



# Democracy and the Challenge of Climate Change

International IDEA Discussion Paper 3/2021



# Democracy and the Challenge of Climate Change

International IDEA Discussion Paper 3/2021

Daniel Lindvall

© 2021 International Institute for Democracy and Electoral Assistance

International IDEA publications are independent of specific national or political interests. Views expressed in this publication do not necessarily represent the views of International IDEA, its Board or its Council members.



The electronic version of this publication is available under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 (CC BY-NC-SA 3.0) licence. You are free to copy, distribute and transmit the publication as well as to remix and adapt it, provided it is only for non-commercial purposes, that you appropriately attribute the publication, and that you distribute it under an identical licence. For more information visit the Creative Commons website: <http://creativecommons.org/licenses/by-nc-sa/3.0/>.

International IDEA

Strömsborg

SE-103 34 Stockholm

Sweden

Telephone: +46 8 698 37 00

Email: [info@idea.int](mailto:info@idea.int)

Website: <https://www.idea.int>

Design and layout: International IDEA

Images: Photos: p. 16, ©2010CIAT/NeilPalmer on <https://www.flickr.com/photos/ciat/5367352990/> published with a CC BY-SA 2.0 licence; p. 24, © Asian Development Bank on <https://www.flickr.com/photos/asiandevdevelopmentbank/8529844567/in/album-72157682604807736/> published with a CC BY-NC-ND 2.0 licence; p. 48, © Bastian Greshake Tzovaras on <https://www.flickr.com/photos/gedankenstuecke/48776359121/in/album-72157711015086551/>, published with a CC BY-SA 2.0 licence

Copyeditor: Accuracy Matters Ltd

DOI: <https://doi.org/10.31752/idea.2021.88>

ISBN: 978-91-7671-460-7 (PDF)

Created with Booktype: <https://www.booktype.pro>

# Contents

---

Acknowledgements .....	6
Abbreviations .....	7
Executive summary .....	8
Climate change is a challenge to democracy .....	8
Democracy is leading to lower emissions .....	9
Why climate is a challenging issue for democracies .....	9
1. Introduction .....	11
2. Climate change as a challenge to democracy .....	13
2.1. Natural disasters .....	13
2.2. Food insecurity .....	15
2.3. Economic decline and financial instability .....	18
2.4. Climate injustice .....	20
2.5. Conflicts and migration .....	22
3. Is democracy leading to lower emissions? .....	26
3.1. Are democracies better at protecting the environment? .....	26
3.2. Democracy and its effect on climate policies .....	29
4. Why climate change is a challenging issue for democracy .....	31
4.1. The challenges of complexity .....	31
4.2. The global aspect of climate change .....	36
4.3. The problem of short-termism .....	40
4.4. Policy capture, corruption and fossil fuel dependency .....	46
5. Conclusions and recommendations .....	53
5.1. Summary .....	53
5.2. Policy recommendations .....	55

References .....	60
About the author .....	75
About International IDEA .....	76

## Acknowledgements

---

This Discussion Paper was developed by Dr Daniel Lindvall in cooperation with International IDEA as part of the workstream on Climate Change and Democracy. The paper benefited from valuable input and feedback from several colleagues at International IDEA, including Kevin Casas-Zamora, Jonathan Murphy, David Rosén, Alistair Scrutton and Adina Trunk, who provided input and feedback on the format and content of the paper. Importantly, the editorial guidance and input we received from Lisa Hagman and Susan Heads helped us improve the paper during the entire production process.

## Abbreviations

---

CBDR	Common But Differentiated Responsibilities
IMF	International Monetary Fund
GDP	Gross Domestic Product
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
OECD	Organisation for Economic Co-operation and Development
UNFCCC	United Nations Framework Convention on Climate Change
WFP	World Food Programme

## Executive summary

---

### Climate change is a challenge to democracy

Climate change poses a great challenge for democracy, and its endurance—probably the greatest challenge it has ever seen. If greenhouse gas emissions are not reduced and global warming kept within the targets set in the Paris Agreement, the impact on populations, infrastructure and nature will be dire, while governing systems and democratic frameworks will be brought under severe stress. Global warming is expected to cause natural disasters, such as heatwaves, droughts and sea level rise, which could potentially lead to significant social conflict and institutional collapse. Crises or emergency situations could, in some cases, have positive effects for democracy, bringing people together and providing opportunities for regime change, but they could also be used as an excuse for autocratic or hybrid regimes to curtail democratic freedoms, as experienced during the Covid-19 pandemic.

With a business-as-usual scenario, a third of current global food production could be at risk by the end of the century, making it difficult to feed a growing global population. Events such as famine, scarcity of food or rising food prices are known to lead to social unrest and political instability, and can deepen income inequality and lead to democratic breakdown, particularly in fragile democracies with weak state institutions. Food insecurity will consequently be one of the main challenges to democracy as global temperatures rise; however, this risk can also be mitigated by developing the functioning of democracy and the capacity of institutions, which could facilitate a transition to a more sustainable food production.

In the absence of efficient mitigation policies, the global real gross domestic product (GDP) per capita could be reduced by more than 7 per cent by 2100, according to the International Monetary Fund (IMF). Climate shocks, such as natural disasters and extreme weather events, or problems such as food insecurity, can trigger occasional financial crises and economic decline, comparable with the experience under the Covid-19 pandemic. The economic impacts of global warming will be more severe for poor countries in climate-sensitive regions, where many fragile democracies are located. Global warming could also be stressful for developed democracies, given that economic decline could lead to growing income gaps, which is very harmful for democratic endurance. Several climate consequences and mitigation measures tend to particularly affect weak socio-economic groups, who are often deprived of political influence. However, a shift away from fossil fuels could also lead to sustainable economic development with positive democratic effects, as it could create a more stable and inclusive market economy.

Climate change can also be a factor contributing to conflicts and migration. In the absence of adequate climate action, global warming could create an unstable world order, with poor prospects for freedom and democracy. Nevertheless, the climate crisis is an unprecedented challenge, and it is impossible to anticipate the social responses. Although most predictions present very pessimistic future scenarios, people experiencing the impacts of global warming and broken ecosystems may be motivated to act collectively and assume social and environmental responsibility, eventually leading to an advancement in global democracy.

## Democracy is leading to lower emissions

The performance of democracies on climate actions is mixed. On the one hand, most full democracies are industrialized and high-income countries, and for this reason they emit comparably high levels of greenhouse gases per capita. The three big democratic entities—the European Union, Japan and the United States—are accountable for about two-thirds of all historic carbon emissions. By 2020, not a single democracy had sufficiently lowered their emissions to meet the targets set in the Paris Agreement. From this perspective, one can conclude that democracies have largely failed to deal with climate change.

On the other hand, research shows that democracy can positively influence environment protection policies and climate action. There are several studies confirming the correlation between democracy and climate mitigation. In an open and democratic society, people are better placed to access and spread information on climate change, organize and form associations, protest, express opinions and concerns, and mobilize people in a movement demanding climate action. People enjoying civil and political freedom can use their creativity to find solutions to complex technical or organizational problems and, most importantly, they can hold unwilling governments accountable. They can also scrutinize the activities of public authorities and business corporations and bring them to courts, trusting in an independent and efficient legal process.

Research has shown that democracies with liberal and social-liberal features, such as protecting property rights and providing equal access to healthcare or education, are pursuing better climate policies. Moreover, gender equality is generally more advanced in democracies, which has been shown to influence the climate policies. A comprehensive comparison of the climate policies of different countries is provided by the so-called Climate Change Performance Index, annually presented by the organizations Germanwatch, New Climate Institute and Climate Action Network Europe. Democracies generally perform much better than non-democratic states, and among the 13 highest-scoring countries, 7 are classified as full democracies in the Democracy Index of The Economist Intelligence Unit.

Other studies indicate, however, that only democracies with a strong state capacity and a low level of corruption are performing better. Studies have also shown that countries with an influential fossil fuel industry are high emitters and are performing poorly on addressing climate change. Democracies such as Australia, Canada and the USA are ranked exceptionally low in the Climate Change Performance Index, scoring even poorer than several authoritarian states, such as China.

## Why climate is a challenging issue for democracies

Although democracies do better on average than authoritarian systems, climate change is an issue that poses specific challenges to the governing capacity of democracy. The challenge of climate change is complex and has sometimes been described as a ‘wicked problem’. It is an issue in the interface between natural and human systems, and therefore it affects all spheres of life, but in unpredictable ways. The complexity of climate change is one of the prime reasons why democracies have failed to deal adequately with the crisis. The climate crisis is

moreover a global challenge, and democracies have not sufficiently managed to act beyond the constraints of the national states. The short-term focus of most democratic decision-making has been an additional weakness. Democracy is a system limited by time and space, while the problem of climate change runs across generations and national borders. Moreover, the influence of fossil fuel lobbying, corruption, policy capture and weak institutional capacity have hampered democracies from acting responsibly.

As this paper demonstrates, democracies nevertheless possess several advantages when it comes to tackling the climate crisis. Governing systems that allow civil participation, a free flow of information and processes of assessment and evaluation seem to be more capable than authoritarian regimes in dealing with issues of great complexity. Studies on climate change cooperation have also shown that, in general, democracies are more active in international negotiations and more likely to keep their political commitments. The international cooperation on climate change relies to a great extent on open and democratic societies, providing a base for journalists and civil society organizations covering and reporting on the negotiations and monitoring compliance. Moreover, technological innovation, particularly on renewable energy, has made the solutions to the climate crisis less cross-border intensive and extensive, motivating both individual countries, regions and cities, and companies, communities and individuals, to act on their own. Active engagement by individuals and civil society organizations can create pressure for strong policy responses on a local, national and global level.

Studies also show that democracies are improving their performance on long-term policies—for instance, on climate action and on the United Nations Sustainable Development Goals. Institutional changes, such as the adoption of climate legislation and advisory bodies, and activities within democracies, such as the youth-driven climate movement and processes of climate litigation, have made them even less vulnerable to short-termism.

Despite this, democracies are still not delivering on their climate pledges. In many fragile democracies, corruption is obstructing the policymaking process on climate and preventing adequate and efficient implementation. The fossil fuel industry still wields substantial influence on politics in several democratic countries. In this respect, the lack of trustworthy and independent public institutions, with the ability to counteract policy capture and corruption, protect human rights, and deliver on the principles of the rule of law and good governance, is a serious barrier on the path towards a sustainable future.

In conclusion, functioning democracy is essential to effectively deal with the climate crisis; however, as long as many democracies are suffering from their own institutional failures, they will not be able deliver adequately. Consequently, efforts to develop and support democracy around the world need to be sustained, but it is also necessary to undertake certain measures, activities and reforms to make democracy more able to tackle the climate crisis. The policy advice in this paper focuses on the necessity to overcome short-termism, ensure citizen participation, act on climate injustice, develop knowledge-based decision-making and strengthen the state capacity. Further research on the nexus of democracy and climate is also needed, to better understand both the effects climate change could have on democracy as such and how democratic governance could be developed to become more capable of dealing with the crisis at hand.

# 1. Introduction

---

The relationship between our modern civilization and the planet is dangerously imbalanced. Human-produced emissions of greenhouse gases have led to the current climate crisis, which is beyond doubt the most alarming issue facing our planet and the global community today. Global warming has already resulted in profound alterations in human and natural systems, yet in the near future we could expect more frequent and severe incidents of extreme weather events—including droughts and floods—as well as sea level rise, biodiversity loss and so forth (IPCC 2018). These events pose risks to populations, infrastructure and the system of nature, but could also bring governing systems and particularly democracy under significant stress.

Several climate-related consequences are intricately connected to democratic and institutional stability. Global warming will probably increase the likelihood of food insecurity and might trigger economic recessions and financial instability. It could deepen inequalities and climate injustice and cause social unrest, conflicts and an increase in climate-related migration. On the other hand, efforts to tackle global warming could contribute to the strengthening of democracy by inspiring innovation, social mobilization and collaboration. The overall picture indicates, however, that the effects of the climate crisis will have a very negative impact on the global advancement of freedom and could pose an existential risk for democracy.

To date, governments around the world have failed to act in accordance with scientific recommendations on the need to urgently reduce emissions. This failure could be explained by various factors, such as the complexity and magnitude of the mitigation measures needed and our heavy dependency on fossil fuel. However, to understand why we have been unable to deal with this issue successfully, it is worthwhile analysing the competencies of various governing systems. For advocates of democracy, it is concerning that most liberal democracies are high emitters, and that many developed democracies—Australia, Canada, several EU member states, Japan, the Republic of Korea and the USA—are far from meeting the targets set in the Paris Agreement. The USA did not sign the Kyoto Protocol and later withdrew from the Paris Agreement, although it re-entered it in 2021. Several climate scientists have therefore expressed doubts over the ability of democracy to handle the climate crisis (Adam 2009; Hickman 2010). For these reasons, it is valuable to further explore the connections between democracy and the climate crisis.

This paper outlines the overall challenges that climate change poses for democracy, gives a general assessment of the climate record of democratic governments, and discusses some of the strengths and weaknesses of democracy in dealing with the climate crisis. The paper ends with some recommendations on what specific actions democracies can take to prepare to successfully tackle climate change. Recommendations for further research are also included.

Democracies vary in shapes and forms and discussing democratic governance as a unified concept is evidently misguided. This paper outlines some differences between various democracies, particularly regarding the maturity of their institutions; however, since it only presents a brief summary of the topic, the concept of democracy in use is rather general. This paper draws on International IDEA's notion of democracy as a form of government that 'emphasizes popular control over decision-making and political equality among those exercising that control' (Beetham et al. 2008). The terms 'democratic fragility' and 'democratic weakness' are also used to describe democracies that have experienced either partial or full democratic breakdown or that are flawed in other aspects. In relation to data drawn from the Democracy Index of The Economist Intelligence Unit, the terms 'full democracy' and 'flawed democracy' are used. International IDEA also uses the term 'hybrid regime', which is defined as 'having the combination of elements of authoritarianism with democracy'. Such regimes have often adopted the formal characteristics of democracy, but with weak respect for basic political and civil rights. International IDEA also uses the term 'non-democratic regimes', which in this paper will generally be referred to as 'authoritarian regimes'.

## **2. Climate change as a challenge to democracy**

---

Most climate scenarios predict a world in which human and social systems will be brought under severe stress. It is impossible to make precise predictions of how nature will react to rising temperatures, and so it is difficult to anticipate the social and political responses. The climate crisis is an unprecedented challenge, and it is conceivable that humans—under such exceptional circumstances—are inspired to collaborate, seek common solutions, and assume social and environmental responsibility. The crisis could possibly unify communities and nations with disputing political views and ideologies. Looking at the world's existing experience of natural disasters, food insecurity and other problems projected to be consequences of climate change, it is more probable, however, that the impact on democratic development will be rather dire. This paper discusses five different effects of global warming and analyses their potential influence on democracy. These consequences are more frequent and severe natural disasters, increasing food insecurity, economic decline and financial instability, climate injustice, and climate-related conflicts and migration.

### **2.1. Natural disasters**

According to most projections, a warmer climate means natural disasters will occur more frequently and be more severe (IPCC 2018). Extreme weather events or so-called climate shocks, such as droughts, floods, heatwaves and bush fires, threaten human lives and damage property and infrastructure, but they can also have an impact on social, economic, cultural and political structures and potentially affect democratic development. It is difficult to project how human systems will react to a scenario of recurring climate shocks and what effect these could have on democratic governing systems. However, some general lessons could be drawn from the experience of disasters in the past and by comparing how different societies and political systems have reacted to these events.

Unfortunately, the history of natural disasters does not give a clear answer on what impact different climate shocks may have on democracy in the future. In countries with weak state institutions and an unstable political situation, natural catastrophes have created social chaos and disturbances, such as looting and violence, and some studies show that they can lead to growing distrust in democratic institutions and values (Carlin, Love and Zechmeister 2014). An authoritarian regime that efficiently provides relief and assistance can exploit such situations and strengthen its legitimacy and grip on society, but if it fails to deliver, its authority may become contested. Natural disasters can also make people less inclined to protest and therefore be used as an opportunity for authoritarian regimes to take steps towards more autocratic governance and curtailment of rights and freedoms (Deakin Business School 2019).

Droughts, floods and other natural disasters are not necessarily bad for democratic development. They can also be events that act as a shock on a social and political situation and thereby create a window of opportunity for regime change. Although natural catastrophes can have negative economic consequences, leading for instance to increased corruption, they can create openings for democratization. This is especially the case in countries with an intermediate regime type, that are already politically unstable. Natural disasters could also generate a situation in which groups with conflicting interests are brought together, reinforcing national unity and enabling social and political change. In developed democracies, natural disasters do not normally pose a threat to the governing system. If citizens in democratic societies are dissatisfied with the responses of the government, the leadership could be punished in subsequent elections, while in autocratic countries such situations could lead to regime change (Ahlerup 2011; Lin 2015; Rahman et al. 2017).

### The impact of natural disasters on democracy: Two cases

The impact of natural disasters on democracy varies and depends on the political and societal responses and relief provided, and the level of social trust, the resilience of institutions and the economic resources available. One example is the earthquake that shocked Nepal in April 2015, killing 9,000 people and severely damaging housing and infrastructure. The disaster occurred when the country was debating on a new constitution and the catastrophe brought political parties together. Although Nepal is still labelled as a mid-range performing democracy by International IDEA, some commentators argue that the disaster contributed to the democratization process and, two years later, Nepal held its first local elections in nearly 20 years (Pokharel et al. 2018). A more pessimistic example is the earthquake and tsunami that struck Chile in February 2010, killing more than 500 Chileans and displacing nearly one million people. Chile maintained its democratic institutions, yet studies show that victims of the disasters lost trust in democratic values and norms and became more supportive of military and executive coups (Carlin et al. 2014).

Climate-related disasters will probably not just be occasional, intense but short-lived, local events; rather they are likely to be recurring, long-lasting and potentially happening on a global scale. Some of the more severe consequences of climate change, such as heatwaves, droughts and sea level rise, will affect millions of people and have serious impacts on housing, infrastructure, economic activities and livelihoods. Moving a high number of people from flooded areas could be an exceedingly tough exercise, potentially triggering difficult social disputes. Given the magnitude of the climate crisis, it is not entirely relevant to compare it with the experience of unique historic natural disasters, especially since various climate scenarios predict long-lasting and recurring events that can trigger food insecurity, economic decline, social inequality, conflicts and migration. It is probably more useful to study the Covid-19 pandemic, which has been described as a rehearsal for the upcoming climate crisis.

The pandemic experience presents a gloomy picture of the potential effects of long-lasting disasters on democratic development. The organization Freedom House has, for instance, reported a deterioration of democracy and human rights in 80 out of 192 surveyed countries. The pandemic has led to corruption, lack of protection for vulnerable populations and government abuses of power (Freedom House 2020). International IDEA has shown, in a report on the regional democratic trends in Asia and the Pacific before and during the Covid-19 pandemic, that several countries have used the public health crisis as an excuse to expand executive power and to restrict individual rights and freedoms. Almost half the region's democracies have undertaken responses that are concerning (International IDEA 2020).

It has been suggested that emergencies caused by climate change could lead to similar situations in which democracies are motivated to implement measures that could lead to a restriction of civil liberties and rights. It is indeed possible that the climate crisis could be exploited this way, particularly by autocratic leaders, although there are still no examples of democracies or autocratic regimes using the climate crisis as an excuse to curtail democratic rights to date. Nevertheless, it is not unlikely that a failure of democratic governments to tackle the climate crisis could harm the legitimacy of democracy and make autocratic regimes more attractive. This is also a theoretical idea and there are no studies supporting the assumption that climate change has led to an erosion of democratic values on a wider scale.

## 2.2. Food insecurity

Access to nutritious food is a prerequisite for human well-being and development, and for this reason also a precondition for freedom and democracy. In a society where nutritious food is affordable and abundant, democracy is in a better position to thrive. As a general reflection, the real cost of the global food basket fell by almost half between 1975 and 2005, the time period for the third wave of democracy (FAO 2009). Although it is unclear to what extent access to affordable food contributed to the success story of democracy in the 20th century, there is plenty of evidence to show that scarcity of food is harmful for democratic development.

The correlation between food insecurity and democratic decline is rather strong and has been verified in several studies. Events of famine, scarcity of food or rising food prices are known to trigger social unrest and political instability and can lead to democratic breakdown, particularly in weak states (Brinkman and Hendrix 2011; Arezki and Bruckner 2011; Hendrix and Haggard 2015). Therefore, it might not be a coincidence that the global development of freedom stagnated in the years after 2005, a time period when the world experienced drastic increases in food prices. Consequently, it is rather worrying that we are predicted to enter an era of increasing food insecurity.

Global warming could have drastic impacts on food production due to an increase in pest populations, droughts, irregular precipitation, heatwaves and other extreme weather events. One study suggests that, with a business-as-usual scenario, climate change will threaten a third of the current global food production. If the world meets the goals of the Paris Agreement, then only about 5 to 8 per cent of global food production would be at risk (Kummu et al. 2021). According to the Intergovernmental Panel on Climate Change's (IPCC) *Special Report on Climate Change and Land*, climate change will have negative consequences for agriculture and is highly likely to lower the nutritional quality of crops. It is projected to lead to a median increase of 7.6 per cent in cereal prices by 2050, but the increase could be up to 23 per cent (IPCC 2019). This will lead to an increase in hunger and poverty and have a negative effect on human development. The consequences of the climate crisis will therefore be a hurdle in the struggle to reach the second of the Sustainable Development Goals regarding zero hunger by 2030. Today, approximately 690 million people are suffering from hunger, measured by the prevalence of undernourishment, and this number has been increasing since 2015. It is beyond doubt that the issue of food and hunger will be one of the main challenges as global temperatures rise.

Since food is a commodity traded on a global market, regional or local extreme weather events can affect prices globally, particularly if they affect areas significant in the global trade of a specific commodity (Chatzopoulos et al. 2020). Global prices will also be affected if food production in economically powerful countries faces difficulties, pushing them to import greater quantities of food. Such events could have dramatic effects on global food prices. A comparison could be made with the Covid-19 pandemic, which affected supply chains, production and assistance. According to the UN, the number of people suffering from severe

hunger rose by 20 per cent in 2020, partly due to the pandemic (UN Security Council 2021).

However, climate change is not the only challenge facing food producers today. First, the global population is expected to grow to 9 billion by 2050, and therefore each year farmers will need to produce food for an extra 80 million mouths. If we continue eating the same diet as today, food production will need to increase by 50 per cent. However, more people are making their way out of poverty to become middle earners and thereby changing their eating habits and getting a greater appetite for eggs and meat. An additional problem is that agriculture as a whole is responsible for approximately a quarter of the world's greenhouse gas emissions. Most agricultural emissions come from production on farms and are the result of keeping livestock and ploughing, although the transport, processing and storage of food also has a significant impact on the climate. When agriculture expands, forest is often lost, which also leads to increases in emissions. Increasing food production volume in a climate-neutral way, without fundamentally changing how we use the soil and what food we produce, will be difficult (IPCC 2019).

It is quite clear that, if we are to feed the world and reduce emissions at the same time, we need to change the way we grow and harvest our food. Today, industrial farming, especially the techniques of ploughing and overuse of fertilizers, is leading to a destruction of the fertility of soil. Almost a third of the world's arable land has been depleted or eroded (Milman 2015). At the same time, poor methods of watering, together with the cultivation of water-intensive crops, entail water shortages in several parts of the world. Food waste is another problem and about a third of all food produced is thrown away. Moreover, with the increase in meat consumption, a disproportionately high quantity of land is used to grow soya to feed livestock, instead of producing food (Thornton 2010; WWF 2014). This is bad news for the climate, since forests are cleared to make way for soya plantations, while farming cows and pigs emits large amounts of methane and nitric oxide, which are powerful greenhouse gases.

### Food insecurity and its impact on democracy



*Photo:* Maize farming at Mount Kenya region as part of a project preparing farmers for the impact of climate change on agriculture.

With global warming it will be exceedingly difficult to feed a growing global population. It is therefore highly likely that food insecurity will increase in the future and consequently food prices will rise. Escalating food prices increase the likelihood of social unrest, urban riots, demonstrations and political instability, bringing democratic institutions under stress. Such events could lead to a breakdown in governing systems, and are likely to be harmful for the development of global freedom. On the other hand, such events could provide openings for the democratization of authoritarian regimes. Experience shows that it is generally more difficult for elected leaders to stay in power if the people cannot satisfy their hunger, while non-democratic regimes are in a better position to silence a hungry populace. It is in the countries in between—where people have a limited ability to make their voices heard, yet political institutions are weak and not effectively ensuring a secure access to food—that rocketing food prices can cause the greatest political instability. Moreover, food insecurity deepens income inequality, which provides a poorer crucible for democracy. Several weak democracies, with a limited capacity to feed their people, could therefore experience a democratic breakdown if food prices shoot up (Brinkman and Hendrix 2011; Arezki and Bruckner 2011; Hendrix and Haggard 2015).

Several studies claim that the surge in wheat prices in 2010 was a factor that contributed to the Arab Spring in 2011, initially described as a potential fourth wave of democracy. The increase in wheat prices was a direct consequence of drought and extreme heat in Russia and Ukraine, which caused the yields to fall. The prices were also affected by a Russian ban on exports, by poor yields in Australia, Canada and China, and by Chinese buyers purchasing wheat on the global market. Studies show an 80 per cent likelihood that the heatwave in Russia would not have taken place without global warming (Rahmstorf and Coumou 2011). These political and weather-related events were exceedingly difficult for the North African countries, given that they are incapable of producing sufficient food to feed their own populations. For this reason, they import large quantities of food, and Egypt is the world's second-largest importer of grain. Although the country devotes almost 3 per cent of its GDP on subsidizing food, Egyptians still spend around 38 per cent of their income on food. To what extent climate change triggered the Arab Spring is disputed. There were obviously several other contributing factors, such as widespread corruption, maladministration, police violence, poverty and unemployment; however, the rising food prices cannot be taken out of the equation (Werrell, Femia and Slaughter 2013; Werrell, Femia and Sternberg 2015).

Well-functioning democracies with strong state institutions have so far been better equipped to deal with these challenges; however, in a world with recurring food crises, the stability of traditional democracies may also be put to the test. If increasing food insecurity coincides with other difficulties, such as real-term wage falls, growing economic inequality, automatization and unemployment, it could generate dissatisfaction and become a breeding ground for nationalism and authoritarian right-wing populism. Also, it is likely that food insecurity may open up calls for food nationalism and export bans. This could be very harmful for poor countries with difficulties in feeding their population, but it could also affect global security and stability.

However, food insecurity is not only a matter of a changing climate, but also about institutions capable of governing effectively and leading a transition towards more sustainable food production. New grains, crops, and production and irrigation techniques could mitigate some of the worst projections on food insecurity. In this sense, food security is also connected to democracy and the capacity for knowledge-based decision-making. The economist Amartya Sen has, for instance, claimed that famine has never occurred in a democracy (Sen 1999). When people can hold the ruling elite accountable, the government is more likely to prioritize the basic needs of the population. They can act to prevent future catastrophes by making the necessary changes in agricultural techniques and organization. Studies have shown, however, that starvation has indeed occurred in democracies, and

aspects such as low levels of corruption and effective institutions are suggested as being more important for preventing food insecurity (Burchi 2011; Rubin 2009).

### **2.3. Economic decline and financial instability**

The consequences of rising global temperatures will, by all accounts, be negative for the economy. The specific economic effects of climate change are controversial, and the predictions differ between different studies. One of the earliest and most famous attempts to predict the price of global warming was the so-called Stern Review, undertaken by the British economist Nicholas Stern. It asserted that the costs of doing nothing could result in losing at least 5 per cent of global GDP each year, now and forever, and the loss could even reach up to 20 per cent (Stern 2007). Obviously, the costs of global warming differ depending on the mitigation measures pursued and the emission reductions achieved. A later study published by the International Monetary Fund (IMF) suggests that, in the absence of efficient mitigation policies, the global real GDP per capita could be reduced by more than 7 per cent by 2100. If the world abides by the Paris Agreement, the loss would be about 1 per cent (Kahn et al. 2019).

There are, however, several difficulties in calculating the costs of climate change. It is quite certain that global warming will have serious consequences for infrastructure, agriculture, forestry, fishing, energy consumption, industry, natural environments and human health. Global warming is unbalancing a complex system, making it difficult to estimate the actual climate-related effects of various emissions levels. A temperature increase for seawater might, for instance, affect the system of currents in the Atlantic Ocean, which may trigger heatwaves and influence precipitation, leading to more frequent droughts or an increase in infectious diseases. This complexity makes it quite impossible to put an exact price tag on global warming. Moreover, it is difficult to evaluate the future costs and benefits of certain actions. In an economic sense, it might be wiser to defer certain measures, given that the costs of action today could exceed the future costs of climate-related consequences. The economist William Nordhaus introduced the notion of a discount rate, purportedly useful when measuring the expenses of investments today, weighting it with the equivalent investments in the future, potential economic growth and the long-term ecological and economic effects (Nordhaus 2018).

Early attempts to pin a price tag on climate change and mitigation have also been heavily criticized for not treating issues of uncertainty seriously and for severely underestimating the consequences of the crisis. One major uncertainty, which is frequently left out of these predictions, is so-called tipping points. If warming reaches beyond 2 degrees Celsius, self-reinforcing feedbacks could be triggered, making global warming self-accelerating and resulting in irretrievable and catastrophic outcomes. Scientists are still debating the relevance of the theory of tipping points, and they are not certain at what rate of warming such tipping points might be triggered and what the consequences might be (Steffen et al. 2018).

Given that global temperatures will rise, regardless of our attempts to reach zero emissions, an increase in financial instability could be inevitable. Several banks and financial institutions have also started to realize that climate change poses a serious risk to financial markets and institutions. Decarbonization and mitigation measures, such as climate taxes and other regulations, themselves pose a risk to financial profits, potentially leading to higher energy prices and to assets being stranded. The greatest risk is obviously from climate shocks, such as natural disasters, which can cause massive losses for corporations, households and countries. They could disturb markets, production, supply chains and financial transactions, and potentially and occasionally trigger a financial crisis.

One of the inevitable climate consequences is sea level rise, which could reach a half a metre by the end of the century. That would be a disaster for more than 600 million people

now living in low-lying coastal areas. One study on the economic and social costs of rising sea levels estimates that an increase of half a metre equates to an annual cost of around USD1.7 trillion, equivalent to about 2 per cent of global GDP (Jevrejeva et al. 2018). That includes expenses for dealing with flooding, moving and evacuating people, building levees and constructing new sewage and water-treatment plants. Given that there are several factors at play, it is almost impossible to make reliable predictions. Obviously, the sea level will not rise overnight, but through recurring weather events, it can cause massive damage to infrastructure and societies, potentially triggering economic shocks that could pull the world economy into intermittent recessions, as the Covid-19 pandemic did.

The experience of hurricanes can present some real figures on the potential cost of climate change. In 2017, the cost of the damage caused by hurricanes Harvey, Maria and Irma in the USA was USD265 billion. Hurricane Mitch in 1998 caused damages to Honduras equating to around 70 per cent of its annual GDP. The economy of Honduras, which had been growing at 5 per cent annually, entered recession (UN ECLAC 1999).

A comparison with the pandemic—which, according to the World Bank, caused the global economy to shrink by 5 per cent in 2020—could be relevant (World Bank 2021). A similar downturn occurred during the financial crisis in 2009, which, according to the European Commission, caused EU countries' GDP to fall by approximately 4 per cent in 2009. The crisis is believed to have caused one of the worst ever periods of political turbulence in Europe since the end of the Cold War (Council of Europe 2014). It gave sustenance to the tide of authoritarian right-wing populism that rose in the years that followed. The recessions preceding those two events are equivalent to the economic decline of 5 per cent foreseen in the Stern Review; however, both these crises were short term, and the economy was able to rebound relatively quickly thanks to massive stimulus packages. Unfortunately, the climate crisis is not a temporary one, making such recovery more difficult to achieve.

### **The economics of climate change and its impact on democracy**

History shows that economic growth tends to facilitate democratization. With economic growth, increasing incomes and improved welfare, the prospect for democratic development expands. The relationship between economic development and democracy is not perfect, and greater prosperity does not automatically result in an expansion of political rights, yet several studies point at economic development as a prerequisite for democracy. The correlation between the economy and democratization is particularly strong when it comes to recessions. The likelihood of democratic breakdown increases as economic activities and living standards decline. The political scientist Adam Przeworski has shown in his comparative research that, in a country with income levels per capita above USD6,000, democracy appears to be very long-lasting, while a democracy with income levels per capita falling under USD1,000 has a life expectancy of about 12 years (Przeworski 2004).

In this respect, the economics of climate change present a very gloomy outlook for global freedom. The negative economic development caused by global warming could lead to a breakdown in fragile democracies with low income levels. Several fragile democracies are located in climate-sensitive regions and are therefore particularly exposed. The climate crisis will also make it difficult for flawed democracies and hybrid regimes to advance freedom and democracy. Countries that are in a struggle for freedom, as well as countries struggling to maintain freedom, will need to fight not only autocracy, but also the economic consequences of climate change. It could also be stressful for developed democracies, given that economic decline could lead to growing income gaps, which are very harmful for democratic development.

However, a shift away from fossil fuels could also result in positive economic development, boosting the green economy and creating jobs in industries that produce technical solutions

necessary for a zero-carbon economy. A report by the Organisation for Economic Co-operation and Development (OECD) indicates that the G20 countries could grow by 2.8 per cent if they implement the correct measures to support green businesses and reshape the economy (OECD 2017). Fossil fuel independence may make the economy more stable and less sensitive to fluctuations in the price of oil. New economic models, relying on more local production and focusing on sustainability, might also lead to positive democratic effects since it could lessen economic inequality and create a more predictable economic development. Although there are examples of such economic models on the local level, sustainable growth needs to be stimulated by government policies to make a real impact. According to a UN-sponsored report on the post-pandemic recovery measures of the 50 largest countries, only about 20 per cent of the overall recovery spending was green (UNEP 2021). A greater share of recovery funds will possibly be spent on the green economy in 2021, when the USA is implementing a stimulus package under President Joe Biden and the EU is implementing its Green Deal.

## 2.4. Climate injustice

Climate change will have a rather unfair impact on areas and people around the world. The most vulnerable locations are coastal areas or islands sensitive to sea level rise, areas suffering from water scarcity and other locations affected by the side effects of natural hazards. Also, populations dependent on fish, agriculture, natural resources and other ecosystem services will be more affected than others. Indigenous communities are particularly exposed, but also poor and developing countries and regions with weak adaptive capacity. Some of the most vulnerable regions are located in Africa, Asia and Latin America. The economic consequences of climate change will be particularly difficult for developing countries since they have less resources for adaptation, and for this reason climate change will claim a higher percentage of their GDP. This could, of course, be considered an issue of great injustice, given that the countries most heavily affected are among those responsible for the lowest share of greenhouse gas emissions.

A study from 2010 shows that the average per capita greenhouse gas emissions in the five countries most vulnerable to climate change are 20 times lower than the average per capita emissions in developed countries (Harmeling 2010). One example is Bangladesh, which only contributes 0.06 per cent of the world's greenhouse gas emissions. Since almost 10 per cent of the country's total area is only 1 metre above the sea level, the livelihood of around 35 million Bangladeshis will be imperilled if the sea level rises 1 metre.

Climate injustice has received attention and been discussed at several international climate summits. Already at the Earth Summit in Rio de Janeiro 1992, the principle Common But Differentiated Responsibilities (CBDR) was formalized in the United Nations Framework Convention on Climate Change (UNFCCC). The idea was to acknowledge climate injustice and establish a model to make industrialized countries, which had contributed to climate change, take a greater responsibility for mitigation strategies and environmental protection. At the UN Climate Change Conference in Copenhagen 2009, the Green Climate Fund was established as a tool for wealthy countries to channel resources to poor countries and help them to deal with climate change. The initial pledge was to sign USD100 billion annually by 2020, and it is difficult to estimate how much money has been channelled. According to an estimate by the OECD, around USD71 billion was transferred to poor countries in 2017, although the calculation of global climate aid transfer has been contested (Yeo 2019).

### Climate injustice within countries

Lately, the issue of climate injustice has been discussed with a focus on socio-economic injustices within countries rather than across them. First, the carbon footprints differ greatly between individuals depending on their lifestyles and economic resources. Another aspect of climate injustice is the generation gap, illustrated by the fact that young people, who have a limited carbon footprint, will need to live with the consequences of the misdeeds of their parents.

Moreover, several mitigation measures appear to be more difficult for low-income groups to bear than for the well-off. For example, carbon taxes, especially affecting electricity and fuel prices, may target people who cannot afford to buy fuel-efficient or electric vehicles or use public transportation. In several countries, such climate measures have been attacked and the actual and perceived injustices have been used by populist political movements. One example is the yellow vests movement (*mouvement des gilets jaunes*) in France, which saw thousands of people protesting increasing fuel prices and a proposed carbon tax. Moreover, the climate transition is in itself affecting certain regions, economic sectors and people, widening socio-economic gaps within countries. In this context, climate policies can exacerbate tensions between urban and rural populations and between areas with carbon-intensive industry and areas dominated by tech and service industries.

#### Climate injustice: the role of the 1 per cent

The organizations Oxfam and the Stockholm Environment Institute concluded in a report that the wealthiest 1 per cent of the world's population were, in the years 1990 to 2015, responsible for more than twice the carbon dioxide emissions of the poorest 50 per cent of the world. According to the report, the richest 10 per cent of the global population would need to lower their per capita emissions by 10 times for the world to be on track for a rise of just 1.5 degrees Celsius (Oxfam and Stockholm Environment Institute 2020).

Several climate consequences tend to particularly affect socio-economically weak groups, who are often deprived of political influence. Exposure to extreme weather is, for instance, dependent on the geographical location of a person's home and their socio-economic resources, as well as discriminatory aspects such as class, race or ethnicity. The experience of natural disasters, such as Hurricane Katrina in the USA, has exposed and deepened the social and economic inequalities in society. People living in poorer areas were hit much harder than others. Their prospects for evacuating were poor, since they often lacked resources or a vehicle of their own, and efforts made to get them out were insufficient. Socially deprived areas were also more heavily contaminated by pollution after the storm (Elliott and Pais 2006; Gould 2016).

Several studies also suggest that class and race have been crucial in determining what help people received after a natural disaster. In New Orleans, only two in three black residents have returned to their homes, partly because one of the areas where many black people lived has not yet been rebuilt. Ten years after the storm, the average income among black people has fallen by 15 per cent while it has risen by 40 per cent for white residents. Poor people also had greater difficulties in accessing the financial assistance available (Rivlin 2016; Howell and Elliott 2019). Similar effects have been observed after other natural disasters in the USA and other parts of the world. Extreme weather events may also affect property prices and costs for housing insurances, deepening the segregation. In some areas, heatwaves have also resulted in gaps between households with and without cooling, which in some hotspots could become a new division line between wealthy and deprived communities.

Research has also shown that climate change can increase gender inequality, particularly in the developing world. Women are often more dependent on agriculture for income, and they are charged with securing water, food and fuel for cooking, making them more vulnerable to natural hazards. Moreover, the economic, social and political disadvantages of women make climate change a greater burden for women than for men (UNDP 2013).

There are also positive examples of when natural catastrophes have brought people together and engendered feelings of compassion: in the wake of Hurricane Katrina, there were lots of examples of people donating food and money or offering those affected a place to stay. However, the bigger picture is unfortunately rather more stark. The Covid-19 pandemic, an example of a global natural disaster, has strengthened this pessimistic notion further. The pandemic has clearly worsened inequality across and within nations, hitting low-income segments and vulnerable groups, while the people with the highest incomes have been faring better.

According to the World Bank, the Covid-19 pandemic caused the number of people in extreme poverty to grow by 150 million (World Bank 2021). The global middle class shrank, according to one estimate, by 54 million people in 2020 (Kochnar 2021). In the USA, black and Latino people have been among those suffering the most; as an example, pandemic-related food insecurity among black respondents in one study was estimated to be 134 per cent higher than the rate among white respondents (Perry, and Pescosolido 2021).

Also, the pandemic has led to a decline in gender equality, given that women dominate the professions that have been most affected by Covid-19 responses and restrictions. Women have disproportionately suffered from school closures, unemployment and loss of financial opportunities, and have also been exposed to more domestic violence (de Paz et al. 2020).

### **Climate injustice and its impact on democracy**

In terms of maintaining social cohesion, the pandemic is an ominous forewarning of the climate crisis. When it comes to democratic development, this is mostly troublesome. Democracies can be in a better position to deal with climate injustice, allowing people to mobilize and fight for human rights issues and social welfare. However, research shows that economic and social gulfs often undermine the faith in democracy and the interest in becoming politically engaged. Not only that, but income disparity also tends to undermine the mutual trust people have in one another. Polarization increases. That is why it becomes more difficult to garner support for welfare and social insurance policies, so inequalities tend to be self-perpetuating. In unequal societies, corruption, criminality and social unrest increase too (Han and Chang 2016; Mounk 2018). Where the gaps between rich and poor deepen—as a result of a shrinking economy, rising food prices and overstretched infrastructure—this will likely have negative consequences for democracy. Experiences from the natural disasters that have struck the USA over recent years show that there is a significant risk that global warming itself can lead to increased social dissolution and further exacerbate economic inequality. If this scenario is repeated in other parts of the world, it will not be good news for democracy.

## **2.5. Conflicts and migration**

In a warmer world, the struggle for basic resources, such as food and water, will become tougher. This could, as discussed previously, lead to increasing injustice and social tensions, and potentially also social unrest and political instability. Research shows that food and water shortages tend to increase the risk of riots, uprisings and violence, and even ignite conflict. There is a wide range of research showing a correlation between climate change and conflict. According to a report from the World Bank, global warming is expected to bring about a 56 per cent increase in the level of conflict in the world (Hsiang, Burke and Miguel 2013). The

correlation between climate change and conflict is, however, not completely straightforward. In some cases, food insecurity is caused by a conflict, rather than the other way around. Moreover, climate-related natural disasters are rarely the triggering factor in a conflict. Disagreement with a corrupt and authoritarian rule, poverty, disputed natural resources, population growth and tensions between religious or ethnic groups are aspects generating conflicts, although climate change can be a factor that amplifies such challenges (Selby et al. 2017).

### Syria conflict: the possible role of climate change

The conflict in Syria is an example of a war that has been depicted as climate related. Syria endured a drought lasting from 2006 to 2010, considered to be the worst in modern times. Almost 60 per cent of agriculture disappeared and approximately 80 per cent of livestock died. This led to increased food prices, a drop in economic activities and almost 1.5 million people internally displaced, along with a large number of refugees from Iraq. Tensions between groups and individuals rose, and eventually the country slipped into a fully fledged war (Werrell, Femia and Slaughter 2013). Others have suggested that climate change was a contributing factor in the bloody conflict in Darfur. Over the last 40 years, precipitation has fallen by 30 per cent in Sudan, making the yields of the local cereal crop durra 70 per cent lower (Sova 2017). These two conflicts have claimed approximately one million lives.

Conflict in an era of climate change is a factor that will make it more difficult for the world to tackle complex challenges, such as poverty, hunger, economic inequality, pandemics and, of course, climate change itself. With an unstable global order, confidence between world leaders is undermined, international cooperation complicated and international agreements challenged. Possibly, the climate crisis could be a neutral theme, which can be used to forge agreements between rival powers, such as China and the USA. Moreover, a shift away from fossil fuels will have other major geopolitical ramifications. This process will be economically negative for several oil- and gas-producing autocratic regimes, while other non-democratic regimes, such as China, could benefit. Oil and gas are natural resources that have caused several conflicts and financed several autocratic regimes, such as Russia, Saudi Arabia and Venezuela. Instability can arise when such regimes lose a major source of income, but, taking a longer perspective, a global transfer to a green economy could lead to a more peaceful world order and potential development for freedom and democracy. A growing demand for lithium, cobalt and rare earth elements, needed in batteries and green technology, might on the other hand cause new conflicts and human rights abuses, which has been the case in the Republic of the Congo.



*Photo:* National flood emergency response in Pakistan during the 2009 floods.

## Climate migration and displacement

The number of forcibly displaced people in the world today is estimated at 80 million, which equates to 1 per cent of the global population. As a result of climate change, this number is projected to increase. By 2050, there will be at least 200 million climate migrants, according to the International Organization for Migration (IOM), while the number of internally displaced people may grow even more (Brown 2008). Obtaining an overview of the total number of people fleeing because of climate change, however, is difficult. If emissions are not drastically reduced, natural disasters, such as rising sea levels and heatwaves, could create an unprecedented increase in the number of refugees. According to one study, areas defined as extremely hot and barely liveable zones, which now cover 1 per cent of the earth's land surface—as, for instance, in the Sahara—could increase to 17 per cent by 2070, forcing billions of people to leave their homes (Xu et al. 2020). Paying heed to such extreme scenarios, one study suggests that two billion people may be forced to leave their homes as a result of global warming by the end of this century (Geisler and Currens 2017). Most of the people affected by climate change will probably not become migrants, but will remain displaced within their countries of origin and for this reason the notion of climate migration might be misleading.

The term 'climate refugee' is also unclear and controversial because people often flee in response to indirect rather than direct consequences of the climate crisis. Extreme weather events, such as droughts and flooding, are factors that exacerbate poverty and food insecurity, which causes migration and displacement. An example is the flooding of the Brahmaputra River in Bangladesh in 2014, which caused its banks to burst. As a result, the average income in the country fell below the average food bill. This led to many Bangladeshis leaving the country in the hope of finding a way to make a living elsewhere (Bedarff 2017). Another example is the drought in Central America, which has led to almost half of Guatemala's population suffering from malnutrition (Steffens 2018). Research shows that rainfall could

decrease by 60 per cent in some parts of Guatemala and the yields of some staple crops could decline by nearly a third. The number of refugees making their way from Central America and Mexico to the USA is estimated to rise to 1.5 million a year by 2050, more than twice as many as the prediction for 2025 (Lustgarten 2020). In another recent study by the World Food Programme (WFP), several refugees stated that the reason why they had left their homes was the drought and the lack of food. Violence, criminality and political corruption had also destroyed the possibility of living a secure life, thereby contributing to migration and displacement (WFP 2019).

### **Climate migration and democracy**

A country receiving a high number of migrants could obviously be brought under pressure, and it could pose a challenge to the capacity of the institutions to both integrate immigrants and deliver welfare. This could have a negative influence on democratic development, especially in weak states. Also, immigration can affect the values of the receiving community, primarily in relation to tolerance and other norms that are relevant for the foundation of democracy. Moreover, immigrants can contribute to the democratization of their country of origin by remittance. The correlation between migration and democracy is far from clear, and some research shows that migration can have negative effects on democracy, regarding both the receiving and departing country. It can, for instance, result in a 'brain drain', which could undermine democratization, and, although migrant communities may support political and civil rights movements, this is not always the case (Docquier et al. 2011).

Nonetheless, the large flows of migration to the EU and the USA in recent years have in general had rather negative consequences for democratic norms and standards. The arrival of 1.8 million migrants into the EU in 2015 motivated authoritarian right-wing populist parties, contributed to political polarization, and gave rise to a political debate about identity, religion and values. Some commentators claim that this led to the weakening of European democracy and EU collaboration (Maldini and Takahashi 2017; Murray and Longo 2018). In the EU, India and the USA, proposals for tightening border controls have been issues on the political agenda. By making it more difficult for people to migrate, the pressure on the regions affected will increase, potentially adding to instability. Obviously, the effect of migration on democracy is mainly a matter of policy responses, successful integration and other aspects influencing tolerance and xenophobic attitudes by the receiving community. Given the projected increase of climate-related migration, this issue will probably remain in the centre of the political discussion for the foreseeable future.

## 3. Is democracy leading to lower emissions?

---

As discussed in Section 2, the consequences of continued global warming can undermine the foundations of democracy. The climate crisis is, without doubt, one of the greatest and most difficult tests of democracy's endurance ever. Before analysing the strengths and weaknesses of democratic governance in dealing with climate change, it is relevant to give a general assessment of the environmental record of democratic governments, with a focus on emission levels of greenhouse gases and the effectiveness of climate mitigation. Are emissions lower in democracies and are they pursuing more ambitious and effective climate policies? Can democracy help to reduce emissions?

### 3.1. Are democracies better at protecting the environment?

The track record of democracies when it comes to environmental protection is rather mixed. On the one hand, most modern democracies evolved from industrialized nations in Europe and North America, and in the process of their modernization, these countries had a massive impact on the environment. By burning coal, the material living standard was drastically improved in countries such as the United Kingdom and others that were involved in the early phase of industrialization. Growing prosperity also enabled democracy to take root and, in this sense, democratization in the 19th and 20th centuries is closely interlinked with carbon emissions and environmental degeneration. On the other hand, there is no evidence that non-democratic regimes, such as socialist states, were performing any better environment-wise in their industrialization process. The Soviet regime was responsible for environmental disasters, such as Chernobyl, the dried-up Aral Sea and the radioactive Lake Karachay. China's economic boom of the 21st century has been based on fossil fuels and has largely been an ecological disaster.

#### The Montreal Protocol: A success story

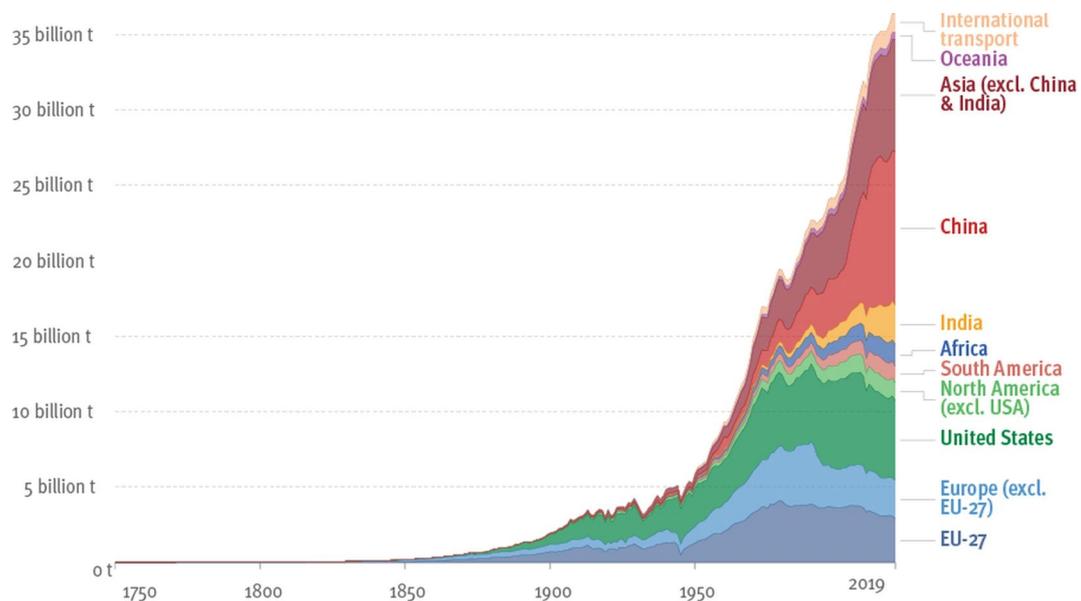
Some of the most alarming environmental challenges in the 20th century have been averted through civil mobilization and regulatory initiatives by democratic governments. This is true for the depletion of the ozone layer, which was an issue of almost a similar magnitude to global warming. The first countries to ban freons and other ozone-depleting substances were democracies, such as Sweden, and the prohibition was to a large extent the result of the pressure and activities of environmental organizations. The Montreal Protocol, regulating the usage of such substances on a global level, was likewise a product of the diplomatic efforts of democracies.

There is also research showing that the level of democracy has a positive impact on environment protection. This is at least valid when it comes to local environment problems, such as air pollution; for instance, the emissions of sulphur dioxide, nitrogen dioxide and lead have been significantly reduced due to civil engagement in democracies. Democracies are also better in adopting environment regulations and ensuring that they are respected (Winslow 2005; Gallagher and Thacker 2008; Bernauer and Koubi 2009). Statistically, the correlation between democracy and environment protection is, however, not entirely persuasive, and some studies show that the effect of democracy is weaker or even missing in poor countries and in countries with a high level of corruption, as will be discussed later in this paper (Kim, Baek and Heo 2019).

### **The impact of democracy on greenhouse gas emissions**

When it comes to climate change, which is perhaps the most alarming human-engendered environmental problem of all time, the record of democracy is generally poor. Democracies have emitted a much higher level of greenhouse gases than non-democratic states. Looking at the accumulated emissions, the three democratic giants—the EU, Japan and the USA—are accountable for about two-thirds of all historic carbon emissions (Center for Global Development 2021). One could possibly argue that in the early process of industrialization, the dangers of global warming were not widely known. Before the first international environmental treaty addressing climate change was negotiated in 1992—the UNFCCC—most countries had not committed to stabilize greenhouse gas concentrations in the atmosphere. Thereafter, climate action could be considered a moral, and potentially legal, responsibility for the global community.

Nevertheless, since the signing of the UNFCCC, emissions have risen by approximately 60 per cent (Le Quéré et al. 2018). Several democracies have during this time taken steps in the right direction, and the EU member states have, for instance, collectively reduced their emission by a third, while the Chinese emissions are almost four times higher today (OECD Stat 2021). This comparison might be considered unfair, given that China in this period went through a process of rapid industrialization, while several European countries transferred their production to China and other developing countries. A few democracies, such as Australia, Canada, the Republic of Korea and the USA, have continued to increase emissions during this period, making the record of democracies less impressive (Our World in Data 2021).

**Figure 1. Global emission levels 1750–2019**

*Source:* Our World in Data based on the Global Carbon Project, 2021, <<https://OurWorldInData.org/co2-and-other-greenhouse-gas-emissions>>, accessed 21 August 2021.

*Note:* This measures carbon dioxide emissions from fossil fuels and cement production only—land use change is not included. ‘Statistical differences’ (included in the GCP dataset) are not included here.

In general, people living in democracies are high emitters. Just over 4 per cent of the world’s population live in countries that are defined in the Democracy Index of The Economist Intelligence Unit as fully democratic, but they are responsible for more than approximately 8 per cent of the world’s total emissions. Authoritarian states are not particularly better. A third of the world’s population live in authoritarian countries, but they account for 40 per cent of emissions. About 45 per cent live in flawed democracies and 18 per cent under hybrid regimes, accountable for 43 per cent and 10 per cent respectively (Fiorino 2018). Per capita, many of the worst polluters are found in oil-producing non-democracies, such as Kazakhstan, Qatar, Saudi Arabia and the United Arab Emirates. But many established democracies, such as Australia, Canada, Mongolia, the Republic of Korea and the USA, also rank among the top 20 countries in per capita emissions due to fossil-fuel-dependent economies.

### **Economic development, democracy and environmental performance**

An explanation for the comparably sizeable carbon footprint of democracies is the correlation between democracy and economic growth. As pointed out above, the industrialization process that laid the foundations for democratization in the 19th and 20th centuries was to a large extent driven by fossil fuel, and this can explain why democracies in general are emitting high levels of greenhouse gases. Some researchers claim, however, that rising income levels affect attitudes to environment protection. This correlation is called the environmental Kuznets curve, which suggests that economic development initially leads to a deterioration of the environment, but after a certain level of economic growth, popular attitudes towards environment protection change, lessening environmental degradation. There are studies showing that the environmental Kuznets curve can be applicable to some local environment problems, such as emissions of sulphur dioxide, although statistic models have not shown to be particularly robust (Mäler 2001).

It is more doubtful whether the Kuznets curve is valid on greenhouse gas emissions. First of all, economic growth and rising living standards lead to increasing consumption, which results in higher emissions. Moreover, with economic development, emissions tend to spill over between countries, as production is transferred to low-income countries. Even though the awareness of environmental problems, such as global warming, could rise with income level, it is not clear whether it has any significant effect on emissions (Joshi and Beck 2018). According to research from Pew Research Center, people living in some countries with high per capita levels of carbon emissions are actually less concerned about the climate crisis than people in low-income countries, possibly indicating that those who have become accustomed to a fossil-fuel-intensive lifestyle are unwilling to recognize the impact this has on the planet (Wike 2016). Evidently, several other factors than income level influence attitudes on climate, such as the educational system, trust in public institutions, the scientific impartiality of the news media, the influence of the fossil fuel industry and personal experience of climate-related events.

### 3.2. Democracy and its effect on climate policies

Regardless of the historically poor climate record of the democracies, with a forward-looking perspective, democracy seems nevertheless to have a positive influence on climate policies. Theoretically speaking, the arguments for democracy on climate policies are strong. In an open and democratic society, people are better placed to access and spread information on climate change, to organize and form associations, protest, express opinions and concerns, and mobilize people in a movement demanding climate action. People enjoying civil and political freedom can use their creativity, present solutions to complex technical or organizational problems and, most importantly, they can hold unwilling governments accountable. They can also scrutinize the activities of public authorities and business corporations, bring them to courts, trusting in an independent and efficient legal process. Researchers can freely publish their results and the media can inform and alert the public. Democracies also provide the best conditions for an open and regulated market economy, enabling business enterprises to present innovations and solutions for change and act as a force in the transition process.

There are a few studies examining the correlation between democracy and climate mitigation, and democracy has been shown to be a factor encouraging decarbonization (Burnell 2012). Another ambitious study analysing the national emissions levels from 1990 to 2012, using data from Freedom House, Polity IV and V-Dem, also found that democracy engenders positive climate effects. There were differences between various countries, and even within countries but, in general, the level of democratization influenced greenhouse gas emissions (Clulow 2019). Moreover, studies show that democratic aspects, such as the respect of civil liberties and the freedom of association, which provide conditions for non-governmental advocacy and citizen participation, have a positive impact on emission levels (Pacheco-Vega and Murdie 2020). Democracies with liberal and social-liberal features—for instance, protecting property rights and providing equal access to healthcare or education—are also pursuing better climate policies (Povitkina and Jagers 2021). Moreover, gender equality is generally more advanced in democracies, which has been shown to influence climate policies (Andrijevic et al. 2020).

An interesting comparison of the climate policies of different countries is provided by the so-called Climate Change Performance Index, annually presented by the organizations Germanwatch, New Climate Institute and Climate Action Network Europe. The index covers 57 countries and the EU, collectively responsible for more than 90 per cent of global greenhouse gas emissions. It is made up of components that include emission levels, usage of renewable energy, energy use and climate policy performance. Not a single country performs

well enough to receive a ‘very high’ rating in the index, and for this reason the first three positions in the ranking are left open. Nevertheless, democracies perform in general much better than non-democratic states. Among the 13 highest-scoring countries, 7 are classified as full democracies by The Economist Intelligence Unit’s Democracy Index. Not a single authoritarian country can be found among the high- and medium-scoring countries, and Morocco is the only non-democratic country with a high rating (Climate Change Performance Index 2021). A study analysing all countries in the Climate Change Performance Index verified the correlation between democracy and climate performance. Even flawed democracies were performing better than authoritarian and hybrid regimes (Uddin 2017). In conclusion, people living in democracies are emitting high levels of greenhouse gases, but democracy is a factor that seems to lead climate policies in the right direction.

Other studies indicate, however, that only democracies with a strong state capacity and a low level of corruption are performing better, which will be elaborated on in Section 4.4 of this paper (Fredriksson and Neumayer 2013; Povitkina 2018). Studies have also shown that countries with an influential fossil fuel industry are high emitters and are performing poorly (Looney 2016; Tørstad, Sælen and Bøyum 2020). This explains why democracies such as Australia, Canada and the USA are ranked exceptionally low in the Climate Change Performance Index, below several authoritarian states such as, for instance, China.

## 4. Why climate change is a challenging issue for democracy

---

Although democratic states generally perform better on climate than other governing systems, they have still not acted sufficiently to bring their emissions of greenhouse gases in line with the pledges made in the Paris Agreement. In this regard, it is relevant to explore what makes climate change such a challenging issue for democracy and to determine the reasons behind the implementation gap. In the discussion on the ineptitude of democracy to deal with climate change, several issues have been highlighted. Some of them are related to the incapacity of governing institutions, others concern the complex nature of climate change, and some emphasize the social and psychological constitution of human beings. This paper will focus on four aspects that have been particularly tough, and discuss the strengths and weaknesses of democracies in dealing with these challenges. These are: (1) the complexity of climate change; (2) the global aspect of climate change; (3) the short-termism of democracy; and (4) aspects related to governing capacity, especially policy capture, corruption and fossil fuel dependency. The format of this paper does not allow a full analysis of the reasons behind the failure of democracies to adequately tackle climate change, but will be limited to some of the major arguments for and against democratic government on these outstanding aspects.

### 4.1. The challenges of complexity

Climate change is an issue of great complexity. Modern society has evolved around fossil fuels, and approximately 80 per cent of global energy usage still comes from oil, coal and gas. Decarbonizing the power system is therefore of great importance. Nevertheless, greenhouse gases are emitted not only through the generation of power, but also in producing steel and concrete, in heating and cooling buildings, in agriculture, forestry, transportation and so forth. There are technical innovations available to decarbonize some of these sectors, but many are still underdeveloped, expensive and uncertain. In addition, it is unclear if the current techniques provide the best decarbonizing solutions or if new and more efficient innovations could appear in due time: there is therefore a risk of technological lock-in when a society chooses to invest in one particular technology in order to push out the fossil alternatives. Moreover, when transferring from one technique to another, new environmental problems can arise—for example, around the mining of lithium and cobalt used in the batteries of electric vehicles and other devices. Most importantly, attempts to reduce emissions in all the different spheres of society may have various economic, social, political,

cultural and psychological ramifications, potentially giving rise to social disputes within society.

Some scientists have consequently described the climate crisis as a ‘wicked problem’ (Head 2008; Hulme 2009). The concept of wicked problems was coined by the design theorist Horst Rittel and used in social planning in the 1970s to describe problems that are difficult or impossible to solve because the knowledge and requirements needed to solve them are incomplete, contradictory and changing (Rittel and Webber 1973). The origins and the solutions of such problems are interdependent and therefore the effort to solve one aspect of a wicked problem may reveal or create others. Consequently, wicked problems cannot be completely addressed, but only mitigated in ways that are more or less efficient. Moreover, wicked problems often entail large economic societal impacts, involving a great number of people with conflicting interests and straddling organizational and disciplinary borders (see Figure 2).

**Figure 2. Wicked problems**

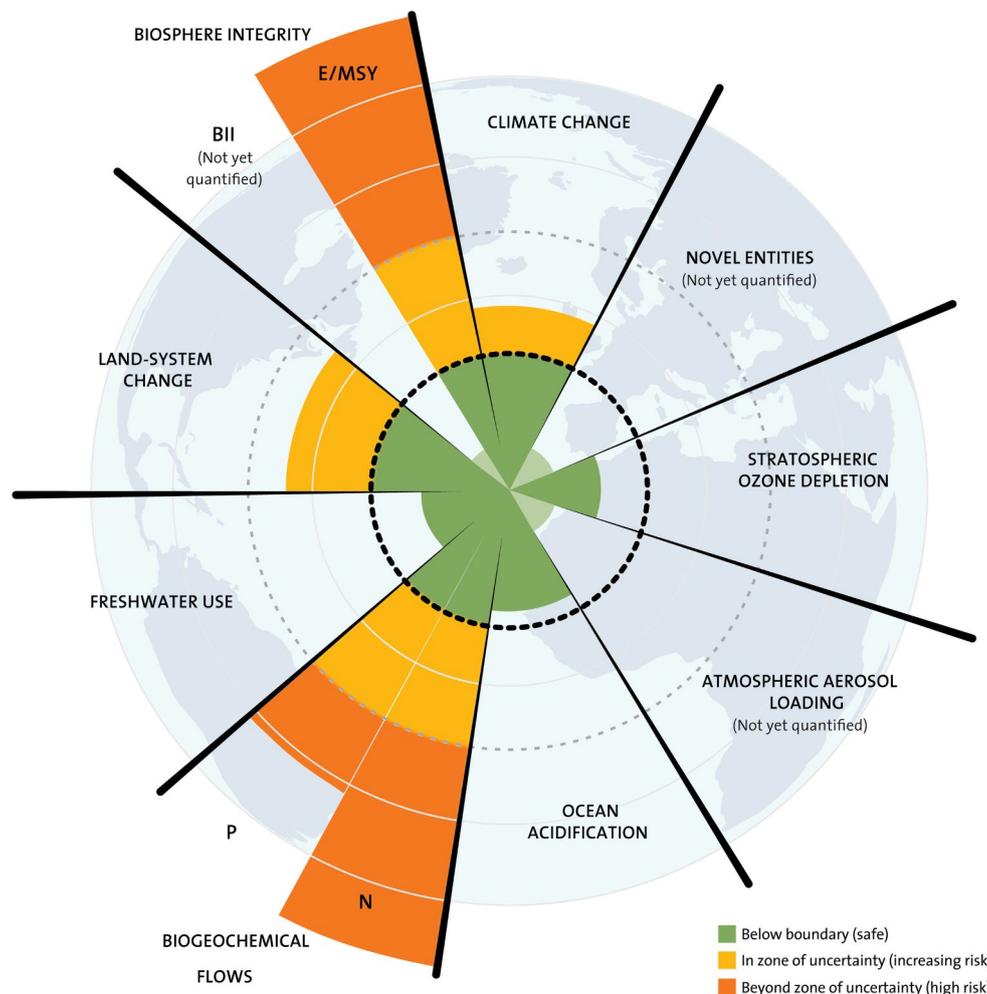


Based upon Rittel and Webber (1973)

Source: © Carnegie Mellon University, CMU Transition Design, Irwin and Kossoff (based on Rittel and Webber 1973), 3 February 2021, <<https://transitiondesignseminarcmu.net/classes-2/mapping-wicked-problems/>>, accessed 23 August 2021.

Lately, several different societal problems have been defined as wicked, such as the Covid-19 pandemic, and there has also been a critical discussion on the usefulness of the concept (Peters and Tarpey 2019; Termeer, Dewulf and Biesbroek 2019). Nevertheless, when it comes to the climate crisis, the complexity is exceptional, making this concept beneficial in explaining the nature of the problem. It is an issue in the interface between natural and human systems, and therefore it affects all spheres of life, but also in unpredictable ways. The problem of climate change is also connected to other environmental hazards, such as deforestation, loss of biodiversity, overpopulation, acidification of oceans, plastic waste, land erosion, water scarcity, and toxic contamination of water, soil and air. This connectivity can be illustrated by the planetary boundaries concept (see Figure 3)—a depiction of planetary systems within which humanity can continue to develop and thrive for generations, presented by a group of 28 internationally renowned scientists (Rockström et al. 2009).

**Figure 3. Planetary boundaries**



Source J. Lokrantz/Azote based on Steffen et al, 2015 <<https://www.stockholmresilience.org/research/planetary-boundaries.html>>, accessed 23 July 2021.

Moreover, climate mitigation requires changes in individuals' lifestyles and for this reason the transition process can upset cultural values and ideological views. Some researchers have even argued that global warming should be described as a 'super wicked problem' given that time is running out and it is caused by the same actors who need to find the solution (Levin et al. 2012).

### **Why wicked problems are challenging for democracies**

The complexity of climate change is obviously one of the prime reasons why democracies have failed to deal with the crisis. Global warming is first of all an issue that requires a certain amount of scientific competence to be fully comprehended. Voters unpersuaded by the scientific facts will not easily give up their affluent lifestyle for uncertain benefits. Moreover, wicked problems, which are characterized by complexity and potentially even contradictory information, are easily exposed to disinformation and conspiracy theories. Lobby organizations representing the fossil fuel industry have exploited this ambiguity, overstating scientific uncertainty and misleading the public. It is possible to prevent a climate disaster; however, by overemphasizing contradictions, various attempts to take actions are blocked and prevented.

Wicked problems can also trigger difficulties in the democratic process. It is obviously difficult for politicians to pursue a progressive political agenda on an issue lacking optimal solutions. The incomplete and often contradictory information around the nature of the problem and its solutions may challenge the agenda-setting process. Politicians may find it difficult to present a concrete and effective climate policy, given that any political proposal to deal with a wicked problem can be criticized for not addressing the problem in full or for causing other problems and triggering various social and economic disputes. Moreover, it can be difficult for voters to judge the success of a policy pursued, and to hold politicians accountable, particularly given that the effects of various measures are often ambiguous.

Complexity can also be challenging for social movements, which likewise may find it difficult to articulate concrete political demands and slogans. The complexity of the climate crisis has evidently burdened the climate movement, which until the formation of youth-led campaigns, such as Fridays for Future and the Sunrise Movement, had been rather weak and fragmented in Europe and the USA. Asking policymakers to 'listen to the science' has been an appealing catchphrase, but it is questionable to what extent that is possible, given the uncertain outcome of different mitigation measures. Moreover, the climate movement has often been perceived to be driven by experts and has tended to focus on individual choices, such as consumption, which has undercut the collective force of the movement (North 2011; Nisbet 2011).

An additional impediment to mass mobilization on climate, related to the wickedness of the problem, is the fact that the crisis is caused by the same actors who need to present the solutions. There are no clear victims nor perpetrators, which has made it difficult for the movement to forge a common political identity. The dynamic in a perceived 'us and them' conflict—which has been a vital component of other social movements, such as the labour movement and the women's rights movement—is lacking in the climate issue (Lindvall, Vowles and Hultman 2020). In recent years, however, the climate movement has gained strength, partly by exploiting the conflicting dimensions of intergenerational dilemma. Also, the notion that global warming is an issue that can be solved by individual actions, such as consumer choices, has been increasingly contested, while the responsibility of corporations has been highlighted.

The conflicting aspects of climate change can, however, stir up emotions and anxiety, particularly given that several of the responses needed require changes in lifestyles, which can be perceived or described as a threat to cultural traditions, values, and ideological and patriarchal positions. Right-wing populist parties have utilized these emotions to mobilize

voters, presenting deceptive and simplistic ideas about global warming. The views and concerns on climate change have thereby been politicized and polarized.

Above all, the climate crisis is an extremely urgent issue requiring drastic and immediate action. Given that democratic decision-making is rather slow and cumbersome it is questionable whether democracies have the capacity to deliver the solutions needed in time. In these respects, an ideal type autocratic regime or technocratic government could be in a better position to deal with pressing, alarming and complex issues, such as the climate crisis. In theory, they can deliver knowledge-based decisions and also have access to a greater range of coercive instruments to impose decisions and policies on society, swiftly and on a large scale. Autocratic states can make the population act jointly towards a common goal, by suppressing opposition and rewarding compliance. Problems appear to be less complex when decision-makers are not required to pay heed to the concerns, emotions or interests of the electorate.

### **Arguments for democratic solutions to wicked problems**

Since wicked problems lack optimal solutions, it is difficult to draw any certain conclusions on the most appropriate model of governance for tackling them. The research on governing policies on wicked problems is also rather limited. Theoretical arguments speak, however, in favour of democratic governance in coping with complexity and some studies show that participatory and dialogue-based approaches tend to be the more efficient strategies. Also, an adoptive and collaborative leadership style is preferable (Meadowcroft 2007; Turnpenny, Lorenzoni and Jones 2009; Head and Alford 2015). Moreover, given that wicked problems are characterized by uncertain, incomplete and conflicting requirements, imposing policies from above might not lead to the desired outcome. Even though authoritarian regimes can efficiently implement policies on a large scale, it is less evident that they can handle a large quantity of information and design adequate policies to address complexity.

There is also some empirical evidence from climate and energy policies, showing that authoritarian regimes are less capable in dealing with wicked problems. China, for instance, has outperformed the USA in renewable energy installation, but the usage of their installed capacity is exceptionally inefficient. Even though China installed 139 per cent more renewable energy in 2017 than the USA, Chinese investments provided only 38 per cent more electricity. Almost a fifth of the installed renewable energy was lost (Chatsko 2018). An explanation for these problems is poor planning, together with the insufficient grid transmission system. Wind power is installed at locations where there is no demand, while the transmission capacity has not been expanded. Quality problems and the lack of technological standards are also exacerbating these problems. Several studies show that the prime reason for these problems, however, is poor energy governance. The planning is fragmented, policies conflicting and institutions often ill fitted for managing the energy sector. Moreover, China's top-down, non-participatory approach seems to be a particular problem. The decisions are often based on insufficient information and are therefore often misguided. In addition, corruption and the influence of powerful energy companies in China have negatively affected the making and execution of policies (Grafström 2016; Luo et al. 2016; Cai and Aoyama 2018).

These examples of poor planning of the energy system demonstrate the importance of civil participation, transparency and free flow of information in order to efficiently and adequately deal with complex issues. In an authoritarian state such as China, policymakers often have a deficiency of information, which can be detrimental for the planning and implementation process. The incentives for local authorities to share information are often weak while civil society and citizens may be prevented from freely expressing their views. This undermines the ability of the central authority to predict risks, address irregularities and avert potential crises.

Research on institutional models for governing complexity also confirms the importance of transparency and access to information in dealing with wicked problems, especially due to the difficulties in predicting the different social, political, economic and environmental consequences of various measures. Democratic governance has arguably the best capacity to deal with the disputes that can arise and has the most efficient organizational models to generate legitimacy for the proposed policies (Stehr 2016). Moreover, democracies generally have a better institutional framework and societal incentives for assessments and reassessments of the policies pursued. Functioning, strong and independent public institutions, capable of evaluating, criticizing and presenting policy advice, seem to be essential in coping with a problem lacking ideal solutions. However, the most robust system for assessing policy performance is possibly provided by free media and civil society organizations monitoring and identifying weaknesses in pursued policies, and ultimately by democratic debates and democratic elections.

Nevertheless, research on governing wicked problems is underdeveloped and the capacity to deal with complex issues such as climate change probably varies between different forms of democracies, depending on the constitutional set-up, institutional capacity, democratic maturity, level of freedom of media, and the influences of lobbyism and so forth. The Covid-19 pandemic has also been described as a wicked problem, yet the management of this health crisis does not present convincing evidence on the capacity of democratic governance to deal with complex issues. On the one hand, the outbreak of the pandemic could be seen as an example of deficient information flow. Had the Chinese authorities not clamped down on whistle-blowers, they could have received information about the outbreak of the virus in Wuhan at an early stage and the spread of infections could possibly have been contained and the pandemic avoided. On the other hand, the efficient measures imposed thereafter affected the spread of the virus within China (The Independent Panel 2021). The ability of autocratic regimes to implement policies efficiently and on a large scale may have certain benefits when it comes to dealing with issues that need urgent action. In total, non-democratic regimes, such as China and Viet Nam, reported some of the lowest mortality rates, together with democratic states such as Finland, New Zealand, Norway and the Republic of Korea. However, several democracies reported tragically high mortality rates.

## **4.2. The global aspect of climate change**

The climate crisis is truly a global challenge as it is caused by and affects the entire human population. Dealing with the crisis therefore requires collective action on a global scale. The issue has been described as one of governing the global commons of our shared atmosphere, and the failure to lower emissions as a ‘tragedy of the commons’. The concept of the tragedy of the commons has an ancient history but was reintroduced in 1960s by the ecologist Garrett Hardin. He argued that people who are given freedom over a natural resource are generally not motivated to act for the common good. Rational individuals act in their self-interests, overgrazing the resources of land, which ultimately can lead to its collapse. Hardin therefore argued that users of a common good must submit to a regime and agree on the rules of its management. The problem, as he saw it in the 1960s, was that overpopulation would eventually become an insurmountable challenge, requiring restrictions of individual freedoms (Hardin 1968).

Similar pessimistic arguments have been expressed in the discussion on global warming. It is a challenge requiring action by all countries—as well as by companies, organizations and individuals—around the world. The actions necessary are often burdensome and costly, and there is no international authority sanctioning those evading their share of responsibility. Rational countries, companies or individuals will thus not be motivated to cooperate and lower emissions, but prefer to compete, act in self-interest and let others take the strain. A

related theoretical model is game theory and the so-called prisoner dilemma, illustrating how rational individuals might not cooperate, even if it appears that it is in their best interests to do so. When it comes to global warming, every individual would benefit from cooperating and lowering emissions; however, as long as there is mutual distrust between them, no one will be interested in acting on their own. The number of individuals involved, in this case the entire human population, affects the probability of accomplishing mutual trust and also the prospect of detecting individual free riders, who are not assuming their share of the responsibility.

### **Democracy and global challenges**

Some of the challenging aspects for democratic governance in dealing with global warming come to fore in the allegory of the tragedy of the commons. Democracies in general are not well equipped to address these kinds of global issues since they are limited by their legal geography. Elected officials are usually motivated to create the greatest possible welfare for their own citizens and are rarely credited for their accomplishments on the international arena. The playfield for democracies is the nation state, and hence democracy has been argued to be unfit to manage the global commons (Shearman 2007; Hobsbawm 2007). Individual voters have not shown any greater enthusiasm for giving up the freedoms and benefits provided by fossil fuel, particularly when other countries are not actively trying to reduce their emissions. In the political debate on climate, a recurring argument for not pursuing an active mitigation policy is the high emissions of other countries. The argument is that lowering emissions on the national level is pointless and economically detrimental if the highest emitters, such as China and the USA, are not reducing theirs.

Besides, mitigation measures undertaken by individual countries, such as carbon taxes, could be contested since they might deter business to transfer production to other countries with laxer emission constraints. Such spill-over effects have been an issue discussed within the EU in relation to its Emissions Trading System. While some studies indicate significant carbon leakage, which could increase further if China and the USA do not change their climate policies, other estimations are not finding any evidence for such leakage at all (Paroussos et al. 2015; Naegele and Zaklan 2019). In any event, the EU proposed, a key element of the European Green Deal, a carbon levy on imports, the so-called carbon border adjustment mechanism. This mechanism is to be fully applied in 2026 on a selected number of goods, such as iron, steel, cement, fertilizer, aluminium and electricity generation. This system of tariffs has been criticized for violating World Trade Organization regulations and undermining trust in global trade.

It could therefore be argued that—without a global treaty, regulating or setting a price on carbon emissions on global level—it is pointless to act on a local level. However, reaching international agreements on climate has been exceptionally difficult, and neither the Kyoto Protocol nor the Paris Agreement had any binding enforcement mechanisms, making mitigation primarily voluntary. Without sanctioning mechanisms, free riding is a serious issue. Despite this, the USA, one of the world's largest democracies and greenhouse gas emitters, refused to sign the Kyoto Protocol and left the Paris Agreement, considering them to be harmful to their economy (the USA re-entered the Paris Agreement in 2021). With these events in mind, autocratic regimes, such as China, could appear to be more trustworthy, pursuing a more consistent and less capricious international policy.

Nevertheless, there is no evidence supporting the claim that democracies are generally untrustworthy when it comes to international climate agreements. Out of the 23 countries that signed the Kyoto Protocol, 7 were full democracies according to the Democracy Index of The Economist Intelligence Unit and 12 were categorized as flawed. Only one state was authoritarian. The first global conference on environmental issues, the UN Conference on the Human Environment in 1972, was initiated by a few democratic states and boycotted by

most socialist states. The main forces behind the formation of the IPCC in 1988 were democratic states, including the USA. One study on climate change cooperation in the period 1990 to 2004 shows that democratic governance in general has a positive effect on the level of political commitment to agreements on climate change mitigation (Bättig and Bernauer 2009). Moreover, international cooperation on climate relies to a great extent on open and democratic societies, providing a base for journalists and civil society organizations covering and reporting on the negotiations and monitoring the compliance. The research the IPCC has leaned on is mainly delivered by universities and scientific institutions located in democracies. Hence, democracy seems to be crucial for dealing with global and transnational problems.

### **The importance of local participation in dealing with global problems**

There are several counterarguments to the notion of climate change as a tragedy of the commons, and the incapacity of individuals to act collectively to deal with a natural resource. The political economist Elinor Ostrom demonstrated in her research that, under the right circumstances, people are inclined to cooperate and create rules to manage shared natural resources, rather than acting in pure self-interest. Civil participation in the management of the commons tends to result in more sustainable usage of resources, such as forests, fish and water. Sustainable usage is also improved if the rules are recognized by an authority (Ostrom 2009). Later studies have confirmed her results, showing that resource management tends to be more ecologically and financially sustainable if the individuals affected by it are given opportunities to participate in its making. Policies and decisions imposed from above without the involvement of the local community are often misdirected and inappropriately designed. In addition, such policies are often not perceived as legitimate and therefore require resource-intensive mechanisms of monitoring and sanctioning (Ribot 2004).

Elinor Ostrom argued accordingly that climate mitigation should rely on local initiatives. She also claimed that aspiring to reach an international agreement would be a mistake since it could make the policies pursued less dynamic and flexible (Ostrom 2012). Anecdotal evidence also speaks in favour of local participation in climate mitigation. Cities, for example, have frequently far more ambitious climate agendas than national governments. At the municipal level, the conditions for civil participation are more favourable given that the distance between the governing authority and the electorate is shorter, enabling policy interaction on a day-to-day basis. At the local level, there is also an opportunity to develop deliberative methods of decision-making, such as citizens' assemblies, participatory budgets or citizen dialogues, which can be efficient methods to ensure legitimacy and to make policies more efficient.

#### **Citizen participation at the local level: Cameroon and Brazil**

Allowing citizen participation at the local level generally results in more efficient climate policies. In the Cameroonian cities of Yaoundé and Douala, the access to potable water, land security and public electrification has been improved partly due to the introduction of local budgeting forums, where women, young people and other vulnerable groups can make their voices heard. By using participatory budgeting, public resources were spent more efficiently and corruption was prevented (Nguebou and Noupéou 2020). Porto Alegre in Brazil is another city that has applied participatory budgeting and other deliberative measures, enabling citizens to directly influence public spending. According to evaluations, this model has resulted in positive environmental outcomes, such as high-ranking water quality and well-functioning urban transport and waste and sanitation systems, as well as an increase in green and protected spaces in the city (Calisto Friant 2019).

Cities often have an efficient governing capacity and the measures undertaken can have a direct impact on emissions. They can, for instance, regulate energy and water usage, waste management, urban planning and investments in public transport. An example of progressive climate cooperation between cities is the C40 Cities Climate Leadership Group. The group consists of almost 100 cities that represent a 12th of the world population and that are currently responsible for over 70 per cent of global emissions. Most of the cities included in the C40 Group are found in democracies, but also in countries that have not pursued an ambitious or effective climate policy on a national level, such as Australia, Canada and the USA.

#### Citizens' assemblies formulating climate policy

Several cities have established citizens' assemblies, consisting of a number of randomly selected citizens working together with experts and civil servants to present climate policy proposals on the basis of both popular interests and scientific expertise. By randomly selecting the members of the assembly, it is representative of the wider public. Such assemblies often present innovative and progressive recommendations. One example is Budapest's Citizens' Assembly, which was set up in 2020 while several cities in other countries, such as France, Germany and the UK, have applied similar methods (Oross, Mátyás and Gherghina 2021; Landemore 2020).

In this sense, cities and local communities could very well be champions for climate change action. Urban voters are generally more concerned about the climate than rural voters and are therefore pushing for more active climate policies (Speiser et al. 2019). Energy and resources are used more efficiently, and some studies show that urban residents have lower per capita emissions than people living in rural areas (Dodman 2009). Other studies dispute this image, arguing that people living in cities consume more and that suburban residents, who are generally more car-dependent, have the highest emissions. The climate performance also varies between different cities (Heinonen and Junnila 2011; Day and Hall 2016). Nevertheless, there is evidence showing that cities can benefit mitigation by voluntary action plans and emission reduction targets, although the most successful cities are those located in countries with more ambitious national climate policies (Hsu et al. 2020). Local initiatives do matter, yet national legislation, policies and financing are also crucial to moving climate mitigation forward.

#### The inadequate allegory of the tragedy of the commons

Framing the climate crisis as a tragedy of the commons on a global level is increasingly disputed. As shown by the results of the research by Elinor Ostrom, demands for environment protection often emanate from local communities. The willingness of countries, companies or individuals to reduce emissions is not necessarily discouraged by the lack of collective action or an international agreement. In some respects, climate change is fundamentally different from most other examples of resource management. The atmosphere of the planet is not a common good in the same sense as a stock of fish or a grazing land, since the reduction of emissions by single users does not increase the available resources for other users to exploit.

Moreover, with the changing economy of climate mitigation, particularly due to technological innovation, the need for collective action and mutual trust has become less relevant. As renewable technology becomes cheaper, every country, except for possibly major oil and gas exporters, have economic incentives for not using fossil fuel (Patt 2017). The costs of decarbonizing have drastically diminished and access to affordable fossil fuel is no

longer as vital to a country's economic development as before, making game theory and the allegory of the tragedy of the commons less applicable on the climate issue.

Emission reductions can also result in other benefits, such as energy independence and financial stability. Emissions from the transportation sector and the power system are causing local environmental and health problems, making decarbonization an issue not only motivated by the climate crisis. In this sense, the interest of rational individuals or countries to use fossil fuels and emit greenhouse gases depends less on the choices of other actors. Dealing with the crisis certainly requires action from all nations of the world; however, this does not necessarily make global warming a tragedy of the commons.

Emission reductions at the national or local level can even inspire others to use less fossil fuels. A single country or city setting emission standards on vehicles or subsidizing renewable energy or other green technology may spur technological innovation and push down production costs. The massive subsidies for renewable energy in Germany, known as *Energiewende*, led to a sharp increase in demand for solar cells and wind power. As a result, production worldwide was scaled up and prices fell. It was a decision that came after German voters had demanded the decommissioning of nuclear power, yet it also pushed the climate transition forward.

Moreover, experience shows that progressive environmental regulation is often developed by single countries, which may inspire others. The global agreement on freons was preceded by bans in individual countries, such as Belgium, the Netherlands, Sweden and also a few US states. Contrary to the notion that it is pointless to act as long as others are inactive, an ambitious climate policy by a single country or city could indeed have positive national or local effects and, at the same time, make an impact on global policies.

### **4.3. The problem of short-termism**

Global warming is an issue of great injustice. As discussed previously, some of the countries and populations that will suffer the harshest consequences are those with the lowest levels of greenhouse gas emissions. Another aspect of unfairness is the intergenerational injustice that follows the historic and current emissions. Children born today or in the coming years will have to deal with the impact of the affluent and carbon-intensive lifestyle of their parents or grandparents. Since every generation can benefit from their own emissions and be tempted to defer mitigation and adoption, this intergenerational injustice might be continuous, building up an emission debt which could eventually be impossible to reimburse. This behaviour is defined as short-termism (González-Ricoy and Gosseries 2016).

Climate change is, for various reasons, particularly open to this kind of short-sighted behaviour. Global warming is evolving gradually, and its worst consequences will materialize in the future. For ordinary people, the changes were for several years hardly perceptible, making it difficult to grasp the seriousness of the issue. Some psychologists have argued that humans in general are ill equipped from a psychological perspective to deal with the climate crisis, since it lacks the property of urgent agency. It is a threat that is too vague, impersonal and distant to trigger our instincts to react adequately. Also, since the changes are not happening rapidly, we are able to psychologically adapt, and we are therefore not experiencing any major anxiety. As long as a greater number of people are not responding to the crisis, not requiring political actions nor changing their lifestyles, social norms will not provide us with feelings of remorse. Even though the intergenerational injustice is, in all respects, a matter of immorality, living in a carbon-intensive society does not violate our moral institutions (Gilbert 2006; Stoknes 2015).

Our lack of psychological and social instincts to urgently react to climate change can explain the absence of political demands. Politicians have been winning elections regardless of their failure to act. However, democratic governance may also exacerbate the problem of

short-termism, since most liberal democracies are institutionally designed to prioritize issues that are currently topical and do not reward long-term problem-solving. The agenda-setting mechanisms of democracy are often fixated on day-to-day issues. People, news media, civil society and other political agents generally respond to the affairs that directly affect people in the present. Short-termism is not necessarily a problem when it comes to social and economic issues, which need direct attention, yet it negatively affects climate-related issues.

Moreover, the framework for democratic decision-making is constrained by the processes of elections and re-elections. Governments implementing the measures required by climate science, such as carbon taxes, may risk re-election. For this reason, governments might be reluctant to focus on the welfare of future generations, and if they do, there are no guarantees that the chosen policy will sustain and survive coming elections. The process of assessing and holding governments accountable is furthermore distorted when it comes to climate-related issues. The generation mostly affected by global warming did not elect the politicians who are currently delaying the response, nor will they be able to hold them answerable for their failure. In most developed countries, young people, who have the greatest interest in a sound future, are in a minority position in the electorate. Those who may live to see the end of this century—the time when the more gruesome effects of the climate crisis are expected to occur—are still not eligible to vote. Opportunistic politicians will therefore be more motivated to listen to the interests expressed by older constituencies. The youth-driven climate movement has highlighted this intergenerational challenge and tried to counteract short-termism by expressing younger voices on the street, in digital forums and in other public spaces.

The attempts to accomplish far-sighted decision-making are further disturbed by voters who are anxious over the rapid transformation of modern society and the gloominess of future prospects. In Europe and the USA, the level of the population expressing pessimistic views about the future has exponentially grown, and many are reacting with a sense of nostalgia. It is older people who are most concerned, and their worries are not primarily related to the climate crisis, but rather to issues related to migration and crime. These emotional responses have been exploited and manipulated by right-wing populist politicians who have tactically glorified the past and thereby redirected attention from alarming issues such as the climate crisis (Hoffmann and de Vries 2018; Steenvoorden and Hartevelde 2017).

An additional challenge for democratic decision-making on climate is that mitigation measures do not necessarily result in any direct emission reductions. Their effectiveness could therefore be difficult to evaluate within the timespan of an election mandate. As discussed in the section on the issue of complexity, it is hard to discern what kind of measures are ideal economically and environmentally, particularly since different technical and scientific innovations are speedily developed. Disinformation campaigns and lobbying might also affect the judgements on the climate mitigation needed. Moreover, budgetary resources are often constrained, and politicians might need to prioritize between various political concerns. It is often a matter of having to choose between the tangible needs of the present electorate or preventing the more ambiguous suffering of future generations. In India, for instance, the government has pledged to ensure access to reliable and sufficient electricity, and although renewable energy has been installed in the attempts to electrify the country, the usage of fossil fuel is not diminishing. Many Indians are benefiting from coal-fired power, yet future generations of Indians will probably suffer from both an environmentally unsustainable energy system and the consequences of a warmer climate (Slater 2020).

### **Overcoming short-termism by emission reduction targets and climate laws**

One way to overcome short-termism is by adopting long-term political goals, which in the context of climate policy could be targets for emission reductions, a deadline for carbon neutrality or pledges to keep warming under a certain temperature increase. Many countries—democracies as well as autocratic states—have set targets for emission reductions, and in

total 195 countries and the EU have signed the Paris Agreement. With this, they have committed to limit the average temperature to well below 2 degrees Celsius above pre-industrial levels, with an ambition to limit the increase to 1.5 degrees. Each country should, according to the Agreement, present non-binding plans on emission reductions, so-called Nationally Determined Contributions. The Agenda 2030, which was decided by the UN General Assembly in 2015, comprises another set of targets: 17 Sustainable Development Goals, together with 169 targets and 232 indicators, designed to achieve a better and more sustainable future for all. These goals concern issues such as poverty, hunger, health, education, gender equality and climate action.

However, goals and targets, such as those determined in the Paris Agreement or the Agenda 2030, are just political pledges, and they are not legally binding. Although several countries are aiming to make significant reductions in the coming years, not a single democracy is on track to accomplish the ambition to limit the temperature increase to 1.5 degrees, as set out in the Paris Agreement (Climate Action Tracker n.d.). Nevertheless, targets can help to counteract short-termism in climate-related decision-making if they are adopted by parliaments and combined with specific legislation, such as climate change acts and laws, or policies and plans. According to the Grantham Research Institute at the London School of Economics, a total of 2,131 climate laws and policies have been adopted around the world as of the beginning of 2021 (Grantham Research Institute 2021). Such laws can integrate climate consideration into decision-making, planning and investments, but also include tax incentives and subsidies and regulations on business and social activities. They can provide an institutional framework, supporting effective climate governance, including emission reduction targets, expert councils, progress monitoring and other capacity-building instruments (Nachmany and Setzer 2018).

There are also studies showing that a solid legal framework for tackling climate change has an impact on emissions. The climate laws have resulted in higher reductions in countries with a strong rule of law, where legal provisions are more likely to be followed (Eskander and Fankhauser 2020; Averchenkova, Fankhauser and Finnegan 2018). An example is the Climate Act in the UK, which set five-year carbon budgets that defined the path towards net zero emissions. A more robust model is the EU Climate Law and of the Emissions Trading System, which is based on cap-and-trade principles. A pricing mechanism of emissions is included in the system, and limits of the total amount of certain greenhouse gases that can be emitted. Nevertheless, climate laws generally do not make reductions mandatory, and most governments can, regardless of their climate legislations, invest in or give construction permits to carbon-intensive infrastructure, such as airports and refineries.

Several countries have also established advisory bodies or councils tasked with providing expertise and giving science-based recommendations on climate policies. These councils normally consist of scientific experts, while in some cases representatives of public authorities, civil society or other stakeholders are represented. They are in general independent bodies, whose assessments and recommendations are impartial, although in some countries they are part of the government structure. They are often established as a requirement of legislation related to climate or environmental issues (Weaver, Lötjönen and Ollikainen 2019).

Climate councils that provide scientific advice in decision-making can help to overcome short-termism. One of the earliest examples is the German Advisory Council on the Environment, which monitors, assesses and gives recommendations on various fields of action in environmental policy. Recently, the European Scientific Advisory Board on Climate Change was established by the EU Climate Law and it is tasked with providing scientific advice and reporting on EU measures, targets and budgets.

These expert bodies can help to bring continuity and consistency to the policies pursued and thereby overcome short-termism, but also ensure evidence-based policies and decisions.

In some countries, they are commissioned to monitor and assess the compliance of the relevant targets and legislation. The usage of expert councils can be criticized as their recommendations can easily be ignored by governments. Moreover, by allowing experts to influence policymaking, the voice of the people may be devalued. One way to deal with such a potential democracy deficit is to allow civil participation in the process of formulating policy advice—for instance, by establishing a citizens' assembly, which has been described in Section 4.2 of this paper. In France, a citizens' council was appointed in 2019, consisting of 150 randomly selected citizens with the task of formulating proposals to reduce the country's greenhouse gas emissions by at least 40 per cent compared with 1990, in a spirit of social justice. Such citizens' assemblies could possibly be a constructive model for formulating advice on the basis of both popular interests and scientific expertise. Other examples are the Irish Citizens' Assembly and the National Forum in Iceland. Again, these assemblies are advisory, and both the French and the Icelandic governments were criticized for not respecting the full range of proposals presented (Landemore 2020).

### **Overcoming short-termism by climate litigation**

In recent years, climate change litigation has been more frequently used as a tool to push climate action forward. Governments and corporations have been accused of spreading disinformation, misleading the public, delaying or pursuing policies inconsistent with a trajectory towards meeting set targets. In some cases, states or corporations have been required to compensate for the damage and losses caused by their emissions. The increasing amount of climate litigation is partly the result of climate policies and legislation adopted, thereby opening up new rights and duties, but also down to a tactical choice by the climate movement (Burger and Gundlach 2017).

Most cases have been initiated by citizens, often children, and non-governmental organizations, trying to influence policies by taking governments or corporations to court. Besides activists, there are also a few cases in which the plaintiffs have been investors and even cities, regions and states. Between 1986 and 2020, 1,727 litigation cases were documented worldwide (Golnaraghi et al. 2021). Most of the cases were filed in the USA, yet a growing number were also pending in the EU and some other low- and middle-income countries. Both Constitutional law, civil law and human rights aspects have been applied in these litigations. In some cases, the courts have referred to the Paris Agreement or to national climate laws. Climate scientists and experts are often used to testify in these cases.

A few major cases have been dismissed—for example, the high-profile case filed by the organizations Our Children's Trust and Earth Guardians, against the USA. In this case, the court claimed that, although climate change was a serious issue, it was beyond its constitutional power to require complex policy decisions from the legislative branches. In 2019, the Supreme Court of Norway freed the Norwegian Government from breaching the constitutional obligation to sustain the environment for future generations by extracting Arctic oil, arguing that the emissions were primarily made outside of Norway and that the Government had undertaken compensatory measures.

Other cases have been more successful. In the so-called Urgenda case, the Dutch Government was required to take measures to reduce emissions by 25 per cent by 2020, referring to both the Dutch Constitution, and the articles 2 and 8 of the European Convention on Human Rights. This case has inspired other cases of climate litigation. Successful examples are also the cases brought against the UK Government concerning the expansion of Heathrow airport, Colombia regarding deforestation, and France and Germany for not acting sufficiently to prevent climate change. In a first major case against an oil and gas company, a Dutch court ordered Royal Dutch Shell in 2021 to reduce its emissions by 45 per cent by 2030.

It is difficult to say what impact climate litigation has had on policies and emissions. Some commentators argue that it can make governments and corporations more cautious in their decisions and also influence the judgement of insurers and investors, who are particularly sensitive to litigation. On the other hand, court decisions often just result in recommendations, which may not be transformed into any concrete actions (Bouwer and Setzer 2020). Courts cannot fully deal with the complexity of climate mitigation. It is also not clear whether the trend of bringing the climate struggle to the courts is entirely positive from a democracy perspective. By using climate litigation as a tool to influence governments, the dynamics of democracy are affected, potentially drawing attention away from the parliamentary arena to the judiciary. Political responsibility is demanded through the courts rather than through the elections and, in this way, it may violate the separation of power between the legislature, executive and the judicial branch. Citizens might be less motivated in joining social movements and participating in democratic protests and debates on climate issues. Also, court processes are often costly and time-consuming. At the same time, climate litigation can be used as a method to raise awareness and to bring attention to the climate crisis, mobilizing individuals and putting pressure on policymakers (Murray 2019; Bouwer 2018; Setzer and Vanhala 2019; Golnaraghi et al. 2021).

Most importantly, climate litigation could possibly expand and develop the interpretation of existing legislation and constitutional provisions, obliging governments to protect natural resources that are considered vital for future generations. By using legal remedies, the issue of climate change has become a matter of constitutional principles and a human rights issue, and this has contributed to overcoming some of the short-sightedness of democracy. One such interesting case was the decision by the Federal Constitutional Court of Germany in 2021, which ruled that the German Government's climate protection measures had insufficiently protected the freedom of future generations. The court referred in its verdict to article 20 of the German Constitution, stating the responsibility of the state towards future generations, and the obligation of the Government to implement the Paris Agreement. Consequently, the case showed that democracies may have a legal responsibility to address intergenerational injustice, and also showed that aspects of the climate conventions can be interpreted as legally binding.

Following the bush fires in Portugal in 2019, a group of young activists brought a case to the European Court of Human Rights in Strasbourg, demanding 33 countries make more ambitious emissions cuts to safeguard their future physical and mental well-being. The court has ordered the accused countries to respond, which demonstrates that the European Convention on Human Rights could possibly be applicable to cases concerning climate change. In June 2021 the Norwegian Arctic oil case, previously rejected by the Supreme Court of Norway, was also brought to the European Court of Human Rights. A few environment-related cases have previously been considered breaches of the right to life, the right to a private life and even the right to a fair trial (European Court of Human Rights 2021). Governments that have failed to act on climate have moreover been accused of having violated human rights or even committed crimes against humanity in accordance with the Rome Statute. It has also been suggested that an amendment to the statute should be made, opening for criminalization of acts that amount to ecocide (Berg et al. 2019). In this way, democracy has been expanded, obliging decision-makers to pay respect to the interests of the coming generations.

### **Is democratic decision-making more far-sighted?**

The problem of short-termism could be seen as an argument for autocratic or expert governance. The policies of authoritarian regimes are not subjected to the jerkiness of election processes, but can pursue long-term plans, which the central and local authorities, as well as corporations, need to follow. China has, for instance, adopted a five-year plan with an

aim to reach carbon neutrality by 2060, providing direction for all spheres of society. However, it is doubtful whether authoritarian decision-making is more far-sighted, especially when it comes to climate change. As discussed in Section 3.2, there is no evidence to the assertion that authoritarian states are pursuing any better climate policy than democracies. In this sense, authoritarian states seem to be more disrespectful of future generations than democracies.

In achieving the Sustainable Development Goals, government capacity is obviously important. The goals in the Agenda 2030 do not contain any requirements on democracy or civil rights, yet there is evidence showing that democracies are performing much better on achieving these goals. In a study of 41 high- and upper-middle-income countries, the correlations between goal implementation and participation, democratic institutions, policy coherence and institutional arrangements were studied (Glass and Newig 2019). The study suggests that the ability of citizens to participate in decision-making and the enhancement of democratic institutions could lead to greater progress in the implementation and acceptance of policies directed towards the achievement of sustainable development. Countries with functioning democratic institutions, and where media and civil society can voice their opinion, are generally pursuing policies that are more sustainable and thus better for future generations.

Another relevant study in the field was conducted by political scientist Jamie McQuilkin, who designed a global index of intergenerational solidarity (McQuilkin 2018). The index encompasses data from 122 countries and their performance on 10 different indicators of long-term policy performance. Some of the indicators regard environmental issues, such as carbon footprint and deforestation. Also, economic and social indicators were included, such as wealth inequality, investment in primary education and child mortality. The study gave no empirical evidence for the claim that autocratic regimes are more far-sighted and serving the interests of future generations better than democracies. Out of the 25 countries with the highest scores, 21 of them were democracies. The exceptional cases in the study were democratic countries with a large oil industry, such as Norway and Canada, which were not demonstrating any great intergenerational solidarity. China was, however, performing fairly well and ranked 25th position. Nevertheless, the study showed clearly that autocracies have in general a greater tendency towards short-termism, while democracies are performing better on long-term policies.

#### **Institutions to protect the interest of future generations**

A few countries have established institutions protecting the interests of future generations. Examples of such institutions are the Hungarian Ombudsman for Future Generations, the Israeli Commissioner for Future Generations and the Future Generations Commissioner for Wales. These institutions can examine policies and criticize or give recommendations to the government if its decisions violate the interests and needs of future generations.

Moreover, there are mechanisms that can make democracies more far-sighted when it comes to climate policies. Emission reduction targets and climate laws can help to overcome short-termism, and through climate litigation, democracies can be compelled to consider intergenerational aspects. Legal action is primarily relevant in democracies, cherishing the principles of the rule of law and respect for human rights. In addition, some democracies have tried to apply innovative methods with so-called proxy representation of future generations. A few countries have established institutions, such as an ombudsman or a commission, mandated to examine public policies and decisions in order to ensure that they

are not violating the interests and needs of future generations to create intergenerational injustice. In Finland, a parliamentary committee for the future has been established, which is to generate dialogue with the Government on major future problems and opportunities. Also, several governments have made specific attempts to involve youth in political consultations, and a few countries, such as Austria, have lowered the voter age, thereby giving young people a stronger voice in issues concerning their future.

#### **4.4. Policy capture, corruption and fossil fuel dependency**

In addressing the causes and effects of climate change, the institutional capacity of a state is of great importance. Governing institutions must be competent to formulate policies based on scientific facts and warnings, but also to respond to public concerns. They need to be capable of properly implementing, organizing, regulating, financing and overseeing these policies, and of assessing and evaluating the policies pursued. State capacity is consequently crucial in dealing with the complexity and urgency of the climate crisis. In this regard, the issue of corruption is obviously a great challenge. The non-governmental organization Transparency International has defined corruption as the abuse of entrusted power for private gain. However, it is not only a matter of politicians misusing public funds and receiving bribes, but also about policy capture by undue political influence, such as the distortion of scientific facts (Transparency International 2011).

Several studies show the detrimental effects of corruption and state weakness on environmental and climate policies. When the state is weak, the institutions are incapable of drafting and enforcing environmental policies and regulations. The price of complying with regulations might supersede the costs of bribing and polluting. Also, corruption has an impact on the capacity of public authorities to monitor and prosecute illegal activities and environmental crime. It leads to erosion of tax revenues, further affecting governance capacity (López and Mitra 2000; Fredriksson and Svensson 2003; Welsch 2004). Moreover, clientelism and appointment of individuals with business interests affects the policies pursued. This was evident in the presidential administration of Donald Trump, who appointed at least 20 people from the oil or coal industries to key positions, including the Secretary of State, Secretary of Energy, Secretary of the Interior and Head of the Environmental Protection Agency (CAP Action 2019).

Corruption is not only a challenge when it comes to policymaking, but also in the implementing process. According to the IPCC, an annual investment of USD2.4 trillion until 2035 is needed in the energy system if warming is to be limited to below 1.5 degrees Celsius from pre-industrial levels (IPCC 2018). Corruption might delay or undermine such investments and it is particularly concerning that some of the countries most affected by global warming are among those with the highest corruption levels (Transparency International 2011). Rolling out renewable energy sources, planting trees, introducing new crops, adapting infrastructure and introducing other mitigation and adoption measures are obviously challenging in countries where institutions are weak. In such countries, the disbursement mechanisms are often underdeveloped, while the bureaucracy is complex and cumbersome. A great part of the public investments will flow through relatively uncoordinated and untested channels. The risks of fraud or misuse of the public means are therefore significant. Corruption might also deter private investors who worry that their capital will be lost in greed, unreliability and selfishness. Also, enforcing international agreements and regulations on emission levels, carbon trade, deforestation or other protection measures could be stymied if individual countries are incapable of monitoring, reporting and sanctioning the activities of companies, organizations or individuals.

Weak state capacity and corruption can also have a negative impact on the mutual trust between individuals and on people's trust in institutions, which may affect the willingness of

citizens to accept an active climate policy. Citizens who trust institutions to act fairly, efficiently and without corruption are more inclined to support government spending on the environment and policies such as carbon taxes and fees (Kollmann and Reichl 2015; Kulin and Johansson Sevä 2019).

In societies where corruption is rampant and institutional capacity is weak, the conditions that enable civil society organizations to operate and actively take part in environment protection are often poor. If citizens are unable to trust the independence and efficiency of the judiciary and public authorities, they are probably less inclined to engage in political activities and advocacy or supervising and reporting misconduct. In this sense, the rule of law, good governance and the respect of human rights are of importance when it comes to combating climate change. It is therefore concerning that the number of environmental activists abused, harassed and even murdered has increased in recent years. Protecting the environment is currently the most dangerous human rights activity, and two out of three activists who lost their lives in 2019 died in the fight for land rights or other environmental issues (Front Line Defenders 2020).

According to the organization Global Witness, 212 lethal attacks occurred against environmental defenders in 2019, and in total 4 murders have been reported every week since the signing of the Paris Agreement. Besides these killings, activists have been beaten and violently harassed, been arrested or received death threats (Global Witness 2020).

Obviously, the situation is particularly difficult in authoritarian states, such as China and Russia, where people who protest and participate in different civic activities can be censored, threatened, imprisoned or murdered. In China, demonstrating against environmental degradation is dangerous but, nevertheless, 712 demonstrations took place between 2013 and 2017, according to official reports. The actual number is probably much higher (Hsu 2016; Pitron 2019). The Global Witness report, however, asserts that the most dangerous countries for activists are countries such as Brazil, Colombia and the Philippines, classified in 2020 as mid-range performing democracies in the Global State of Democracy Indices. Also, in the USA environmentalists have been harassed and abused. As an example, the police and military received criticism from the UN High Commissioner for Human Rights after they violently crushed the demonstrations against the construction of the Dakota Access Pipeline at Standing Rock (Tauli-Corpuz 2017). Individuals engaged in the climate movement have moreover experienced growing oppression in recent years, by, for instance, unlawful arrests or political actions to make protest more difficult. In an open letter, signed by several climate experts, concerns were raised over the increasing criminalization and targeting of climate protesters in various parts of the world (Taylor 2021). This development reveals the importance of the respect for basic human rights, and especially the possibility for people to express their voices freely.



*Photo:* Climate strike in Paris, 20 September 2019.

### Democracy, corruption and climate policies

The correlation between democracy and corruption is an issue widely discussed within political science. Looking at the broader picture, a healthy democracy seems to result in lower corruption. There is a strong correlation between a high score on the Democracy Index of The Economist Intelligence Unit, and a top ranking in the Corruption Perception Index (Transparency International 2019). However, it is not entirely clear if democracy helps to reduce corruption. The ability for citizens to access information, criticize authorities and vote corrupt leaders out of office should hypothetically lead to less corruption. Some researchers have also verified the empirical link. Others claim that the correlation is less evident in fragile democracies, while some argue that aspects such as institutional capacity, an independent judiciary, cultural traditions or economic development are more important (Nightingale 2015; Varraich and Rothstein 2017). Democracy, corruption and state capacity are evidently mutually related, and for this reason it might be difficult to discuss to what extent corruption as an independent variable has a stronger impact on climate action than democracy.

Nevertheless, in a few studies the importance of democracy on environment protection has been compared with state capacity and corruption. The results show that corruption has a more direct and sizeable effect than democracy (Pellegrini and Gerlagh 2006). This is also true when it comes to climate mitigation and emissions. The political scientist Marina Povitkina has compared 144 countries and studied their carbon dioxide emissions along with the level of democracy and corruption. According to her study, it is only in countries where corruption is low that democratic governance affects emissions levels. If corruption is high, democracies do not perform better than authoritarian states (Povitkina 2018).

Once again, as democracy and corruption are interdependent variables, one should not draw the conclusion that issues such as freedom of expression, freedom of assembly, and open and fair elections are less important than good governance and the rule of law. Nevertheless, it is evident that without well-functioning public institutions, the fight against

climate change will be difficult. This is particularly relevant in societies where the fossil fuel industry is powerful.

### **Policy capture and fossil fuel lobbyism**

Democratic societies that respect the freedoms of expression and assembly, and allow research institutions to operate freely and openly, should be in a better position to deliver knowledge-based policies than other forms of government. Policymakers in democracies can be provided with evidence-based facts, and by listening to the public debate around them they can balance the scientific recommendations with public concerns. However, in an open and democratic society, in which different interests are competing in the formation of opinions, policymaking can also be influenced by powerful interest groups and lobbying activities. From a democracy perspective, lobbying is an intricate matter. Active participation by civil society organizations and more professional lobby groups in the formation of opinions is generally valuable in achieving well-balanced and knowledge-based policies. However, lobbying can have a negative effect on democratic procedures if it provides a substantial advantage to certain interests and opinions in the decision-making process due to lobbyists' financial resources or the usage of untransparent and undue political influence, such as media manipulation, disinformation, clientelism and economic pressure.

Lobbying and policy capture is particularly sensitive where climate action is concerned. Efforts to decarbonize economic activities are obviously a threat to the industry profiting from the extraction and usage of fossil fuels, such as oil, gas and coal, and consequently the industry has had economic incentives to advocate against any ambitious climate policy. However, the fuel industry is not just any industry, but an industry in an outstandingly powerful economic position. There is no other single commodity that has the same value as oil. The revenues of the oil industry are almost three times as large as those of all other major metals and minerals combined (Calcuttawala 2016). The companies engaged in oil and gas extraction made a profit of USD2,000 billion in 2018, which is equivalent to 2–3 per cent of global GDP (Investopedia 2019). It is questionable whether any democratic government has a capacity to fully withstand the influence of such a powerful interest.

There is abundant evidence showing that the lobbying of the fossil fuel industry has delayed or even prevented climate action. This has particularly been the case in the USA, but also in Australia, Canada, Europe and other parts of the world. In the USA, business corporations have lobbied against environmental and climate policies for many years, but the more intensive campaigning on climate change began in the late 1980s, following the formation of the IPCC and the testimony of the NASA climatologist James Hansen in the US Congress. For example, the oil giant Exxon (later ExxonMobil) adopted in 1988 a strategy for combating climate policy, according to which the company was to 'emphasize the uncertainty in scientific conclusions' (Rich 2018). In the following year, the American National Association of Manufacturers established the Global Climate Coalition, which became one of the most powerful lobby groups against climate mitigation. A rigorous campaign was conducted prior to the Earth Summit in Rio de Janeiro in 1992 and during the debate on the Kyoto Protocol in 1997. Several think tanks and lobby groups were actively advocating against climate policies and received substantial funding to do so (McCright and Dunlap 2011; Dunlap 2013; Brulle 2014).

Several oil companies, such as Exxon, Shell and Chevron, and their business associates had—since the 1960s—been conducting their own research on climate change, showing no scientific uncertainty at all. Only about 2 per cent of Exxon's internal reports and peer-reviewed papers expressed doubts about the findings on climate change (Supran and Oreskes 2017). The head of research at Exxon had already in 1981 stated that global warming was expected to reach over 3 degrees Celsius within a century, but there was still 'time for an

orderly transition to non-fossil fuel technologies should restrictions on fossil fuel use be deemed necessary' (Banerjee 2015).

### The role of lobbying and the fossil fuel industry

In the USA, the expenditure on lobbying by the fossil fuel industry has significantly surpassed other lobbying campaigns in the USA. According to one study, the annual budget of the think tanks engaged in climate denial in the USA was estimated at USD900 million in the years 2003 to 2013 (Brulle 2014). The lobbying expenditure by the fossil fuel industry relating just to climate change legislation in the US Congress was over USD2 billion dollars in the period of 2000 to 2016, which was approximately 10 times larger than the total resources spent on lobbying by the environment movement and the renewable energy industry (Brulle 2018). Several fossil fuel companies have now officially recognized climate change and report that they have stopped supporting climate denial campaigns. Nevertheless, studies show continued lobbying expenditure, and one report claims that the companies ExxonMobil, Shell, Chevron, BP and Total spent more than USD1 billion on political influence and disinformation in the three years following the Paris Agreement (Influence Map 2019).

The fossil fuel industry has been less active in Europe than in the USA, but it has likewise spent vast resources to undermine and delay mitigation measures. According to one calculation, based on the expenditures reported to the EU's transparency register and those declared by the companies themselves, the five biggest oil and gas firms, and their industry groups, spent EUR251 million on lobbying in the years between 2010 and 2018. Analysis of the public records of meetings showed that these firms employed about 200 lobbyists in Brussels, who held more than one meeting per week with top EU officials (Laville 2019). A similar study of lobbyism in Canada showed that the representatives of the fossil fuel industry had roughly 1,452 lobbying contacts with government officials in the years between 2011 and 2018, amounting to almost six meetings per day (Graham, Carroll and Chen 2020). Studies of specific European countries have also demonstrated how climate policies are influenced by the fossil fuel industry. In Poland, researchers have described a triple embeddedness, illustrating the interaction between the coal industry and economic and socio-political environments. Most coal corporations are majority state-owned and are highly involved in political decisions, which has made it difficult to voice any opposition to the industry interests (Brauersa and Oei 2020).

Moreover, the lobbying methods used by the fuel industry have often been untransparent and dubious. The core strategy applied by the industry has been to spread doubts about climate science and to stress the uncertainties and disputes. In the 1980s and 1990s, the effects of climate change were not particularly visible, and to understand the seriousness of the situation, the public had to trust science and rely on their observations. However, the magnitude and complexity of climate change made the issue particularly susceptible to disinformation, and this was exploited by the fossil fuel lobby, which attempted to undermine the general trust in science.

In the USA, the fossil fuel industry replicated the techniques and strategies used by the tobacco industry in their campaigns against the hazards of smoking, and some of their campaigners were even recruited by the lobbyist organizations representing the fossil fuel industry (Oreskes and Conway 2011). Research results were wittingly misinterpreted and facts were cherry picked and manipulated to undermine basic scientific assumptions. The economic costs and consequences of the climate transition were exaggerated while the effects of global warming were downplayed. Fake experts were used and phony pseudo-science reports were spread, often involving conspiracy theories. Climate researchers were also smeared and attacked (Jacques, Dunlap and Freeman 2008; Powell 2012). Partisan news

media networks, the Internet and social media facilitated the spreading of disinformation on climate science, deepening the polarization of opinions. Climate science became gradually more politicized and, as a result, the perception of scientific facts became highly affected by ideological views and cultural values. In the USA, climate denial was intricately connected with the Republican Party, while in Europe it has been strongly supported by right-wing populist parties (Lindvall, Vowles and Hultman 2020).

The lobbying on climate change is outstanding in comparison with other political issues. First and foremost, the consequences of global warming are exceptional, and for this reason these activities give rise to moral, and possibly legal, considerations. In the 1990s, there were very few peer-reviewed academic studies casting any serious doubts on the issue of human-induced climate change. These companies and lobbying organizations were thereby not acting in good faith, and by preventing mitigation efforts, they were causing unrepairable damage to the environment, and also harming the health and livelihood of future generations.

### **Fossil fuel lobbying and its impact on democracy**

From a democracy perspective, the lobbying of the fossil fuel industry has been very harmful since it has allowed economic actors to capture the policymaking process and mislead the public on scientific facts. It has undermined the functioning of essential aspects of the democratic system and thereby prevented climate action. Looking at the research on democracy and climate policies discussed in Section 3.2, it is evident that there is a strong correlation between the make-up of the energy sector of a specific country, and the climate policy pursued. Studies show that countries with a high democracy ranking are generally pursuing a more active climate policy, except for democracies where the oil, gas and coal industries exercise a great deal of political influence (Looney 2016). The energy resources of a specific country have also been shown to influence ambitions and positions in climate negotiations (Bailer 2012; Bang, Underdal and Andresen 2015). In a paper from 2020, the correlation between climate commitments under the Paris Agreement and democracy performance, democratic values and oil, coal and gas rent was explored. It showed that democracy is associated with higher climate ambition, while fossil fuel and especially coal dependency had a negative influence (Tørstad, Sælen and Bøyum 2020).

The policy capture of the fossil fuel industry is particularly evident in the USA, where the lobbyist activities of the fossil fuel industry have had an extensive impact on climate policies and on public opinions. At the federal level, the USA did not adopt any serious mitigation efforts in the years 1992 to 2008. The Congress refused, for instance, to ratify the Kyoto Protocol in 1997. Also, public opinion on climate in the USA was clearly affected. When Europeans grew more concerned, the American public, in particularly Republican voters, grew sceptical (Weber and Stern 2011). Some commentators argue that, had it not been for these lobbying activities, the world would not have entered its present severe situation of a climate crisis (Rich 2018).

Fossil fuel lobbying is, however, not only a problem affecting democracies. The oil, coal and gas industries are influencing climate policies in almost every country where they have a dominant economic position, regardless of the form of government. As mentioned before, the countries with the highest emission levels per capita are oil-producing autocratic states, such as Kuwait, Qatar, Saudi Arabia and the United Arab Emirates. Also, there is substantial evidence that interest groups representing the coal industry in China have had a great impact on the climate policy, at both national and local level. Representatives within the industry are, according to some commentators, said to wield a greater influence within the party than representatives of the solar and wind industry (Buckley 2021). There is simply no evidence that authoritarian regimes have been more successful in fending off pressure from fossil fuel

lobbying, than democracies have. Fossil fuel dependency is a determinant of climate policies, regardless of the form of government.

## 5. Conclusions and recommendations

---

### 5.1. Summary

As has been shown in this paper, democracy in general has failed to deal appropriately with the climate crisis. In broad terms, the arguments stated against democracy are that the challenges have been complex and, in managing the global commons of our shared atmosphere, democracies have not succeeded in acting beyond the constraints of their national states sufficiently. Another supposed weakness is the short-term focus of democratic decision-making. Democracy is seen to be limited by time and space, while the problem of climate change runs across generations and national borders. Moreover, there is strong empirical evidence showing that the influence of fossil fuel lobbyism, corruption, policy capture and weak institutional capacity have hindered democracies from acting responsibly.

In spite of this, democracies possess several advantages when it comes to tackling the climate crisis, and evidence shows that they are, in general, pursuing a more efficient and ambitious climate policy than authoritarian regimes. Governing systems that allow civil participation, a free flow of information and processes of assessment and evaluation seem to be more capable than authoritarian regimes of dealing with issues of great complexity. To some extent, technological innovation, particularly on renewable energy, has made the solutions to the climate crisis less cross-border sensitive and more readily available, motivating both individual countries, regions and cities, and companies, communities and individuals, to act on their own. As has been shown in this paper, active engagement and accountability by civil society organizations creates pressure for strong policy responses on a local or national level. Studies also show that democracies are more far-sighted, while institutional changes, such as the adoption of climate legislation and advisory bodies, and activities within democracies, such as the youth-driven climate movement and processes of climate litigation, have made them even less vulnerable to short-termism.

Nevertheless, democratic governments have not done and are not doing enough to mitigate the climate crisis, and this could have consequences for the legitimacy of democracy. Democracy rests on the consent of the people and it therefore claims a moral superiority over other governing systems. The failure to act on the climate crisis might therefore harm the attractiveness of democracy and be used as an argument for autocratic regimes to boost their legitimacy.

Moreover, the social and economic consequences of climate change—both direct ones, and indirect ones caused by our responses to it—present, by all accounts, the most serious challenge to the endurance of democracy ever. As a result of global warming, ecosystems have been profoundly altered and, consequently, human and social systems will in the coming

years be brought under increasing environmental stress. As stated at the outset of this paper, the climate crisis is an unprecedented challenge. It is impossible to make precise predictions of how nature will react to rising temperatures, and consequently also to anticipate the social and political responses. However, if greenhouse gas emissions are not stabilized, the effects on nature and societies around the planet will, by all accounts, be extremely negative. The prospects for global freedom would not be particularly hopeful.

In the year 2021, positive developments have occurred in terms of progressive emission reduction targets set by some of the greatest economies, such as Canada, Japan, the EU, the Republic of Korea and the USA. If these countries successfully deliver on their pledges, some of the most pessimistic scenarios described in this paper may not materialize. With the political pressure of social movements and advancements in green technology, a transition towards a sustainable society can happen more rapidly than expected.

Unfortunately, the world has already emitted dangerously high levels of emissions and—even if global warming is stabilized at 2 degrees Celsius above pre-industrial levels—several parts of the world will still suffer severely. Natural disasters, particularly heatwaves, droughts and floods, will, according to most predictions, be more severe and thereby trigger food insecurity, economic decline, conflicts and increasing migration. Democratic governance will be brought under pressure and these challenges will remain, regardless of successful mitigation of the climate crisis in the coming years. Nevertheless, the prospects for democracy and freedom will be far better if the world delivers on its climate mitigation strategies and moves away from fossil fuels.

It is also possible that the process of decarbonization and climate mitigation could contribute to social changes that are positive for democracy. Introducing renewable energy systems, green technology and new agricultural techniques could open up opportunities for economic prosperity, jobs and human development, and create a basis for a new social contract, strengthening democracy. Renewable energy systems, such as wind and solar, could, according to some commentators, enhance the energy independence of individual nations, regions and local communities, decentralizing political and economic power. This could help to invigorate local democracy (Morris and Jungjohann 2016). Moreover, people experiencing the impacts of global warming and broken ecosystems may be motivated to act and take social and environmental responsibility. New social and economic models could become more attractive, inspiring people to become active in their local communities. Young people today are generally more concerned about the climate crisis and more motivated to engage politically, which could provide opportunities for change (Ojala and Lakew 2017). Moreover, the climate crisis could bring people with conflicting interests and views together and may encourage people to act collectively for a sustainable society. By all accounts, global warming will have a profound impact on our society, changing some of the social presumptions that have been prevalent in the evolution of modern society. At a time of sweeping social change, democratic governance is, of course, of great importance.

Despite these hopeful prospects, democracies are still not delivering on their climate pledges and they are having difficulties in dealing with complexity and intergenerational injustice. There are several aspects of democracy that need to be developed and reformed. Although the fossil fuel lobbying on climate policies appears to be less aggressive today, compared with the period between 1988 and 2020, it still wields substantial influence on politics in several democratic countries. Moreover, in many fragile democracies, corruption is obstructing the policymaking process on climate and preventing adequate and efficient implementation. In this respect, the lack of trustworthy and independent public institutions, able to protect human rights and deliver on the principles of the rule of law and good governance, is a serious barrier on the path towards a sustainable future. In conclusion, democracy can contribute to progressive climate action; however, as long as many

democracies are suffering from their own institutional failures, they will not be able to deliver adequately.

## 5.2. Policy recommendations

This paper has shown that functioning democracy is essential to deal effectively with the climate crisis, but has also demonstrated some of the weaknesses of democracy in this exercise. Consequently, the efforts to develop and support democracy around the world need to be sustained, but it is also necessary to undertake certain measures, activities and reforms to make democracy more capable. In this final section of the paper, some general policy advice is presented. The recommendations are described in general terms and concern both possible institutional reforms and more sweeping ideas on how to strengthen democratic governance in the time of the climate crisis.

### Overcome short-termism

The failure to act on the climate crisis has created a situation of intergenerational injustice. Future generations might not be able to live under conditions that enable a healthy and prosperous life. If democratic governance is to endure over a longer perspective, it needs to overcome its tendency towards short-termism, and develop institutions capable of more far-sighted decision-making.

### Adopt climate laws and emission reduction targets

Governments should adopt climate laws and emission reduction targets in line with scientific recommendations. Such pledges and related legislation need to include legally binding aspects, such as instruments for sanctioning non-compliance or a pricing mechanism for emissions.

### Develop constitutional frameworks for long-term decision-making

To address potential intergenerational injustice, liberal democracies need to develop constitutional provisions preventing governments from damaging natural systems and resources that are vital for the healthy livelihoods of future generations.

### Overcome polarization

Governments should try to encourage political parties and leaders to overcome polarization and reach consensus on climate policies and other issues that need a consistent and long-term approach. Setting up commissions assigned to deal with complex issues could be helpful, with broad parliamentary representation, and experts and citizens engaged.

### Involve youth

Governing authorities should elaborate on various methods for youth involvement, such as inviting young people and youth organizations to political consultations and ensuring the participation of young people on advisory boards. By lowering the voting age at national, regional or municipal level, young people will be given a stronger voice in issues concerning their future.

### Represent future generations by proxy

Future generations could be represented by proxy, by establishing specific institutions, such as ombudspersons or commissions mandated to examine public policies and decisions in order to ensure that they are not exacerbating intergenerational injustice or violating the interests and needs of future generations.

### **Set a price on greenhouse gas emissions**

Governments must develop a sustainable market economy, regulating business operations by adopting a pricing mechanism for greenhouse gas emissions, such as carbon taxes or programmes with cap and trade. Such methods are proven to be effective in lowering emissions, and thereby undoing intergenerational injustice.

### **Ensure citizens' participation**

Climate policies that require lifestyle changes, imply limitations of individuals' freedoms or are economically unattractive could displease segments of the electorate. To avoid social disputes and to ensure long-lasting policies, it is therefore important that climate policies gain democratic legitimacy.

### **Invite citizens to participate in formulating climate policies**

In formulating climate policies, governing authorities should try to invite citizens to participate in consultations, citizens' assemblies and other deliberative instruments. Citizens could be allowed to comment or give input on policy proposals by using digital tools or by attending consultative summits. Also, instruments of citizens' initiatives could be used, allowing individuals to present political proposals, which should be addressed by a legislative body, if supported by a sufficient number of citizens.

### **Establish randomly selected citizens' assemblies**

To involve a broad and representative segment of the electorate, citizens' assemblies could be established by random selection. By involving experts in such citizens' assemblies, they can be used for constructive consultations on climate-related issues, presenting proposals and recommendations to decision-makers at the national, regional or municipal level.

### **Ensure transparency**

It is important to ensure transparency, accountability and public oversight in the implementation of climate policies. News media, civil society organizations and ordinary people should be able to access information and monitor the policies pursued. Innovative methods to ensure transparency could be used, such as digital tools for open governance or public oversight boards.

### **Use participatory budgeting**

Enabling citizens to participate in the discussion and decision-making process on the allocation of public funding, especially in relation to climate mitigation, could be a method to ensure just and efficient distribution and to curb corruption.

### **Act on climate injustice**

Climate change is, as described in this paper, an issue that can exacerbate social and economic injustices. Certain populations will suffer harsher consequences of global warming than others, depending on where they live, their health conditions, socio-economic vulnerability or exposure to discrimination. In the shift towards sustainable production, people working in carbon-intensive economic sectors might also be disproportionately affected. If socio-economic gaps grow because of the uneven distribution of the costs and impacts associated with climate change, this could generate social tensions and become a challenge to democratic governance.

### **Ensure a just transition**

It is important to strive to ensure a just transition. People, workers and regions affected by the shift towards zero-carbon production should be supported in finding new livelihoods and

managing the social and economic legacies of industrial change. To prevent social disputes, mitigation measures should, as far as possible, result in beneficial socio-economic outcomes. Carbon taxes and fees, as well as subsidies distributed in the transition process, could, for instance, be designed to lessen socio-economic strains. Revenues of carbon taxes and fees should preferably be redistributed to low-income groups or people affected by the transition.

#### **Maintain equality in the response to climate effects**

It is important that disaster aid and assistance is equally distributed in the wake of natural disasters. Governments could also consider compensating groups that have been particularly affected by climate change, such as indigenous communities. The issue of equality should also be considered when adaptation measures are designed and implemented.

#### **Make sure revenues from renewable energy benefit affected communities**

To counteract climate injustice and to ensure the democratic legitimacy of climate mitigation, the usage and profits from renewable energy production, such as solar and wind, should benefit the individuals, local communities or regions installing or affected by them.

#### **Strengthen gender equality**

Given that women's participation in political decision-making has been shown to result in greater social and environmental responsiveness, actions and policies should be designed to strengthen gender equality.

#### **Develop knowledge-based decision-making**

Government measures and strategies that take on complex crises, such as climate change, need to be based on both scientific and public consensus. It is therefore important to facilitate the interactions between science, policy and citizens.

#### **Establish climate councils and advisory boards**

Climate councils and other advisory boards on climate issues should be established to support the climate policy process. The recommendations provided by such bodies, however, do not always take public opinions into consideration and therefore they could be advised to conduct public surveys, organize public consultations or act together with citizens' assemblies.

#### **Counteract disinformation**

Governments should try to counteract disinformation that might deceive or mislead the public understanding of climate science—for instance, by constructive cooperation with digital platforms and news media and enhancing media literacy in society. The general awareness of the climate crisis needs to be raised by improving the education on environmental issues in the school system and by initiatives targeting wider society.

#### **Strengthen state capacity**

The institutional capacity of a state is of great importance in addressing the causes and effects of climate change. This is essential when it comes to the process of policymaking, but also in implementing policies, enforcing regulations, financing and overseeing climate transition. In this regard corruption, policy capture and undue policy influence are of great concern.

#### **Strengthen public institutions**

Reforms should be undertaken to strengthen public institutions, including measures to ensure independent performance, professional appointment processes of civil servants, adequate financing and development of competences etc.

### **Fight corruption**

Corruption needs to be actively combated by, for instance, strengthening the judiciary, developing the transparency of policymaking and financial transfers, and encouraging and protecting whistle-blowers.

### **Protect human rights**

The institutional mechanisms of human rights protection need to be strengthened, particularly in relation to environmental and climate activists, by improving human rights laws and systems, supporting human rights defenders, raising awareness and advancing international cooperation.

### **Counteract aggressive lobbying and policy capture**

The lobbying activities of the fossil fuel industry have been particularly harmful in accomplishing effective climate action. For these reasons, efforts should be undertaken to strengthen state capacity and counteract aggressive lobbying and policy capture. Governments need to ensure the transparency of the policy process and regulate political financing.

### **Further research is needed**

The consequences of global warming will become more severe in the coming years and put pressure on governing systems. As a result, the need to study the nexus of democracy and climate is important, to better understand both the effects climate change could have on democracy and how democratic governance could be developed to become more capable to deal with the crisis at hand.

With regard to the consequences of climate change on democracy, there is a need to explore how various natural disasters can affect the governing capacity. Given the importance of food security for livelihoods and social, political and economic stability, its impact on democratic governance needs particular attention. This kind of research could contribute to making societies more resilient to the social consequences of future increases in food prices. Moreover, the effects of sea level rise on democracies and adaptation should be explored. An understanding of the correlation between the social and economic consequences of climate shocks, such as heatwaves, could also be valuable. Comparative studies with the experience of the Covid-19 pandemic could be conducted.

It is of particular interest to further study the institutional capacity of democracy to deal with the climate crisis and to explore possible reforms that could be undertaken to develop democratic governance in this regard. It is important to study how various organizational models can facilitate the interaction between science, policymakers and public perception. It could concern the process of drafting and implementing climate policies and targets through different advisory bodies and public authorities. An issue which is particularly interesting to explore is what kind of governing and institutional models are best fitted to deal with such complexity and with 'wicked problems'.

Further research needs to be done on the constitutional set-ups that are generating the most efficient climate policy and responses to complexity and to intergenerational injustice. There could possibly be differences between different electoral, constitutional and political systems as well as in the organization of political parties, political culture and media landscape. In this respect, the consequences of climate litigation should be studied, and its impacts on climate policies, democratic participation and legal frameworks.

Also, research needs to be done on methods to ensure civil participation in climate policies, with a specific focus on innovative models, such as climate councils of randomly selected citizens, youth involvement and proxy representation. Research should be conducted

on climate denial, disinformation and policy capture and how to legally or politically tackle such disruptive tendencies.

A particularly relevant issue to study is climate change. Studies need to be undertaken on how different climate mitigation measures can be designed to redistribute resources and justice, to involve local communities and to respond to the needs and interests of groups affected by the transition. Methods on how to strengthen groups that are affected by both climate change and discrimination, such as minorities, people of colour, women and indigenous communities, need to be explored. The technological transition and instalment of renewable energy is also a process that will have profound implications for democratic development, but which is generally unexplored.

Finally, research needs to be done on state capacity in relation to climate mitigation and adoption, particularly studying different practices to fight corruption and policy capture. Several fragile democracies will suffer particularly harsh consequences of climate change, but may have a poor institutional capacity to respond and adopt. Innovative measures and models on how to tackle the combined challenges of democratization, mitigation and adaptation need to be explored.

## References

---

- Adam, D., 'Nasa's James Hansen Warns "democratic process isn't working" in climate change fight', *The Guardian*, 18 March 2009, <<https://www.theguardian.com/science/2009/mar/18/nasa-climate-change-james-hansen>>, accessed 11 May 2021
- Ahlerup, P., 'Democratization in the aftermath of natural disasters', in A. Bigsten (ed.), *Globalization and Development: Rethinking Interventions and Governance* (Abingdon: Routledge, 2011)
- Andrijevic, M. et al., 'Overcoming gender inequality for climate resilient development', *Nature Communications*, 11, article 6261 (2020), <<https://doi.org/10.1038/s41467-020-19856-w>>
- Arezki, R. and Bruckner, M. *Food Prices and Political Instability*, IMF Working Paper 11/62 (Washington, D.C.: International Monetary Fund, 2011), <<https://doi.org/10.5089/9781455221066.001>>
- Averchenkova, A., Fankhauser, S. and Finnegan, J., *The Role of Independent Bodies in Climate Governance: The UK's Committee on Climate Change* (London: Grantham Research Institute, 2018)
- Bailer, S., 'Strategies in the climate negotiations: do democracies negotiate differently?', *Climate Policy*, 12/5 (2012), pp. 543–51, <<https://doi.org/10.1080/14693062.2012.691224>>
- Banerjee, N., 'More Exxon documents show how much it knew about climate 35 years ago', *Inside Climate News*, 1 December 2015, <<https://insideclimatenews.org/news/01122015/documents-exxons-early-co2-position-senior-executives-engage-and-warming-forecast>>, accessed 11 May 2021
- Bang, G., Underdal, A. and Andresen, S., *The Domestic Politics of Global Climate Change: Key Actors in International Climate Cooperation* (Cheltenham: Edward Elgar, 2015), <<https://doi.org/10.4337/9781784714932>>
- Bättig, M. and Bernauer, T., 'National institutions and global public goods: are democracies more cooperative in climate change policy?', *International Organizations*, 63/2 (2009), pp. 281–308, <<https://doi.org/10.1017/S0020818309090092>>

- Bedarff, H., *Climate Change, Migration, and Displacement: The Underestimated Disaster* (Universität Hamburg, commissioned by Greenpeace Germany, 2017), <<https://climate-diplomacy.org/magazine/conflict/climate-change-migration-and-displacement-underestimated-disaster>>, accessed 23 August 2021
- Berg, N., Berg, I. and Hultman, M., *Naturens rättigheter: när lagen ger fred med jorden: ekopedagogisk inspiration för hållbar samhällstransformation* [Rights of Nature: When the Law Provides Peace with the Earth: Eco-Pedagogical Inspiration for Sustainable Societal Transformation] (Malmö: Universus Academic Press, 2019)
- Bernauer, T. and Koubi, V., 'Effects of political institutions on air quality', *Ecological Economics*, 68/5 (2009), pp. 1355–65, <<https://doi.org/10.1016/j.ecolecon.2008.09.003>>
- Bouwer, K., 'The unsexy future of climate change litigation', *Journal of Environmental Law*, 30/3 (2018), pp. 483–506, <<https://doi.org/10.1093/jel/eqy017>>
- Bouwer, K. and Setzer, J., *Climate Litigation as Climate Activism: What Works?* (London: The British Academy, 2020), <<https://www.thebritishacademy.ac.uk/publications/knowledge-frontiers-cop26-briefings-climate-litigation-climate-activism-what-works/>>, accessed 23 August 2021
- Brauersa, H. and Oei, P.-Y., 'The political economy of coal in Poland: Drivers and barriers for a shift away from fossil fuels', *Energy Policy*, 144, article 111621 (2020), <<https://doi.org/10.1016/j.enpol.2020.111621>>
- Brinkman, H.-J. and Hendrix, C. S., *Food Insecurity and Violent Conflict: Causes, Consequences, and Addressing the Challenges* (Rome: World Food Programme, 2011), <<https://www.wfp.org/publications/occasional-paper-24-food-insecurity-and-violent-conflict-causes-consequences-and-addressing->>, accessed 23 August 2021
- Brown, O., *Migration and Climate Change*, IOM Migration Research Series No. 31 (Grand-Saconnex: International Organization for Migration, 2008), <<https://doi.org/10.18356/5ab20a38-en>>
- Brulle, R. J., 'Institutionalizing delay: Foundation funding and the creation of U.S. climate change counter-movement organizations', *Climatic Change*, 122/4 (2014), pp. 681–94, <<https://doi.org/10.1007/s10584-013-1018-7>>
- , 'The climate lobby: A sectoral analysis of lobbying spending on climate change in the USA, 2000 to 2016', *Climatic Change*, 149/3–4 (2018), pp. 289–303, <<https://doi.org/10.1007/s10584-018-2241-z>>
- Buckley, C., 'The rock standing in the way of China's climate ambitions: coal', *New York Times*, 16 March 2021, <<https://www.nytimes.com/2021/03/16/world/asia/china-coal-politics.html>>, accessed 11 May 2021
- Burchi, F., 'Democracy, institutions and famines in developing and emerging countries', *Canadian Journal of Development Studies*, 32/1 (2011), pp. 17–31, <<https://doi.org/10.1080/02255189.2011.576136>>

- Burger, M. and Gundlach, J. M., *The Status of Climate Change Litigation: A Global Review* (Sabin Center for Climate Change Law, Columbia University, 2017), <<https://wedocs.unep.org/handle/20.500.11822/20767>>, accessed 23 August 2021
- Burnell, P., 'Democracy, democratization and climate change: complex relationships', *Democratization*, 19/5 (2012), pp. 813–42, <<https://doi.org/10.1080/13510347.2012.709684>>
- Cai, Y. and Aoyama, Y., 'Fragmented authorities, institutional misalignments, and challenges to renewable energy transition: A case study of wind power curtailment in China', *Energy Research & Social Science*, 41 (2018), pp. 71–79, <<https://doi.org/10.1016/j.erss.2018.04.021>>
- Calcuttawala, Z., 'The \$1.7 trillion oil industry isn't going anywhere', *OilPrice*, 23 October 2016, <<https://oilprice.com/Energy/Crude-Oil/The-17-Trillion-Oil-Industry-Isnt-Going-Anywhere.html>>, accessed 11 May 2021
- Calisto Friant, M., 'Deliberating for sustainability: lessons from the Porto Alegre experiment with participatory budgeting', *International Journal of Urban Sustainable Development*, 11/1 (2019), pp. 81–99, <<https://doi.org/10.1080/19463138.2019.1570219>>
- CAP Action, 'Here's everything you need to know about Trump's fossil fuel connections', *Medium*, 21 August 2019, <<https://medium.com/@CAPAction/heres-everything-you-need-to-know-about-trump-s-fossil-fuel-mafia-54eda20f4a8b>>, accessed 11 May 2021
- Carlin, R. E., Love, G. J. and Zechmeister, E. J., 'Natural disaster and democratic legitimacy: The public opinion consequences of Chile's 2010 earthquake and tsunami', *Political Research Quarterly*, 67/1 (2014), pp. 3–15, <<https://doi.org/10.1177/1065912913495592>>
- Center for Global Development, *Developed Countries Are Responsible for 79 Percent of Historical Carbon Emissions*, 8 August 2015, <<https://www.cgdev.org/media/who-caused-climate-change-historically>>, accessed 11 May 2021
- Chatsko, M., 'China's renewable energy growth isn't as good as it seems', *The Motley Fool*, 4 June 2018, <<https://www.fool.com/investing/2018/06/04/chinas-renewable-energy-growth-isnt-as-good-as-it.aspx>>, accessed 11 May 2021
- Chatzopoulos, T. et al., 'Climate extremes and agricultural commodity markets: A global economic analysis of regionally simulated events', *Weather and Climate Extremes*, 27 (2020), <<https://doi.org/10.1016/j.wace.2019.100193>>
- Climate Action Tracker, <<https://climateactiontracker.org>>, accessed 11 July 2021
- Climate Change Performance Index 2020, <<https://ccpi.org/>>, accessed 11 May 2021
- Clulow, Z., 'Democracy, electoral systems and emissions: explaining when and why democratization promotes mitigation', *Climate Policy*, 19/2 (2019), <<https://doi.org/10.1080/14693062.2018.1497938>>
- Council of Europe, *State of Democracy, Human Rights and the Rule of Law in Europe*, report by the Secretary General of the Council of Europe (Strasbourg: Council of Europe,

- 2014), <<https://edoc.coe.int/en/fundamental-freedoms/5949-state-of-democracy-human-rights-and-the-rule-of-law-in-europe.html>>, accessed 23 August 2021
- Day, J. W. and Hall, C., 'The myth of the sustainable city', *Scientific American*, 21 August 2016, <<https://www.scientificamerican.com/article/the-myth-of-the-sustainable-city/>>, accessed 11 May 2021
- Deakin Business School, 'Climate change fuels autocracy in island nations', Newsroom, 2 July 2019, <<https://businessnewsroom.deakin.edu.au/articles/climate-change-fuels-autocracy-in-island-nations>>, accessed 11 May 2021
- de Paz, C. et al., *Gender Dimensions of the Covid-19 Pandemic* (Washington, DC: World Bank Group, 2020), <<http://hdl.handle.net/10986/33622>>
- Docquier, F. et al., *Emigration and Democracy*, Discussion Paper No. 5496 (Bonn: Institute for the Study of Labour, 2011), <<https://doi.org/10.1596/1813-9450-5557>>
- Dodman, D., 'Blaming cities for climate change? An analysis of urban greenhouse gas emissions inventories', *Environment and Urbanization*, 21/1 (2009), pp. 185–201, <<https://doi.org/10.1177/0956247809103016>>
- Dunlap, R. E., 'Climate change scepticism and denial: an introduction', *American Behavioural Scientist*, 57 (2013), pp. 691–98, <<https://doi.org/10.1177/0002764213477097>>
- Elliott, J. R. and Pais, J., 'Race, class, and Hurricane Katrina: Social differences in human responses to disaster', *Social Science Research*, Katrina in New Orleans/Special Issue on Contemporary Research on the Family, 35/2 (2006), pp. 295–321, <<https://doi.org/10.1016/j.ssresearch.2006.02.003>>
- Eskander, S. and Fankhauser, S., 'Reduction in greenhouse gas emissions from national climate legislation', *Nature Climate Change*, 10 (2020), pp. 750–56, <<https://doi.org/10.1038/s41558-020-0831-z>>
- European Court of Human Rights, 'ECHR factsheet on past and pending cases related to the environment' (2021), <[https://www.echr.coe.int/Documents/FS\\_Environment\\_ENG.pdf](https://www.echr.coe.int/Documents/FS_Environment_ENG.pdf)>, accessed 11 May 2021
- Fiorino, D. J., *Can Democracy Handle Climate Change?* Democratic Futures Series (Cambridge: Polity Press, 2018)
- Food and Agriculture Organization of the United Nations (FAO), *The State of Agricultural Commodity Markets: High food prices and the food crisis – experiences and lessons learned* (Rome: FAO, 2009), <<http://www.fao.org/3/i0854e/i0854e.pdf>>, accessed 11 July 2021
- Fredriksson, P. G. and Neumayer, E., 'Democracy and climate change policies: Is history important?', *Ecological Economics*, 95 (2013), pp. 11–19, <<https://doi.org/10.1016/j.ecolecon.2013.08.002>>
- Fredriksson, P. G. and Svensson, J., 'Political instability, corruption and policy formation: The case of environmental policy', *Journal of Public Economics*, 87/7–8 (2003), pp. 1383–1405, <[https://doi.org/10.1016/S0047-2727\(02\)00036-1](https://doi.org/10.1016/S0047-2727(02)00036-1)>

- Freedom House, *Democracy under Lockdown: The Impact of Covid-19 on the Global Struggle for Freedom* (Washington, DC: Freedom House, 2020), <[https://freedomhouse.org/sites/default/files/2020-10/COVID-19\\_Special\\_Report\\_Final\\_.pdf](https://freedomhouse.org/sites/default/files/2020-10/COVID-19_Special_Report_Final_.pdf)>, accessed 11 May 2021
- Front Line Defenders, *Global Analysis 2019* (Dublin, Ireland, 2020) <[https://www.frontlinedefenders.org/sites/default/files/global\\_analysis\\_2019\\_web.pdf](https://www.frontlinedefenders.org/sites/default/files/global_analysis_2019_web.pdf)>, accessed 11 May 2021
- Gallagher, K. P. and Thacker, S. C., *Democracy, Income, and Environmental Quality*, Political Economy Research Institute Working Paper No.164 (Political Economy Research Institute, University of Massachusetts, 2008), <[https://scholarworks.umass.edu/peri\\_workingpapers/124/](https://scholarworks.umass.edu/peri_workingpapers/124/)>, accessed 23 August 2021
- Geisler, C. and Currens, B., 'Impediments to inland resettlement under conditions of accelerated sea level rise', *Land Use Policy*, 66 (2017), pp. 322–30, <<https://doi.org/10.1016/j.landusepol.2017.03.029>>
- Gilbert, D., *Stumbling on Happiness* (New York: Knopf Doubleday Publishing Group, 2006)
- Glass, L.-M. and Newig, J., 'Governance for achieving the Sustainable Development Goals: How important are participation, policy coherence, reflexivity, adaptation and democratic institutions?', *Earth System Governance*, 2 (2019), <<https://doi.org/10.1016/j.esg.2019.100031>>
- Global Witness, *Defending Tomorrow* (London: Global Witness, 2020), <<https://www.globalwitness.org/en/campaigns/environmental-activists/defending-tomorrow/>>, accessed 11 May 2021
- Golnaraghi, M. et al., *Climate Change Litigation: Insights into the evolving global landscape* (Zurich: The Geneva Association, 2021), <<https://www.genevaassociation.org/research-topics/climate-change-and-emerging-environmental-topics/climate-litigation>>, accessed 23 August 2021
- González-Ricoy, I. and Gosseries, A., *Institutions for Future Generations* (Oxford Scholarship Online, 2017), <<https://doi.org/10.1093/acprof:oso/9780198746959.001.0001>>
- Gould, C., 'Beyond the dual crisis: From climate change to democratic change', *Minding Nature*, 9/1 (Center for Humans & Nature, 2016), <<https://www.humansandnature.org/Beyond-the-Dual-Crisis-From-Climate-Change-to-Democratic-Change>>, accessed 11 May 2021
- Grafström, J., *Public Policy Failures Related to China's Wind Power Development*, Ratio Working Paper No. 320 (Stockholm: Ratio Institute, 2016), <<https://ratio.se/publikationer/ratio-working-paper-no-320-public-policy-failures-related-to-chinas-wind-power-development/>>, accessed 23 August 2021
- Graham, N., Carroll, W. K. and Chen, D., 'A network analysis of federal lobbying by the fossil fuel industry from Harper to Trudeau Canadian', *Canadian Political Science Review*, 14/1 (2020), pp. 1–31, <<https://ojs.unbc.ca/index.php/cpsr/article/view/1743>>, accessed 23 August 2021

- Grantham Research Institute on Climate Change and the Environment and Sabin Center for Climate Change Law, Climate Change Laws of the World database, 2021, <<https://climate-laws.org/>>, accessed 11 May 2021
- Han, S. M. and Chang, E. C. C., 'Economic inequality, winner-loser gap, and satisfaction with democracy', *Electoral Studies*, 44 (2016), pp. 85–97, <<https://doi.org/10.1016/j.electstud.2016.08.006>>
- Hardin, G., 'The tragedy of the commons', *Science*, 162/3859 (1968), pp. 1243–48, <<https://doi.org/10.1126/science.162.3859.1243>>
- Harmeling, S., *Global Climate Risk Index 2010: Who Is Most Vulnerable? Weather-Related Loss Events Since 1990 and How Copenhagen Needs to Respond*, Germanwatch Briefing Paper (Bonn: Germanwatch, 2009), <<https://germanwatch.org/en/2565>>, accessed 23 August 2021
- Head, B., 'Wicked problems in public policy', *Public Policy*, 3/2 (2008), pp. 101–18, <[https://www.researchgate.net/publication/43502862\\_Wicked\\_Problems\\_in\\_Public\\_Policy](https://www.researchgate.net/publication/43502862_Wicked_Problems_in_Public_Policy)>, accessed 23 August 2021
- Head, B. and Alford, J., 'Wicked problems: Implications for public policy and management', *Administration & Society*, 47/6 (2015), pp. 711–39, <<https://doi.org/10.1177/0095399713481601>>
- Heinonen, J. and Junnila, S., 'Implications of urban structure on carbon consumption in metropolitan areas', *Environmental Research Letters*, 6/1 (2011), <<https://doi.org/10.1088/1748-9326/6/1/014018>>
- Hendrix, C. S. and Haggard, S., 'Global food prices, regime type, and urban unrest in the developing world', *Journal of Peace Research*, 52/2 (2015), pp. 143–57, <<https://doi.org/10.1177/0022343314561599>>
- Hickman, L., 'James Lovelock: Humans are too stupid to prevent climate change', *The Guardian*, 29 March 2010, <<https://www.theguardian.com/science/2010/mar/29/james-lovelock-climate-change>>, accessed 11 May 2021
- Hobsbawm, E. J., *Globalisation, Democracy and Terrorism* (London: Little, Brown, 2007)
- Hoffmann, I. and de Vries, C., *The Power of the Past* (Bertelsmann Stiftung, 2018), <<https://eupinions.eu/de/text/the-power-of-the-past>>, accessed 23 August 2021
- Howell, J. and Elliott, J.R., 'Damages done: The longitudinal impacts of natural hazards on wealth inequality in the United States', *Social Problems*, 66/3 (2019), pp. 448–67, <<https://doi.org/10.1093/socpro/spy016>>
- Hsiang, S. M., Mars, M. and Burke, E. M., 'Quantifying the influence of climate on human conflict', *Science*, 341/6151 (2013), <<https://doi.org/10.1126/science.1235367>>
- Hsu, A. et al., 'Performance determinants show European cities are delivering on climate mitigation', *Nature Climate Change*, 10 (2020), pp. 1015–22, <<https://doi.org/10.1038/s41558-020-0879-9>>

- Hsu, S., 'China wages war on pollution while censoring activists', *Forbes*, 4 August 2016, <<https://www.forbes.com/sites/sarahsu/2016/08/04/china-wages-war-on-pollution-while-censoring-activists/>>, accessed 11 May 2021
- Hulme, M., *Why We Disagree About Climate Change: Understanding Controversy, Inaction and Opportunity* (Cambridge: Cambridge University Press, 2009), <<https://doi.org/10.1017/CBO9780511841200>>
- The Independent Panel for Pandemic Preparedness and Response, *COVID-19: Make it the Last Pandemic* (The Independent Panel, 2021), <[https://theindependentpanel.org/wp-content/uploads/2021/05/COVID-19-Make-it-the-Last-Pandemic\\_final.pdf](https://theindependentpanel.org/wp-content/uploads/2021/05/COVID-19-Make-it-the-Last-Pandemic_final.pdf)>, accessed 21 May 2021
- Influence Map, *Big Oil's Real Agenda on Climate Change* (London: Influence Map, 2019), <<https://influencemap.org/report/How-Big-Oil-Continues-to-Oppose-the-Paris-Agreement-38212275958aa21196dae3b76220bdbc>>, accessed 11 May 2021
- International IDEA, *Assessing the Quality of Democracy: A Practical Guide* (Stockholm: International IDEA, 2008), <<http://www.idea.int/publications/catalogue/assessing-quality-democracy-practical-guide>>, accessed 9 June 2021
- , *Taking Stock of Regional Democratic Trends in Asia and the Pacific Before and During the COVID-19 Pandemic*, Global State of Democracy in Focus Special Brief (Stockholm: International IDEA, 2020), <<https://doi.org/10.31752/idea.2020.66>>
- Intergovernmental Panel on Climate Change (IPCC), *Special Report, 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* (IPCC, October 2018), <<https://www.ipcc.ch/sr15/>>, accessed 23 August 2021
- , *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse gas fluxes in Terrestrial Ecosystems* (IPCC, 2019), <<https://www.ipcc.ch/srccl/>>, accessed 23 August 2021
- Investopedia, 'What percentage of the global economy consists of the oil and gas drilling sector?' (updated 9 July 2019), <<https://www.investopedia.com/ask/answers/030915/what-percentage-global-economy-comprised-oil-gas-drilling-sector.asp>>, accessed 11 May 2021
- Jacques, P. J., Dunlap, R. E. and Freeman, M., 'The organisation of denial: Conservative think tanks and environmental scepticism', *Environmental Politics*, 17/3 (2008), pp. 349–85, <<https://doi.org/10.1080/09644010802055576>>
- Jevrejeva, S. et al., 'Flood damage costs under the sea level rise with warming of 1.5°C and 2', *Environmental Research Letters*, 13/7 ) 074014 (2018), <<https://doi.org/10.1088/1748-9326/aacc76>>
- Joshi, P. and Beck, K., 'Democracy and carbon dioxide emissions: Assessing the interactions of political and economic freedom and the environmental Kuznets curve', *Energy*

- Research & Social Science*, 39 (May 2018), pp. 46–54, <<https://doi.org/10.1016/j.erss.2017.10.020>>
- Kahn, M. E. et al., *Long-Term Macroeconomic Effects of Climate Change: A Cross-Country Analysis*, IMF Working Paper No. 19/215 (Washington, DC: International Monetary Fund, 2019), <<https://doi.org/10.5089/9781513514598.001>>
- Kim, S., Baek, J. and Heo, E., ‘A new look at the democracy–environment nexus: Evidence from panel data for high- and low-income countries’, *Sustainability*, 11/8 (2019), pp. 1–14, <<https://doi.org/10.3390/su11082353>>
- Kochnar, R., *The Pandemic Stalls Growth in the Global Middle Class, Pushes Poverty Up Sharply* (Washington, DC: Pew Research Center, 2021), <<https://www.pewresearch.org/global/2021/03/18/the-pandemic-stalls-growth-in-the-global-middle-class-pushes-poverty-up-sharply/>>, accessed 11 May 2021
- Kollmann, A. and Reichl, J., ‘How trust in governments influences the acceptance of environmental taxes’, in F. Schneider, A. Kollmann and J. Reichl (eds), *Political Economy and Instruments of Environmental Politics* (Cambridge: MIT Press, 2015), pp. 53–70, <<https://doi.org/10.7551/mitpress/9780262029247.003.0004>>
- Kulin, J. and Johansson Sevä, I., ‘The role of government in protecting the environment: Quality of government and the translation of normative views about government responsibility into spending preferences’, *International Journal of Sociology*, 49/2 (2019), pp. 110–29, <<https://doi.org/10.1080/00207659.2019.1582964>>
- Kummu, M. et al., ‘Climate change risks pushing one-third of global food production outside the safe climatic space’, *One Earth*, 4/5 (2021), pp. 720–29, <<https://doi.org/10.1016/j.oneear.2021.04.017>>
- Landemore, H., *Open Democracy: Reinventing Popular Rule for the Twenty-First Century* (Princeton University Press, 2020), <<https://doi.org/10.23943/princeton/9780691181998.001.0001>>
- Laville, S., ‘Fossil fuel big five “spent €251m lobbying EU” since 2010’, *The Guardian*, 24 October 2019, <https://www.theguardian.com/business/2019/oct/24/fossil-fuel-big-five-spent-251m-lobbying-european-union-2010-climate-crisis>, accessed 23 August 2021
- Le Quéré, C. et al., ‘Global Carbon Budget 2018’, *Earth System Science Data*, 10 (2018), pp. 2141–94, <<https://doi.org/10.5194/essd-10-2141-2018>>
- Levin, K. et al., ‘Overcoming the tragedy of super wicked problems: constraining our future selves to ameliorate global climate change’, *Policy Sciences*, 45 (2012), pp. 123–52, <<https://doi.org/10.1007/s11077-012-9151-0>>
- Lin, T.-H., ‘Governing natural disasters: State capacity, democracy, and human vulnerability’, *Social Forces*, 93/3 (2015), pp. 1267–1300, <<https://doi.org/10.1093/sf/sou104>>
- Lindvall, D., Vowles, K. and Hultman, M., *Upphettning. Demokratin i klimatkrisens tid* (Stockholm: Fri tanke, 2020)

- Lokrantz J., Planetary boundaries (figure), Azote based on Steffen et al. 2015, <<https://www.stockholmresilience.org/research/planetary-boundaries.html>>, accessed 17 August 2021
- Looney, R., ‘Democracy is the answer to climate change’, *Foreign Policy*, 1 June 2016, <<https://foreignpolicy.com/2016/06/01/democracy-is-the-answer-to-climate-change/>>, accessed 11 May 2021
- López, R. and Mitra, S., ‘Corruption, pollution, and the Kuznets environment curve’, *Journal of Environmental Economics and Management*, 40/2 (2000), pp. 137–50, <<https://doi.org/10.1006/jeem.1999.1107>>
- Luo, G.-L., ‘Wind curtailment of China’s wind power operation: Evolution, causes and solutions’, *Renewable and Sustainable Energy Reviews*, 53 (2016), pp. 1190–201, <<https://doi.org/10.1016/j.rser.2015.09.075>>
- Lustgarten, A., ‘The great climate migration’, *New York Times*, 23 July 2020, <<https://www.nytimes.com/interactive/2020/07/23/magazine/climate-migration.html>>, accessed 11 May 2021
- Maldini, P. and Takahashi, M., ‘Refugee crisis and the European Union: Do the failed migration and asylum policies indicate a political and structural crisis of European integration?’, *Communication Management Review*, 2/2 (2017), pp. 54–72, <<https://doi.org/10.22522/cmr20170223>>
- Mäler, K.-G., ‘Economic Growth and the Environment’, in *Encyclopedia of Biodiversity* (Academic Press, 2001), <<https://doi.org/10.1016/B0-12-226865-2/00084-5>>
- McCright, A. M. and Dunlap, R. E., ‘The politicization of climate change and polarization in the American public’s views of global warming, 2001–2010’, *The Sociological Quarterly*, 52/2 (2011), <<https://doi.org/10.1111/j.1533-8525.2011.01198.x>>
- McQuilkin, J., ‘Doing justice to the future: A global index of intergenerational solidarity derived from national statistics’, *Intergenerational Justice Review*, 4/1 (2018), <<https://doi.org/10.24357/igjr.12.1.639>>
- Meadowcroft, J., ‘Who is in charge here? Governance for sustainable development in a complex world’, *Journal of Environmental Policy & Planning*, 9 (2007), pp. 299–214, <<https://doi.org/10.1080/15239080701631544>>
- Milman, O., ‘Earth has lost a third of arable land in past 40 years, scientists say’, *The Guardian*, 2 December 2015, <<https://www.theguardian.com/environment/2015/dec/02/arable-land-soil-food-security-shortage>>, accessed 11 May 2021
- Morris, C. and Jungjohann, A., *Energy Democracy: Germany’s Energiewende to Renewables* (London: Palgrave Macmillan, 2016), <<https://doi.org/10.1007/978-3-319-31891-2>>
- Mounk, Y., *The People vs. Democracy: Why Our Freedom Is in Danger and How to Save It* (Harvard University Press, 2018), <<https://doi.org/10.4159/9780674984776>>
- Murray, D., ‘Will climate change the courts?’, *The Atlantis*, Winter 2019, <<https://www.thenewatlantis.com/publications/will-climate-change-the-courts>>, accessed 11 May 2021

- Murray, P. and Longo, M., 'Europe's wicked legitimacy crisis: the case of refugees', *Journal of European Integration*, 40/4 (2018), pp. 411–25, <<https://doi.org/10.1080/07036337.2018.1436543>>
- Nachmany, M. and Setzer, J., *Global Trends in Climate Change Legislation and Litigation: 2018 snapshot*. Policy Brief (London: Grantham Research Institute on Climate Change and the Environment, 2018), <<https://www.lse.ac.uk/granthaminstitute/publication/global-trends-in-climate-change-legislation-and-litigation-2018-snapshot/>>, accessed 23 August 2021
- Naegele, H. and Zaklan, A., 'Does the EU ETS cause carbon leakage in European manufacturing?', *Journal of Environmental Economics and Management*, 93 (2019), pp. 125–47, <<https://doi.org/10.1016/j.jeem.2018.11.004>>
- Nguebou, J. D. and Noupéou, A., 'Inclusive policies need inclusive policymaking – participatory budgeting in Cameroon', *Urbanet*, 11 August 2020, <<https://www.urbanet.info/participatory-budgeting-in-cameroon/>>, accessed 21 July 2021
- Nightingale, E., *A Critical Analysis of the Relationship between Democracy and Corruption*, *E-International Relations*, (2015), <<https://www.e-ir.info/2015/12/20/a-critical-analysis-of-the-relationship-between-democracy-and-corruption/>>, accessed 11 May 2021
- Nisbet, M. C., *Climate Shift: Clear Vision for the Next Decade of Public Debate* (Washington, DC: American University School of Communication, 2011)
- Nordhaus, W., 'Projections and uncertainties about climate change in an era of minimal climate policies', *American Economic Journal: Economic Policy*, 10/3 (2018), pp. 333–60, <<https://doi.org/10.1257/pol.20170046>>
- North, P., 'The politics of climate activism in the UK: A social movement analysis', *Environment and Planning A: Economy and Space*, 43/7 (2011), pp. 1581–98, <<https://doi.org/10.1068/a43534>>
- OECD, *Investing in Climate, Investing in Growth* (Paris: Organisation for Economic Co-operation and Development, 2017), <<https://doi.org/10.1787/9789264273528-en>>
- OECD Stat, Greenhouse gas emissions (database), Organisation for Economic Co-operation and Development, <[https://stats.oecd.org/Index.aspx?DataSetCode=AIR\\_GHG](https://stats.oecd.org/Index.aspx?DataSetCode=AIR_GHG)>, accessed 11 May 2021
- Ojala, M. and Lakew, Y., 'Young People and Climate Change Communication', *Oxford Research Encyclopedia of Climate Science* (2017), <<https://doi.org/10.1093/acrefore/9780190228620.013.408>>
- Oross, D., Mátyás, E. and Gherghina, S., 'Sustainability and politics: Explaining the emergence of the 2020 Budapest Climate Assembly', *Sustainability* 2021, 13 (2021), 6100, <<https://doi.org/10.3390/su13116100>>
- Ostrom, E., *Governing the Commons. The Evolution of Institutions for Collective Action* (Cambridge, UK: Cambridge University Press, 2009), <<https://doi.org/10.1017/CBO9780511807763>>

- , ‘Green from the grassroots’, Project Syndicate, 12 June 2012 <<https://www.project-syndicate.org/commentary/green-from-the-grassroots>>, accessed 11 May 2021
- Our World in Data, ‘Global CO2 emissions’ (dataset from Global Carbon Project, 2021), <<https://ourworldindata.org/co2-emissions>>, accessed 14 June 2021
- Oxfam and Stockholm Environment Institute (SEI), *The Carbon Inequality Era* (2020), <<https://cdn.sei.org/wp-content/uploads/2020/09/research-report-carbon-inequality-era.pdf>>, accessed 11 May 2021
- Pacheco-Vega, R. and Murdie, A., ‘When do environmental NGOs work? A test of the conditional effectiveness of environmental advocacy’, *Environmental Politics* 30/1–2 (2020), pp. 180–201, <<https://doi.org/10.1080/09644016.2020.1785261>>
- Paroussos, L. et al., ‘Assessment of carbon leakage through the industry channel: The EU perspective’, *Technological Forecasting and Social Change*, 90 (2015), pp. 204–19, <<https://doi.org/10.1016/j.techfore.2014.02.011>>
- Patt, A., ‘Beyond the tragedy of the commons: Reframing effective climate change governance’, *Energy Research & Social Science*, 34 (2017), pp. 1–3, <<https://doi.org/10.1016/j.erss.2017.05.023>>
- Peters, B. G. and Tarpey, M., ‘Are wicked problems really so wicked?’, *Policy and Society*, 38/2 (2019), pp. 218–36, <<https://doi.org/10.1080/14494035.2019.1626595>>
- Pellegrini, L. and Gerlagh, R., ‘Corruption, democracy, and environmental policy: An empirical contribution to the debate’, *The Journal of Environment & Development*, 15/3 (2006), pp. 332–54, <<https://doi.org/10.1177/1070496506290960>>
- Perry, B. and Aronson, B., ‘Pandemic precarity: Covid-19 is exposing and exacerbating inequalities in the American heartland’, *Proceedings of the National Academy of Sciences*, 118/8 e2020685118 (2021), <<https://doi.org/10.1073/pnas.2020685118>>
- Pitron, G., ‘China’s army of green activists’, Gulf News UAE, 11 August 2017, <<https://gulfnews.com/uae/environment/chinas-army-of-green-activists-1.2071769>>, accessed 11 May 2021
- Pokharel, T. et al., *Political Economy Analysis of Post-Earthquake Reconstruction in Nepal: An Assessment of Emerging Role of Local Governments* (Kathmandu: Nepal Administrative Staff College and The Asia Foundation, 2018), <<https://asiafoundation.org/publication/political-economy-analysis-of-post-earthquake-reconstruction-in-nepal/>>, accessed 23 August 2021
- Povitkina, M., ‘The limits of democracy in tackling climate change’, *Environmental Politics*, 27/3 (2018), pp. 411–32, <<https://doi.org/10.1080/09644016.2018.1444723>>
- Povitkina, M. and Jagers, C. S., *Environmental Commitments in Different Types of Democracies: The Role of Liberal, Social-Liberal, and Deliberative Politics*, V-Dem Working Paper No. 117 (Gothenberg: V-Dem Institute, 2021), <<https://doi.org/10.2139/ssrn.3810624>>
- Powell, J. L., *The Inquisition of Climate Science. The organisation of denial: Conservative think tanks and environmental scepticism* (Columbia University Press, 2012)

- Przeworski, A., 'Democracy and economic development', in E. D. Mansfield and R. Sisson (eds), *Political Science and the Public Interest* (Columbus: Ohio State University Press, 2004)
- Rahman, M. H. et al., 'Can extreme rainfall trigger democratic change? The role of flood-induced corruption', *Public Choice*, 171 (2017), pp. 331–58, <<https://doi.org/10.1007/s11127-017-0440-1>>
- Rahmstorf, S. and Coumou, D., 'Increase of extreme events in a warming world', *Proceedings of the National Academy of Sciences*, 108/44 (2011), pp. 17905–909, <<https://doi.org/10.1073/pnas.1101766108>>
- Ribot, J., *Waiting for Democracy: The Politics of Choice in Natural Resource Decentralization* (Washington, DC: World Resources Institute, 2004)
- Rich, N., 'Losing earth: The decade we almost stopped climate change'. *The New York Times*, 1 August 2018, <<https://www.nytimes.com/interactive/2018/08/01/magazine/climate-change-losing-earth.html>>, accessed 19 August 2021
- Rittel, H. and Webber, M. M., 'Dilemmas in a general theory of planning', *Policy Sciences*, 4 (1973), pp. 155–69, <<https://doi.org/10.1007/BF01405730>>
- Rivlin, G., 'White New Orleans has recovered from Hurricane Katrina. Black New Orleans has not', *Talk Poverty*, 29 August 2016, <<https://talkpoverty.org/2016/08/29/white-new-orleans-recovered-hurricane-katrina-black-new-orleans-not/>>, accessed 23 August 2021
- Rockström, J. et al., 'Planetary boundaries: exploring the safe operating space for humanity', *Ecology and Society*, 14/2, article 32, <<http://www.ecologyandsociety.org/vol14/iss2/art32/>>, accessed 23 August 2021
- Rubin, O., 'The merits of democracy in famine protection—fact or fallacy?', *European Journal of Development Research*, 21 (2009), pp. 699–717, <<https://doi.org/10.1057/ejdr.2009.37>>
- Selby, J. et al., 'Climate change and the Syrian civil war revisited', *Political Geography*, 60 (2017), pp. 232–44, <<https://doi.org/10.1016/j.polgeo.2017.05.007>>
- Sen, A., *Development as Freedom* (New York: Oxford University Press, 1999)
- Setzer, J. and Vanhala, L. C., 'Change litigation climate change litigation: A review of research on courts and litigants in climate governance', *Wiley interdisciplinary reviews, Climate Change* 10/5 (2019), <<https://doi.org/10.1002/wcc.580>>
- Shearman, D. J. C., *The Climate Change Challenge and the Failure of Democracy. Politics and the Environment* (Westport: Praeger, 2007)
- Slater, J., 'Can India chart a low-carbon future? The world might depend on it', *Washington Post*, 12 June 2020, <<https://www.washingtonpost.com/climate-solutions/2020/06/12/india-emissions-climate/>>, accessed 11 May 2021

- Sova, C., 'The First Climate Change Conflict'. World Food Program USA, 30 November 2017, <<https://www.wfpusa.org/stories/the-first-climate-change-conflict/>>, accessed 19 August 2021
- Speiser, M. et al., 'American Climate Perspectives Survey 2019, Vol II: Climate Attitudes Differ in Rural, Suburban, Urban Living', 2019, ecoAmerica and Lake Research Partners, <<https://ecoamerica.org/american-climate-perspectives-survey-2019-vol-ii/>>, accessed 23 August 2021
- Steenvoorden, E. and Hartevelde, E., 'The appeal of nostalgia: the influence of societal pessimism on support for populist radical right parties', *West European Politics*, 41/1 (2017), pp. 28–52, <<https://doi.org/10.1080/01402382.2017.1334138>>
- Steffen, W. et al., 'Trajectories of the Earth System in the Anthropocene', *Proceedings of the National Academy of Sciences*, 115/33 (2018), pp. 8252–59, <<https://doi.org/10.1073/pnas.1810141115>>
- Steffen, G., 'Changing climate forces desperate Guatemalans to migrate', *National Geographic*, 23 October 2018, <<https://www.nationalgeographic.com/environment/article/drought-climate-change-force-guatemalans-migrate-to-us>>, accessed 23 August 2021
- Stehr, N., 'Exceptional circumstances: Does climate change Trump democracy?' *Issues in Science and Technology*, 14 March 2016, <<https://issues.org/exceptional-circumstances-does-climate-change-trump-democracy/>>, accessed 11 May 2021
- Stern, N., *The Economics of Climate Change: The Stern Review* (Cambridge, UK: Cambridge University Press, 2007), <<https://doi.org/10.1017/CBO9780511817434>>
- Stoknes, P. E., *What We Think About When We Try Not to Think About Global Warming: Toward a new psychology of climate action* (Chelsea Green Publishing, 2015), <[https://www.researchgate.net/publication/280683963\\_What\\_We\\_Think\\_About\\_When\\_We\\_Try\\_Not\\_To\\_Think\\_About\\_Global\\_Warming](https://www.researchgate.net/publication/280683963_What_We_Think_About_When_We_Try_Not_To_Think_About_Global_Warming)>, accessed 23 August 2021
- Supran, G. and Oreskes, N., 'Assessing ExxonMobil's climate change communications (1977–2014)', *Environmental Research Letters*, 12 (2017), 084019, <<https://doi.org/10.1088/1748-9326/aa815f>>
- Tauli-Corpuz, V., 'End of Mission Statement by the United Nations Special Rapporteur on the rights of indigenous peoples, Victoria Tauli-Corpuz of her visit to the United States of America', United Nations Office of the High Commissioner for Human Rights, 3 March 2017, <<https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=21274>>, accessed 11 May 2021
- Taylor, M., 'Environment protest being criminalised around world', *The Guardian*, 19 April 2021, <<https://www.theguardian.com/environment/2021/apr/19/environment-protest-being-criminalised-around-world-say-experts>>, accessed 11 May 2021
- Termeer, C., Dewulf, A. and Biesbroek, R., 'A critical assessment of the wicked problem concept', *Politics and Society*, 38 (2019), pp. 167–79, <<https://doi.org/10.1080/14494035.2019.1617971>>

- Thornton, P. K., 'Livestock production: recent trends, future prospects', *Philosophical Transactions of the Royal Society B: Biological Sciences*, 365/1554 (2010), pp. 2853–67, <<https://doi.org/10.1098/rstb.2010.0134>>
- Tørstad, V., Sælen, H. and Bøyum, L., 'The domestic politics of international climate commitments: Which factors explain cross-country variation in NDC ambition?', *Environmental Research Letters*, 15/2 (2020), <<https://doi.org/10.1088/1748-9326/ab63e0>>
- Transparency International, *Global Corruption Report: Climate Change* (Berlin: Transparency International, 2011), <[https://images.transparencycdn.org/images/2011\\_GCRclimatechange\\_EN.pdf](https://images.transparencycdn.org/images/2011_GCRclimatechange_EN.pdf)>, accessed 11 May 2021
- , 'How corruption weakens democracy' (Berlin: Transparency International), 29 January 2019, <<https://www.transparency.org/en/news/cpi-2018-global-analysis>>, accessed 11 May 2021
- Turnpenny, J., Lorenzoni, I. and Jones, M., 'Noisy and definitely not normal: Responding to wicked issues in the environment, energy and health', *Environmental Science & Policy*, 12/3 (2009), pp. 347–58, <<https://doi.org/10.1016/j.envsci.2009.01.004>>
- Uddin, M., 'A comparative analysis of climate change performance: Democracy vs. authoritarianism', *Columbia Economic Review*, 9 March 2017 United Nations Development Programme (UNDP), 'Overview of linkages between gender and climate change', Policy Brief 1 (New York: UNDP, 2013), <<https://www.undp.org/content/dam/undp/library/gender/Gender%20and%20Environment/Policy-Brief-Overview-of-linkages-between-gender-and-climate-change.pdf>>, accessed 23 August 2021
- United Nations Economic Commission for Latin America and the Caribbean (UN ECLAC), *Honduras: assessment of the damage caused by hurricane Mitch, 1998: implications for economic and social development and for the environment* (UN ECLAC, 1999), <<https://EconPapers.repec.org/RePEc:ecr:col094:25506>>, accessed 11 May 2021
- United Nations Environment Programme (UNEP), *Are We Building Back Better? Evidence from 2020 and Pathways for Inclusive Green Recovery Spending* (Geneva: UNEP, 2021), <<https://www.unep.org/resources/publication/are-we-building-back-better-evidence-2020-and-pathways-inclusive-green>>, accessed 11 May 2021
- United Nations Security Council, 'Already up 20 per cent, acute hunger driven by conflict, instability risks increasing further due to climate change, Covid-19', press release, 11 March 2021, <<https://www.un.org/press/en/2021/sc14463.doc.htm>>, accessed 11 May 2021
- Varraich, A. and Rothstein, B., *Making Sense of Corruption* (Cambridge, UK: Cambridge University Press, 2017), <<https://doi.org/10.1017/9781316681596>>
- Weaver, S., Lötjönen, S. and Ollikainen, M., *Overview of National Climate Change Advisory Councils*, The Finnish Climate Change Panel Report, Vol. 2019, No. 3, <<https://www.ilmastopaneeli.fi/wp-content/uploads/2019/05/Overview-of-national-CCCs.pdf>>, accessed 23 August 2021

- Weber, E. U. and Stern, P. C., 'Public understanding of climate change in the United States', *American Psychologist*, 66/4 (2011), pp. 315–28, <<https://doi.org/10.1037/a0023253>>
- Welsch, H., 'Corruption, growth, and the environment: a cross-country analysis', *Environment and Development Economics*, 9/5 (2004), pp. 663–93, <<https://doi.org/10.1017/S1355770X04001500>>
- Werrell, C. E., Femia, F. and Slaughter, A.-M., *The Arab Spring and Climate Change*, A Climate and Security Correlations Series (Washington, DC: Center for American Progress, 2013), <<https://www.americanprogress.org/issues/security/reports/2013/02/28/54579/the-arab-spring-and-climate-change/>>, accessed 23 August 2021
- , 'Did we see it coming? State fragility, climate vulnerability, and the uprisings in Syria and Egypt', *SAIS Review of International Affairs*, 35/1 (2015), pp. 29–46, <<https://doi.org/10.1353/sais.2015.0002>>
- Wike, R., *What the World Thinks About Climate Change in 7 Charts* (Washington, DC: Pew Research Center, 2016), <<https://www.pewresearch.org/fact-tank/2016/04/18/what-the-world-thinks-about-climate-change-in-7-charts/>>, accessed 11 May 2021
- Winslow, M., 'Is democracy good for the environment?', *Journal of Environmental Planning and Management*, 48/5 (2005), pp. 771–83, <<https://doi.org/10.1080/09640560500183074>>
- World Bank, *Reversals of Fortune. Poverty and Shared Prosperity Report* (Washington, DC: World Bank, 2021), <<https://www.worldbank.org/en/publication/poverty-and-shared-prosperity>>, accessed 11 May 2021
- World Food Programme (WFP), Food Security and Emigration. Why people flee and the impact on family members left behind in El Salvador, Guatemala and Honduras (Rome: WFP, 2019), <[https://docs.wfp.org/api/documents/WFP-0000019629/download/?\\_ga=2.77446165.1050565135.1561015053-173136329.1561015053](https://docs.wfp.org/api/documents/WFP-0000019629/download/?_ga=2.77446165.1050565135.1561015053-173136329.1561015053)>, accessed 11 May 2021
- WWF, *The Growth of Soy: Impacts and Solutions* (Gland, Switzerland: WWF International, 2014), <[http://awsassets.wwfdk.panda.org/downloads/wwf\\_soy\\_report\\_final\\_jan\\_19.pdf](http://awsassets.wwfdk.panda.org/downloads/wwf_soy_report_final_jan_19.pdf)>, accessed 11 May 2021
- Xu, C. et al., 'Future of the human climate niche', *Proceedings of the National Academy of Sciences*, 117/21 (2020), pp. 11350–355, <<https://doi.org/10.1073/pnas.1910114117>>
- Yeo, S., 'Where climate cash is flowing and why it's not enough', *Nature*, 17 September 2019, <<https://www.nature.com/articles/d41586-019-02712-3>>, accessed 8 June 2021

## About the author

---

**Daniel Lindvall** has a PhD in sociology and is a researcher at the Climate Change Leadership Initiative at the Department of Earth Sciences in Uppsala University. He has written several books on the issues of climate change and democracy and has for several years worked on democratic affairs for the Swedish government as well as for international organizations. He was the Principle Inquire Secretary for the Swedish Government's Democracy Commission in 2014-2016.

## About International IDEA

---

The International Institute for Democracy and Electoral Assistance (International IDEA) is an intergovernmental organization with the mission to advance democracy worldwide, as a universal human aspiration and enabler of sustainable development. We do this by supporting the building, strengthening and safeguarding of democratic political institutions and processes at all levels. Our vision is a world in which democratic processes, actors and institutions are inclusive and accountable and deliver sustainable development to all.

### What do we do?

In our work we focus on three main impact areas: electoral processes; constitution-building processes; and political participation and representation. The themes of gender and inclusion, conflict sensitivity and sustainable development are mainstreamed across all our areas of work.

International IDEA provides analyses of global and regional democratic trends; produces comparative knowledge on good international democratic practices; offers technical assistance and capacity-building on democratic reform to actors engaged in democratic processes; and convenes dialogue on issues relevant to the public debate on democracy and democracy building.

### Where do we work?

Our headquarters is located in Stockholm, and we have regional and country offices in Africa, the Asia-Pacific, Europe, and Latin America and the Caribbean. International IDEA is a Permanent Observer to the United Nations and is accredited to European Union institutions.

<<http://idea.int>>

Climate change poses an existential threat for humanity and has become the defining issue of our time. The outcome of the climate crisis will depend on whether democracies can drastically reduce their carbon footprints in the coming years. Climate change already has an impact on democratic governance through its effects on food security, conflicts, water scarcity, migration and natural disasters, among other consequences. Climate change also tests the ways in which democracies cooperate and collectively confront issues of relevance to humankind. Democracies need to formulate and put in place effective responses to climate change to respond to the needs of the current and future generations.

Climate change actions in democracies face perceived challenges such as short-term bias in decision-making, policy capture or inconsistency, weak accountability mechanisms and the permeability of the policy-making process to interests adverse to fighting climate change through the role of money in politics. Apart from its intrinsic value to citizens, democracy also brings critical advantages in formulating effective climate policy, such as representative parliaments which can hold governments to account, widespread civic participation, independent media and a free flow of information, the active engagement by civil society organizations in policymaking and the capacity for institutional learning in the face of complex issues with long-term and global social and political implications. International IDEA's work on change and democracy aims to support democratic institutions to successfully confront the climate crisis by leveraging their advantages and overcoming the challenges to formulating effective and democratically owned climate policy agendas.



**International IDEA**  
Strömsborg  
SE-103 34 Stockholm  
Sweden  
Telephone: +46 8 698 37 00  
Email: [info@idea.int](mailto:info@idea.int)  
Web site: <https://www.idea.int>