iran Protests Expected to Include New Sanctions on Those Directly Involved in Crackdown." *CNN*. October 4, 2022. <u>https://edition.cnn.com/2022/10/04/politics/white-house-iran-response/index.html</u>.

17 "Iran: Worldwide Solidarity with Protests" *DW.com.* 4, 2022. <u>https://www.dw.com/en/iran-world-wide-solidarity/g-63328166</u>.

18 Payar, Farhad. 2018. "Massenhinrichtungen Im Iran Vor 30 Jahren: Ein Dunkles Kapitel Der Iranischen Geschichte - Qantara.de." *Qantara.de*. September 11, 2018. <u>https://de.qantara.de/inhalt/massenhinrichtungen-im-iran-vor-30-jahren-ein-dunkles-kapitel-der-iranischen-geschichte?nopaging=1</u>.

19 Gorgin, Iraj. 2008. "Looking Back at Tehran's 1999 Student Unrest." RadioFreeEurope/RadioLiberty. July 9,

6 🔊 Mats Radeck and Avin Khodakarim

2008. https://www.rferl.org/a/Iran\_Student\_Protests/1182717.html.

20 Athanasiadis, Iason. 2009. "Iran Protest Biggest since Revolution." *The Washington Times*. June 16, 2009. <u>https://www.washingtontimes.com/news/2009/jun/16/iran-protest-biggest-since-revolution/</u>.

21 Black, Ian. 2009. "Ahmadinejad Wins Surprise Iran Landslide Victory." *The Guardian*. June 13, 2009. <u>https://www.theguardian.com/world/2009/jun/13/iran-election-ahmadinejad-wins-president;</u> *BBC*. 2009. "Crowds Join Ahmadinejad Victory Rally," June 14, 2009. http://news.bbc.co.uk/2/hi/middle\_east/8099501.stm.

22 "Internet Disrupted in Iran amid Fuel Protests in Multiple Cities." 2019. *NetBlocks*. November 15, 2019. <u>https://netblocks.org/reports/internet-disrupted-in-iran-amid-fuel-protests-in-multiple-cities-pA25L18b</u>.

23 Senz, Karin. 2022. "Iran: Wie Breit Sind Die Proteste Gegen Das Regime?" *Tagesschau.de.* October 3, 2022. https://www.tagesschau.de/ausland/asien/iran-proteste-uni-teheran-101.html.

24 Ebrahim, Nadeen. 2022. "What You Need to Know about Iran's Raging Protests." *CNN*. September 26, 2022. <u>https://edition.cnn.com/2022/09/26/middleeast/iran-protests-explainer-mime-intl/index.html</u>.

25 Daragahi, Borzou. 2022. "Iran Energy Workers Strike in Support of Anti-Regime Protesters." *The Independent*. October 10, 2022. <u>https://www.independent.co.uk/news/world/middle-east/iran-protests-petrochemicals-khamenei-mahsa-amini-b2199513.html</u>.

26 Hermann, Rainer, and Eckart Lohse. 2022. "Proteste in Iran: Gewaltbereitschaft Nimmt Zu." *FAZ.NET*, October 9, 2022. <u>https://www.faz.net/aktuell/politik/ausland/proteste-in-iran-gewaltbereitschaft-nimmt-zu-18374760.html</u>.

27 Fazeli, Yaghoub. 2022. "Workers at Iran's Largest Oil Refinery Go on Strike amid Anti-Government Protests." *Al Arabiya English*. October 11, 2022. <u>https://english.alarabiya.net/News/middle-east/2022/10/11/Workers-at-Iran-s-largest-oil-refinery-go-on-strike-amid-anti-government-protests</u>.

28 "Iran Protests - Leading Role of Women's Resistance Units." 2022. *NCRI Women Committee*. October 9, 2022. <u>https://women.ncr-iran.org/2022/10/09/iran-protests-leading-role-women/</u>.

29 "Beyond the Veil: Discrimination against Women in Iran" 2019. *Minority Rights Group*. September 16, 2019. <u>https://minorityrights.org/publications/beyond-the-veil-discrimination-against-women-in-iran-english-and-persian/</u>.

30 Senz, Karin. 2022. "Die Kurdischen Minderheit Befeuert Die Proteste Im Iran." *Tagesschau.de*. October 7, 2022. <u>https://www.tagesschau.de/ausland/asien/iran-kurden-amini-101.html</u>.

31 Safi, Akhtar. 2022. "Revolutionary Guards Deploy Forces to Iranian Kurdistan as Crackdown Intensifies." *Iranwire*. October 11, 2022. <u>https://iranwire.com/en/politics/108498-revolutionary-guards-deploy-forces-to-iranian-kurdistan-as-crackdown-intensifies/</u>.

32 "Iran Solidarity Protests around the World" 2022. *Dw.com*. October 9, 2022. <u>https://www.dw.com/en/iran-solidarity-protests-around-the-world/video-63385494</u>.

33 Khodakarim, Avin. 2022. "Die Neue Revolution." *TAZ.* October 08, 2022. <u>https://taz.de/Demonstra-tionen-im-Iran/15884279/</u>.

34 Khalaji, Mehdi. 2022. "Social Media in Iran's Protests: A New Public Sphere?" *The Washington Institute*. October 6, 2022. <u>https://www.washingtoninstitute.org/policy-analysis/social-media-irans-protests-new-public-sphere</u>.

<sup>35</sup> "Iran: Press Freedom Violations Recounted in Real Time January 2022."2022. Reporters Without Borders. Accessed October 10, 2022. <u>https://rsf.org/en/iran-press-freedom-violations-recounted-real-time-january2022</u>.

36 1500tasvir (@1500tasvir). 2022. Instagram Feed, accessed October 10, 2022. <u>https://www.instagram.</u> com/1500tasvir/

37 "Aufstand Im Iran." 2022. Weltspiegel. October 11, 2022. https://www.youtube.com/watch?v=osIYiGSQ5fw.

38 Motamedi, Maziar. 2022. "Iran Organises More Counter-Demonstrations as Protests Continue." Aljazeera. October 5, 2022. <u>https://www.aljazeera.com/news/2022/10/5/iran-organises-more-counter-demonstrationsas-protests-continue</u>.

Hermann, Rainer, and Eckart Lohse. 2022a. "Die Kinder Fressen Ihre Revolution." FAZ.NET, October 9, 2022. https://www.faz.net/aktuell/politik/ausland/proteste-in-iran-gewaltbereitschaft-nimmt-zu-18374760.html.

40 "Iranian Singer Accused of Spreading Anti-Government Propaganda." 2022. RadioFreeEurope/RadioLiberty.

October 11, 2022. https://www.rferl.org/a/iran-singer-hajipour-charged/32075550.html.

41 Manotooofficial (@manotooofficial). 2022. Instagram Video, October 2, 2022. <u>https://www.instagram.com/tv/CjNhRl2K1MG/</u>.

42 Esmaili, Bamdad (@bamad\_esmaili). 2022. Instagram Video, Oktober 9, 2022. <u>https://www.instagram.com/p/Cje7\_sjr44U/</u>.

43 "The Birth of a New Class." 2010. Aljazeera. April 22, 2010. <u>https://www.aljazeera.com/news/2010/4/22/</u> the-birth-of-a-new-class.

44 Oliver, Pamela E., and Gerald Marwell. 1988. "The paradox of group size in collective action: a theory of the critical mass. II." American Sociological Review (1988): 1-8.

45 1500tasvir (@1500tasvir). 2022. Instagram Video, September 30, 2022. <u>https://www.instagram.com/reel/</u> <u>CjIhy07qIPd/?utm\_source=ig\_web\_copy\_link</u>.

46 1500tasvir (@1500tasvir). 2022. Instagram Video, October 8, 2022. <u>https://www.instagram.com/reel/Cjc3idnKLC0/?utm\_source=ig\_web\_copy\_link</u>.

47 Ketchley, Neil. Egypt in a Time of Revolution. 2017. Cambridge: Cambridge University Press. <u>https://doi.org/10.1017/9781316882702</u>.

48 "The Impact of Sanctions." 2013. Iranwatch. February 6, 2013. <u>https://www.iranwatch.org/ourpublications/</u> roundtable/impact-sanctions.

49 "EU Agrees to Sanction Iran over Protests Crackdown." 2022. Dw.com. October 12, 2022. <u>https://www.dw.com/en/eu-agrees-to-sanction-iran-over-response-to-jina-mahsa-amini-protests/a-63420000</u>.

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#### 1. Introduction

Climate change is a global phenomenon, but its negative impact mainly affects poorer countries due to their dependence on natural resources and lacking coping capacities (De Silva & Kawasaki, 2018). In 1991, Homer-Dixon proposed that developing nations are more vulnerable to climate change than rich ones. Following studies supported this claim as developing nations experience more natural hazards, such as floods or droughts than developed countries (Chinowsky et al. 2011). Originally, disasters were studied as single extreme events, but academic research changed towards favouring the perspective that societal developments are the root causes of disasters and natural hazards only trigger them. In this perspective, socio-economic developments can lead to a fragile relationship between humans and the environment they inhabit (Hewitt, 1983; Oliver-Smith, 1999).

One of the most recent examples is South Sudan, experiencing its fourth year of record-breaking rainfalls, directly affecting over 900.0000 people and flooding two-thirds of the country as of October 2022 (UNHCR, 2022). While being directly afflicted by the devastating consequences of climate change, The World Bank (2022) also labels South Sudan a pressing humanitarian crisis due to its political instability and poverty. Therefore, the country is not only vulnerable to floods because of climate change itself but also because of socio-economic factors.

In 2004, Wisner et al. published the so-called Pressure and Release Model (PAR), which combines man-made vulnerabilities and natural hazards. This model helps to identify the factors that make certain people vulnerable to hazards. Consequently, it is possible to address the issues, increasing these peoples' safety and security. The following paper uses the PAR model to answer the research question: "Why is South Sudan so vulnerable to floods?" The next section explains the PAR model, followed by the model's application to the flood vulnerability of South Sudan and a conclusion summarising the main findings and reflecting on this research.

#### 2. Theoretical framework

In the Pressure and Release Model, Wisner et al. (2004) assume that disaster risks only exist if there is a combination of vulnerabilities and exposure to hazards. Hazards are natural events that affect places in varying intensity and severity, such as earthquakes, hurricanes, and droughts (Wisner et al., 2004). There needs to be a vulnerable population potentially affected by these hazards. Then there is a risk of a disaster. Humans can affect this risk by increasing or decreasing their vulnerability to hazards. Wisner et al. (2004) refer to this as pressure and release. Increasing pressure can come from more hazards or higher vulnerability. The only way to reduce pressure is by reducing vulnerability, as the existence of hazards themselves cannot be influenced or controlled.

The formation of vulnerability is what Wisner et al. (2004) call "the progression of vulnerability" (p. 51). Understanding this progression enables identifying what led to the vulnerability in the first place and how to reduce it. The progression of vulnerability consists of three interrelated causes. Firstly, root causes are the most remote and underlying influences and refer to economic, demographic, social, and political processes that affect the general distribution of power in society, allocation of resources, and functioning of the state (Wisner et al., 2004). Secondly, dynamic pressures translate these general root causes into specific unsafe conditions and vulnerabilities. Dynamic pressures are more contemporary and immediate than root causes and refer to economic, social, and political patterns that directly create vulnerability. For instance, there is rapid urbanisation, violent conflict, deforestation and so on (Wisner et al., 2004). Lastly, unsafe conditions are the specific expressions of vulnerability in conjunction with the hazards. They are divisible into four categories. There is the physical environment, the local economy, social relations, and public actions and institutions. The unsafe conditions cause a disaster if hazards trigger them, for instance, a population living in flood-prone areas. It is worth mentioning that the authors only refer to a disaster when a significant number of people were affected by a hazard, and their recovery is unlikely without help from non-affected communities. The specific vulnerability and hazard components are visible in Figure 1, according to Wisner et al. (2004).

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Figure 1. The Pressure and Release model (PAR), a simplified version of Wisner et al.'s (2004) PAR model

#### 3. Analysis

#### a. Root causes

South Sudan's vulnerability mainly stems from the legacy of its long civil war. The country gained its independence from Sudan in 2011. But a following 6-year civil war between President Salva Kiir Mayardit and First Vice President Riek Machar devastated much of the country, and still determines its contemporary politics (Bertelsmann Stiftung, 2022). Both politicians fuelled an ethnic rivalry between the Dinka and Nuer tribes to defeat their adversary. For example, President Kiir attempted to place more Dinka people in government while excluding other ethnic groups at the expanse of compromising national unity, which is destructive since South Sudan's society is mainly organised in tribes (Mayen et al., 2022).

The political instability fuelled by social inequality has so far severely affected the economy of the new-born nation, which is still underdeveloped today. Widespread poverty forces most people to work in the agricultural sector, which is highly sensitive to climate change (Government of South Sudan, 2018). Large parts of the population live in rural areas and/or close to rivers because of the fertile land. Thus, many people rely on livestock and crops for survival. The majority has limited or non-existent market access due to poor infrastructure (Cullis, 2021).

South Sudan's remoteness increases the value and importance of local communities, especially tribes, as these are entities where most people receive help in the first place. Thus, power distribution is highly decentralised in South Sudan. The feeling of South Sudanese nationhood is relatively weak as tribal relations are seen as more important. Additionally, there is little support for the national government because it mainly consists of former military personnel fighting each other for more power. It has low legitimacy since the country's first-ever elections will just be held in 2024. Thus far, the country was only ruled by a transitional government (Angu, 2022).

#### **b.** Dynamic pressures

Since independence, the transitional government has proven to be ineffective overall. Its mismanagement over the past years has dramatically worsened South Sudan's socio-economic situation. The government revenue heavily relies on oil as its export contributes to 90% of the country's income, despite large marble/dolomite, aluminium, iron ore, and gold sources (The Borgen Project, 2022). This single-resource-driven economy makes South Sudan vulnerable to world market price fluctuations and inflation. For instance, oil exports declined due to COVID-19, and the war in Ukraine caused many aid donors to reallocate their resources and staple goods prices skyrocketed due to Russia's grain blockade (Kleinfeld & Francis, 2022).

The lack of a noteworthy economy created a high dependency on neighbouring countries for consumer goods and construction materials imports. Thus, most people are forced to work in the informal agricultural sector due to the lack of job opportunities (Irwin-Hunt & Makoni, 2022). However, the agricultural sector dramatically suffered over the past years due the violent conflicts and extreme weather conditions. Violent conflicts for land, revenge killings, and cattle theft are common triggers for displacement (Bertelsmann Stiftung, 2022). Additionally, South Sudan experiences severe floods annually since 2019, forcing people to leave their homes while also shrinking the usable land for herding that so many people rely on (Tiitmamer, 2021). The White Nile's water level increases every year and the new occurrence of annual major floods means that the ground is already saturated when fur-

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ther floods occur. Thus, their devastating consequences become stronger every year. More people are internally displaced, resources shrink, and tensions rise (REACH Initiative, 2022).

Nevertheless, over the past years, the government was more preoccupied with maintaining its power, and officials acted in self-interest, which further weakened governance capabilities. South Sudan had the most corrupt public sector worldwide in 2021 (Transparency International, 2022). There is no de facto separation of powers despite the country's constitution. Thus, government officials can prevent any internal prosecution attempt. Corruption has severely weakened governance capabilities and government credibility in the population, but also in the international community, making humanitarian cooperation even more complicated and forestalling the country's development (Bertelsmann Stiftung, 2022).

Additionally, many political parties maintain links to armed groups. Thus, political tensions can easily lead to violent conflict, and local militias, as well as government forces, has been involved in severe human rights abuses (Mayai et al., 2022). Also within those groups, there is intergroup violence and communal violence for local power struggles, forestalling stability and development in the country (Funke, 2022). The government's monopoly on the use of force is contested because security forces cannot access all parts of South Sudan due to the poor infrastructure. It also means that most people cannot participate in politics as they cannot access the few governmental institutions or healthcare systems and vice versa. Due to the lack of government provision of basic services, most people must rely on their community for support and are highly vulnerable to external threats (Liaga, 2021).

#### c. Unsafe conditions

The recent developments, as described above, resulted in a dire situation when South Sudan experienced record-breaking rainfalls in 2022. The main issues are a lack of funding for the country's development resulting in weak governmental response capacities to floods and the fact that so many people are forced to live in areas close to the rivers. Approximately two million people are displaced within the country, putting great pressure on other communities that already struggle to survive. Nine million people require humanitarian assistance, and almost eight million face food insecurity and malnutrition, turning South Sudan into one of the worst ongoing humanitarian crises worldwide (European Commission, 2022). Only 7% of the population has access to electricity, less than 50% have access to safe drinking water, and 85% of the population works in the informal sector despite an abundance of natural resources, especially oil (Government of South Sudan, 2018; OCHA, 2022; World Bank, 2022).

Furthermore, as a consequence of corruption, it is estimated that South Sudan's elites have diverted more than \$4 billion since 2012 (UN News, 2021). The missing investments in the country's development mean that South Sudan lacks knowledge and expertise in flood risk management, environmental studies, and emergency management. Consequently, South Sudan's critical infrastructure regarding drainage systems, dams, urban planning, and levees is severely underdeveloped. The mismanaged governmental system, resources, and tribalism prevent meaningful progress in disaster management mitigation. Most progress in this area is only achieved with the help of NGOs. Consequently, local communities are usually left on their own when floods occur (Mayen et al., 2022). South Sudan's overall progression of vulnerability to floods can be seen in Figure 2.



Figure 2. South Sudan's progression of vulnerability to floods

#### 4. Conclusion

Based on the PAR model, this research indicates that South Sudan's vulnerability to floods mainly stems from man-made causes and not just the fact that floods occur more frequently. South Sudan's government is mainly responsible for this as it did not invest enough in the country's development over the past years, which means that it has inadequately prepared for flood risk. The population is the victim of this neglect because many people must flee their homes due to local violence and lack of flood prevention measures. The government wastes valuable resources because of economic mismanagement and corruption, resulting in overall weak governance capabilities and lacking provision of basic services. Consequently, vital funds are missing, and international aid often does not reach the target population. Therefore, exposure to floods in South Sudan is a highly political topic.

Knowledge of flood vulnerability is provided by actors outside South Sudan and it points to the government for responsibility. This is problematic as the government would never admit its inefficiency. It has systematically denied all corruption accusations over the past years and tried to stay in power by successfully pushing back general elections since 2015. Conceding its responsibility would mean losing legitimacy. This implies that there will be probably no improvement in South Sudan's vulnerability to floods until there is a government change, which might happen in the 2024 elections.

Another shortcoming of the data used in this research is that most information is generalised for the whole country as many parts of South Sudan are difficult to access, reducing data transparency and detailed information. This means that this research cannot explain local differences in the creation of flood vulnerability. However, the application of the PAR model makes this research easily replicable, which increases its reliability. Overall, this study conforms with the academic perspective that disasters have their root causes in socio-economic developments, as described by Hewitt (1983) or Oliver-Smith (1999) earlier, by analysing South Sudan as a case study. This paper supports the idea that human behaviour has a crucial impact on the creation of disaster risk.

#### References

Aalen, L. (2019). The paradox of federalism and decentralisation in South Sudan: An instrument and an obstacle for peace. CMI. <u>https://www.cmi.no/publications/6974-the-paradox-of-federalism-and-decentrali-</u> <u>sation-in-south-sudan</u>

Angu, S. (2021). The role of Kuron Peace Village in promoting social cohesion and peaceful co-existence in South Sudan. Journal of Sociology, Psychology & Religious Studies, 3(1), 138-154. <u>https://stratfordjournals.org/journals/index.php/Journal-of-Sociology-Psychology/article/view/783</u>

Bertelsmann Stiftung. (2022). BTI 2022 Country Report – South Sudan. <u>https://bti-project.org/fileadmin/api/</u> content/en/downloads/reports/country\_report\_2022\_SSD.pdf

Brink, E. (2018). Adapting cities: Ecosystem-based approaches and citizen engagement in municipal climate adaption in Scania, Sweden. Lund University. <u>https://www.researchgate.net/publication/325145299</u>

Chinowsky, P., Hayles, C., Schweikert, A., Strzepek, N., Strzepek, K., & Schlosser, C.A. (2011). Climate change: Comparative impact on developing and developed countries. Engineering Project Organisation Journal, 1(1), 67-80. https://doi.org/10.1080/21573727.2010.549608

Cullis, A. (2021, March). Understanding the livestock economy in South Sudan. Tana. <u>https://tanacopenhagen.com/wp-content/uploads/2021/04/Field-Report.pdf</u>

De Silva, M.M., & Kawasaki, A. (2018). Socioeconomic vulnerability to disaster risk: A case study of flood and drought impact in a rural Sri Lankan community. Ecological Economics, 152, 131-140. <u>https://doi.org/10.1016/j.ecolecon.2018.05.010</u>

European Comission. (2022). South Sudan factsheet. <u>https://civil-protection-humanitarian-aid.ec.europa.eu/</u> <u>where/africa/south-sudan\_en</u>

Funke, C. (2022). No context is too challenging: Promoting, doing and achieving inclusion in the humanitarian response in South Sudan. International Review of the Red Cross, 1-21. <u>https://doi.org/10.1017/ S1816383122000546</u>

Government of South Sudan. (2018). Government of South Sudan: Initial national communication to the United Nations framework convention on climate change. Ministry of Environment and Forestry. <u>https://unfccc.int/sites/default/files/resource/South%20Sudan%20INC.pdf</u>

Hewitt, K (Ed.). (1983). Interpretations of Calamity: From the viewpoint of human ecology. Routledge. <u>https://doi.org/10.4324/9780429329579</u>

Homer-Dixon, T.F. (1991). On the threshold: Environmental changes as causes of acute conflict. International Security, 16(2), 76-116. <u>https://muse.jhu.edu/pub/6/article/447281/pdf</u>

#### 12 💫 Jannis Figura

Irwin-Hunt, A., & Makoni, M. (2022, October 31). The promise of oil and gas in South Sudan. FDI Intelligence. <u>https://www.fdiintelligence.com/content/feature/the-promise-of-oil-and-gas-in-south-sudan-81521</u>

Kleinfeld, P., & Francis, O. (2022, October 18). Interlocking crises: Why humanitarian needs keep increasing in South Sudan. The New Humanitarian. <u>https://www.thenewhumanitarian.org/analysis/2022/10/18/South-Su-dan-humanitarian-needs-conflict-flooding-famine</u>

Liaga, E. A. (2021). South Sudan's transitional government: Realities, challenges and opportunities. ISS East Africa Report, 2021(41), 1–28. <u>https://doi.org/10.10520/ejc-isear-v2021-n41-a1</u>

Mayai, A.T., LeRiche, M., & Underwood, W. (2022, March 1). Democratic elections in South Sudan. Sudd Institute. https://www.jstor.org/stable/resrep39824

Mayen, J.V., Wood, E., & Frazier, T. (2022). Practical flood risk reduction strategies in South Sudan. Journal of Emergency Management, 20(8), 123-136. <u>https://doi.org/10.5055/jem.0669</u>

OCHA. (2022, February 28). South Sudan humanitarian needs overview 2022. Reliefweb. <u>https://reliefweb.int/report/south-sudan/south-sudan-humanitarian-needs-overview-2022-february-2022#:~:text=In%20</u> 2022%2C%20the%20humanitarian%20community,increase%20of%20600%2C000%20since%202021.

Oliver-Smith, A., (1999). Peru's five-hundred-year earthquake: Vulnerability in historical context. In A. Oliver-Smith, S. Hoffman, & S.M. Hoffman (Eds.), The angry earth: Disaster in anthropological perspective (2nd ed., pp. 88-102). Routledge. <u>https://doi.org/10.4324/9781315298917</u>

REACH Initiative. South Sudan – Flood frequency 2019-2022. Reliefweb. <u>https://reliefweb.int/map/south-sudan/south-sudan-flood-frequency-2019-2022-28-october-2022</u>

The Borgen Project. (2022, January 28). 9 facts about South Sudan. <u>https://borgenproject.org/facts-about-sout-h-sudan/</u>

The World Bank. (2022, October 5). The World Bank in South Sudan. <u>https://www.worldbank.org/en/country/southsudan/overview</u>

Tiimamer, N. (2021). A climate crisis in Africa: The case of South Sudan. The Cairo Review of Global Affairs. <u>htt-ps://www.thecairoreview.com/essays/a-climate-crisis-in-africa-the-case-of-south-sudan/</u>

Transparency International. (2022). South Sudan. https://www.transparency.org/en/countries/south-sudan

UNHCR. (2022, October 21). Devastation in South Sudan following fourth year of historic floods. <u>https://www.unhcr.org/news/briefing/2022/10/635251694/devastation-south-sudan-following-fourth-year-historic-floods.</u> <u>html#:~:text=Two%2Dthirds%20of%20the%20country,an%20already%20dire%20food%20emergency.</u>

UN News. (2021). South Sudan plagued by violence and corruption, Human Rights Council hears. <u>https://news.un.org/en/story/2021/09/1100932</u>

Wisner, B., Blaikie, P., Cannon, T., & Davis, I. (2004). At risk. Natural hazards, people's vulnerability and disasters (2nd ed.). Routledge. <u>https://www.preventionweb.net/files/670\_72351.pdf</u>

World Bank. (2022). Access to electricity (% of population) – South Sudan. <u>https://data.worldbank.org/indicator/</u> EG.ELC.ACCS.ZS?locations=SS

### **Increased Militarisation of Space - A New Realm of Security**

by Betty Wehtje\*

#### Abstract

The military use of space is not new, yet it has developed and become more advanced today. Major powers, such as the US, China, and Russia, now have their own military units specialized in space operations, indicating that space has become a new war-fighting domain. Although more nations develop and test sophisticated space capabilities, including kinetic and non-kinetic weapons, a conventional war in space is not expected. The stakes are high as the world has grown increasingly reliant on the information and connectivity that the military, civil, and commercial space systems provide, creating new realms of vulnerability. There are several weaknesses in the existing legal framework, looking at the Outer Space Treaty adopted during the Cold War. The militarization of space and developments in space technologies have resulted in growing tensions hinting at a need for new agreements to promote cooperation. So far, the UN has made several unsuccessful attempts to reach a new space treaty. Still, established in 2022 by the UN General Assembly, the Open-Ended Working Group might potentially decrease further space tensions. The group comes with a change in focus, as it has stepped away from the stalemate in discussing a new treaty on space weapons and moved towards a focus on non-binding norms, rules, and responsible behavior.

#### Introduction

One of the features of the Cold War was the intense space race following the technological developments in the 60s. The global superpowers challenged each other to explore Earth's orbits, the moon, and beyond in an attempt to become the space hegemon of the 20th century. The idea of a real-life "Star Wars" was on the edge of realization with the Strategic Defense Initiative<sup>1</sup> (SDI) presented by Ronald Reagan in 1983. While this never became a reality, space technology continued to be developed for military and commercial purposes. Decades later, space has slowly re-emerged as a crucial domain of national security.

Today, society is more dependent on space technology than ever before, and independent access to space has become a strategic interest. The world has grown increasingly reliant on the information and connectivity provided by the military, civil, and commercial space systems, creating new realms of vulnerability. Worldwide, governments have steadily increased their space budgets<sup>2</sup> over the past years, with the United States at the top. Even if the military usage of space is not new, it is a growing issue that attracts attention. As new technologies enable new space applications and the number of national assets increases, militaries now view space as a domain of war, like the sea, air, and land. As national security pertains to outer space, it challenges the perception of time, distance, and geography.

Nevertheless, space is relatively unregulated, as multilateral organizations such as the UN find themselves powerless to strengthen existing legal agreements. There have been several obstacles to space cooperation, but attempts are being made to hopefully generate more decisive changes, focusing on non-binding norms and principles of responsible behavior. Space is a critical and current issue to discuss, as it has become both an origin of threats and a means for security.

#### **Use of Space for Security**

The use of space for national security has a long history, going back to the first satellites orbiting Earth. As mentioned, space was one of the competitive realms of the Cold War. The military presence in space began with the first military communications satellite being placed in orbit by the Soviet Union and the US in the 1960s. Around 50% of all launched satellites at the beginning of the "space age" were satellites used for military reconnaissance. Intelligence was of great importance during the Cold War, and satellites enabled global surveillance, which was crucial for keeping track of hostile military activities. For example, American aircraft carriers project power wherever they appear. Their presence in the Soviet sphere of influence was of great concern for the Soviet Union (and later Russia), who then could use space technology to monitor these.

However, as technological developments increase the use of space in newer fields, the military use of space becomes more and more complex. Space today contributes<sup>3</sup> significantly to intelligence, with surveillance and data collection as two crucial components reliant on space infrastructure. Strategic intelligence is closely linked to national security as a service to identify and protect the state from internal and external threats. Information dominance is crucial in conflict, and satellites are a vital part of this, making satellites potential targets to damage or intercept in times of war.

Satellites are also used as platforms for services to all parts of society, including geoinformation, communica-

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tions, and navigation systems. Space is used both strategically through reconnaissance and tactical to enable operations, exercises, and logistics worldwide. Navigation systems such as Global Positioning System (GPS) were first developed for military purposes and function as "gunsights" for weapons such as drones and missiles. Furthermore, they may enable the ability to disable foreign navigation systems in times of war which is a great military capability. Global powers such as China and Russia have therefore developed independent space systems to reduce any reliance on US space systems such as the GPS. Russia has its GLONASS system, the Chinese equivalent is called BeiDou, and even the European Union (EU) has developed a Galileo system. Independent access to space is vital for state power and influence, making satellites the groundstone for most parts of both civil society and military operations.

#### What are 'Space Weapons'?

Military satellites are generally not seen as weapons, even though they provide intelligence and enable military operations. Despite the widespread opposition to the development of space weapons, several capabilities have been tested and deployed. They vary in place of operation and possible targets and can create both permanent and temporary damage.

#### **Kinetic weapons**

Kinetic weapons have the capability to destroy objects both in space and on Earth. Earth-to-space weapons include anti-satellite (ASAT) missiles. States with great power ambitions, such as the US, China, Russia, and India, possess these capacities and have tested them repeatedly. The latest test was in November 2021<sup>4</sup>, when Russia destroyed its satellite Cosmos 1408 in the Low Earth Orbit (LEO) using a direct-ascent ASAT weapon launched from Earth. These weapons create huge amounts of dangerous space debris, threatening any other orbiting spacecraft on a collision course with the objects, potentially creating a horrendous domino effect. Because of these destructive consequences, several countries, including the US, have opposed any future ASAT tests.

Kinetic weapons deployed in space have similar capabilities, including co-orbital ASAT weapons which can directly crash into or explode close to a target in space. Kinetic space weapons offer considerable advantages in conflict since they can target obstacles both in space and on Earth. Hence, these technologies alter the perception of time and geography as a space-based weapon can quickly reach anywhere. Therefore, these weapons may pose a significant threat to national security and challenge the national defense in unconventional ways.

#### Non-kinetic weapons

Non-kinetic weapons, e.g., lasers, jammers, electromagnetic pulses, and high-powered microwaves, may physically damage or disturb objects in space without direct contact. Several countries<sup>5</sup>, such as the US, Russia, China, Iran, and North Korea, have tested and deployed these capabilities. A recent example is how the American satellite company Viasat was subject to a cyber attack<sup>6</sup>, resulting in the immediate loss of communications for the Ukrainian military just an hour before the Russian invasion of Ukraine.

One may also include spacecraft aimed at tracking and examining target satellites as a non-kinetic capability, which might intercept communications and signals from other satellites. In August 2022, a Russian spacecraft was seen shadowing<sup>7</sup> a US intelligence satellite, moving dangerously close to the satellite, which US officials saw as a severe threat to US space dominance. These methods may be dangerous and have malicious purposes, even if the spacecraft is not seen as a weapon. This incident visualizes the issue of dual-use technology and the need for better cooperation in space, which will be discussed later in this paper. Non-kinetic space weapons are already a reality when talking about weapons in space. These weapons are very sophisticated and advanced, challenging

the perception of national security and its threats, which presents further challenges to international stability.

#### Stakeholders in Space - An Overview

#### The United States

The US is the most influential actor in space with advanced technology, significant military presence, and the world's largest budget spending on space programs. As stated<sup>8</sup> by President Trump in 2019, "Space is the world's newest war-fighting domain," and space has become an increasing source of threat to the national security of the US. Two key indicators are the establishment of the United States Space Force (USSF) in 2019 and the re-installation of the Space Command (de-established in 2002). The USSF<sup>9</sup> became the sixth branch of military services in the US and is responsible for organizing, training, and equipping personnel, while the Space Command<sup>10</sup> conducts operations and potential war-fighting. Space is an important aspect of the US global influence and image, reflected by its latest institutional developments.

The growing number of satellites launched by adversaries such as Russia and China and their improved military space capabilities are seen as huge threats to national and global security. Thus, the US has an arsenal of counter-space capabilities, including kinetic and non-kinetic weapons such as ASAT missiles and ground-based jammers. The last time the US launched an ASAT missile from Earth was in 2008, and in 2022 Washington an-

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nounced<sup>11</sup> the prohibition of any such tests, calling on other nations to follow suit. Even if the US has been participating in the militarization of space, there are attempts to establish norms for responsible behavior in space as the Department of Defense adopted a new space policy in 2022. The policy document<sup>12</sup> outlines five "Tenets of Responsible Behavior" that are met with positive responses<sup>13</sup> as a good start to communicating norms of behavior in space. Looking at the developments in the last couple of years, the US has continued to reinforce its role as a global leader in space and a military superpower.

#### China

During the last decade, China has become a global economic and military power, challenging the US and the West. President Xi Jinping described exploring space, building a space industry, and making China a space power as an eternal dream. Despite Chinese claims to use space for peaceful means, Beijing recognizes space as a new domain for contemporary military conflicts and its importance for the evolution of forms, methods, and rules of warfare. China has viewed space dominance as key to winning wars over the past 30 years, concluding that the US and the West have gained "unprecedented war advantages from space."<sup>14</sup> The military conflicts in space will therefore revolve around the dominance of space, making space significantly important for military strategy.

In 2015<sup>15</sup>, the People's Liberation Army (PLA) established the Strategic Support Force (SSF) to meet the new types of threats of the modern age. The SSF is a new type of combat force operating in near space, outer space, and network space. Its organization is divided into two departments; the Network Systems Department, which focuses on electronic warfare and cyber operations, and the Space Systems Department, which is responsible for executing the SSF's space missions such as space launches, tracking, and surveillance. The creation of SSF and its mission clearly recognize space and cyberspace as vital areas for Chinese expansion of military power. China has great capabilities<sup>16</sup> in space technologies, both kinetic and non-kinetic weapons, such as downlink jammers and ground-based lasers. In 2007<sup>17</sup>, China tested a direct-ascent ASAT weapon that struck a Chinese FY-1 weather satellite in LEO, showing the Chinese ASAT capabilities that today might stretch to the Geosynchronous Earth Orbit<sup>18</sup> (GEO) as well. Weapons of space-to-space and space-to-Earth operations are also being tested as Chinese space technologies continue to develop. In January 2022<sup>19</sup>, the Chinese satellite Shinjian-21 was observed pulling a dead satellite out of its geosynchronous orbit, placing it in a graveyard orbit while returning to GEO. The co-orbital maneuver was legitimate, yet it could be used for counter-space purposes, as it may move other satellites in orbit, potentially putting them out of service. China has remarkable space capabilities and the technology to develop sophisticated weapons that may target space objects in orbit and operate in space.

#### Russia

The Russian space program is viewed with great prestige as a leader in the international arena. Russia as a space pioneer dates back to the space race during the Cold War when the former Soviet Union launched the first-ever satellite and placed the first person into Earth orbit. More recently, this position has been re-established<sup>20</sup> as The International Space Station (ISS) relied on Russian launch vehicles between 2011 and 2020. While Russia is openly supporting space arms control agreements to prevent the weaponization of space, Russia has announced space as a war-fighting domain, continuing to test and deploy space weapons. In 2015 a new branch of the Russian Armed Forces was created, called the Aerospace Forces<sup>21</sup>, which includes the Space Forces, aimed at securing Russian space access. Russia is also developing counter-space capabilities that can attack adversaries like the US.

Russia shares a similar view as China on how space has been a crucial part of US military success, amplifying the Russian need to develop counter-space weapons. As mentioned earlier, just last year, Russia tested an ASAT missile which has been widely criticized for being reckless, as it creates dangerous debris. Russia has also tested some types of airborne and space-based ASAT weapons over the last ten years. Moreover, Russia developed a mobile ground-based laser weapon system called Peresvet,<sup>22</sup> said to be able to dazzle or even fight satellites in orbit. Russia also has great electronic warfare capabilities, such as jammers and communications satellites. In 2020<sup>23</sup>, the Russian military confirmed the active employment of an electronic warfare system able to de-activate the control system of hostile drones in Syria. It is clear that Russia highly values space as a strategic asset and source of power, pushing for further development of counter-space strategies.

#### NATO

As the most extensive military alliance worldwide, NATO is also important to mention in the discussion about the militarization of space. In December 2019<sup>24</sup>, space was announced as the Alliance's fifth domain of operations, alongside land, sea, air, and cyberspace. Furthermore, a Space Centre at NATO's Allied Air Command in Germany was created in 2020. The Alliance is incorporating space<sup>25</sup> as part of its core tasks to ensure collective defense, crisis management, and cooperative security.

Space is essential to the Alliance's deterrence and defense and crucial for surveillance, navigation, positioning, and tracking of forces, ensuring effective command and control, and providing early warning. In October 2022, NATO labeled<sup>26</sup> Russia and China as potential threats or challenges to the Alliance since these countries have developed counter-space technologies that can hinder access to space and threaten the freedom to operate in space.

While NATO may not become a space-based actor itself, it is clear that the Alliance views space as a domain of operation and is developing its space policy concerning space as both a security threat and a strategic asset. NATO may work as a coordinator, balancing the need for NATO to take on an active role in the space domain yet not participate in the militarization of space.

#### **European Union**

The European Union is one of the major actors in space and could therefore be worth mentioning. Even though military strategies are defined at the national level, military assets are often utilized to benefit the broader community within the EU. The Union sees autonomous and independent access<sup>27</sup> to space as a strategic asset that has resulted in heavy investments in space programs such as developing European global navigation satellite systems (EGNOS and Galileo) and the Earth observation program Copernicus. These space systems serve both civilian and military purposes as they enable operational control, indigenous intelligence, and early warning. Furthermore, surveillance and tracking are highly prioritized to secure EU space operations. As the EU recognizes space as a significant strategic advantage for many countries, it also visualizes space vulnerability and the need for protection, rules, and norms in space.

#### The Role of the Commercial Sector

Since space-based technologies have become essential for modern society, the demand for space capabilities is growing. These demands have pushed for the growth of the commercial space sector, which today is a multi-billion dollar business. The private industry has evolved rapidly and challenges governments' monopolization of the use of space. For example, governments are reluctant to put more people in space, while private companies like SpaceX seek to open up space<sup>28</sup> for tourism and settlements. Outer space is now a shared realm with both public priorities and private initiatives, which impacts state security and the military use of space. The private space industry is not only focusing on private consumers, as governments worldwide are becoming more dependent on the commercial space industry.

The sanctions on Russia amplified<sup>29</sup> the growing necessity for space capabilities which created an opportunity to expand the space industry's commercial sector since Russia has been a key actor in the global launch business. Moreover, the Ukraine war has revealed what impact the private sector might have on conflicts. The Starlink satellite communication system, owned by Elon Musk's SpaceX, has provided internet access to Ukrainians, which has been vital for military and civilian communication. SpaceX delivered thousands of satellite stations<sup>30</sup> to Ukraine and successfully kept them online despite attacks from Russian hackers. Satellite communication is increasingly important in war times, and the commercial sector may become a crucial part of this development.

In recent years, the private sector has increasingly developed satellite communications, space launches, and remote sensing capabilities, and this trend is anticipated to expand further in the future<sup>31</sup>. Looking at the US, the Department of Defense has grown more reliant<sup>32</sup> on commercial space systems as they provide essential data for the military. The commercial sector may play a significant role in Space Domain Awareness (SDA), which refers to the knowledge of the space environment, including objects and their intentions.

The US Space Force sees great capabilities of the commercial sector and is buying commercial space data<sup>33</sup> to increase the SDA. The increasing militarization of space is creating a greater demand for surveillance data which the commercial sector might provide. The military use of commercial satellites is not particularly new, yet the discussion on lawful targets is somewhat new. The military use of commercial satellites may become a target of misinterpretation. When a military employs commercial satellites in war, there is a risk of becoming a military target. This has sparked discussions<sup>34</sup> about commercial protection in space and compensation if satellites are to be harmed.

As the number of satellites in space grows, the need for tracking and surveillance increases. Space Situational Awareness (SSA) is a growing issue when Earth's orbit is getting more crowded by both military and civilian satellites. The number of satellites<sup>35</sup> has grown from 986 in 2009 to 1 877 in 2021 and is projected to keep growing. Additionally, more than a million<sup>36</sup> debris items larger than 1 cm orbit around Earth. Therefore, SSA is important to avoid collisions in space as it tracks objects in orbit. There are several SSA organizations today, such as the U.S. Strategic Command (USSTRATCOM) Space Surveillance Network, European Space Agency SSA Programme, and the Russian Military Space Surveillance Network (SKKP). However, the growing need for SSA has resulted in attempts to centralize the organization to create a global "Space Traffic Management" (STM). While powerful governments such as the US are important for promoting international coordination, such as the STM, commercial and can fill the technological gaps<sup>37</sup> that might be needed. The public-private collaboration may be essential to protect spacecraft around Earth and ensure the safe use of space for all.

#### Legal Framework & Space Cooperation

#### Multilateral treaties - the United Nations bodies

Five treaties adopted to deal with space activities form the basis of international space law: "The Outer Space Treaty" 1967, "The Rescue Agreement" 1968, "The Liability Convention" 1972, "The Registration Convention" 1976, and "The Moon Agreement" 1984. (Most states, including the US, China, and Russia, neither signed nor ratified the Moon Agreement). Furthermore, there are five other legal principles and declarations. Looking at the weaponization of space, the Outer Space Treaty<sup>38</sup> provides the existing legal framework for weapons in space. Article IV of the treaty states the ban on placing nuclear weapons or weapons of mass destruction in space. It also prohibits military activity on celestial bodies and details rules for peaceful space exploration. The space treaties are vaguely written and limited in scope, therefore unable to prevent the increased militarization of space. Emerging technological developments present new challenges that could also make it necessary to strengthen the existing legal framework.

The United Nations Office for Outer Space Affairs<sup>39</sup> (UNOOSA) was established in 1958 and has promoted international cooperation in outer space. It focuses on helping countries access the benefits of space to accelerate sustainable development and functions as a guide to assist governments in space laws. The Committee on the Peaceful Uses of Outer Space<sup>40</sup> (COPUOS) was set up in 1959 and was an active part of the making of the space treaties. The militarization of space, however, has been handled by the Conference on Disarmament<sup>41</sup> (CD). The CD was established in 1978, with one of its missions to prevent an arms race in outer space. The Conference comprises 65 member states, including the five nuclear-weapon states. Additionally, non-member states are participating in the Conference's work, reaching an additional 50 states in 2019. This Conference has annual meetings and functions as a forum for discussion, and a Prevention of an Arms Race in Outer Space (PAROS) treaty has been discussed. States may use this forum to express concerns and discuss matters of disarmament, such as nuclear weapons and the weaponization of space. However, it has experienced a deadlock for the past decades. Since 1996, the CD has not produced<sup>42</sup> any agreements or even reached a consensus on the agenda, as states value national interests above collective security.

#### Weaknesses in the Outer Space Treaty

It is evident that the existing legal framework to secure the peaceful use of space needs to be revised. Since the 60s, space technology and space actors have changed dramatically. Additionally, vaguely written treaties are subject to a vast number of individual interpretations. With the weaponization of space in mind, there are several weaknesses in the Outer Space Treaty, below three of these are mentioned.

Firstly, the Outer Space Treaty prohibits weapons of mass destruction, but there is no sufficient definition of such weapons other than mentioning nuclear weapons. Furthermore, no additional space weapons are banned, including ASAT missiles which reveal significant gaps in the existing legal framework, as there is no actual ban on weapons being placed or used in space. Technology has dramatically developed since the Outer Space Treaty was signed, which provides new and more complicated issues regarding weapons in space. One growing challenge is the dual usage of satellites and space technologies. For example, the technology for on-orbit maneuver satellites used to "clean up" the orbit from debris could be used for malicious purposes.

Secondly, the perception of space has evolved since the first treaties were signed. Modern technology has enabled human activities to exceed further into space. While it may be possible to interpret the treaties to include new areas of activity, the legal framework must be strengthened. The Outer Space Treaty treats outer space as one entity, while space is more divided today. For example, just around Earth, there are several different orbits that may have different implementations. Furthermore, one may question what is to be counted as "in orbit," as the treaty prohibits the placement of weapons of mass destruction "in orbit around the earth." If an object carrying weapons does not complete a full orbit around Earth, shall it still be seen as a break of the treaty? The treaty has loopholes, which are essential to identify and manage in future frameworks.

Finally, one specific question may arise in this discussion, who is in charge of policing outer space? The existing legal framework does not provide a "guardian police" to ensure that laws are followed. Even if cosmopolitan ideas such as the UN as a global power are a reality today, the international system is still based on state legislation and enforcement. Since the existing framework enables individual interpretation, state behavior may vary, and no consensus on what is legitimate and legal is achieved. The issue of international law enforcement is a common issue throughout the organization, and only the future might entail further developments in the UN's legitimacy and authority.

#### Further attempts for multilateral cooperation

The need for further efforts to strengthen global cooperation has taken different forms. There have been several attempts to reach new agreements regarding the prohibition of weapons in space. For example, in 2008, China and Russia jointly presented a draft<sup>43</sup> for "The Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force Against Outer Space Objects" (PPWT) to the Conference of Disarmament. Even if the two countries have advocated for the implementation of such a treaty, Russia and China have militarized space and developed advanced weapons able to operate and target objects in space. The US and the West have not accepted these treaties, referencing how the treaty is written. It is seen as an effort<sup>44</sup> to prohibit any attempts to put weapons in space, still protecting the already developed and deployed Russian and Chinese capabilities such as ASAT missile systems and in-orbit technologies.

One attempt made by the UN was the creation of the Group of Governmental Exerts<sup>45</sup> (GGE) in 2017 which was established to make recommendations for an international legally binding framework to prevent an arms race in outer space. The GGE failed, unable to even reach a consensus on the organizational agenda. The most recent attempt made is the United Nations Open-Ended Working Group (OEWG) which the General Assembly established in December 2021 through resolution 76/231<sup>46</sup>. All UN member states are invited to participate in the OEWG, and meetings with industry, non-governmental organizations, and academia may also be held. The way forward might not be signing a new treaty since this has been proven difficult. The aim is to create universal norms, rules, and principles for responsible behavior in space and develop a series of transparency and confidence-building measures (TCBMs).

The OEWG functions as a forum for open discussions about the responsible use of space to reduce space threats and had its first session in May 2022. Its inclusiveness and open-ended discussion design may be beneficial to reach cooperation on norms and responsible behavior in space as more states seek individual access to space. The OEWG will have four meetings before finalizing its work in August 2023, sharing different views on threats and behavior in space to reach some form of consensus. Even if a consensus may be difficult to achieve, the OEWG may provide better understanding among states and provide suitable learning tools which could be incorporated into state regulations of their space capabilities.

#### Change in focus

Space is no longer an exclusive realm for global superpowers. Today, more states are involved in space activities, aware of the importance of space and concerned by the destabilizing forces present. While some states, like Russia and China, seek to adopt new treaties that focus on bans on particular weapons in space, other actors identify other aspects, such as dual usage of satellites, close approaches, and long-lived debris, as the most approachable issues to deal with globally.

There now is a shift in focus<sup>47</sup> away from the non-developing treaty/no-treaty debate to focus on behavior. Space weapon technology is dangerous, but the intentions may cause threats to space security. Mistrust among states creates tensions in which one may always assume the worst. For example, technology to maneuver other objects in orbit could be considered responsible behavior to "clean" space, but rivals may portray it as a potential threat if used for other purposes.

States need to seek common ground, which demands discussions. There needs to be an exchange of views on space, such as definitions of threats, responsible behavior, and intentions, in order to enable cooperation. (Mis) interpretations can be very dangerous. The OEWG has the potential to be a platform for exchanging ideas and hopefully leading to some form of cooperation, even if it means partial consensus on particular ideas. Space conflicts will not be resolved in a year, but the change of focus from treaties on weapon bans to building deeper trust based on common understanding can be a stabilizing force.

#### Conclusion

Today, modern society heavily relies on the basis of space technology. Space as an area of national interest is not new, yet the use of space has dramatically transformed during the last decades. Space technologies are vital to all parts of modern society, and this dependency is both a strength and a vulnerability. National security has expanded to outer space as independent access to space is considered a strategic and critical asset. This has impacted the use of space and the development of space technologies. Space can be used strategically, enabling communications and intelligence in order to identify threats and increase awareness of the environment. The military use of space is very complex. It enables operations, exercises, and logistics worldwide, but also space is perceived as a war-fighting domain. Dominating space may become a cause for future conflict. Space is not an area of free and peaceful exploration as long as the militarization of space continues. Further technological developments can also produce even more advanced and sophisticated space capabilities.

A real "Star Wars" is not to be expected, but the increasing militarization of space is alarming. The creation of space forces such as the USSF clearly indicates the still growing military presence in space, as major military pow-

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ers label space as a domain of war. While conventional weapons are unlikely to be placed in space, it has become a battleground for non-kinetic warfare and a demonstration of power. Space weapons challenge the perception of time, geography, and war. Space can be the next area for the balance of power if space weapons are used for deterrence. Major powers show their military capabilities when testing advanced space weapons such as ASAT missiles and space maneuvers.

Satellites can now be seen as both threats and potential military targets, even though they do not carry conventional weapons. The differences between military and civilian satellites are blurred because of their dual-use nature. Advanced technology and access to spatial data collection for Space Domain Awareness are increasingly regarded as crucial parts of state security. The gap between the commercial and military use of space is decreasing, raising new challenges for legitimacy and legality. As the war in Ukraine has shown, commercial companies can play a vital role in conflicts since space is not an area exclusively for governments. Further investigation of the commercial sector's role in militarizing space is required to ensure the safe use of space for all.

The militarization of space is filled with uncertainty, and the legal framework is very flawed. Misperceptions and mistrust regarding military activities might result in a military conflict with catastrophic consequences. International cooperation, a functioning legal framework, and space diplomacy are essential to prevent these risks and ensure peaceful access to and exploitation of space. While the existing treaties can serve as an embarking point for devising a legal system, they must be updated, upgraded, and replaced with new ones when necessary. It may seem impossible to sign a new multilateral treaty to expand international space law in the UN, yet there are other ways to make space more secure. The aim should be to create norms, rules, and principles for responsible behavior and confidence building in space, which the Open-Ended Working Group is intended to do.

The lack of cooperation in space can be traced to mistrust, misinterpretations, and hostile behavior, which need to be addressed to create stability. Open discussions help share different views and ideas to find common ground to ensure the safe use of space for all. These discussions need to be inclusive since more and more actors are aware of the importance of space. One starting point for responsible behavior in space might be to prevent further weapon tests that leave space debris, as the US signed a unilateral treaty to ban such tests, which might become a norm. An ASAT-test ban does not prohibit the development of such technologies, yet it secures the safe use of space free from debris. Debris can cause significant damage to other satellites and space stations as thousands of pieces of space junk may travel uncontrollably in orbit. While keeping space clean and secure is essential, it is only a first step for international cooperation. States need to build transparency and trust in order to avoid an arms race to space that might quickly escalate into conflict.

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#### Endnotes

1 "Strategic Defense Initiative (SDI)," Atomic Heritage Foundation, July 18, 2018, <u>https://www.atomicheritage.org/history/strategic-defense-initiative-sdi</u>

2 "Government space budget driven by space exploration and militarization hit record \$92 billion investment in 2021 despite covid, with \$1 trillion forecast over the decade", Euroconsult, January 6, 2022, <u>https://www. euroconsult-ec.com/press-release/government-space-budgets-driven-by-space-exploration-and-militarization-hit-record-92-billion-investment-in-2021-despite-covid-with-1-trillion-forecast-over-the-decade/</u>

3 Defense Intelligence Agency, "Challenges to Security in Space," March 2022. <u>https://www.dia.mil/Por-tals/110/Documents/News/Military\_Power\_Publications/Challenges\_Security\_Space\_2022.pdf</u>

4 "EU SST confirms fragmentation of space object COSMOS 1408," EU Space Surveillance and Tracking, November 25, 2021, <u>https://www.eusst.eu/newsroom/eu-sst-confirms-fragmentation-cosmos-1408/</u>

5 Michael P. Gleason and Peter L. Hays, "A roadmap for assessing space weapons," Space Agenda 2021, October 5, 2020. <u>https://aerospace.org/sites/default/files/2020-10/Gleason-Hays\_SpaceWeapons\_20201005\_1.pdf</u>

6 Patrick Howell O'Neil, "Russia hacked an American satellite company one hour before the Ukraine invasion," MIT Technology Reviews, May 10, 2022, <u>https://www.technologyreview.com/2022/05/10/1051973/russia-hack-viasat-satellite-ukraine-invasion/</u>

7 W.J. Hennigan, "Exclusive: Strange Russian Spacecraft Shadowing U.S. Spy Satellite, General Says," TIME, February 10, 2020, <u>https://time.com/5779315/russian-spacecraft-spy-satellite-space-force/</u>

8 "Trump: 'Space is the world's newest war-fighting domain,' "BBC, December 21, 2019, <u>https://www.bbc.com/news/av/world-us-canada-50875940</u>

9 "USSF Mission," United States Space Force, accessed October 5, 2022, <u>https://www.spaceforce.mil/About-Us/About-Space-Force/Mission/</u>

10 "Mission: U.S. Space Command," U.S. Space Command, accessed October 5, 2022, <u>https://www.spacecom.</u> <u>mil/About/Mission/</u>

11 The White House, "FACT SHEET: Vice President Harris Advances National Security Norms in Space," April 18, 2022, <u>https://www.whitehouse.gov/briefing-room/statements-releases/2022/04/18/fact-sheet-vice-president-harris-advances-national-security-norms-in-space/</u>

12 "DoD Directive 3100-10 'Space Policy," Department of Defense, August 30, 2022. <u>https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodd/310010p.PDF</u>

13 Theresa Hitchens, "Exclusive: In A First, SecDef Pledges DoD To Space norms," Breaking Defense, July 19, 2021, <u>https://breakingdefense.com/2021/07/exclusive-in-a-first-secdef-pledges-dod-to-space-norms/</u>

14 Xiao Tianliang, Lou Yaoliang, Kang Wuchao, and Cai Renzhao, "Science of Military Strategy" (Beijing: National Defense University Press, 2020), translated by China Aerospace Studies Institute, In Their Own Words, January 2022, <u>https://www.airuniversity.af.edu/Portals/10/CASI/documents/Translations/2022-01-26%20</u> 2020%20Science%20of%20Military%20Strategy.pdf

15 Adam Ni and Bates Gill, "The People's Liberation Army Strategic Support Force: Update 2019," China Brief, vol. 19, no. 10, May 29, 2019, <u>https://jamestown.org/program/the-peoples-liberation-army-strategic-sup-port-force-update-2019/</u>

16 Michael P. Gleason and Peter L. Hays, "A roadmap for assessing space weapons," Space Agenda 2021, October 5, 2020, 1-13 <u>https://aerospace.org/sites/default/files/2020-10/Gleason-Hays\_SpaceWeapons\_20201005\_1.pdf</u>

17 Phillip C. Sounders and Charles D. Lutes, "China's ASAT Test, Motivations and Implications," National Defense University Press, no. 46, 2007. <u>https://apps.dtic.mil/sti/pdfs/ADA517485.pdf</u>

18 Office of the Secretary of Defense, "Military and Security Developments Involving the People's Republic of China 2020," accessed October 10, 2022. <u>https://media.defense.gov/2020/Sep/01/2002488689/-1/-1/1/2020-DOD-CHINA-MILITARY-POWER-REPORT-FINAL.PDF</u>

19 Matthew Mowthorpe and Markos Trichas, "A Review of Chinese counterspace activities," The Space Review, August 1, 2022, <u>https://www.thespacereview.com/article/4431/1</u>

20 Defense Intelligence Agency, "Challenges to Security in Space," March 2022. <u>https://www.dia.mil/Por-tals/110/Documents/News/Military\_Power\_Publications/Challenges\_Security\_Space\_2022.pdf</u>

#### 21 🛞 Betty Wehtje

21 "Aerospace Forces: Missions," Ministry of Defence of the Russian Federation, accessed October 11, 2022, <u>https://eng.mil.ru/en/structure/forces/aerospace/mission.htm</u>

22 Bart Hendrickx, "Peresvet: a Russian mobile laser system to dazzle enemy satellites," The Space Review, June 15, 2020, <u>https://www.thespacereview.com/article/3967/1</u>

23 Linda Kay, "Russian Electronic Warfare System Brings Down Hostile Drones in Syria," Defense World, February 3, 2020, <u>https://www.defenseworld.net/2020/02/03/russian-electronic-warfare-system-brings-down-hostile-drones-in-syria.html</u>

24 "Missions: We Coordinate NATO Space Matters," NATO, accessed October 24, 2022, <u>https://ac.nato.int/missions/we-coordinate-nato-space-matters</u>

25 "NATO's overarching Space Policy," NATO: Official texts, January 17, 2022, <u>https://www.nato.int/cps/en/na-tohq/official texts\_190862.htm</u>

26 "NATO's approach to space," NATO: Topics, October 6, 2022, <u>https://www.nato.int/cps/en/natohq/topics\_175419.htm</u>

27 European Commission, "COM(2016) 207," October 26, 2016. "<u>https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0705&from=EN</u>

28 Matthew Weinzierl and Mehak Sarang, "The Commercial Space Age Is Here," Harvard Business Review, February 12, 2021, <u>https://hbr.org/2021/02/the-commercial-space-age-is-here</u>

29 Jeremy Grunert, "Sanctions and Satellites: The Space Industry After the Russo-Ukrainian War," Texas National Security Review, June 10, 2022, <u>https://warontherocks.com/2022/06/sanctions-and-satellites-the-spa-</u> <u>ce-industry-after-the-russo-ukrainian-war/</u>

30 Christopher Miller, Mark Scott, and Bryan Bender, "UkraineX: How Elon Musk's space satellites changed the war on the ground," Politico, June 8, 2022, <u>https://www.politico.eu/article/elon-musk-ukraine-starlink/</u>

31 Yonekura, Emmi, Brian Dolan, Moon Kim, Krista Romita Grocholski, Raza Khan, and Yool Kim, "Commercial Space Capabilities and Market Overview: The Relationship Between Commercial Space Developments and the U.S. Department of Defense," Santa Monica, CA: RAND Corporation, 2022. <u>https://www.rand.org/pubs/resear-ch-reports/RRA578-2.html</u>

32 Sandra Erwin, "As DoD grows more reliant on space industry, it needs to define the relationship," SpaceNews, September 22, 2022, <u>https://spacenews.com/as-dod-grows-more-reliant-on-space-industry-it-needs-to-define-the-relationship/</u>

33 Sandra Erwin, "Private industry aims to fill demand for space threat intelligence," SpaceNews, September 18, 2022, <u>https://spacenews.com/private-industry-aims-to-fill-demand-for-space-threat-intelligence/</u>

34 Sandra Erwin, "U.S. Weighing options to compensate commercial companies if satellites are attacked," SpaceNews, September 15, 2022, <u>https://spacenews.com/u-s-weighing-options-to-compensate-commercial-companies-if-satellites-are-attacked/</u>

35 Aidan Poling, "Fractured Authorities Equal Shattered Satellites: Reforming Space Traffic Management," Georgetown Security Studies Review, October 4, 2022, <u>https://georgetownsecuritystudiesreview.org/2022/10/04/fractured-authorities-equal-shattered-satellites-reforming-space-traffic-management/</u>

36 "European Commission: An EU Approach for Space Traffic Management," EU Space Programme, accessed October 25, 2022. <u>https://defence-industry-space.ec.europa.eu/eu-space-policy/eu-space-programme/eu-approach-space-traffic-management\_en</u>

37 Mir Sadat and Julia Siegel, "Space traffic management: Time for action," Atlantic Council: Issue Brief, August 2, 2022, <u>https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/space-traffic-management-ti-me-for-action/</u>

38 "Outer Space Treaty," United Nations Office for Outer Space Affairs, accessed October 26, 2022, <u>https://</u>www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html

39 "UNOOSA: About Us," United Nations Office for Outer Space Affairs, accessed October 26, 2022, <u>https://</u>www.unoosa.org/oosa/en/aboutus/index.html

40 "Committee on the Peaceful Uses of Outer Space," United Nations Office for Outer Space Affairs, accessed October 26, 2022, <u>https://www.unoosa.org/oosa/en/ourwork/copuos/index.html</u>

41 "Conference on Disarmament," United Nations, accessed October 28, 2022, <u>https://www.un.org/disarma-ment/conference-on-disarmament/</u>

42 Paul Meyer, "Does the Conference of Disarmament Have a Future?" Journal for Peace and Nuclear Disarmament, 4:2, (2021) 287-294 <u>https://doi.org/10.1080/25751654.2021.1993632</u>

43 "Letter from the Permanent Representative of the Russian Federation and the Permanent Representative of China to the Conference on Disarmament addressed to the Secretary-General of the Conference transmitting the Russian and Chinese texts of the draft 'Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects (PPWT)' introduced by the Russian Federation and China," United Nations: Digital Library, December 2, 2008, <u>https://digitallibrary.un.org/record/633470</u>

44 Bradley Bowman and Jared Thompson, "Russia and China Seek to Tie America's Hands in Space," Foreign Policy, March 31, 2021, <u>https://foreignpolicy.com/2021/03/31/russia-china-space-war-treaty-demilitarizati-on-satellites/</u>

45 "Group of Governmental Exerts on further effective measures for the prevention of an arms race in outer space," United Nations, accessed November 2, 2022, <u>https://www.un.org/disarmament/topics/outerspace/paros-gge/</u>

46 United Nations General Assembly, "Reducing space threats through norms, rules and principles of responsible behaviors," RES/76/231, December 24, 2021. <u>https://documents-dds-ny.un.org/doc/UNDOC/GEN/N21/417/21/PDF/N2141721.pdf?OpenElement</u>

47 Victoria Samson, "Breaking the Impasse Over Security in Space," Arms Control Association, September 2022, <u>https://www.armscontrol.org/act/2022-09/features/breaking-impasse-over-security-space</u>



Gaia Vince

A great upheaval is coming. It will change us, and our planet.

In the global south, extreme climate change will push vast numbers of people from their homes, with large regions becoming uninhabitable; in the planet's more comfortable north, economies will struggle to survive demographic changes with massive workforce shortages and an impoverished elderly population.

Over the next fifty years, hotter temperatures combined with more intense humidity are set to make large swathes of the globe lethal for 3.5 billion of us. Fleeing the tropics, the coasts and formerly arable lands, huge populations will need to seek new homes; you will be among them, or you will be receiving them. This migration has already begun – we have all seen the streams of people fleeing droughthit areas in Latin America, Africa and Asia where farming and other rural livelihoods have become impossible. Climate-driven movements are adding to a massive migration already under way to the world's cities. The number of migrants has doubled globally over the past decade, and the issue of what to do about rapidly increasing populations of displaced people will only become greater and more urgent as the

planet heats.

Have no doubt, we are facing a species emergency – but we can manage it. We can survive, but to do so will require a planned and deliberate migration of a kind humanity has never before undertaken. [...]

#### Manifesto

- 1. People relocating is a natural human behaviour; migration is a successful survival adaptation.
- 2. Places where people currently live will be uninhabitable; we must ensure a safe, fair process for migration, overseen by a global agency with real powers.
- 3. We need to redirect the productive capacity of society to address climate change and the looming demographic crisis.
- 4. Migration is an economic not a security issue. It drives economic growth and reduces poverty.
- 5. Rich countries and poor countries must invest in alliances that increase training and education, and climate resilience.
- 6. Decarbonizing our economies must be done urgently and globally, including through taxation and incentives.
- 7. Ice melt and coral reef loss are already dangerously accelerating: solar reflectivity, such as cloud brightening, should be deployed without delay, and other technologies to reduce temperatures should be explored.
- 8. We must work urgently to reverse the destruction of ecosystems and restore biodiversity to build resilience and protect natural systems.

We are not impotent bystanders. But today we lack a coherent plan; we are simply experiencing our world heating up, and reacting to each new shock – each drought, each typhoon, each blazing forest, each heaving boat of migrants – with a new patch-up. We must take control of our future, and that means making a plan

to protect the well-being of all humans, rich and poor, from every continent, as we enter the challenging environment of the coming decades. This means having the courage to envision a different way of being a human: in effect, unsticking people from their fixed abodes and setting them free to roam, free to seek the safe places.

During the Covid pandemic, we transformed our understanding of what is normal and what is socially possible. Who would have believed that so many of us would have voluntarily restricted our movements to within metres of our homes? It is, I think, easier to imagine the opposite: that many of us will move thousands of kilometres from home.

People will move in their millions – right now, we have a chance to make it work. This could be a planned, managed, peaceful transition to a safer, fairer world. With international cooperation and regulation, we could and should make the Earth liveable.

That has to be worth trying. So let's begin.

#### **Endnotes**

1 This extract was first published on 17 Oct. 2022. The OECD Forum Network is a space for experts and thought leaders—from around the world and all parts of society— to discuss and develop solutions now and for the future. Aiming to foster the fruitful exchange of expertise and perspectives across fields to help us rise to this critical challenge, opinions expressed do not necessarily represent the views of the OECD.





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