

Climate change and pandemics: Feasibility constraints on mitigation and adaptation

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Abstract

The COVID-19 pandemic required states to overcome several soft constraints that also stand in the way of effective climate action. This suggests that, contrary to a common line of thought in the climate debate, effective actions to address climate change are feasible. Yet two particularly robust soft constraints remain. They can be shown to be most significant for climate mitigation and less relevant for pandemic and climate adaptation policies. We call them ‘geopolitical constraints’ and ‘proximity constraints’. The latter divide into spatial and temporal proximity constraints. We argue that states might, indeed, succeed in addressing geopolitical constraints on effective climate action. But temporal proximity constraint remains a robust constraint on long-term global climate policies. This partly explains why climate mitigation policies have been less than successful. The chapter shows that the more a policy requires strong international cooperation and strong transgenerational cooperation for the benefit of future generations, the harder it is to address the relevant constraints. We argue that overcoming temporal proximity constraints requires primarily changes in institutional design, both at domestic and international levels, rather than changes in human psychology.

1 Introduction

After over thirty years of international climate negotiations, greenhouse gas emissions have increased rather than decreased. This has led some authors and policy-makers to wonder whether climate goals are politically feasible. After all, one might suggest that, in most parts of the world, politicians could not realistically expect to enforce the economic burdens, the limitation of basic freedoms, and changes in lifestyles that effective climate policy is likely to require in time to avert dangerous climate change. Even the authors of the 2018 IPCC (Intergovernmental Panel on Climate Change) report were reticent as to the feasibility of climate goals: ‘There is no single answer to the question of whether it is feasible to limit warming to 1,5°C

and adapt to the consequences'.¹ However, as we intend to show in this chapter, these doubts about the political feasibility of climate goals have been challenged after the emergence of the new coronavirus (SARS-CoV-2) in 2019.

All over the world, states and civil society have been implementing drastic measures to limit the spread of a new disease (COVID-19, or simply COVID). These measures, unprecedented in recent world history, resemble the war effort during WWI and WWII. In order to cope with the pandemic, states (whether or not under democratic rules) had to intervene in very sensitive and critically important areas of social life concerning, for instance, freedom of movement and association, right to privacy and education, as well as the right to run a business and serve customers without imposing on them burdens such as social-distancing or the compulsory use of face masks. During the pandemic, states also had to introduce special rules for access to scarce resources such as food, medicine, and medical care. In 2020 and 2021, many states provisionally closed their borders, sometimes more than once, and forced airlines to ground long-distance flights, which indirectly led to a 7% reduction of CO₂ concentration in the atmosphere in 2020, even if only temporarily.²

The current pandemic crisis seems to show, then, that at least some of the most important measures necessary to counter climate change are, indeed, politically feasible. But in spite of mounting evidence that unmitigated climate change is unsustainable, as the further accumulation of greenhouse gases in the atmosphere is likely to have consequences even more harmful than the current pandemic has already had, governments and civil society have been far less engaged in adopting drastic measures to avert dangerous climate change. How can we then account for the disparity between the drastic and foreseeably effective efforts behind the pandemic crisis, on the one hand, and the lack of such measures to address climate change, on the other? In order to answer this question, we draw a distinction between 'hard constraints' and 'soft constraints', now common in the philosophical debate on political feasibility.³

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- 1 Intergovernmental Panel on Climate Change (IPCC), *Global warming of 1.5°C. An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* (Valérie Masson-Delmotte et al. (eds), IPCC, 2018) 32 <www.ipcc.ch/sr15/> accessed 3 December 2021.
 - 2 Pierre Friedlingstein et al., 'Global carbon budget 2020' (2020) 12 *Earth System Science Data* 3269.
 - 3 Pablo Gilabert and Holly Lawford-Smith, 'Political feasibility: A conceptual exploration' (2012) 60 *Political Studies* 809; Jessica Jewell and Aleh Cherp, 'On the political feasibility of climate change mitigation pathways: Is it too late to keep warming below 1.5°C?' (2020) 11 *WIREs Climate Change* e621; Dominic Roser, 'Climate justice in the straitjacket of feasibility' in Dieter Birnbacher and May Thorseth (eds), *The politics of sustainability: philosophical perspectives* (Routledge 2015); Eva Erman and Niklas Möller, 'A world of possibilities: The place of feasibility in political theory' (2020) 26 *Res Publica* 1.

If one or more actors have G as a goal, two different kinds of obstacles may stand in the way of achieving G . Some obstacles cannot be overcome through social policies, institutional design, or human decision-making because the obstacles relate, for instance, to the principles of logic, or the laws of nature, or the availability of natural resources. Human beings can, for example, devise policies to develop a vaccine for the new coronavirus (goal G), but the laws of chemistry and physics that apply to G cannot be altered by means of policy-making. The laws of chemistry, thus, represent a ‘hard constraint’ on the feasibility of G . Hard constraints, in this regard, impose a binary value on the feasibility of G .⁴ If at least one hard constraint stands in the way of G , G cannot be achieved. As far as hard constraints are concerned, G is either feasible or not feasible. But even if no hard constraint stands in the way of G , ‘soft constraints’ may still represent an obstacle to its achievement. Unlike hard constraints, soft constraints relate to some aspects of human life that, at least in principle, can be changed by means of social policies and institutional design. Soft constraints are ‘malleable’: actors can succeed in achieving G depending on their capacity to overcome, for example, socio-cultural, economic, moral, legal, political, or technological constraints, or depending on their capacity to change lifestyles that prevent them from achieving G . Soft constraints impose a scalar (rather than binary) value on the feasibility of G . Some goals, thus, are more feasible than others. In what follows, when we talk about constraints, we only mean *soft* constraints, unless we explicitly state otherwise.

We assume that there are neither hard constraints on the feasibility of successful efforts to mitigate the consequences of the COVID pandemic (even assuming that COVID is likely to remain endemic in many parts of the world) nor are there hard constraints on the feasibility of efforts to avert dangerous climate change within the next 30 years. Accordingly, the question we intend to answer is: What are the soft constraints on the feasibility of successful action to address the COVID pandemic on the one hand and climate change on the other, and how strong are they? We call the first set of policy goals ‘pandemic goals’ (PG) and the second set ‘climate goals’ (CG). Which soft constraints stand in the way of PG and CG , and how malleable are they? In order to address these questions, we introduce a distinction that is central for the analysis of strategies responding to climate change but that has been largely overlooked in the current pandemic debate, namely the distinction between *adaptation* and *mitigation* measures. Since these categories apply equally to both PG and CG , one can distinguish four types of policies, as shown in the table below (see table 1).

4 Gilabert and Lawford-Smith (n 3) 813; Roser (n 3) 75; Erman and Möller (n 3) 7.

Table 1

	Pandemic Goals	Climate Goals
Adaptation	Soft constraints on the feasibility of actions to reduce the harmful impacts of an ongoing pandemic and its long-term consequences ('constraints on <i>P-A</i> policies')	Soft constraints on the feasibility of measures that increase the ability of human and natural systems to adjust to actual or projected climate change and its impacts, and by doing so, to limit harm and damage ('constraints on <i>C-A</i> policies') ⁵
Mitigation	Soft constraints on the feasibility of measures to reduce the causes of pandemic occurrence, thereby preventing the occurrence of pandemics as much as possible ('constraints on <i>P-M</i> policies')	Soft constraints on the feasibility of actions to reduce greenhouse gas emissions and enhance sinks, thereby preventing harm and damage as much as possible. ('constraints on <i>C-M</i> policies') ⁶

In the pandemic debate, the word *mitigation* is used to refer to two different kinds of strategies: on the one hand, it is used to refer to health policies that aim at mitigating the underlying causes of new disease outbreaks, which can eventually lead to the emergence of a pandemic; on the other, it is also used to refer to health policies that are deployed to mitigate the consequences of a pandemic that has already emerged. In order to avoid confusion, we speak of *pandemic adaptation* in order to refer to policies that are implemented to reduce the harmful impacts of an ongoing pandemic and its long-term consequences.⁷

5 Barry Smit et al., 'The science of adaptation: A framework for assessment' (1999) 4 *Mitigation and Adaptation Strategies for Global Change* 199, 200; Richard J T Klein et al., 'Interrelationships between adaptation and mitigation' in Martin L Parry et al. (eds), *Climate change 2007: Impacts, adaptation and vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press 2007) 745, 748-50; IPCC, *Sixth Assessment Report, Working Group I* (Final Government Distribution 2021) 3886.

6 Cf. Klein et al. (n 5) 750; IPCC, 2021 (n 5) 3922.

7 In the scientific literature on pandemics, there are hardly any working definitions for the terms *mitigation* and *adaptation*. Often, only the term *mitigation* is used, which then also describes measures that should be counted as adaptation measures according to the distinction between mitigation and adaptation established in the climate change literature. However, when the term *adaptation* is explicitly defined in the scientific literature on pandemics, the definition is similar or congruent with the definition in the scientific literature on climate change. See Jamison Pike et al., 'Economic optimization of a global strategy to address the pandemic threat' (2014) 111 *Proceedings of the National Academy of Sciences* 18519; Anson TH Ma et al., 'Protected

Consider, for instance, some of the legal, political, economic, and even psychological constraints that governments had to address in the course of 2020 and 2021 to address the COVID pandemic. These were constraints on *P-A*, as the main goal of governments, in this case, was not to mitigate the problems that may lead to the emergence of a pandemic but to adapt themselves to a pandemic that had already emerged. In order to contain the advance of new infections and to prevent an increase in the number of excess deaths, governments had to enact emergency laws, impose temporary restrictions on air travel and freedom of movement, and create new fiscal policies to protect people who were unable to work, whether as employers or employees. Now, in order to address climate goals effectively, governments have to address similar constraints (legal, political, economic, and even psychological constraints), though not temporarily as in the case of *P-A*, but over a longer period of time (or perhaps even indefinitely). Moreover, in addition to these constraints, governments will also have to address geopolitical constraints. In this chapter, we show that geopolitical and proximity constraints are particularly difficult to overcome.

Global preparedness for pandemics (a kind of *P-M* policy), as we will see in more detail later, also compels governments to address legal, political, economic, and geopolitical constraints. But not all constraints apply equally to measures to reduce the causes of pandemic occurrence and to reduce greenhouse gas emissions. With regard to the constraints that need to be overcome, *C-M* policies are different from *P-M* policies. The feasibility of *C-M* depends in particular on transgenerational cooperation, which will benefit future generations. According to the Paris Agreement (entry into force 4th of November 2016), in order to hold ‘the increase in the global average temperature to well below 2°C above pre-industrial levels and [to pursue] efforts to limit the temperature increase to 1.5°C above pre-industrial levels’ (Article 2), the (as of November 2021) 193 parties of the agreement ‘aim to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century’ (Article 4), that is, they aim at what has been dubbed climate neutrality by 2050.⁸ This requires very far-reaching measures with burdens and costs for those living today and over the next several generations, while benefits due to the prevented worse impacts of climate change accrue mainly to those in the more distant future. The relevant actors will have to be in a position to overcome a kind of soft constraint we call ‘temporal proximity constraint’. This constraint does not significantly affect *P-A*, *P-M*, or *C-A* policies because they do not require strong transgenerational cooperation for the benefit of future generations.

areas as a space for pandemic disease adaptation: A case of COVID-19 in Hong Kong’ (2021) 207 *Landscape and Urban Planning* 103994.

8 Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016) UNCTD No 54113; the full text is available at <<https://bit.ly/3IJkGw>> accessed 28 March 2022.

For the purpose of this chapter, we do not claim to have established all relevant constraints for each group of policies, that is $P-A$, $P-M$, $C-A$, and $C-M$. One could distinguish many different kinds of constraints. Some relate to technological challenges, others to economic feasibility, still others to regime-specific political feasibility, e.g., the compatibility of being responsible for unpopular measures and being democratically re-elected,⁹ and arguably also challenges related to influencing demographic development.¹⁰ We focus, instead, on what we argue are two particularly robust kinds of constraints on the feasibility of both pandemic and climate goals, namely: geopolitical constraints and proximity constraints.

2 Mitigation and adaptation goals

Pandemics are not natural disasters like earthquakes, tsunamis, or volcanic eruptions. Pandemics, like climate change, have anthropogenic causes. It is well-known, for instance, that illegal wet markets can lead to virus spillover and, thus, spark the outbreak of a pandemic. Wildlife trade and encroachment on the habitat of wild species through deforestation (or through the fragmentation of forests) can also cause pathogens to spill over into human beings and, then, give rise to a pandemic. Improved affordability of air travel and increased movement of people across borders, too, contribute significantly to the rapid spread of new viruses.¹¹ Over the last fifteen years, the scientific community has called attention to the ever-increasing probability of new outbreaks and the importance of coordinated efforts to pursue $P-M$ on a global scale.¹² $P-M$ aims at preventing the occurrence of new outbreaks, especially

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- 9 Kathryn Judge, 'The federal reserve: A study in soft constraints' (2015) 78 *Law and Contemporary Problems* 65; John Broome, 'Efficiency and future generations' (2018) 34 *Economics and Philosophy* 221; Jonathan Symons, *Ecomodernism: Technology, politics and the climate crisis* (Polity Press 2019).
 - 10 Darrell Bricker and John Ibbotson, *Empty planet: The shock of global population decline* (Broadway Books 2019); Mark Budolfson and Dean Spears, 'Population ethics and the prospects for fertility policy as climate mitigation policy' (2021) *The Journal of Development Studies* 1.
 - 11 Johanna F Lindahl and Delia Grace, 'The consequences of human actions on risks for infectious diseases: A review' (2015) 5 *Infection Ecology & Epidemiology* 30048; Andrew P Dobson et al., 'Ecology and economics for pandemic prevention' (2020) 369 *Science* 379; Jeff Tollefson, 'Why deforestation and extinctions make pandemics more likely' (2020) 584 *Nature* 175; Peter Daszak, 'We are entering an era of pandemics – it will end only when we protect the rainforest' *The Guardian* (28 July 2020) <<https://bit.ly/3JPJXzI>> accessed 28 March 2022.
 - 12 Jamison Pike et al. (n 7); James R Clapper, 'Statement for the record worldwide threat assessment of the US Intelligence Community, 9 February' (US Intelligence Community, 9 February 2016) 13-14 <www.armed-services.senate.gov/imo/media/doc/Clapper_02-09-16.pdf> accessed 3 December 2021; Daniel R Coats, 'Statement for the record worldwide threat assessment of the US Intelligence Community' (US Intelligence Community, 29 November 2019) 21 <www.dni.gov/files/ODNI/documents/2019-ATA-SFR---SSCI.pdf> accessed 3 De-

through the implementation of Sustainable Development Goals (SDGs). If an outbreak does occur, *P-M* can attenuate the chances that an outbreak develops into a pandemic.¹³ Seen in this light, it is clear that the measures to address the COVID pandemic are not *P-M*, but *P-A*. These measures are primarily aimed at reducing the impact of a disease that has already emerged and spread globally.

As early as 2005, Michael Osterholm argued that the world was unprepared for pandemics, in spite of clear evidence that pandemics were likely to become more frequent.¹⁴ In 2016, the American Intelligence Community (AIC), which provides global security advice to the American Senate, produced a report suggesting that the ‘international community remains ill prepared to collectively coordinate and respond to disease threats’, including coronaviruses.¹⁵ Early in 2019, months before the COVID outbreak, the AIC published a new report and stressed, again, the same point:

We assess that the United States and the world will remain vulnerable to the next flu pandemic or largescale outbreak of a contagious disease that could lead to massive rates of death and disability, severely affect the world economy, strain international resources, and increase calls on the United States for support.¹⁶

Needless to say, these early warnings fell on deaf ears. *P-M* requires strong international cooperation in areas such as the development of surveillance capabilities, transparent interstate communication, and schemes for mutual access to virus samples for the development of rapid diagnostic, new drugs and vaccines. Effective *P-M* will also require the strengthening of the World Health Organization, or perhaps even the creation of a ‘pandemic treaty’, as we are going to see in the next section. Effective *P-M* will also have to address the threat posed by bioterrorism, though we do not delve into this topic in this chapter.¹⁷

P-A, on the other hand, are mostly local. States and municipalities have the authority to enforce them within their own borders. *P-A* include, for instance, enactment of emergency laws, construction of field hospitals, introduction of contact tracing tools,

ember 2021; World Health Organization (WHO), *Annual review of diseases prioritized under the research and development blueprint informal consultation. Meeting report* (WHO 2018).

13 See e.g., the United Nations *2030 Agenda for Sustainable Development*: ‘Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks’; see United Nations, ‘Transforming our world: The 2030 Agenda for Sustainable Development’ (2015) 19 <<https://bit.ly/3wCSMci>> accessed 28 March 2022. See also Gordon Brown and Daniel Susskind, ‘International cooperation during the COVID-19 Pandemic’ (2020) 36 *Oxford Review of Economic Policy* 64, 69.

14 Michael Osterholm, ‘Preparing for the next pandemic’ (2005) 84 *Foreign Affairs* 24.

15 Clapper (n 12).

16 Coats (n 12) 21.

17 Ali Nouri and Christopher F Chyba, ‘Biotechnology and biosecurity’ in Nick Bostrom and Milan M Cirkovic (eds), *Global catastrophic risks* (Oxford University Press 2008); Toby Ord, *The precipice: Existential risk and the future of humanity* (1st edn, Hachette Books 2020) 203; Brown and Susskind (n 13) 73.

quarantine, and social distancing. These measures are supposed to be temporary. The quest for a vaccine, too, is an adaptation measure because its primary goal consists in adapting the human immune system to a new environment, and not to prevent the outbreak of a pandemic in the first place. If the infrastructure and expertise deployed for the development and distribution of vaccines (including booster vaccines) are kept for possible use in the future, so as to avoid another pandemic from happening, then the infrastructure and expertise will be valuable for the purpose of *P-M* as well. That adaptation measures may also work positively in terms of mitigation is well known from the analysis of climate change strategies. For reasons of effectiveness and minimising costs as well as risks, climate strategies aim at reducing impacts of climate change by addressing adaptation and mitigation together, either in such a way that adaptation or mitigation ‘is used as an entry measure providing the other one as a co-benefit’ (under the so-called complementarity approach) or ‘within an integrated framework without prioritising among [adaptation and mitigation] and giving due attention to system integrity and functionality’ (under the so-called synergy approach).¹⁸ Similarly, *P-A* measures, if appropriately complementary to or synergistic with the goal of reducing the occurrence of future pandemics, may have an added benefit in terms of *P-M*.

In any case, given their positive individual, local, and short-term adaptation effects, both governments and citizens have a strong incentive to pursue *P-A* by overcoming economic constraints such as, for instance, fiscal policy, or legal-ethical constraints such as freedom of movement and concerns about violation of privacy, or to change their lifestyles temporarily by wearing facemasks, engaging in social distancing, and avoiding handshaking. However, it should be noted that many people in different parts of the world do not fully support the enforcement of these measures. But, paradoxically, when it comes to *P-M*, the same actors perceive the same constraints as less malleable, even considering that some studies published prior to the COVID outbreak had shown that *P-M* is far less costly than *P-A*.¹⁹ From a cost-benefit perspective, the sheer costs of *P-A*, when compared to the costs of *P-M*, provide good reasons to favor *P-M* over *P-A*. But from an ethical perspective, too, it is easy to recognise that *P-M* should take precedence over *P-A*. Many moral costs – the loss of life, infringements of liberty, welfare costs to persons of all ages, and so on –

18 Lalisa A Duguma et al., ‘Climate change mitigation and adaptation in the land use sector: From complementarity to synergy’ (2014) 54 *Environmental Management* 420-32, 422. Cf. e.g., Klein et al. (n 5) 747-49; Zia A, ‘Synergies and trade-offs between climate change adaptation and mitigation across multiple scales of governance’ in Riyanti Djalante and Bernd Siebenhüner (eds), *Adaptiveness: Changing Earth system governance* (Cambridge University Press 2021).

19 Nita Madhav et al., ‘Pandemics: Risks, impacts, and mitigation’ in Dean T Jamison et al. (eds), *Disease control priorities: Improving health and reducing poverty* (3rd edn, World Bank Group 2018); Pike et al. (n 7).

may not be adequately captured by simple cost-benefit analysis, yet they are genuine and significant costs all the same, and they would be avoided by successful *P-M*.

Climate goals also require both mitigation and adaptation measures. *C-M* aim at keeping the global temperature increase below 1.5°C above pre-industrial levels by 2030 and reaching carbon neutrality by 2050.²⁰ The benefits of *C-M* (like the benefits of *P-M*) are mostly global. They require strong international cooperation. However, the effects of *C-M* will only be vividly felt within the next decades. The current generation, especially individuals who are already in their forties or older, cannot expect to benefit significantly from *C-M*. Effective *C-M*, thus, requires both strong international cooperation and strong transgenerational cooperation. *C-A*, on the other hand, can be effective at a local level and within a shorter time. *C-A* measures aim, for instance, at reshaping the infrastructure of cities in order to make them more robust against the consequences of heat waves, extreme weather, and sea-level rise.²¹ Interventions in rural areas are also necessary in order to make them less vulnerable, for example, to bush fires or river floods. *C-A* does not necessarily require strong international cooperation. However, the longer-term effectiveness of *C-A* ultimately depends on the success of *C-M*.²² Adaptation measures alone are likely to be of little help in coastal areas if, for example, sea levels rise over one meter on average by 2070 or over two meters by the end of the 21st century.²³

Since the inception of the COVID pandemic, several constraints on the feasibility of *P-A* have been successfully overcome. Some of these constraints are also constraints on the feasibility of *C-M*. Thus, in the course of 2020 and 2021, some of the constraints on the feasibility *C-M* have also been partially (even if only temporarily) overcome. Indeed, as mentioned earlier, one of the early indirect consequences of the implementation of *P-A* in 2020 was the reduction of greenhouse gas emissions. There are reasons to believe, then, that some constraints are more malleable in one context (*P-A*) and less malleable in other contexts (*P-M*, *C-A*, and *C-M*). But why? It might be correctly argued that the constraints on the feasibility of *P-A* are more malleable simply because the measures to address an ongoing pandemic are expected to remain in place for a limited amount of time, unlike the measures that are necessary to address the other goals (*P-M*, *C-A*, and *C-M*).²⁴ As we intend to show, though, this is

20 IPCC, *Global warming of 1.5°C*. (n 1) 33.

21 Ibid 396.

22 Dale Jamieson, 'Adaptation, mitigation, and justice' in Stephen Gardiner et al. (eds), *Climate ethics: Essential readings* (Oxford University Press 2010) 266-267.

23 Jonathan L Bamber et al., 'Ice sheet contributions to future sea-level rise from structured expert judgment' (2019) 116 *Proceedings of the National Academy of Sciences* 11195.

24 See e.g., Gustav Engström et al., 'What policies address both the coronavirus crisis and the climate crisis?' (2020) 76 *Environmental and Resource Economics* 789: 'Crisis management often requires exceptional policies, and may temporarily alter constraints on decision making.' (...) 'Many coronavirus policies have temporary effects on carbon emissions (e.g., reduced

not the only reason. We argue that the more a goal *G* requires strong international cooperation and strong transgenerational cooperation, the less malleable become the relevant constraints on *G*. This can be systematised as seen in table 2:

Table 2

	P-A	P-M	C-A	C-M
Strong international co-operation	not required ²⁵	required	not required ²⁶	required
Strong transgenerational cooperation for the benefit of future people	not required	not required	not required	required

Although *C-A* requires neither strong international cooperation nor strong transgenerational cooperation, the long-term effectiveness of *C-A*, as we have emphasised above, does require *C-M*, which in turn requires both strong international cooperation and strong transgenerational cooperation for the benefit of future generations. One might argue that effective *P-A* also requires strong international cooperation, even if it does not necessarily require strong transgenerational cooperation. After all, we cannot, for instance, expect each country to develop by itself a vaccine for COVID without the help of other countries. Also, the economic, social, and cultural consequences of national *P-A* measures, such as border closures, often depend on what other countries do. Uncoordinated national *P-A* measures can lead to unintended global impacts that undermine the intended benefits of national *P-A* measures. For example, uncoordinated measures can disrupt the flow of goods and interrupt production processes, negatively impacting the supply of goods to the population and the labour market. Border closures that restrict international travel in and out of the country also have the unintended consequence of undermining and impeding cultural and educational experiences internationally (and the more so, the more countries close their borders). Arts festivals, theatre and opera performances, and visiting and exchange programs often rely on artists, performers, scholars, and students to travel abroad.

traffic due to a lockdown), but we see such temporary effects as unimportant, given the long timescales involved in anthropogenic climate change.’

25 See (n 26) and see next paragraph.

26 Strong international cooperation is not required (see e.g., RJT Klein et al. (n 5) 747), but often conducive to the success of adaptation measures. In light of borderless climate risks and owing to the transnational and international effects of (national or regional) adaptation measures, understanding adaptation as territorially limited has been questioned and providing the technology for and financing adaptation measures have become the subject matter of international negotiations and projects. See, e.g., Magnus Benzie and Åsa Persson, ‘Governing borderless climate risks: Moving beyond the territorial framing of adaptation’ (2019) 19 *International Environmental Agreements: Politics, Law and Economics* 369.

However, we can at least imagine scenarios in which, for instance, one country pursues *P-A* effectively without having to engage in strong international cooperation. A country (or a small coalition of countries) may, for instance, achieve a breakthrough in the development of an effective vaccine and only agree to share the vaccine with other countries after its own population has been immunised, and provided it has also stockpiled millions of doses for possible use in its own territory in the future. This is a practice known as ‘vaccine nationalism’.²⁷ Now, of course, *P-A* will be more effective at a global level if it is pursued through strong international cooperation, but it does not necessarily require strong international cooperation. On the other hand, no country can seal off its borders from the effects of dangerous climate change or become entirely immune to its effects through the implementation of *C-A* only. In order to avert dangerous climate change, both strong international cooperation and strong transgenerational cooperation are required.

What are, then, the most salient constraints on the feasibility of strong international cooperation and strong transgenerational cooperation to address pandemic and climate goals? We argue that geopolitical constraints and proximity constraints constitute the most robust constraints on the feasibility of both climate and pandemic goals.

3 Geopolitical constraints

Many different forms of cross-border cooperation efforts can be deployed in an attempt to address global challenges. Consider, for instance, the swift development of effective COVID vaccines in the course of 2020 and 2021. This unprecedented achievement would not have been possible without close cooperation among researchers from different nationalities, working together in several research institutes around the world. The development of vaccines also required intense cooperation between states and the private sector of other states and between governmental and non-governmental agencies such as the WHO (World Health Organization), COVAX (COVID-19 Vaccines Global Access), CEPI (Coalition for Epidemic Preparedness Innovations) etc. And, of course, it also involved some cooperation among states. All these forms of cooperation can be correctly referred to as instances of *international cooperation*. In the face of a major global crisis, different forms of international cooperation will have to face different kinds of constraints.

27 Kai Kupferschmidt, ‘“Vaccine nationalism” threatens global plan to distribute COVID-19 shots fairly’ (Science (AAAS), 28 July 2020) <www.sciencemag.org/news/2020/07/vaccine-nationalism-threatens-global-plan-distribute-covid-19-shots-fairly> accessed 6 October 2020; Brown and Susskind (n 13); Ewen Callaway, ‘The unequal scramble for coronavirus vaccines – by the numbers. Wealthy countries have already pre-ordered more than two billion doses’ (2020) 584 Nature 506.

The international scientific cooperation for the development of COVID vaccines is a case in point. Despite travel restrictions, international scientific cooperation increased rather than decreased during the pandemic.²⁸ Travel restrictions, therefore, did not act as a strong constraint on the feasibility of international scientific cooperation. Of course, it does not follow from this that international scientific cooperation did not have to address some robust constraints during the pandemic. Vaccine research had to be carried out, for instance, within acceptable, previously agreed upon ethical constraints. They also had to meet legal constraints, which differed from country to country. Time constraints also had to be addressed, as vaccine research ultimately aimed at curbing the mounting number of COVID cases and deaths all around the world as soon as possible. In a similar vein, climate change has also sparked extensive international scientific cooperation among researchers from virtually every field of knowledge, based in every part of the world.²⁹ The problem, though, is that strong international cooperation for the purpose of scientific research on vaccines or for the creation of solutions to problems humanity has to address as a result of climate change did not give rise to a comparable degree of international cooperation among states. How is that possible? According to Jenny Lee and John Haupt, the main reason for this is that researchers and political leaders operate with ‘different logics’:

Politicians seek to promote the nation-state and engage in science primarily through a narrow lens of national development and national security, while scientists may find their allegiance to a scientific community that is less bound by political, ethnic and cultural borders.³⁰

In this chapter, to avoid confusion among different forms of international cooperation, when we speak of geopolitical constraints on the feasibility of international cooperation, we have in mind constraints on cooperation among states, even while recognising that other forms of international cooperation, especially scientific cooperation, may thrive at the same time cooperation among states becomes weaker. Many international relations theories do not limit their understanding of international relations to the strict domain of relation among states because, as we have just seen, we are familiar with a wide range of cross-border effective cooperative schemes. They involve not only scientific cooperation but also, for example, trade agreements, climate regimes, humanitarian aid, academic exchange, internet governance, which may or may not include the participation of states. There is, indeed, a broad family of institutionalist theories, comprising for instance liberal institutionalism, neoliberal

28 Jenny J Lee and John P Haupt, ‘Scientific collaboration on Covid-19 amidst geopolitical tensions between the US and China’ (2021) 92 *The Journal of Higher Education* 303.

29 IPCC, *Global warming of 1.5°C*. (n 1).

30 Lee and Haupt (n 28) 322. However, although international scientific cooperation intensified during the pandemic, especially at the beginning of the global health crisis, geopolitical constraints might revert this tendency in the longer run. See Nature (Editorial), ‘Protect precious scientific collaboration from geopolitics’ (2021) 593 *Nature* 477.

institutionalism, neo-institutionalism and so on, that recognises the relevance of non-state actors and international institutions in the domain of international relations. Accordingly, supporters of neo-institutionalism argue that the anarchic structure of the system of states does not represent a strong constraint on international cooperation, for the feasibility of effective international cooperation does not require a centralised global authority.³¹ The liberal institutionalist understanding of international relations contrasts with the understanding advanced by supporters of realism (and neorealism) in international relations – or *political realism*, as we will call them in this chapter. Supporters of political realism argue that the domain of international relations primarily concerns the relation among states, for the states are the main, if not the only relevant actors in the international arena.

While co-nationals can rely on the protection of police forces, armies and other government bodies in the event of a conflict among them, within their own territory, the structure of the system of states is such that one state cannot rely on similar institutions when another state (or group of states) threatens its security. As a sovereign political body, each state is ultimately responsible for its own security, whether individually or in a scheme of coalition with allies. As Kenneth Waltz, a well-known supporter of political realism, famously put the problem: ‘Citizens need not prepare to defend themselves. Public agencies do that. A national system is not one of self-help. The international system is’.³² Supporters of political realism argue that institutionalist theories of international relations fail to recognise the extent to which the structure of the system of states constrains each individual state to favor security over cooperation in some critically and sensitive areas of national interest.³³ They do not deny that states often cooperate, but rather claim that cooperation among states is narrowly constrained by the demands of state security.³⁴

Now, in order to understand the force of geopolitical constraints on international cooperation for the pursuit of pandemic and climate goals (*P-A*, *P-M*, *C-A*, and *C-M*), we have to focus on political realism, rather than on liberal institutionalism (or on other theories in the broad institutionalist family). There are three reasons for this. The first reason is that states are the only actors with the power and legitimacy to enforce the measures necessary to address pandemics and climate change in time to

31 Robert O Keohane, *After hegemony: Cooperation and discord in the world political economy* (Princeton University Press 2005); RAW Rhodes, Sarah A Binder and Bert A Rockman (eds), *The Oxford handbook of political institutions* (Oxford University Press 2006); Arthur A Stein, ‘Neoliberal institutionalism’ in Christian Reus-Smit and Duncan Snidal (eds), *The Oxford handbook of international relations* (Oxford University Press 2008); Thomas G Weiss, *Global governance: Why? what? whither?* (Polity Press 2013).

32 Kenneth Waltz, *Theory of international politics* (University of California 1979) 104.

33 John Grieco, ‘Anarchy and the limits of cooperation: A realist critique of the newest liberal institutionalism’ (1988) 42 *International Organization* 285.

34 Waltz (n 32) 104; Grieco (n 33) 485; John J Mearsheimer, ‘The false promise of international institutions’ (1994) 19 *International Security* 5, 9.

preclude catastrophic consequences. The international scientific community can inform the behaviour of states in these areas, but it has neither the power nor the mandate to enforce evidence-based pandemic and climate policies or to compel states to do so.

The second reason to focus on political realism is that a plethora of intergovernmental and non-governmental institutional bodies have not been able to preclude the emergence of the COVID pandemic, even though several international organisations, research institutes, and think-tanks around the world had been calling attention to the threats posed by pandemics and proposing strategies to mitigate those threats since at least 2005. Neither have intergovernmental and non-governmental institutional bodies been able to prevent the global increase of greenhouse gas emissions over the last decades.³⁵ Institutional theories can explain the success of international cooperation for the development of cutting-edge vaccines or sophisticated climate models. But institutional theories cannot adequately account for the lack of international cooperation among states in the pursuit of pandemic and climate goals. The reason for this, as suggested above, is that international scientific cooperation, on the one hand, and cooperation among states, on the other, are subjected to different kinds of constraints. Because political realism emphasises the force of geopolitical constraints on the prospect of cooperation among states (owing to the states considering national security as their top priority), political realism seems better equipped to account for states' unwillingness to cooperate with one another, even while other forms of international cooperation may intensify. However, it does not follow from this that, at a normative level, political realism is well equipped to guide the behaviour of states in the face of threats posed by pandemics and climate change, which brings us to the third reason to focus on realism.

The third reason is this: there are two quite distinct traditions of political realism. There is a well-known tradition associated with the works of influential authors such as, for instance, Kenneth Waltz, John Grieco, and John Mearsheimer. They argue that the absence of central authority within the system of states constrains the states to favour security over cooperation. Because the system of states lacks a body for the execution and enforcement of laws at a global level, similar to the legal and political bodies that exist at a national level, each state has to take care of its own security. In the international arena, no state can be sure that other states will come to its help when its survival as a state is at stake. Another reason to rely primarily on self-help in the international arena is the assumption, shared by several supporters of political

35 The Royal Society and National Academy of Sciences (NAS), 'Climate change evidence & causes. An overview from the Royal Society and the US National Academy of Sciences' (2020) <<https://royalsociety.org/topics-policy/projects/climate-change-evidence-causes/>>; and United Nations Environment Programme, 'Emissions Gap Report 2020. Executive Summary' (Nairobi, 2020) xi <www.unep.org/emissions-gap-report-2020> both accessed 29 December 2021.

realism, that today's allies may become tomorrow's enemies so that helping other states can be costly and dangerous in the long run.³⁶ As Grieco puts it: '(...) increasingly powerful partners in the present could become all the more formidable foes at some point in the future'.³⁷ We call this tradition of political realism *state survival realism*.

There is a previous generation of political realism associated with the works of authors such as, for instance, Hans Morgenthau, Georg Schwarzenberger, and John Herz, who recognised the force of geopolitical constraints on the prospect of cooperation among states. They have also realised that in the modern atomic age, no state can take care of its own security or the security of its citizens without strong cooperation with other states. A nuclear winter resulting from the massive deployment of nuclear weapons – whether for a preemptive strike or as a retaliation for a first strike – would leave everyone worst-off, and that quite regardless of state borders. For this reason, Morgenthau, Schwarzenberger, and Herz advocated global reform, rather than deterrence, as the most promising way to address questions of security. However, these authors may still be referred to as supporters of political realism, for they also argued that the states are the only actors in a position to implement the necessary measures to address challenges of global security, that is, challenges that affect the security of every state. As Herz aptly puts it: 'Hope – if any remains – is not in the impending emergence of world government in the place of nation-states. One can only work with what one has, that is, with states, their people and their leaders'.³⁸ But because this branch of political realism, committed to global reform, is quite distinct from the branch of political realism that emerged in the works of Waltz, Grieco, Mearsheimer, and having in mind that Morgenthau, Schwarzenberger, and Herz focused on global survival, rather than on state survival, we name this branch of political realism *global survival realism*. Let us see, then, how *state survival realism*, on the one hand, and *global survival realism*, on the other, account for the force of geopolitical constraints on the pursuit of pandemic and climate goals.

Consider *P-A* and *C-A* first. The pursuit of *P-A* and *C-A* does not require strong international cooperation (understood here as cooperation among states) because a state, given a set of options within its power, will typically deploy the measures that it considers will best promote its interest, even if to the detriment of other states and, sometimes, even when the measures are not backed by scientific evidence. Each state, considered as a sovereign political body, has the authority to deploy the adaptation measures it sees fit within its territory. It should not come as a surprise, then, that different states may achieve different degrees of success in their respective *P-A*

36 Waltz (n 32) 105; John J Mearsheimer, *The tragedy of great power politics* (updated edn, WW Norton & Company 2011) 52.

37 Grieco (n 33) 499.

38 John Herz, 'Technology, ethics, and international relations' (1976) 43 *Social Research* 98, 110.

and *C-A* policies, depending on their economic and technological power and on the epistemic quality of the choices they make. More powerful states, guided by evidence-based policies, may expect to attain *P-A* and *C-A* successfully without having to rely on strong international cooperation. Less powerful states, on the other hand, will have to rely on the help of other states to implement effective *P-A* and *C-A* within their respective territories. International cooperation may promote their interest, but for the more powerful states, cooperation with the less powerful states might be seen as an unnecessary burden.

Now, in saying that *P-A* and *C-A* do not require strong international cooperation, especially as far as the interests of the more powerful states are concerned, we, of course, do not mean to suggest that strong international cooperation would not lead to more effective adaptation policies, especially for the benefit of the less powerful states. The latter have to adapt to climate change and pandemics with a narrower set of options to choose from, with limited economic resources to finance climate adaptation, or limited access to vaccines and personnel protective equipment to promote pandemic adaption. Moreover, strong international cooperation would also promote fairness on a global scale, regardless of other benefits it is likely to promote. It might be asked, then, why we argue that we should focus on political realism in the attempt to understand the constraints that stand in the way of pandemic and climate goals?

The reason is this: As predicted by state survival realism, during the COVID pandemic, the absence of central authority within the system of states may not have represented a strong constraint on international scientific cooperation, but it did not promote cooperation among states. Quite on the opposite, the pandemic heightened geopolitical tensions, specially between China and the United States. This point has been noticed by several authors who examined the geopolitical implications of the COVID pandemic in the course of 2020 and 2021.³⁹ Kickbusch and Holzscheiter, for instance, put the problem as follows:

Rather than inspiring a collective response to a public health emergency of international concern (PHEIC), the pandemic reinforced competitiveness between countries. Controlling the virus became a matter of achieving systems advantage, practising vaccine nationalism, controlling supply chains, and exploiting strategic geopolitical opportunities.⁴⁰

39 Gordon Brown and Daniel Susskind (n 13) 64; Jeffrey Cimmino, Matthew Kroenig and Barry Pavel, 'Taking stock: Where are geopolitics headed in the COVID-19 era?' (2020) Atlantic Council 21; David P Fidler, 'The Covid-19 pandemic, geopolitics, and international law' (2020) 11 Journal of International Humanitarian Legal Studies 237, 246; Armin von Bogdandy and Pedro Villarreal, 'International law on pandemic response: A first stocktaking in light of the coronavirus crisis' (2020) Max Planck Institute for Comparative Public Law & International Law (MPIL) Research Paper No 2020-07 <www.ssrn.com/abstract=3561650> accessed 19 December 2021; Jennifer Cole and Klaus Dodds, 'Unhealthy geopolitics: Can the response to COVID-19 reform climate change policy?' (2021) 99 Bulletin of the World Health Organization 148; Lee and Haupt (n 1).

40 Ilona Kickbush and Anna Holzscheiter, 'Can geopolitics derail the pandemic treaty?' (2021) BMJ e069129, 1.

Even within the European Union, geopolitical tensions increased during the COVID pandemic. Some analysts suggested, for instance, that Italy had been let down by other European Union states around March and April 2020, when it most needed them.⁴¹ Therefore, geopolitical constraints indeed represent a constraint on the feasibility of *P-A*. But the force of geopolitical constraints on a state's ability to implement successful *P-A* measures will mostly depend on its economic and technological power, along with decision-makers' willingness to follow evidence-based policies. *C-A* follows a similar pattern, as it has been generally admitted that poorer states have had more difficulty in adapting to climate change than richer ones.⁴²

When it comes to *P-M* and *C-M*, geopolitical constraints are even stronger, for no state, rich or poor, can expect to benefit from *P-M* and *C-M* without strong cooperation with other states. *P-M* and *C-M* aim at mitigating the underlying causes of pandemics and climate change. *P-M* strategies require, for instance, the pursuit of sustainable development goals to reduce the risks of new disease outbreaks. International organisations such as the WHO are also indispensable for the purpose of *P-M*. If a new disease outbreak does occur, the WHO must be notified quickly. Other states are then expected to follow its recommendations. *C-M* also requires strong international cooperation because no state can expect to mitigate greenhouse gas emissions effectively if the other states do not follow suit. On the contrary, a state will feel less encouraged to pursue *C-M*, if it has reasons to believe that other states will not do the same. Indeed, even if most states implemented radical *C-M* measures, a few states the size of Brazil, China, or Bangladesh might still feel encouraged to attract the whole industrial fossil fuel infrastructure, phased out everywhere else, increasing their own emissions and, thus, compromising the entire *C-M* efforts. Aware of this otherwise hypothetical scenario, states might decide not to implement *C-M* efforts in the first place or wait and engage in strong cooperation only after a substantial number of states have implemented effective *C-M* in their territories.⁴³

During the COVID pandemic, there were discussions on creating a *pandemic treaty* as an attempt to prevent future pandemics.⁴⁴ A pandemic treaty would work as a further strategy for *P-M*. Currently, the WHO International Health Regulations (IHR)

41 George Friedman, 'The coronavirus crisis and geopolitical impact' (2020) 16 Horizons: Journal of International Relations and Sustainable Development 24 <<https://bit.ly/3LqftVn>> accessed 28 March 2022.

42 Samuel Fankhauser and Thomas K J McDermott, 'Understanding the adaptation deficit: Why are poor countries more vulnerable to climate events than rich countries?' (2014) 27 Global Environmental Change 9; United Nations Conference on Trade and Development (UNCTAD), *Trade and development report 2021: From recovery to resilience: The development dimension* (United Nations 2021) 145.

43 Stephen Gardiner, *A perfect moral storm: The ethical tragedy of climate change* (Oxford University Press 2011) 95-98.

44 World Health Organization (WHO), 'The World Together: Establishment of an intergovernmental negotiating body to strengthen pandemic prevention, preparedness and response (SSA2/CONF./1)' (World Health Organization (WHO), 27 November 2021).

are the most important international legal instrument for global health. The IHR are binding upon the signatory states, but they lack proper enforcement mechanisms.⁴⁵ The WHO itself recognises that it cannot exact compliance from the signatory states:

The IHR (2005) have been agreed upon by consensus among WHO Member States as a balance between their sovereign rights and shared commitment to prevent the international spread of disease. Although the IHR (2005) do not include an enforcement mechanism per se for States which fail to comply with its provisions, the potential consequences of non-compliance are themselves a powerful compliance tool.⁴⁶

In order to address the problem of non-compliance, a pandemic treaty would have to revise that ‘balance’ between sovereignty, on the one hand, and states’ commitments to the benefit of global health, on the other. This might mean, for instance, that signatory states would have a duty to allow international regulatory bodies to inspect research facilities at short notice or to verify the causes of a new disease outbreak without interference from the state where the outbreak occurred, being subjected to sanctions in case of non-compliance.⁴⁷ For this reason, it soon became apparent that strong geopolitical constraints would have to be overcome to implement a pandemic treaty – and that despite the clear humanitarian and economic advantages of *P-M* over *P-A*. Moon and Kickbusch call attention to the force of geopolitical constraints on the prospect of a pandemic treaty in the following passage:

The pandemic has highlighted an enduring feature of the global system: the self-interested behaviour of sovereign states, and the challenge of ensuring that they comply with international rules when their perceived interests lie elsewhere. The first and foremost challenge of a treaty is for governments to make binding commitments to each other.⁴⁸

As predicted by state survival realism, powerful states such as China, the United States or Russia have declared, in 2021, that they are unwilling to endorse a pandemic *treaty* because a treaty, unlike, for instance, an *agreement*, or a *convention*, or an

45 Lawrence O Gostin and Rebecca Katz, ‘The international health regulations: The governing framework for global health security’ (2016) 94 *The Milbank Quarterly* 264; Andrea Spagnolo, ‘(Non) compliance with the international health regulations of the WHO from the perspective of the law of international responsibility’ (2018) 18 *Global Jurist* <<https://bit.ly/37VV77I>> accessed 28 March 2021.

46 World Health Organization (WHO), ‘Frequently asked questions about the international health regulations (2005)’ (WHO, 2005) <www.who.int/ihr/about/faq/en/> accessed 29 December 2021.

47 Sakiko Fukuda-Parr et al., ‘Pandemic treaty needs to start with rethinking the paradigm of global health security’ (2021) 6 *BMJ Global Health* e006392; Ronald Labonté et al., ‘A pandemic treaty, revised international health regulations, or both?’ (2021) 17 *Globalization and Health* 128; Haik Nikogosian and Ilona Kickbusch, ‘The case for an international pandemic treaty’ (2021) 372 *BMJ* n527; Jorge Vinueles et al., ‘A Global pandemic treaty should aim for deep prevention’ (2021) 397 *The Lancet* 1791; Clare Wenham et al., ‘Preparing for the next pandemic’ (2021) 373 *BMJ* n1295; John Zarocostas, ‘Countries prepare for pandemic treaty decision’ (2021) 398 *The Lancet* 1951; Luke Taylor, ‘World Health Organization to begin negotiating international pandemic treaty’ (2021) 375 *BMJ* n2991.

48 Suerie Moon and Ilona Kickbusch, ‘A pandemic treaty for a fragmented global polity’ (2021) 6 *The Lancet Public Health* e355, e355.

accord, would be perceived as a constraint on their sovereignty.⁴⁹ Tellingly, the WHO document that registers the start of international discussions on the possibility of a pandemic treaty does not even use the word *treaty*. It says instead that it aims ‘to draft and negotiate a WHO convention, agreement or other international instrument on pandemic prevention, preparedness and response.’⁵⁰ As we can see, state survival realism provides a compelling account of the force exerted by geopolitical constraints on pandemic and climate goals. This account relies on the correct assumption that states, on the one hand, and non-state actors, on the other, operate with ‘different logics.’⁵¹ The analysis provided by supporters of state survival realism is sound to the extent that the *logic* with which states operate is also sound. But how sound is that logic in the face of threats like pandemics and climate change?

Supporters of state survival realism assume that the most pressing threat a state has to face is the very existence of other states in a system devoid of central government. The problem, however, is that state survival realism – and political leaders who endorse the principles of state survival realism in their respective foreign policies – fail to recognise that we now live in an even more ‘dangerous world’, but for different reasons. State borders were originally designed to provide security from external threats and promote internal cooperation. But state borders offer little protection against pandemics and climate change. They are also of little help in the event of a nuclear winter.

In the aftermath of World War II, supporters of global survival realism became keenly aware that states are ill-equipped to pursue self-protection in the event of nuclear war.⁵² Recent scholarship has shown that their respective investigations into the force of geopolitical constraints ultimately aimed at a better understanding of the conditions for global reform.⁵³ Thus, they were not suggesting that political leaders

49 Labonté et al. (n 47); Taylor (n 47).

50 World Health Organization (WHO), ‘The world together: Establishment of an intergovernmental negotiating body to strengthen pandemic prevention, preparedness and response’ <<https://bit.ly/3LIEv7M>> accessed 28 March 2022.

51 Grieco (n 33) 485.

52 George W Keeton and Georg Schwarzenberger, *Making international law work* (Stevens & Sons Limited 1946) 171-172; John Herz, ‘Rise and demise of the territorial state’ (1957) 9 *World Politics* 473, 474; Hans Morgenthau, ‘Introduction’ in David Mittrany, *A working peace system*, (Quadrangle Books 1966) 9; Hans Morgenthau, *Politics among nations: The struggle for power and peace* (5th edn, Alfred Knopf 1978) 539.

53 Campbell Craig, *Glimmer of a new leviathan: Total war in the realism of Niebuhr, Morgenthau, and Waltz* (Columbia University Press 2003); Stephanie Steinle, ‘“Plus Ça Change, plus c’est La Même Chose”: Georg Schwarzenberger’s Power Politics’ (2003) 5 *Journal of the History of International Law / Revue d’histoire du droit international* 387; Campbell Craig, ‘Hans Morgenthau and the world state revisited’ in Michael C Williams (ed), *Realism reconsidered: The legacy of Hans Morgenthau in international relations* (Oxford University Press 2007); Oliver Jütersonke, *Morgenthau, law and realism* (Cambridge University Press 2010) 179; William E Scheuerman, *The realist case for global reform* (Polity Press 2011); Richard Ned Lebow, ‘German Jews and American realism’ in Felix Rösch (ed), *Émigré scholars and the*

should follow the principles of state survival realism. Herz, in particular, realised that a nuclear conflict was not the only threat that might undermine human survival in the longer run. The combined effect of population growth, the depletion of our environment, and climate change, he argued, constituted a new kind of threat – one he named the ‘ecological threat’.⁵⁴ Early in the 1980’s, Herz proposed the foundation of a new subdiscipline within the field of international relations to devise strategies to address the ecological threat. He called it *Survival Research*.⁵⁵ But it was not until the turn of the century, amid growing concerns over the fate of humanity in the course of the 21st century, that Herz’s proposal started to attract more attention.⁵⁶

Given the pressing time constraints posed by threats such as pandemics and climate change, which cannot be avoided by means of deterrence or kept at bay through stricter border control, it is reasonable to assume, as some recent authors have suggested, that the national states are in a unique position to preclude global disasters.⁵⁷ Global survival realism, for this reason, has become even more meaningful now than it was in the aftermath of the Second World War. Global survival realism enables us to understand the enduring force of geopolitical constraints on the prospect of strong

genesis of international relations (Palgrave Macmillan 2014); Rens van Munster and Casper Sylvest, *Nuclear realism: Global political thought during the thermonuclear revolution* (Routledge 2016); William E Scheuerman, ‘Political realism and global reform: How realists learned to hate “the bomb” – and desire world government’ in Robert Schuett and Miles Hollingworth (eds), *The Edinburgh companion to political realism* (Edinburgh University Press 2018); Alison McQueen, ‘Morgenthau and the postwar apocalypse’, *Political realism in apocalyptic times* (Cambridge University Press 2018); Peter Stirk, ‘John H. Herz: Political realism in a fragile world’ in Robert Schuett and Miles Hollingworth (eds), *The Edinburgh companion to political realism* (Edinburgh University Press 2018).

54 John Herz, ‘Political realism revisited’ (1981) 25 *International Studies Quarterly* 182, 192; John Herz, ‘On human survival: Reflections on survival research and survival policies’ (2003) 59 *World Futures* 135, 136-137, 142; John Herz, ‘The security dilemma in international relations: Background and present problems’ (2003) 17 *International Relations* 411, 416; Herz, ‘Rise and demise of the territorial state’ (n 25) 492-493; Herz, ‘Technology, ethics, and international relations’ (n 11) 107-108; John Herz, ‘Foreword’ in Ken Booth and Nicholas J Wheeler (eds), *The security dilemma: Fear, cooperation and trust in world politics* (Palgrave Macmillan 2008).

55 Herz J, ‘Comment’ (1981) 25 *International Studies Quarterly* 237, 238; Herz J, ‘On human survival’ (n 54); Herz, ‘The security dilemma in international relations’ (n 54) 416.

56 Kennedy Graham, ‘“Survival research” and the “planetary interest”’: Carrying forward the thoughts of John Herz’ (2008) 22 *International Relations* 457; Casper Sylvest, ‘Technology and global politics: The modern experiences of Bertrand Russell and John H. Herz’ (2013) 35 *The International History Review* 121; Munster and Sylvest (n 53); Tim Stevens, ‘Productive pessimism: Rehabilitating John Herz’s survival research for the anthropocene’ in Tim Stevens and Nicholas Michelsen (eds), *Pessimism in international relations: Provocations, possibilities, politics* (Palgrave Macmillan, Springer Nature 2020).

57 Jonathan Symons, ‘Realist climate ethics: Promoting climate ambition within the classical realist tradition’ (2019) 45 *Review of International Studies* 141; Richard Beardsworth, ‘Climate science, the politics of climate change and futures of IR’ (2020) 34 *International Relations* 374; Anatol Lieven, *Climate change and the nation state: The case for nationalism in a warming world* (Oxford University Press 2020).

cooperation among states. To the extent that global survival realism is a *realist* theory, it can explain why cooperation among states can become weaker while other forms of international cooperation (for example, scientific cooperation) become stronger. But global survival realism, unlike state survival realism, advances good reasons for a reassessment of the force of geopolitical constraints in the face of new threats to state security, that is, threats that have been largely ignored by supporters of states survival realism, or ‘extreme political realism’, as Herz would call them.⁵⁸ Yet, even if geopolitical constraints are overcome by means of global reform, the force of *proximity constraints* would still have to be addressed.

4 Proximity constraints

People generally prefer to interact and cooperate with individuals they feel close to, such as relatives, friends, members of their community, or co-nationals. This feeling of closeness is what we call a *proximity constraint*. The word *proximity* should be understood here in psychological terms. Given a set of choices that will affect the lives of a wide range of individuals, proximity constraints typically constrain one to benefit the individuals one feels close to. It does not mean, of course, that proximity constraints determine one’s choice; otherwise, proximity constraints would not be soft constraints but hard constraints. Yet proximity constraints may be difficult to overcome. The person or people one feels close to may be close in space or close in time, in which case we will speak of spatial proximity constraint as opposed to temporal proximity constraint.

The spatial dimension is relatively clear: we tend to interact and cooperate more closely with people who are spatially (or territorially) close to us. However, we speak of spatial proximity constraints to refer to perceived proximity, that is, to a sense of closeness rather than actual physical proximity. One can feel close to some people, even while not being spatially close to them. Approximately 6 million Palestinians live in the diaspora worldwide, the majority of them far from the Middle East region. Many of them, for instance the ca. 500,000 Palestinians living in Chile, are likely to strongly support Palestinians in Palestine, even though most of them have never lived in Palestine or have no intention of returning to the region. Similarly, friends and family members may feel special obligations towards each other, even while living thousands of miles apart. Proximity constraints have their origins in experiences that are only possible when people live together in physical proximity. However, the sense of obligation and loyalty they engender may persist long after separation or migration. A sense of obligation and belonging can go a long way toward fostering cooperation among people who feel close to one another. In this regard, a proximity

58 Herz, ‘The security dilemma in international relations’ (n 54) 413.

constraint works as an ‘enabling condition’ rather than as a constraint on strong cooperation.⁵⁹ On the other hand, a sense of obligation and loyalty that promotes cooperation among ‘one’s own people’ may at the same time exclude from the benefits of cooperation people who are not perceived as equally close. In this case, proximity can work as a strong constraint on the prospects for broader cooperation.

One prominent manifestation of spatial proximity constraints is the phenomenon of nationalism. Henry Shue refers to this particular soft constraint as the ‘compatriots take priority’ principle.⁶⁰ More recently, the same attitude has also been referred to as the ‘my country first’ attitude.⁶¹ But spatial proximity constraints in the form of nationalism should not be confounded with geopolitical constraints. Whether or not a state can rely on the support of loyal citizens, moved by patriotism and a strong sense of allegiance, is not relevant for our account of geopolitical constraints on strong international cooperation. As far as geopolitical constraints are concerned, the main problem lies not in a state’s relationship with its people but, as explained in the previous section, in the institutional structure of international relations. Relations among states are subject to the constraints of a system devoid of central normative authority. However, this is not to deny that the relation of a people with their own state, in the form of nationalism, may also create strong constraints on the feasibility of *C-M* and *P-M*, as both of them require from the relevant actors, as we have seen earlier, a capacity to leave behind the ‘my country first’ attitude in the face of global threats.

Now, whether nationalism might work as a powerful enabling condition for the purpose of *C-M*, as some authors have recently suggested, remains to be seen. Authors such as, for instance, Anatol Lieven and Daniele Conversi argue that international climate policies cannot be successfully implemented unless they are communicated, at a domestic level, in the language of nationalism.⁶² For now, though, it seems that nationalism has been a constraint rather than an enabling condition on the feasibility of *C-M*. It seems, indeed, that politicians such as former American President Donald Trump and far-right Brazilian President Jair Bolsonaro have justified their

59 For a definition of ‘Enabling conditions’ see e.g., IPCC, *Global warming of 1.5°C*. (n 1) 548: ‘Conditions that affect the feasibility of adaptation and mitigation options, and can accelerate and scale-up systemic transitions that would limit temperature increase to 1.5°C and enhance capacities of systems and societies to adapt to the associated climate change, while achieving sustainable development, eradicating poverty and reducing inequalities. Enabling conditions include finance, technological innovation, strengthening policy instruments, institutional capacity, multilevel governance, and changes in human behaviour and lifestyles.’

60 Henry Shue, *Basic rights: Subsistence, affluence, and U.S. foreign policy*. (Princeton University Press 1980) 131-132.

61 Brown and Susskind (n 13); Farok J Contractor, ‘Global leadership in an era of growing nationalism, protectionism, and anti-globalization’ (2017) 2 *Rutgers Business Review* 163.

62 Lieven (n 7); Daniele Conversi, ‘The ultimate challenge: Nationalism and climate change’ (2020) 48 *Nationalities Papers* 625.

notorious lack of commitment to *C-M* by endorsing a ‘my country first’ attitude.⁶³ On the other hand, nationalism may possibly function as an effective enabling condition as far as the feasibility of *P-A* is concerned. The rhetoric of war during the COVID pandemic can be interpreted as an attempt to foster morale and enhance internal cohesion in the face of a major health crisis. On 16 March 2020, for instance, the French president Emmanuel Macron declared: ‘Nous sommes en guerre’ (we are at war).⁶⁴ In a press conference on 22 March 2020, President Donald Trump followed suit: ‘Look, the greatest thing we can do is win the war. The war is against the virus. That’s the war.’⁶⁵ In the months that followed, similar declarations became common among politicians.

The temporal dimension of proximity constraints may perhaps be less apparent than its spatial counterpart, but it is equally critical for the feasibility of *C-M*.⁶⁶ We tend to favour the interests of people who are close to us in time. The force of temporal proximity constraints may explain why so many people seem to assume, implicitly or explicitly, that, due to the distance in time, our concern for future people should count less than our concern for currently living people. The idea here is that the force of moral claims becomes weaker and weaker the farther in time future generations are from us. But can this assumption be *justified* from a moral point of view?

Being indifferent to the interests of future people, as Frank Ramsey put the problem nearly a hundred years ago, is ‘ethically indefensible and arises merely from the

63 In many of their statements both presidents also expressed climate skepticism. Here, we do not explore how much of a causal factor this understanding or attitude has been in their not engaging in *C-M* policies.

64 Paris Match, ‘Emmanuel Macron: “Nous sommes en guerre” (2020) *Paris Match* <<https://www.parismatch.com/Actu/Politique/Emmanuel-Macron-Nous-sommes-en-guerre-1678992>> accessed 29 December 2021.

65 The White House, ‘Remarks by President Trump, Vice President Pence, and Members of the Coronavirus Task Force in Press Briefing’ (*The White House*, 22 March 2020) <<https://bit.ly/3DkVYuj>> accessed 28 March 2022.

66 Because both *P-A* and *P-M* measures are likely to benefit primarily those currently living or living in the near future, the temporal proximity constraint as understood here does not arise for pandemic measures. However, the highly unequal distribution of these measures’ burdens among age groups is an issue that raises questions of transgenerational fair burden-sharing. This is because, on the one hand, in terms of protection from the serious harms of contagion, the measures primarily serve the more and most vulnerable, which in OECD countries include the large number of people over 65. On the other hand, not only are the short-term social and economic burdens of the pandemic measures (including job losses, reduced income and career prospects, and loss of well-being under conditions of social distancing and lockdowns) significantly higher for younger people, but as taxpayers they will also have to pay for the measures financed by further public debt over a long period of time. See David Yarrow, ‘Should the older generation pay more of the COVID-19 debt?’ in Fay Niker and Aweek Bhattacharya (eds), *The political philosophy of the pandemic* (Bloomsbury 2021) 72 and 80. A concern for the inclusion of the perspectives and interests of the age group of young people is also underlying a recent comment in Iris M Blom et al., ‘Youth versus pandemics: The role of future generations in the pandemic treaty’ (2021) 9 *The Lancet Global Health* e1361.

weakness of the imagination.⁶⁷ The same point had already been made by Henry Sidgwick in the 19th century and was later revived by, among others, John Rawls and Derek Parfit.⁶⁸ Yet, the non-reciprocal nature of the relationship between the current generation and more distant future generations supports the hypothesis that when push comes to shove and currently living people are asked to make some sacrifices for the benefit of future generations, those alive today are likely to prioritise their own interests to the detriment of the interest of future generations. The ‘absolute difference in power’⁶⁹ between living people and those who will live in the future is a permanent feature of intergenerational relations. While current generations can affect the conditions of life of future generations, the reverse is not true.⁷⁰ The danger is that this unchangeable asymmetry of power leads to ‘the tyranny of the contemporary’.⁷¹

Proximity constraints are particularly difficult to overcome because, as some studies suggest, our capacity to develop a sense of allegiance and ties of loyalty probably emerged in the context of small groups, which did not comprise much more than 150 individuals.⁷² Everyone knew each other personally. Evolutionary pressure may have selected for individuals who could develop a sense of allegiance and loyalty to other individuals who were spatially close to them. But it is unlikely that evolution would favour the survival of individuals who felt committed to the claims of all individuals equally, regardless of kinship or family ties, not to mention the claims of individuals who did not yet exist. Although cosmopolitan views have been explicitly put forward

67 Frank Ramsey, ‘A mathematical theory of savings’ (1928) 38(152) *The Economic Journal* 543.

68 John Rawls, *A theory of justice* (Harvard University Press 1971) 293; Henry Sidgwick, *The methods of ethics* (7th edn, Hackett Publishing Company 1981) (originally published in 1874) 414; Derek Parfit, *Reasons and persons* (Clarendon Press 1984) 480-486.

69 Brian Barry, ‘Justice between generations’ in Peter MS Hacker and Joseph Raz (eds), *Law morality and society. Essays in honor of H. L. A. Hart* (Clarendon Press 1977) 269-272; Brian Barry, *Theories of justice. A treatise on social justice Vol. I* (Harvester-Wheatsheaf 1989) 189. See also Dieter Birnbacher, *Klimaethik: Nach uns die Sintflut?* (Reclam 2016) 152-153; Dale Jamieson, *Reason in a dark time: Why the struggle against climate change failed – and what it means for our future* (Oxford University Press 2014) 114-130.

70 Nevertheless, such future people may be able to set back the interests or even wrong present or past persons, insofar as the latter have or had interests relating to posthumous future states. Similarly, those alive today may be subject to moral constraints in their actions relating to persons who lived in the distant past. See Lukas H Meyer, *Historische Gerechtigkeit* (de Gruyter 2005) 78-99.

71 Gardiner (n 43) 143-184.

72 Robin Dunbar, ‘Neocortex size as a constraint on group size in primates’ (1992) 22 *Journal of Human Evolution* 469; Robin Dunbar, *Grooming, gossip, and the evolution of language* (Faber and Faber 1997) 55-79; Robin Dunbar, ‘The social brain hypothesis and its implications for social evolution’ (2009) 36 *Annals of Human Biology* 562; Robin Dunbar, *How many friends does one person need? Dunbar’s number and other evolutionary quirks* (Harvard University Press 2010) 21-34; Robin Dunbar, ‘The social whirl’ in Robin Dunbar, Louise Barrett and John Lycett (eds), *Evolutionary psychology: A beginner’s guide: Human behaviour, evolution, and the mind* (Oneworld 2007).

in Western socio-political philosophy since the fourth century BCE, the idea of modern human rights arguably only emerged in the early modern period.⁷³ Ordinary moral reasoning does not reflect the notion that all sentient beings have the same moral claims against all moral agents in a way that could effectively constrain the enormous power differentials among those alive today and the immutable power asymmetry between those alive today and future non-contemporaries. Therefore, our moral beliefs or intuitions may not be a good guide to action when we must consider the interests of billions of people who are not part of our own states or who will exist only in the future.⁷⁴ Edward O. Wilson⁷⁵ puts the problem quite poignantly in saying that: ‘We have created a Star Wars civilisation, with Stone Age emotions, medieval institutions, and godlike technology’.⁷⁶

How can we then expect to overcome the grip of proximity constraints if a tendency to prioritise the interests of the members of one’s own group – whether temporally or spatially defined – seems psychologically hardwired? One radical approach in this regard might consist in changing the human brain instead of changing the human environment. Biomedical tools, such as drugs or genetic engineering, might, at least in principle, be used in order to modulate human beings’ motivational states in such a way as to make them more cooperative and responsive to the needs of other people, including people who are only going to live hundreds of years from now. For instance, Julian Savulescu and Ingmar Persson have recently advocated the ‘moral bioenhancement’ of humankind on a global scale to preclude dangerous climate

73 Pauline Kleingeld and Eric Brown, ‘Cosmopolitanism’ (2019) in Edward N. Zalta (ed), *The Stanford encyclopedia of philosophy* (Winter 2019 Edition) <<https://stanford.io/35hk78H>> accessed 28 March 2022.

74 Dale Jamieson, ‘Ethics, public policy, and global warming’ (1992) 17 *Science, Technology, & Human Values* 139, 148; Ezra M Markowitz and Azim F Shariff, ‘Climate change and moral judgement’ (2012) 2 *Nature Climate Change* 243-244; TJ Kasperbauer, ‘The implications of psychological limitations for the ethics of climate change’ (2016) 25 *Environmental Values* 353; Joshua David Greene, *Moral tribes: Emotion, reason, and the gap between us and them* (The Penguin Press 2013) 22-25; Ingmar Persson and Julian Savulescu, *Unfit for the future: The need for moral enhancement* (1st ed, Oxford University Press 2012) 103-106.

75 Edward O Wilson, *The social conquest of Earth* (Liveright 2013) 7. For similar observations (but not in terms of evolutionary theory) see also Günter Anders, ‘Gebote des Atomtzeitalters’ in Robert Jungk (ed), *Off limits für das Gewissen. Der Briefwechsel zwischen dem Hiroshima-Piloten Claude Eatherly und Günther Anders* (Rowohlt Verlag 1961) 26-34 (originally published in *Frankfurter Allgemeine Zeitung*, July 13, 1957).

76 Cf also Joshua Greene: ‘Morality evolved to enable cooperation, but this conclusion comes with an important caveat. Biologically speaking, humans were designed for cooperation, but only with some people. Our moral brains evolved for cooperation within groups, and perhaps only within the context of personal relationships. Our moral brains did not evolve for cooperation between groups (at least not all groups)’ Greene (n 83) 13. Cf also Toby Ord: ‘Evolution and cultural adaptation have led to fairly well-tuned judgments for these questions in our day-to-day lives (when it’s safe to cross the road; whether to buy a smoke alarm), but are barely able to cope with risks that threaten hundreds of people, let alone those that threaten billions and the very future of humanity’, Ord (n 17) 195.

change.⁷⁷ For the sake of argument, we not only leave aside serious doubts about the democratic legitimacy and, more generally, the moral justifiability of such a policy but also assume that there are no hard constraints on the feasibility of moral enhancement on such a scale. However, we would have to contend with strong technological, legal, political, and social constraints to pursue this kind of action against dangerous climate change. Moreover, the proposal seems to beg the question: If we could convince human beings, or perhaps only the relevant decision-makers, to morally enhance themselves in order to pursue *C-M* (and possibly also *P-M*), couldn't we also convince them to implement the relevant measures without all the trouble of pursuing moral enhancement in the first place? More importantly, given the obvious urgency, is it anything but wishful thinking to suppose that we could overcome all constraints on the feasibility of moral enhancement before it is too late to avert dangerous climate change?⁷⁸

Proximity constraints are very difficult to overcome. Because we cannot realistically expect to change human motivational states through new technologies in the foreseeable future without also having to overcome several other soft constraints (putting to the side serious doubts about the moral permissibility of such measures), it does not seem advisable to try to 'overcome' temporal proximity constraints in the sense of changing human psychology.⁷⁹ We should rather create the conditions that enable individuals to act for the benefit of future generations in spite of temporal proximity constraints. The design of our legal and political institutions already reflects our recognition that we cannot expect individuals to act against strong proximity constraints. Indeed, if we cannot, for example, realistically expect an individual to be impartial towards the interest of their friends or family members, we have good reasons to design our domestic and international institutions in such a way that legislators, judges, members of the executive branch, and international negotiators will be effectively hindered from making decisions that, while promoting their personal interests, will be detrimental to others, including future people. The force of proximity constraints does not prevent us from designing and supporting institutions that are likely to implement minimally just policies also in terms of protecting the fundamental rights that future people hold against currently living people.⁸⁰ In like manner, if

77 Persson and Savulescu (n 74) 73-85. See also S Matthew Liao, Anders Sandberg and Rebecca Roache, 'Human engineering and climate change' (2012) 15 *Ethics, Policy and Environment* 206.

78 Aleksandra Kulawska and Michael Hauskeller, 'Moral enhancement and climate change: Might it work?' (2018) 83 *Royal Institute of Philosophy Supplement* 371; Norbert Paulo and Jan Christoph Bublitz, 'How (not) to argue for moral enhancement: Reflections on a decade of debate' (2019) 38 *Topoi* 95.

79 Kasperbauer (n 74) 216.

80 Future people's minimal justice claims can be accounted for by 'basic needs intergenerational sufficientarianism'. See Lukas H Meyer and Thomas Pölzler, 'Basic needs and sufficiency:

at the individual level most people do not feel strongly motivated to act for the benefit of future generations, even if, upon reflection, they recognise that future people should not be harmed on the grounds of unsustainable lifestyles of past generations, we have good reasons to support the establishment of institutions that promote, *inter alia*, *C-M*.⁸¹

5 Conclusion

Greenhouse gas emissions have increased rather than decreased over the last decades. This led many authors and policy-makers to wonder if effective climate action is politically feasible. In this chapter, we have shown that the abatement of the COVID pandemic required the relevant actors to overcome several soft constraints that also stand in the way of effective climate action. This is evidence that effective climate action is, indeed, politically feasible.

Climate action involves both adaptation and mitigation measures. Our analysis shows that pandemics, too, require both adaptation and mitigation measures. The current effort to abate the COVID pandemic should be primarily understood in terms of adaptation measures. These measures differ from mitigation measures that aim at avoiding a pandemic from emerging in the first place. Accordingly, we focused our analysis on four different kinds of policies: adaptation measures that address an ongoing pandemic (*P-A*); mitigation measures that prevent, as much as possible, a pandemic from emerging (*P-M*); adaptation measures that address climate change (*C-A*); and mitigation measures that prevent, as much as possible, the emergence of catastrophic climate change (*C-M*). We have shown that some of the soft constraints that play a role in one set of policies may also be present in another set. But the more a policy requires strong international cooperation *and* transgenerational cooperation for the benefit of future non-contemporaries, the harder it is to address the relevant soft constraints.

We have focused on two particularly important kinds of soft constraints, which we have called *geopolitical constraints* and *proximity constraints*. The latter comprises *spatial* proximity constraints and *temporal* proximity constraints. In our analysis of the geopolitical constraints, we have critically discussed some key ideas proposed by

The foundations of intergenerational justice' in Stephen Gardiner (ed), *The Oxford handbook of intergenerational ethics* (Oxford University Press) (forthcoming).

81 On overcoming the temporal proximity constraint by institutional reform within democracies and internationally, see Dieter Birnbacher, *Verantwortung für zukünftige Generationen* (Reclam 1988) 258-268; Inigo Gonzales-Ricoy and Axel Gosseries (eds), *Institutions for future generations* (Oxford University Press 2016); Ivo Wallimann-Helmer et al., 'Democracy for the future: A conceptual framework to assess institutional reform' (2017) 21 *Jahrbuch für Wissenschaft und Ethik* 197.

authors in the tradition of political realism in international relations. We have assumed and argued here with the realists that the state remains the most powerful and legitimate actor in a unique position to address the structural changes that are necessary to pursue *P-M* and *C-M*. But we have also shown that temporal proximity constraint remains a robust constraint on actions that require transgenerational cooperation for the benefit mainly of future people. Temporal proximity constraints affect *C-M* policies in an especially strong way, but they do not significantly affect the other set of policies (*P-A*, *P-M*, and *C-A*). We have proposed then, in line with our analysis of geopolitical constraints, that temporal proximity constraints primarily require changes in institutional design, both at the domestic and international level, rather than radical changes in individuals' motivational states.⁸²

Bibliography

- Anders G, 'Gebote des Atomzeitalters' in Jungk R (ed), *Off limits für das Gewissen. Der Briefwechsel Günther Anders / Claude Eatherly* (Rowohlt 1961).
- Bamber JL et al., 'Ice sheet contributions to future sea-level rise from structured expert judgment' (2019) 116 Proceedings of the National Academy of Sciences 11195.
- Barry B, 'Justice between generations' in Hacker P and Raz J (eds), *Law morality and society. Essays in honor of HLA Hart* (Clarendon Press 1977).
- , *Theories of justice. A treatise on social justice Vol. I* (Harvester-Wheatsheaf 1989).

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- Beardsworth R, 'Climate science, the politics of climate change and futures of IR' (2020) 34 *International Relations* 374.
- Benzie M and Persson Å, 'Governing borderless climate risks: Moving beyond the territorial framing of adaptation' (2019) 19 *International Environmental Agreements: Politics, Law and Economics* 369.
- Birnbacher D, *Verantwortung für zukünftige Generationen* (Reclam 1988).
- , *Klimaethik: Nach uns die Sintflut?* (Reclam 2016).
- Blom IM et al., 'Youth versus pandemics: The role of future generations in the pandemic treaty' (2021) 9 *The Lancet Global Health* e1361.
- Bricker DJ and Ibbitson J, *Empty planet: The shock of global population decline* (Crown Publishers 2019).
- Broome J, 'Efficiency and future generations' (2018) 34 *Economics and Philosophy* 221.
- Brown G and Susskind D, 'International cooperation during the COVID-19 pandemic' (2020) 36 *Oxford Review of Economic Policy* 64.
- Budolfson M and Spears D, 'Population ethics and the prospects for fertility policy as climate mitigation policy' (2021) *The Journal of Development Studies* 1.
- Callaway E, 'The unequal scramble for Coronavirus vaccines – by the numbers. Wealthy countries have already pre-ordered more than two billion doses.' (2020) 584 *Nature* 506.
- Cimmino J, Kroenig M and Pavel B, 'Taking stock: Where are geopolitics headed in the COVID-19 era?' (2020) *Atlantic Council* 21.
- Clapper JR, 'Statement for the record worldwide threat assessment of the US Intelligence Community, 9 February' (US Intelligence Community, 9 February 2016) <https://www.armed-services.senate.gov/imo/media/doc/Clapper_02-09-16.pdf> accessed 4 March 2022.
- Coats DR, 'Statement for the record worldwide threat assessment of the US Intelligence Community' (US Intelligence Community, 29 January 2019) <<https://bit.ly/3JO4YKO>> accessed 4 March 2022.
- Cole J and Dodds K, 'Unhealthy geopolitics: Can the response to COVID-19 reform climate change policy?' (2021) 99 *Bulletin of the World Health Organization* 148.
- Contractor FJ, 'Global leadership in an era of growing nationalism, protectionism, and anti-globalization' (2017) 2 *Rutgers Business Review* 163.
- Conversi D, 'The ultimate challenge: Nationalism and climate change' (2020) 48 *Nationalities Papers* 625.
- Craig C, *Glimmer of a new Leviathan: Total war in the realism of Niebuhr, Morgenthau, and Waltz* (Columbia University Press 2003).
- , 'Hans Morgenthau and the world state revisited' in Williams MC (ed), *Realism reconsidered: The legacy of Hans Morgenthau in international relations* (Oxford University Press 2007).
- Daszak P, 'We are entering an era of pandemics – it will end only when we protect the rainforest' *The Guardian* (28 July 2020) <<https://bit.ly/3JPJXzI>> accessed 28 March 2022.
- Dobson AP et al., 'Ecology and economics for pandemic prevention' (2020) 369 *Science* 379.
- Duguma LA et al., 'Climate change mitigation and adaptation in the land use sector: From complementarity to synergy' (2014) 54 *Environmental Management* 420.
- Dunbar R, 'Neocortex size as a constraint on group size in primates' (1992) 22 *Journal of Human Evolution* 469.
- , *Grooming, gossip, and the evolution of language* (Faber and Faber 1997).

- , ‘The social whirl’ in Dunbar R, Barrett L and Lycett J (eds), *Evolutionary psychology: A beginner’s guide: Human behaviour, evolution, and the mind* (Oneworld 2007).
- , ‘The social brain hypothesis and its implications for social evolution’ (2009) 36 *Annals of Human Biology* 562.
- , *How many friends does one person need? Dunbar’s number and other evolutionary quirks* (Harvard University Press 2010).
- Engström G et al., ‘What policies address both the coronavirus crisis and the climate crisis?’ (2020) 76 *Environmental and Resource Economics* 789.
- Erman E and Möller N, ‘A world of possibilities: The place of feasibility in political theory’ (2020) 26 *Res Publica* 1.
- Fankhauser S and McDermott TKJ, ‘Understanding the adaptation deficit: Why are poor countries more vulnerable to climate events than rich countries?’ (2014) 27 *Global Environmental Change* 9.
- Fidler DP, ‘The Covid-19 pandemic, geopolitics, and international law’ (2020) 11 *Journal of International Humanitarian Legal Studies* 237.
- Friedlingstein P et al., ‘Global carbon budget 2020’ (2020) 12 *Earth System Science Data* 3269.
- Fukuda-Parr S et al., ‘Pandemic treaty needs to start with rethinking the paradigm of global health security’ (2021) 6 *BMJ Global Health* e006392.
- Friedman G, ‘The Coronavirus crisis and geopolitical impact’ (2020) 16 *Horizons: Journal of International Relations and Sustainable Development* 24.
- Gardiner S, *A perfect moral storm: The ethical tragedy of climate change* (Oxford University Press 2011).
- Gilbert P and Lawford-Smith H, ‘Political feasibility: A conceptual exploration’ (2012) 60 *Political Studies* 809.
- Gonzales-Ricoy I and Gosseries A (eds), *Institutions for future generations* (Oxford University Press 2016).
- Gostin LO and Katz R, ‘The international health regulations: The governing framework for global health security’ (2016) 94 *The Milbank Quarterly* 264.
- Graham K, ‘“Survival research” and the “planetary interest”: Carrying forward the thoughts of John Herz’ (2008) 22 *International Relations* 457.
- Greene JD, *Moral tribes: Emotion, reason, and the gap between us and them* (The Penguin Press 2013).
- Grieco J, ‘Anarchy and the limits of cooperation: A realist critique of the newest liberal institutionalism’ (1988) 42 *International Organization* 285.
- Herszenhorn DM et al., ‘Europe fails to help Italy in Coronavirus fight’ *Politico* (5 March 2020) <<https://www.politico.eu/article/eu-aims-better-control-coronavirus-responses/?ref=hvper.com>> accessed 25 March 2022.
- Herz J, ‘Rise and demise of the territorial state’ (1957) 9 *World Politics* 473.
- , ‘Technology, ethics, and international relations’ (1976) 43 *Social Research* 98.
- , ‘Comment’ (1981) 25 *International Studies Quarterly* 237.
- , ‘Political realism revisited’ (1981) 25 *International Studies Quarterly* 182.
- , ‘On human survival: Reflections on survival research and survival policies’ (2003) 59 *World Futures* 135.
- , ‘The security dilemma in international relations: Background and present problems’ (2003) 17 *International Relations* 411.

- , ‘Foreword’ in Booth K and Wheeler NJ (eds), *The security dilemma: Fear, cooperation and trust in world politics* (Palgrave Macmillan 2008).
- IPCC, ‘Summary for policymakers’ in IPCC *Climate change 2014: Mitigation of climate change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. (Edenhofer O et al. (eds) Cambridge University Press 2014).
- , *Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* (Masson-Delmotte V et al. (eds) Cambridge University Press 2018) <<https://www.ipcc.ch/sr15/>> accessed 4 March 2022.
- , *Climate change 2021: The physical science basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Masson-Delmotte V et al. (eds) Cambridge University Press 2021) <<https://www.ipcc.ch/report/ar6/wg1/>> accessed 4 March 2022.
- Jamieson D, ‘Ethics, public policy, and global warming’ (1992) 17 *Science, Technology, & Human Values* 139.
- , ‘Adaptation, mitigation, and justice’ in Gardiner S et al. (eds), *Climate ethics: Essential readings* (Oxford University Press 2010).
- , *Reason in a dark time: Why the struggle against climate change failed – and what it means for our future* (Oxford University Press 2014).
- Jewell J and Cherp A, ‘On the political feasibility of climate change mitigation pathways: Is it too late to keep warming below 1.5°C?’ (2020) 11 *WIREs Climate Change* e621.
- Judge K, ‘The federal reserve: A study in soft constraints’ (2015) 78 *Law and Contemporary Problems* 65.
- Jütersonke O, *Morgenthau, law and realism* (Cambridge University Press 2010).
- Kasperbauer TJ, ‘The implications of psychological limitations for the ethics of climate change’ (2016) 25 *Environmental Values* 353.
- Keohane RO, *After hegemony: Cooperation and discord in the world political economy* (1st Princeton classic edn, Princeton University Press 2005).
- Kickbush I and Holzscheiter A, ‘Can geopolitics derail the pandemic treaty?’ (2021) *BMJ* e069129, 1.
- Klein RJT et al., ‘Inter-relationships between adaptation and mitigation’ in IPCC *Climate change 2007: Impacts, adaptation and vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Parry ML et al. (eds) Cambridge University Press 2007) 745.
- Kleingeld P and Brown E, ‘Cosmopolitanism’ (2019) in Zalta EN (ed) *The Stanford encyclopedia of philosophy* (The Metaphysics Research Lab Winter 2019 edition).
- Kulawska A and Hauskeller M, ‘Moral enhancement and climate change: Might it work?’ (2018) 83 *Royal Institute of Philosophy Supplement* 371.
- Kupferschmidt K, ‘“Vaccine nationalism” threatens global plan to distribute COVID-19 shots fairly’ (*Science (AAAS)*, 28 July 2020) <<https://www.sciencemag.org/news/2020/07/vaccine-nationalism-threatens-global-plan-distribute-covid-19-shots-fairly>> accessed 25 March 2022.
- Labonté R et al., ‘A pandemic treaty, revised international health regulations, or both?’ (2021) 17 *Globalization and Health* 128.
- Lebow RN, ‘German Jews and American realism’, in Rösch F (ed) *Émigré scholars and the genesis of international relations* (Palgrave Macmillan 2014).

- Lee JJ and Haupt JP, 'Scientific collaboration on Covid-19 amidst geopolitical tensions between the US and China' (2021) 92 *The Journal of Higher Education* 303.
- Liao SM, Sandberg A and Roache R, 'Human engineering and climate change' (2012) 15 *Ethics, Policy & Environment* 206.
- Lieven A, *Climate change and the nation state: The case for nationalism in a warming world* (Oxford University Press 2020).
- Lindahl JF and Grace D, 'The consequences of human actions on risks for infectious diseases: A review' (2015) 5 *Infection Ecology & Epidemiology* 30048.
- Ma ATH et al., 'Protected areas as a space for pandemic disease adaptation: A case of COVID-19 in Hong Kong' (2021) 207 *Landscape and Urban Planning* 103994.
- Madhav N et al., 'Pandemics: Risks, impacts, and mitigation' in Jamison DT et al. (eds), *Disease control priorities: Improving health and reducing poverty* (3rd edn, World Bank Group 2018).
- Markowitz EM and Shariff AF, 'Climate change and moral judgement' (2012) 2 *Nature Climate Change* 243.
- McQueen A, 'Morgenthau and the postwar apocalypse' in McQueen A, *Political realism in apocalyptic times* (Cambridge University Press 2018).
- Mearsheimer JJ, 'The false promise of international institutions' (1994) 19 *International Security* 5.
—, *The tragedy of great power politics* (updated edn, WW Norton & Company 2014).
- Meyer LH, *Historische Gerechtigkeit* (de Gruyter 2005).
- and Pözlner T, 'Basic needs and sufficiency: The foundations of intergenerational justice' in Gardiner S (ed), *The Oxford handbook of intergenerational ethics* (Oxford University Press forthcoming).
- Moon S and Kickbush I, 'A pandemic treaty for a fragmented global polity' (2021) 6 *The Lancet Public Health* e355.
- Morgenthau H, 'Introduction', in Mitrany D (ed), *A working peace system* (Quadrangle Books 1966)
—, *Politics among Nations: The struggle for power and peace* (5th edn revised, Alfred Knopf 1978).
- Nature Editorial, 'Protect precious scientific collaboration from geopolitics' (2021) 593 *Nature* 477.
- Nikogosian H and Kickbush I, 'The case for an international pandemic treaty' (2021) 372 *BMJ* n527.
- Nouri A and Chyba CF, 'Biotechnology and biosecurity' in Bostrom N and Cirkovic M (eds), *Global catastrophic risks* (Oxford University Press 2008).
- Ord T, *The precipice: Existential risk and the future of humanity* (1st edn, Hachette Books 2020).
- Osterholm M, 'Preparing for the next pandemic' (2005) 84 *Foreign Affairs* 24.
- Parfit D, *Reasons and persons* (Clarendon Press 1984).
- Paris Match, 'Emmanuel Macron: "Nous sommes en guerre"' (2020) *Paris Match* <<https://www.parismatch.com/Actu/Politique/Emmanuel-Macron-Nous-sommes-en-guerre-1678992>> accessed 4 March 2022.
- Paulo N and Bublitz JC, 'How (not) to argue for moral enhancement: Reflections on a decade of debate' (2019) 38 *Topoi* 95.
- Persson I and Savulescu J, *Unfit for the future: The need for moral enhancement* (1st edn, Oxford University Press 2012).
- Pike J et al., 'Economic optimization of a global strategy to address the pandemic threat' (2014) 111 *Proceedings of the National Academy of Sciences* 18519.

- Ramsey F, 'A mathematical theory of savings' (1928) 38 *The Economic Journal* 543.
- Rawls J, *A theory of justice* (Harvard University Press 1971).
- Rhodes RAW, Binder SA and Rockman BA (eds), *The Oxford handbook of political institutions* (Oxford University Press 2006).
- Roser D, 'Climate justice in the straitjacket of feasibility' in Birnbacher D and Thorseth M (eds), *The politics of sustainability: Philosophical perspectives* (Routledge 2015).
- Scheurman WE, *The realist case for global reform* (Polity Press 2011).
- , 'Political realism and global reform: How realists learned to hate "the bomb" – and desire world government' in Schuett R and Hollingworth M (eds), *The Edinburgh companion to political realism* (Edinburgh University Press 2018).
- Shue H, *Basic rights: Subsistence, affluence, and U.S. foreign policy* (Princeton University Press 1980).
- Sidgwick H, *The methods of ethics* (7th edn, Hackett Publishing Company 1981).
- Smit B et al., 'The science of adaptation: A framework for assessment' (1999) 4 *Mitigation and Adaptation Strategies for Global Change* 199.
- Spagnolo A, '(Non) compliance with the international health regulations of the WHO from the perspective of the law of international responsibility' (2018) 18 *Global Jurist* <<https://www.degruyter.com/document/doi/10.1515/gj-2017-0025/html>> accessed 25 March 2022.
- Stein AA, 'Neoliberal institutionalism' in Reus-Smit C and Snidal D (eds), *The Oxford handbook of international relations* (Oxford University Press 2008).
- Steinle S, "'Plus ça change, plus c'est la même chose": Georg Schwarzenberger's power politics' (2003) 5 *Journal of the History of International Law / Revue d'histoire du droit international* 387.
- Stevens T, "'Exeunt omnes". Survival, pessimism and time in the work of John H. Herz' (2018) 46 *Millennium: Journal of International Studies* 283.
- , 'Productive pessimism: Rehabilitating John Herz's survival research for the anthropocene' in Stevens T and Michelsen N (eds), *Pessimism in international relations: Provocations, possibilities, politics* (Palgrave Macmillan, Springer Nature 2020) <<http://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=2179396>> accessed 17 December 2020.
- Stirk P, 'John H. Herz: Political realism in a fragile world' in Schuett R and Hollingworth M (eds), *The Edinburgh companion to political realism* (Edinburgh University Press 2018).
- Sylvest C, 'Technology and global politics: The modern experiences of Bertrand Russell and John H. Herz' (2013) 35 *The International History Review* 121.
- Symons J, *Ecomodernism: Technology, politics and the climate crisis* (Polity Press 2019).
- , 'Realist climate ethics: Promoting climate ambition within the classical realist tradition' (2019) 45 *Review of International Studies* 141.
- Taylor L, 'World Health Organization to begin negotiating international pandemic treaty' (2021) 375 *BMJ* n2991.
- The Royal Society and National Academy of Sciences (NAS), 'Climate change evidence & causes. An overview from the Royal Society and the US National Academy of Sciences' (2020) <<https://royalsociety.org/topics-policy/projects/climate-change-evidence-causes/>> accessed 29 December 2021.
- The White House, 'Remarks by President Trump, Vice President Pence, and members of the Coronavirus Task Force in press briefing' (*The White House*, 22 March 2020) <<https://bit.ly/3DkVYuj>> accessed 28 March 2022.

- Tollefson J, 'Why deforestation and extinctions make pandemics more likely' (2020) 584 Nature 175.
- United Nations, 'Transforming our world: The 2030 Agenda for Sustainable Development' (2015) <<https://sustainabledevelopment.un.org/post2015/transformingourworld/publication>> accessed 2 December 2020.
- United Nations Environment Programme, 'Emissions gap report 2020. Executive summary' (Nairobi, 2020) <<https://www.unep.org/emissions-gap-report-2020>> accessed 4 January 2022.
- Vinuales J et al., 'A global pandemic treaty should aim for deep prevention' (2021) 397 The Lancet 1791.
- van Munster R van and Sylvest C, *Nuclear realism: Global political thought during the thermonuclear revolution* (Routledge 2016).
- von Bogdandy A and Villarreal P, 'International law on pandemic response: A first stocktaking in light of the Coronavirus crisis' (2020) Max Planck Institute for Comparative Public Law & International Law (MPIL) Research Paper No 2020-07 <<https://www.ssrn.com/abstract=3561650>> accessed 19 December 2021.
- Wallimann-Helmer I et al., 'Democracy for the future: A conceptual framework to assess institutional reform' (2017) 21 Jahrbuch für Wissenschaft und Ethik 197.
- Waltz K, *Theory of international politics* (University of California 1979).
- Weiss TG, *Global governance: Why? what? whither?* (Polity Press 2013).
- Wenham C et al., 'Preparing for the next pandemic' (2021) 373 BMJ n1295.
- Wilson EO, *The social conquest of Earth* (Norton & Company 2013).
- World Health Organization (WHO), *Annual review of diseases prioritized under the research and development blueprint informal consultation. Meeting report* (WHO 2018).
- Yarrow D, 'Should the older generation pay more of the COVID-19 debt?' in Niker F and Bhattacharya A (eds), *The political philosophy of the pandemic* (Bloomsbury 2021).
- Zarocostas J, 'Countries prepare for pandemic treaty decision' (2021) 398 The Lancet 1951.
- Zia A, 'Synergies and trade-offs between climate change adaptation and mitigation across multiple scales of governance' in Djalante R and Siebenhüner B (eds), *Adaptiveness: Changing Earth system governance* (Cambridge University Press 2021).