

The Climate Crisis as an Ethical Challenge

Opinion of the Bioethics Commission

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Preamble

The task of the Austrian Bioethics Commission includes making statements on urgent “social, natural scientific and legal issues [...] in human medicine and human biology”. The climate crisis, which is the subject of this Opinion, extends beyond traditional bioethics topics in that it does not arise from the area of human medicine or human biology.

Nevertheless, the climate crisis concerns the health of current and – above all – future humans in many different ways. The relationships between the climate change currently in progress and global illness clearly show that this climate change negatively impacts human health.¹ The urgency of this topic cannot be overstated. The COVID-19 pandemic and the military assault on Ukraine intensify the urgency still further, making it all the more important that these situations not be allowed to push the climate policy agenda into the background.

The climate crisis is a complex challenge that can only be solved through cooperation between a wide range of disciplines and policy fields. Against this backdrop, the Bioethics Commission wishes to contribute its particular ethical competence in this Opinion to solving the crisis.

The climate crisis takes place between humans and the environment. It is one of the most challenging developments in the history of humanity and is impacting our daily life, our social peace, and the geopolitical world order. The impacts threaten the development of the earth as a home for humanity as well as our peaceful coexistence with a focus on the good of all humans. The ever more extreme weather events of recent years are the sign of an acute climate crisis, which also intensifies other crises, such as conflicts over resources and the widening gap between rich and poor. Ethical analyses can help us move from data and facts to urgently needed action. Thinking deeply about the climate crisis in order to implement serious and effective countermeasures is not only indispensable from an environmental perspective, it is also an essential ethical responsibility. The crisis calls for a plan of action derived from the values of the global community.

1 WHO, Climate Change and Health (2021), <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health> (June 1, 2022).

Human ↔ environment ethics

In the 17th century, over 100 years before the start of the industrial revolution, Descartes viewed the environment as a collection of objects available to humanity. He introduced the idea of the “animal machine”: organisms are nothing other than complexly organized matter. According to him, humans are the only respectable species because they are believed to possess a substantial soul that is separate from the body. The rest of the environment would then be part of the world of objects, which is why humans need not exhibit concern for it. This utilitarian view sees the environment as a resource that can be exploited without hesitation or restriction. The expansion of such European patterns of thought and action through colonialism and its consequences left us with a very unique historical responsibility.

However as early as two centuries ago, the naturalist Alexander von Humboldt described the relationship between humanity and the environment as a closely interwoven network, which humanity could not exist without. Humboldt even predicted climate change and laid the foundation for modern environmental ethics. The concept of the ecosystem revolutionized our scientific relationship with the environment. This concept refers to the totality of interactions between the various living species and between all living organisms and their abiotic environment: soil, air, water, climate, etc. In this context, humans discover themselves to be a small part of this ecosystem. This ecosystem is also understood as finite with limited resources, especially with respect to anthropogenic activities and interventions. We all know the photo of the earth as a “Blue Marble” taken by astronaut Harrison Schmitt on the Apollo 17 mission to the moon. Viewed from the infinite expanse of space, the biosphere looks like a very thin layer surrounding the globe, and the globe itself shrinks down in this perspective, as Günther Anders noted, into “a shipwrecked buoy floating in the ocean of space.”

To solve our current challenges, we need approaches and courses of action that take a holistic view of the living spaces and environments of humans in close relationship with other lifeforms and nature itself. Approaches such as One Health and the Planetary Health Initiative attempt to achieve precisely this.

Five challenges that call for ethical action

Our contribution to ecological destruction is a reality that imposes a moral and political imperative,² especially on those people, institutions and organizations that contribute heavily to climate change and unjustly pass the majority of the burden of their activities onto people in other parts of the world and onto future generations. Climate change affects all human rights,³ in particular the rights to life, freedom, property and safety. These are based on values shared by nearly all cultures of the world that respect the dignity of the individual and the entitlement to a good life – in peace, stability and freedom from threats and disease.⁴ We would like to focus below on elucidating five major ethical challenges of climate change, which mutually influence and intensify each other.

1. Infringements of fundamental rights

The first ethical challenge concerns the fundamental needs and rights of humans: The global impacts of climate change are increasingly endangering human rights, which prompted the 1972 United Nations Conference on the Human Environment to issue a proclamation of wide-ranging principles, many of which were later anchored in numerous constitutions around the world.³ The health and social security of billions of people are considered here in relation to the weather-related impacts of the climate crisis. When a catastrophe occurs, such as the recent flooding in North Rhine-Westphalia, it has many direct impacts on the lives of humans in the form of injuries, deaths, and property damage. Exceptionally hot or cold temperatures, which occur with increasing frequency as a result of accelerated climate change, are responsible for 5 million deaths around the world each year.⁵ Heat-related fatalities are rising fastest in tropical countries, but a significant increase can be observed in Europe as well.⁶ By 2080, up to 8 billion people could be in danger every year of contracting malaria or dengue fever because

2 *Gardiner/Hartzell-Nichols*, Ethics of Global Climate Change, in *Nature Education* (2012) Vol. 3/10 5.

3 ONHCR, *Understanding Human Rights and Climate Change*, <https://www.ohchr.org/sites/default/files/Documents/Issues/ClimateChange/COP21.pdf> (May 31, 2022).

4 *Da Costa/de Miranda*, Human Dignity in a World with a Changing Climate in: *Sieh/McGregor*, Human Dignity Establishing Worth and Seeking Solutions (2017) 26–36.

5 *Guo/Gasparrini/Li et al.*, Quantifying excess deaths related to heatwaves under climate change scenarios: A multicountry time series modelling study (2018), <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1002629> (May 31, 2022).

6 *Ahima*, Global warming threatens human thermoregulation and survival (2020), <https://www.jci.org/articles/view/135006> (May 31, 2022).

the transmission period of the mosquitoes will be lengthened by several months⁷ and because global warming will create good conditions for these pathogens in regions where malaria and dengue fever were not present before (e.g. higher altitude regions that were previously unaffected by these diseases will become warmer and develop into endemic regions). There are at least 10,000 types of viruses that can infect humans and are circulating in wild animal populations. Up until relatively recently, such crossover infections were rare, but the destruction of habitat to make room for agriculture and the expansion of cities has brought an increasing number of people into contact with infected animals. Climate change intensifies this problem because it contributes to the circulation of diseases between species that previously had no mutual points of contact. This creates hotspots of biological diversity in regions of high population density. It is estimated that in the next 50 years, at least 15,000 cases of new, cross-species viral transmissions will take place.⁸ The result will be a potentially devastating spread of diseases that endanger animals and humans alike, raising the risk of more pandemics. It is therefore absolutely essential to carefully monitor viruses and draw connections between viruses and changes in biological diversity. This is the only way to track shifts in the species spectrum during the climate crisis and quickly identify and appropriately combat potential pathogens.⁹

We will also need to make larger investments in primary pandemic prevention, primarily by preserving habitats, strictly regulating trade of wild animals and improving biosecurity in animal husbandry, in order to control the ever more likely outbreaks of infectious diseases.

As heat waves become longer, hotter and more frequent, this will increase the incidence of heat-related diseases and deaths because humans can only regulate their body temperature within a small range. This regulation allows humans to maintain high body temperatures (fever) that impede the growth of pathogenic microorganisms as a protection against infectious diseases. However, because microorganisms are better able to adapt to higher temperatures than humans, those with pathogenic potential will be selected through their higher heat tolerance, which will also enable them to better survive elevated body temperatures. One example of this is *Candida auris*, a type of fungus discovered in 2009 that was classified as a “catastrophic threat” by the U.S.

7 Colón-González/Sewe/Tompkins *et al.*, Projecting the risk of mosquito-borne diseases in a warmer and more populated world: a multi-model, multi-scenario intercomparison (2021), [https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(21\)00132-7/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(21)00132-7/fulltext) (May 30, 2022).

8 Carlson *et al.*, Climate change increases cross-species viral transmission risk, in *Nature* (2022), <https://www.nature.com/articles/s41586-022-04788-w> (May 31, 2022).

9 Milman, Potentially devastating: Climate crisis may fuel future pandemics, in the *Guardian* (2022), <https://www.theguardian.com/environment/2022/apr/28/climate-crisis-futurepandemics-zoonotic-spillover> (May 30, 2022).

Center for Disease Control and Prevention (CDC) in 2017.¹⁰ The simultaneous occurrence of *Candida auris* on three continents indicates that increasing heat alone triggers adaptations in microbes that can turn previously harmless microorganisms into pathogens. In addition, viruses, bacteria and parasites associated with cold-blooded animals, which currently pose no risk to humans, could cross over in this way if they obtain the ability to reproduce at higher temperatures.

2. Responsibility towards future generations

The *second ethical challenge* lies in the fact that the current level of emissions will have far-reaching consequences on future generations. The emission of major greenhouse gases – carbon dioxide, nitrous oxide and methane – produces time-delayed effects, and the gases generally remain in the atmosphere for a long time, allowing them to contribute to negative climate consequences for centuries to come.¹¹ This also is unjust, in particular because the future negative consequences will be significantly more severe and cumulative as well. Moreover, the distribution of the temperature rise over time creates an ethical problem of collective action, especially because typical forms of cooperation do not appear possible across generations. Another difficulty is that the consequences triggered by the climate crisis are in some cases irreversible (e.g. melting of the Greenland ice sheet) and can mutually reinforce each other through feedback effects. Unlike with other crises, future generations may no longer have any ability to substantially alter the situation. A forward-looking decision by the highest court in Germany is worth highlighting here. The German Federal Constitutional Court viewed the lack of sufficient action by policymakers as an unfair transfer of the burden to future generations, deriving this from multiple fundamental rights.¹²

3. Global dimension

The *third ethical challenge* concerns the global nature of climate change. Once emitted, greenhouse gas emissions can produce climate consequences everywhere on the planet,

10 Casadevall, Climate change brings the specter of new infectious diseases (2020), <https://www.jci.org/articles/view/135003> (May 31, 2022).

11 Solomon/Daniel/Sanford et al., Persistence of climate changes due to a range of greenhouse gases, in PNAS October 2010, <https://www.pnas.org/doi/full/10.1073/pnas.1006282107> (May 31, 2022).

12 German Federal Constitutional Court (Bundesverfassungsgericht – BVerfG), decision of the First Senate from 24 March 2021, 1 BvR 2656/18, 1 BvR 78/20, 1 BvR 96/20, 1 BvR 288/20 (climate protection).

regardless of their original source.¹³ One cause of climate change is the increasing exploitation and contamination of public resources, which is described as the “tragedy of the commons”¹⁴ and has been (and sometimes still is) attributed to a growing human population. Especially over the short to medium term, the most vulnerable population groups and countries will be those that have produced the fewest emissions in the past and whose emission levels remain relatively very low. Since the start of industrialization in 1751, the USA and the countries of Europe have together caused roughly half of all global CO₂ emissions, while China is currently responsible for about 13%, Africa and South America for about 3% each.¹⁵ However, many countries in the Global South will be impacted particularly drastically by climate change.

This highlights a chronic injustice and casts a significant shadow over the efforts to achieve global, respectful cooperation.¹⁶ Nobel Laureate Elinor Ostrom already showed in the 1990s that the existence of certain (cooperatively managed) property rights is necessary for proper management of shared goods (common-pool resources) and that this can be implemented¹⁷ in order to achieve a more just distribution of causes, benefits and burdens. The fact that international corporations regularly circumvent national laws and sell their products and services in the EU, for example, while “outsourcing” their emissions also makes “governance of the commons” at the international level absolutely essential and highlights the urgency of an optimally global approach to CO₂ pricing.¹⁸

13 *Masson-Delmotte/Zhai/Pörtner et al.*, 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, (2018).

14 *Hardin*, The Tragedy of the Commons, in *Science* (1968) Vol. 162 1243–1248.

15 *OXFAM*, Extreme Carbon Inequality (2015), https://www-cdn.oxfam.org/s3fs-public/file_attachments/mb-extreme-carbon-inequality-021215-en.pdf (May 30, 2022).

16 *Hödlmoser*, Wer bezahlt für unsere Klimasünden? [Who Pays for Our Climate Sins?], in *Salzburger Nachrichten* (2021), https://www.sn.at/panorama/klimawandel/wer-bezahlt-fuer-unsere-klimasuenden106910824?utm_medium=email&utm_content=https%3A%2F%2F (May 31, 2022).

17 *Schlager/Ostrom*, Property-rights regimes and natural resources: A conceptual analysis, in *Land Economics* (1992) Vol. 68/3 249–262; *Hess/Ostrom*, Ideas, artifacts, and facilities: Information as a common-pool resource, in *Law and Contemporary Problems* (2003), Vol. 66/1 & 2 111–145.

18 For example, calculation models of the Kiel Institute for the World Economy making use of the climate club concept introduced by Nobel prize recipient W. D. Nordhaus show that global pricing of US \$50 per ton CO₂ could achieve a global reduction in CO₂ emissions of 38.6%, while only a 2.5% reduction can be achieved if Europe pursues this path alone. For more information, see the fact sheet on “CO₂ pricing” of the Bertelsmann Stiftung (June 2021) m.w.V., <https://www.bertelsmann-stiftung.de/de/publikationen/publikation/did/co2-bepreisung> (May 31, 2022).

At the societal level, a study by the Wuppertal Institute¹⁹ is worth mentioning. According to this study, it is precisely those social groups with the highest level of education, the highest income, and the highest environmental consciousness who consume the most resources. Groups in worse socioeconomic circumstances on average have lower environmental consciousness, but their footprint is many times smaller because they simply cannot afford to live resource-intensive lives.

The question of how to regulate social and economic growth in local economic systems in the future while considering this fact exemplifies the great social challenges of the climate crisis. A shift in production to countries with lower environmental standards is definitely not a solution, as it would represent a step back with regard to the global goal of emissions reduction.

4. Credibility crisis

A *fourth ethical challenge* is the denial of climate change as well as its consequences and therewith the obligation to actively protect the integrity of our living environment. In the past 40 years, populist tactics have been used across the globe to deny climate change and discredit the science that connects global climate change with human greenhouse gas emissions. These actions range from personal attacks on experts to the spreading of false information and the delegitimization of serious media sources. Behind this strategy of disinformation about the consequences of climate change and the role of human activity in causing it, lie companies whose internal documents describe how alarming information was hidden from the public or the consequences on society were downplayed.²⁰ Already during the early 1980s, oil companies, for example, knew from their own studies that the greenhouse gas emissions from burning fossil fuels would change the climate, as revealed in a hearing of experts in the US Congress in October 2019.²¹ Moreover, they were given precise predictions of the CO₂ concentration in the atmosphere.²² Targeted PR campaigns were carried out with internal experts to deny that certain companies have contributed to harming public health. This method is very similar to the actions of the tobacco industry, which denied the carcinogenic effects of its products for a long time.²³ In some cases, the very same people who previously

19 Wuppertal Institute for Climate, Environment, Energy 2009, 152.

20 *Mulvey/Shulman*, *The Climate Deception Dossiers* (2015), <https://www.ucsusa.org/sites/default/files/attach/2015/07/The-Climate-Deception-Dossiers.pdf> (May 31, 2022).

21 House of Representatives Hearing: “Examining the Oil Industry’s Efforts to Suppress the Truth about Climate Change” Subcommittee on Civil Rights and Civil Liberties (Committee on Oversight and Reform).

22 See <https://www.climatefiles.com/exxonmobil/1982-memo-to-exxon-management-about-co2-greenhouse-effect> (May 31, 2022).

23 *Heath*, *Contesting the Science of Smoking*, <https://www.theatlantic.com/politics/archive/2016/05/low-tar-cigarettes/481116> (May 31, 2022).

disputed the scientific consensus on behalf of the tobacco industry are involved in these campaigns, as discovered by the two historians Naomi Oreskes and Erik M. Conway.²⁴ Because the consequences of climate change in the form of extreme weather events such as heat waves, forest fires, floods, and cyclones can no longer be downplayed,²⁵ the original tactic of denial has been replaced by delaying tactics and distractions.²⁶

Combined with a loss of trust in authorities and institutions, the complexity of the climate crisis appears to trigger a feeling of powerlessness among many people, with the counterproductive effect that they do not even modify their own behavior because they feel it is irrelevant. However, the challenges of climate change will only be overcome if people are aware of the effects of their own (consumption) behaviours and act accordingly. With regard to raising awareness about existing challenges, it is essential to point out possibilities for individual action and the technologies that have already been developed for improved energy efficiency as well as to encourage people to believe in their own self-efficacy. In addition, young people in particular should be informed about how they can participate in the development and implementation of climate-preserving concepts when choosing their path of education and career.

5. Underdeveloped basic theoretical concepts

The fifth ethical challenge consists of the fact that our theoretical tools are underdeveloped in many of the relevant areas. These include concepts of international justice, ethics across generations, and scientific uncertainty, especially due to the impossibility of conveying the changes in these complex systems, such as the climate and our planet, as well as philosophical premises governing the appropriate relationship between humanity and the rest of nature in ways that people are able to understand and work with.²⁷ The development of the missing tools and theories is also made more difficult by the lack of public funding for research in this area.

For instance, climate change gives rise to questions about the value of non-human nature: whether we have obligations to protect animals, unique locations, or nature as a whole

24 Oreskes/Conway, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming* (2010).

25 Gramling, *Wildfires, heat waves and hurricanes broke all kinds of records in 2020*, in *Science News* (2020), <https://www.sciencenews.org/article/climate-change-wildfires-heat-waves-hurricanesrecords-2020> (May 31, 2022).

26 Gramling, *“The New Climate War” exposes tactics of climate change “inactivists”*, in *Science News* (2021), <https://www.sciencenews.org/article/new-climate-war-book-exposes-tactics-climatechange-inactivists> (May 31, 2022).

27 Jamieson, *Ethics, Public Policy, and Global Warming* (1992), <https://journals.sagepub.com/doi/10.1177/016224399201700201> (May 31, 2022).

and what form such obligations take if we do.²⁸ Moreover, scientific uncertainty and the potential for catastrophic consequences strain the standard economic approach²⁹ to environmental problems. Some people view a precautionary approach as an alternative here.³⁰ To minimize the harm to people impacted by greenhouse gas emissions, it would be advisable to take a different approach to the estimation and depiction of the climate consequences of predicted climate changes in accordance with the medical ethos of “*primum nihil nocere*.” This principle holds a central position in the moral justification of actions in the Hippocratic tradition (the full quote is: “*primum non nocere, secundum cavere, tertium sanare*,” which translates as: “First, do no harm; second, be cautious; third, heal”).³¹

Although the contribution of CO₂ to the greenhouse effect and to climate changes was already described in 1896 by Svante Arrhenius,³² increasing amounts of CO₂ were heedlessly released into the atmosphere for a long time. The statements in the summaries of our state of knowledge concerning climate change, climate consequences, and opportunities for action presented by the *Intergovernmental Panel on Climate Change* (IPCC) are each accompanied by an estimation of the level of confidence in order to show how large the respective scientific consensus is in relation to each statement and how well we understand the main elements of the system in order to predict their interactions. For many of their central conclusions, it is estimated that they will happen with “virtual certainty” or “very high confidence.” According to a proposed new legal definition, massive environmental destruction (sometimes referred to as ecocide) may even be punishable by means of international law. An international expert panel of 12 lawyers from around the world composed a draft³³ in 2021 that can be viewed as the first major step in the efforts of the global campaign to prevent future environmental catastrophes, such as deforestation of the Amazon, or actions that contribute to climate change.

28 Palmer, Does Nature matter? The place of the non-human in the ethics of climate change, in *Cambridge University Press, The ethics of global climate change* (2011) 272–291.

29 Hardin, The Tragedy of the Commons, in *Science* (1968) Vol. 162 1243–1248.

30 Sunstein, Cost-Benefit Analysis and the Environment, in *Ethics* (2005) Vol. 115/2, <https://www.journals.uchicago.edu/doi/10.1086/426308> (May 31, 2022).

31 Michler, Ärztliche Ethik [Medical Ethics], in *Würzburger medizinhistorische Mitteilungen* (2005) Volume 24, 268–281, here: 272–276 (*Primum nil nocere*).

32 Arrhenius/ Holden, On the influence of carbonic acid in the air upon the temperature of the earth, in *Publications of the Astronomical Society of the Pacific* (1897) Vol. 9/54 14–24.

33 See <https://static1.squarespace.com/static/5ca2608ab914493c64ef1f6d/t/60d1e6e604fae2201d03407f/1624368879048/SE+Foundation+Commentary+and+core+text+rev+6.pdf> (May 31, 2022).

Recommendations of the Bioethics Commission

Preliminary remarks on the recommendations

The greenhouse gas concentration in the atmosphere of over 420 ppm CO₂³⁴ is now at its highest point in at least 2–3 million years³⁵ and can be attributed to exponentially increasing anthropogenic greenhouse gas emissions. The resulting greenhouse effect has been observed since the end of the 19th century³⁶ and has significantly accelerated during recent decades, followed by massive global warming with consequences referred to by the term “climate change.” The human-caused greenhouse effect has increasingly discernible and measurable consequences such as the massive loss of biodiversity,³⁷ more frequent extreme weather events,³⁸ catastrophic droughts and floods,³⁹ forest fires,⁴⁰ and the origination, growth, and spread of infectious diseases, whose transmission can be facilitated by climate change, such as dengue fever, malaria, tick-borne diseases, leishmaniasis, and Ebola, as well as heat-related health problems, such as exhaustion, heat stroke, and heart attacks.⁴¹ This is the consequence of a sustained wet-bulb

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- 34 *Sutherland*, CO₂ at Manua Loa exceeds 420 ppm for the first time in human history (2021), <https://www.theweathernetwork.com/ca/news/article/carbon-dioxide-at-mauna-loaexceeds-420-ppm-first-time-in-human-history> (May 31, 2022).
- 35 *Grant/Naish/Dunbar et al.*, The amplitude and origin of sea-level variability during the Pliocene epoch, in *Nature* 574 (2019), <https://pubmed.ncbi.nlm.nih.gov/31578526/> (May 31, 2022).
- 36 *Arrhenius*, On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground, in *Philosophical Magazine and Journal of Science* (1896) Ser. 5/Vol. 41, 237–276; *Rodhe/Charlson/Crawford*, Savante Arrhenius and the Greenhouse Gases, in *Ambio* (1997) Vol. 26/1, <https://www.jstor.org/stable/4314542> (May 31, 2022).
- 37 *Sahney/Benton/Ferry*, Links between global taxonomic diversity, ecological diversity and the expansion of vertebrates on land (2010), <https://royalsocietypublishing.org/doi/10.1098/rsbl.2009.1024> (May 31, 2022).
- 38 *Reichenstein/Bahn/Ciais*, Extreme weather events fuel climate change (2013), https://www.mpg.de/7501454/weather-extreme_carbon-cycle_cimate-change (May 31, 2022).
- 39 *Birkmann/Jamshed/McMillan et al.*, Understanding human vulnerability to climate change: A global perspective on index validation for adaptation planning (2022), <https://www.sciencedirect.com/science/article/pii/S0048969721051408?via%3Dihub> (May 31, 2022).
- 40 *Tang/Zhong/Luo et al.*, The Potential Impact of Regional Climate Change on Fire Weather in the United States (2014), <https://www.tandfonline.com/doi/abs/10.1080/00045608.2014.968892> (May 31, 2022).
- 41 *McMichael*, Global Climate change and health: an old story writ large (2003); WHO, Climate change and health (2021), <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health> (May 31, 2022).

temperature of just 31° C,⁴² a lethal threshold at which the adaptability of the human system is no longer adequate to sufficiently cool the body.⁴³ Between 1991 and 2020, heat was already the main cause of weather-related deaths in the United States.⁴⁴ Direct consequences of climate change include the destruction of infrastructure and energy supply systems as well as conflicts in food production associated with water shortages and the distribution of food. These lead in turn to impairments of physical and mental health and pose a threat to domestic and international security.⁴⁵ Climate change has the potential to intensify existing tensions and generate entirely new ones, thereby increasing the general threat level. It triggers violent conflicts and poses a threat to international security,⁴⁶ and the consequence of “large-scale migrations of people – both inside nations and across existing national borders” can already be observed today and will be in the future.⁴⁷ In an appeal to the United Nations in 2021, 200 of the most prominent international medical journals designated the rapid warming of the climate the “largest threat” to global public health and issued a call for more drastic reduction of greenhouse gases in order to protect the health of humans.⁴⁸ There is no degree of temperature rise that can be considered safe for human health. In the last 20 years,

42 *Tang/Zhong/Luo et al.*, The Potential Impact of Regional Climate Change on Fire Weather in the United States (2014), <https://www.tandfonline.com/doi/abs/10.1080/00045608.2014.968892> (May 31, 2022).

43 *Vecellio/Wolf/Cottle/Kenny*, Evaluating the 35° C wet-bulb temperature adaptability threshold for young, healthy subjects (2021), <https://pubmed.ncbi.nlm.nih.gov/34913738/> (May 31, 2022); *Zhang/Held/Fueglistaler*, Projections of tropical heat stress constrained by atmospheric dynamics, in *Nature Geoscience* (2021) 133–137, <https://www.nature.com/articles/s41561-021-00695-3> (May 31, 2022).

44 *Buis*, Too Hot to Handle: How Climate Change May Make some Places Too Hot to Live (2022), <https://climate.nasa.gov/ask-nasa-climate/3151/too-hot-to-handle-how-climatechange-may-make-some-places-too-hot-to-live/> (May 31, 2022); *Xu/Kohler/Lenton/Scheffer*, Future of the human climate niche, in *PNAS*, 117 (21) 11350-11355, <https://doi.org/10.1073/pnas.1910114117> (June 1, 2022).

45 NOAA, Climate change impacts, <https://www.noaa.gov/education/resource-collections/climate/climate-change-impacts> (May 31, 2022); UN, The Greatest Threat to Global Security: Climate change is not merely an environmental problem, <https://www.un.org/en/chronicle/article/greatest-threat-global-security-climate-change-not-merely-environmental-problem> (May 31, 2022).

46 *Vivekananda/Smith*, A climate of conflict: The links between climate change, peace and war (2007), <https://www.international-alert.org/publications/climate-conflict> (31.5.2022); *Burke/Hsiang/Miguel*, Climate and Conflict (2015), <https://www.annualreviews.org/doi/10.1146/annurev-economics-080614-115430> (May 31, 2022).

47 *Campbell/Gulledge/McNeill/Podesta/Ogden et al.*, The Age of Consequences: The Foreign Policy and National Security Implications of Global Climate Change (2007), https://csis-website-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/media/csis/pubs/071105_ageofconsequences.pdf (May 31, 2022).

48 *Atwoli/Baqi/Benfield/Bosurgi et al.*, Call for Emergency Action to Limit Global Temperature Increases, Restore Biodiversity, and Protect Health, in *N Engl J Med* 2021; 385:1134–1137, <https://www.nejm.org/doi/full/10.1056/NEJMe2113200> (June 1, 2022).

heat-related mortality among people 65 years and older has risen by more than 50%.⁴⁹ Higher temperatures lead to more cases of dehydration, loss of kidney function, increased cases of malignant skin diseases and tropical infections, more mental illness, more pregnancy complications, more allergies, and increased cardiovascular and pulmonary morbidity and mortality. Over 30 years ago, the IPCC drew attention to the massive negative consequences of inaction.⁵⁰ Despite international recognition of ecological balance as a human right, human dignity is increasingly threatened by the climate crisis. The crisis brings with it major ethical challenges, especially with regard to the broad responsibility towards weaker members of society (the unborn, women, children, the socially disadvantaged, animals, plants, and all forms of life in the biosphere).

Due to the global dimension of climate change and in consideration of Austria's specific responsibility as an industrial country in Central Europe that has enjoyed a privileged position to date, Austria must take consistent steps to achieve significant reductions in greenhouse gas emissions, both nationally and internationally.

At this point, our recommendations focus on the national options while also emphasizing that every national measure must be evaluated with regard to its international implications to ensure that these do not counteract the steps taken within Austria. At the same time, the government must strive within its international relations and within the framework of development cooperation to promote a significant global reduction of greenhouse gas emissions and to support the international measures.

Greenhouse gas emissions in Austria have so far not been reduced relative to their level in 1990 despite the repeated setting of such goals. Even though considerable reductions have been achieved in the areas of industry, private households and agriculture, these successes have been "gobbled up" by enormous increases in other areas (in particular road transportation). The need for climate policy action in Austria is therefore enormous. Analyses by the IPCC, the *Austrian Panel on Climate Change* (APCC) and the Environment Agency Austria show that the currently established measures for emissions reduction are not sufficient to achieve either the goals of Austria or the Paris Agreement at any level, whether national, EU, or global.

49 *Watts/Amann/Arnell/Ayeb-Karlsson, et al.*, The 2020 report of the Lancet countdown on health and climate change: responding to converging crises, in *Lancet* 2021; 397:129–170, <https://pubmed.ncbi.nlm.nih.gov/33278353/> (June 1, 2022).

50 IPCC, *Climate Change 2021: The Physical Science Basis*, <https://www.ipcc.ch/report/sixth-assessment-report-working-group-i> (May 31, 2022).

The Austrian constitution establishes comprehensive environmental protection as an official state objective;⁵¹ however, there is no fundamental right to environmental or climate protection that could be individually enforced. In some European countries, courts have decided in favor of legal actions calling for stronger climate goals, supporting these decisions on the basis of guarantees in the European Convention on Human Rights (ECHR) as well as objectives established at the state level. No such interpretation of the ECHR has yet been expressed by Austrian courts. The current national Climate Protection Act (Klimaschutzgesetz – KSG) aims to coordinate climate policy in the areas not subject to European emissions trading (i.e. transport, buildings, agriculture, waste, industry, and smaller industrial facilities). The effectiveness of the KSG can be assessed as low. Furthermore, the target period of the version currently in force ended in 2020. Adoption of the new version now under negotiation must therefore be viewed as especially urgent.

Spatial planning in Austria shows that extensive areas of the territory have been developed (urban sprawl and dispersed settlements), resulting in long travel distances that are largely covered by car. In comparison with other European countries, Austria shows a particularly high level of land utilization for settlement and transport purposes. Nevertheless, land utilization is currently still increasing. The envisaged further expansion of renewable energy will also require additional land, resulting in increased competition for land use. Previous attempts to re-regulate regional planning competence between the federal and regional governments in a coordinated way for more effective action (such as in the context of the Austrian Convention for a constitutional reform) have thus far been unsuccessful, and therefore this task remains urgent.

The Renewable Energy Act (EAG) has been in force since 2021 with the goal of expanding the availability of renewable energy, and the first ordinances for implementation of this act have already been introduced. Expanding the production of renewable energy by roughly fifty percent is very ambitious. At the same time, it is likely that the current electrification of all areas (space heating – heat pumps; industry – electrification and hydrogen utilization; transport – electromobility) will cause the demand for electricity to exceed the planned supply of renewable energy.

The pertinent laws covering the domains of the heating of spaces as well as energy efficiency are still under negotiation. It is extremely urgent that the laws in both these areas be passed. In the context of space heating, the federal states (*Länder*) are still awaiting the implementation framework with regard to their competences. The need to effectively improve energy efficiency is clearly based in particular on the fact that all studies that are summarized in the *Austrian Panel on Climate Change* and its reports

51 It is established as an official state objective (*Staatszielbestimmung*) in Article 3 of the Federal Constitutional Act on sustainability, the protection of animals, comprehensive environmental protection, safeguarding of the supply of water and food, and research.

show that in Austria, energy demand must be cut in half in order to cover the demand with renewable energy carriers.

The greatest challenge with regard to the necessary trend reversal and emission volumes lies in the transport sector. One important initial prerequisite has already been established with the “climate ticket”, and CO₂ pricing for the areas not covered by emissions trading (entering into force in July 2022) will also contribute here; however, a higher pricing path than planned would be required to provide effective support. Structuring the actual objective (namely: access to people, goods, services, and locations) in a climate-neutral way requires a further set of measures drawn from a wide range of possibilities in order to achieve the goals of “avoiding individual motorized mobility” (such as with pedestrian-friendly spatial planning and other environmentally advantageous forms of transport), “mode shifting” (such as by making cycling and public transportation more attractive), and “improvement” (such as by electrifying public and motorized individual transportation).⁵² Close coordination between the instruments at the federal (e.g. fiscal policy) and the regional (e.g. local public transportation) levels is essential to ensure that the measures are effective.

In all the areas mentioned above (space heating, energy supply, transport) as well as in agriculture, a reform of environmentally counterproductive subsidies has been on the agenda for two decades, but successful implementation of this agenda has still not been achieved in Austria. Activities harmful to the climate are still directly and indirectly subsidized in the order of roughly 5% of GDP,⁵³ including over €3.9 billion directly in the public budget in the form of increased expenditures or reduced revenues.⁵⁴

In addition, a restructuring of media subsidies according to specific quality criteria with respect to reporting on the climate crisis would be desirable to promote appropriate positioning of opinions and reporting within the context of scientific discourse. It must ideally be clear to readers when an article does not agree with the scientific consen-

52 *Thaller/Posch/Dugan/Steininger*, How to design policy packages for sustainable transport: balancing disruptiveness and implementability, in *Transportation Research Part D* (2021) Vol. 91, <https://www.sciencedirect.com/science/article/pii/S1361920921000201?via%3Dihub> (May 31, 2022).

53 *Köppl/Steininger/Steiner*, Reform umweltkontraproduktiver Förderungen in Österreich [Reforming Environmentally Counterproductive Subsidies in Austria]. *Energie und Verkehr* (2004) 204 ff.

54 *Kletzan-Slamanig/Köppl*, Subventionen und Steuern mit Umweltrelevanz in den Bereichen Energie und Verkehr [Subsidies and Taxes with Environmental Relevance in the Areas of Energy and Transportation] (2016), <http://www.wifo.ac.at/wwa/pubid/58641> (31.5.2022); *Steininger/Bednar-Friedl/Knittel/Kirchgast et al.*, Klimapolitik in Österreich: Innovationschance Coronakrise und die Kosten des Nicht-Handelns [Climate Policy in Austria: Coronavirus Crisis as Opportunity for Innovation and the Costs of Inaction] (2020), <https://doi.org/10.25364/23.2020.1> (May 31, 2022).

sus.⁵⁵ In this context, the placement of advertisements by public authorities should be reconsidered and tied to specific quality criteria. For instance, within the scope of what is constitutionally permitted, public funding should be withdrawn from media that repeatedly distribute content in denial of the climate crisis. It would be desirable in this respect to support media with a special focus or thematic supplements on the climate crisis, that have editorial offices dedicated to these topics, and that carry out in-depth research (“slow journalism”), etc., in order to motivate other media to do likewise. One possibility would be, for example, to subsidize education and training programs for journalists who regularly report on the climate crisis and to embed courses specific to the journalistic handling of the climate crisis in journalism schools and journalistic studies curricula. Collaboration between scientific institutions, business, and journalism in conveying the complexity of the crisis as well as awards and research networks that support high-quality climate journalism should also be promoted, such as the K3 award for climate communication, the Austrian Environmental Journalism Award, and the Climate Journalism Network. To position the climate crisis as a central topic in the Association of Austrian Newspapers would be another important measure (very little activity relating to the climate crisis has been observed here to date).

Caution is advised with respect to indirect climate denial. Due to the dependence of media on advertising, advertisements promoting behavior that is harmful to the climate (such as cheap flights, cruises, car models) are often found immediately next to climate reporting (or at least in the same publication). This makes it even more important to consider new financing models that reduce the dependence of the advertising market on fossil industry. Advertising for products harmful to the climate also poses a problem. Warning labels, such as they are now typical in tobacco advertising, could provide appropriate clarifications here.

The Austrian Press Council could call upon media to set their own rules regarding reporting on the climate crisis. For instance, such rules could require that the scientific consensus be reflected or that deviations must be appropriately contextualized. It would also be important for these rules to apply not only to the science or climate departments but also to financial and business reporting in particular due to the close connecting these subjects to the currently dominant but questionable framing of “economy vs. climate.” Actions against media that repeatedly violate these rules should ideally also be taken in public. Overall, it would be important to position the climate crisis as a central topic within the Association of Austrian Newspapers, which has to date exhibited only little

55 Definition of “scientific consensus”: The Scientific Consensus represents the position generally agreed upon at a given time by most scientists specialized in a given field, <https://www.greenfacts.org/de/glossar/wxyz/wissenschaftlicher-konsens.htm#:~:text=Definition%3A> (May 31, 2022).

activity on the topic of climate crisis. There is still no systematic inclusion of the climate crisis and its consequences (such as the biodiversity crisis) within educational curricula.

Above all, the development and implementation of technical solutions to improve energy efficiency and reduce energy consumption remain essential. In this context, initiatives should be increasingly established to counteract the already existing lack of skilled workers. Increased incentives for choosing technical education paths and careers are required at all levels (traineeships, technical and vocational education, academic education), with a specific focus on the areas of energy efficiency and sustainability, as well as retraining offers for people changing careers.

It is also of central importance to support those segments of the population that suffer particularly badly from the consequences of climate change. People in poverty or at risk of poverty as well as marginalized groups (frontline communities) are especially impacted by both climate change and its consequences.⁵⁶ For all measures taken to mitigate the impact of climate change, it must be ensured that these groups are not additionally disadvantaged.

Health impacts will also increase significantly, as the climate crisis continues to unfold. A rise in global average temperature by more than 1.5° C and the associated loss of biodiversity are predicted to cause catastrophic health impacts that will no longer be reversible. Against this backdrop, the Bioethics Commission formulates the following action recommendations for policymaking in Austria.

56 *Noll / Tsagkari*, Vulnerability and the Green New Deal: A Note of Caution (2020), <https://www.greeneuropeanjournal.eu/vulnerability-and-the-green-new-deal-a-note-of-caution/> (May 31, 2022).

General recommendations

1. The official state objective (*Staatszielbestimmung*) of comprehensive environmental protection should be expanded to include the aspect of climate protection and the implementation of climate neutrality.⁵⁷
2. Due to the global dimension of climate change, every national measure must be evaluated with regard to its international implications to ensure that these do not undermine steps taken within Austria. At the same time, the government must strive within its international relations and within the framework of development cooperation to promote a significant global reduction of greenhouse gas emissions and to support the international measures.
3. An expansion of the fundamental rights currently recognized in Austria to include an individual right to climate protection should be discussed.⁵⁸
4. In order to significantly reduce the excessive utilization of land, regional development planning approaches are in urgent need of sustainable reform.
5. Securing the supply of energy requires the enforced expansion of renewable energy as well as structural measures to reduce energy demand and conserve energy.
6. It is extremely urgent to legislate in the area of space heating and energy efficiency in order to improve energy efficiency and to provide the federal provinces with an implementation framework.
7. A comprehensive set of measures is required to reduce emissions in the transport sector with the aim of making access to persons, goods, services, and locations climate neutral.
8. Public subsidies for activities harmful to the climate must be urgently reformed and entirely eliminated over the medium term. For all measures taken to mitigate the impact of climate change, it must be ensured that economically and socially vulnerable groups (frontline communities) are not additionally disadvantaged.

57 Article 3 of the Federal Constitutional Act on Sustainability should be amended to read:
(1) The Republic of Austria (federal government, federal provinces and municipalities) is committed to comprehensive environmental protection.
(2) Comprehensive environmental and climate protection means the prevention of harmful effects on the natural environment as the basic resource of the human being. Comprehensive environmental protection consists particularly in measures to ensure the cleanliness of air, water and soil as well as to prevent noise disturbance and also to reduce greenhouse gas emissions and achieve or maintain climate neutrality.

58 See: <https://klimavolksbegehren.at/wp-content/uploads/2021/05/KVB-OffiziellerForderungskatalog.pdf> (June 1, 2022); Federal Climate Protection Act (KSG) Article 3 National climate protection goals https://www.gesetze-im-internet.de/ksg/_3.html (May 31, 2022); *Ennöckl*, Possibilities for establishing a fundamental right to climate protection in constitutional law 2021, https://www.parlament.gv.at/PAKT/VHG/XXVII/III/III_00365/imfname_987168.pdf (May 31, 2022); Opinion of the Federal Constitutional Affairs Office on the fundamental right to climate protection, 2021-0.655.817, regarding III-365 of the Supplement, XXVII. Legislative Period, https://www.parlament.gv.at/PAKT/VHG/XXVII/III/III_00365_U1/imfname_1002906.pdf (May 31, 2022).

9. We will also need to make larger investments in primary pandemic prevention, primarily by preserving habitats, strictly regulating trade with wild animals and improving biosecurity in animal husbandry, in order to prevent the ever more likely outbreaks of infectious diseases.
10. The resilience of the health system should be protected, and the relevant training for healthcare professionals should be ensured.

Recommendations with respect to media

11. Media subsidies – and in particular the placement of advertisements by official authorities – should in future be coupled to quality guidelines within the legal framework.
12. The Austrian Press Council should be called upon to set rules regarding reporting on the climate crisis.
13. Collaboration between scientific institutions, business, and journalism in conveying the complexity of the climate crisis should be promoted.
14. Advertising of products harmful to the climate should receive corresponding labeling.

Recommendations with respect to research and education

15. Research projects concerning the climate crisis and its consequences must be selectively subsidized by the federal government (see recent examples, such as digitalization and COVID-19 with specific subsidy funds).
16. Pathogenic factors (e.g. viruses) must be better understood and subsequently closely monitored so that shifts in the spectrum of species during the climate crisis can be more effectively tracked and potential pathogens can be quickly identified and combated.
17. The climate crisis and climate consequences should be integrated into educational curricula.
18. In order to remedy the acute and worsening lack of skilled workers, increased incentives for choosing technical education paths and careers are required at all levels (traineeships, technical and vocational education, academic education), with a specific focus on the areas of energy efficiency and sustainability, as well as retraining offers for people changing careers.

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