

PAPER • OPEN ACCESS

Youth movements, intergenerational justice, and climate litigation in the deep time context of the Anthropocene

To cite this article: Louis J Kotzé and Henrike Knappe 2023 *Environ. Res. Commun.* **5** 025001

View the [article online](#) for updates and enhancements.

You may also like

- [Analysis of Occupation Intergenerational Mobility Mechanism: Based on the Perspective of Floating Population and Registered Residence System](#)
Yating Chen
- [High energy burden and low-income energy affordability: conclusions from a literature review](#)
Marilyn A Brown, Anmol Soni, Melissa V Lapsa et al.
- [Digitalisation in Construction as an Educational Challenge for Universities](#)
Jan Lojda, Otakar Nmec, Vladimír Nývlt et al.

Environmental Research Communications



PAPER

Youth movements, intergenerational justice, and climate litigation in the deep time context of the Anthropocene

OPEN ACCESS

RECEIVED

5 October 2022

REVISED

23 November 2022

ACCEPTED FOR PUBLICATION

8 December 2022

PUBLISHED

3 February 2023

Original content from this work may be used under the terms of the [Creative Commons Attribution 4.0 licence](#).

Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.

Louis J Kotzé^{1,*}  and Henrike Knappe² 

¹ Faculty of Law, North-West University, South Africa; Law School, University of Lincoln, United Kingdom; Research Institute for Sustainability Helmholtz Centre Potsdam, Potsdam, Germany

² Technical University Berlin, Germany; Research Institute for Sustainability Helmholtz Centre Potsdam, Potsdam, Germany

* Author to whom any correspondence should be addressed.

E-mail: louis.kotze@nwu.ac.za

Keywords: intergenerational justice, climate litigation, climate activism, youth movements, Anthropocene, *Neubauer et al* versus Germany, deep time

Abstract

After decades of ineffective state-led global climate governance that has been dominated by mostly short-term Northern political and corporate interests, we are now witnessing an increased recognition of the planetary scale of the climate crisis and its impacts on present and future life on Earth. The Anthropocene is argued to be the new geological epoch and is associated with fast-approaching planetary boundaries and a new understanding of promethean humans as a powerful geological force. The Anthropocene introduces a new context for thinking about the climate crisis and its associated multiple patterns of differentially distributed injustices, including the temporal aspects of justice. At the same time, the climate crisis prompts the need to embark on new strategies to ensure a safe and just operating space for all present and future generations within planetary limits. While traditionally marginalized in national, regional and United Nations political fora, and largely ignored by the high rhetoric of multilateral environmental agreements that have been unable to operationalize intergenerational justice in day-to-day governance, young people are now actively claiming their position as representatives of present and future generations. They do so through protests, but also through more formal avenues to deliberately assert claims for intergenerational justice. One increasingly popular and often successful strategy is climate litigation. In this paper, we explore the shift in understanding and the practicing of intergenerational justice in the deep time context of the Anthropocene, and how young people are becoming more powerful political actors that use climate litigation to ensure intergenerational justice. We briefly reflect on the 2021 decision of the German Constitutional Court in *Neubauer et al versus Germany* as an example of successful youth-led climate litigation.

1. Introduction

Future generations are often invisible in daily political practices for the simple reason that they do not yet exist, while legal and political processes do not meaningfully enable representation of non-existing people that will only be born in future (e.g., Gonzalez-Ricoy and Rey 2019, Slobodian 2020). Sustainability scholars and advocates have long argued for greater consideration of future generations' interests in these political and legal processes, but with little tangible success (e.g., Weiss 1989, Caney 2018). Our basic proposal is that this inertia and situation of under-representation will need to change in the light of the Anthropocene crisis, where 'alarming climatic, ecological, and public health trends are unfolding with little evidence of abating [and] the convergence of these trends could lead to a comprehensive crisis where multiple risks materialize in reinforcing ways' (Kennel 2021: 83). The Anthropocene is the proposed new geological epoch (Crutzen 2002, Zalasiewicz *et al* 2019), and it introduces a new planetary context to critically consider more effective ways that could help ensure the planetary boundaries' safe operating space remain intact (Rockström *et al* 2009, Persson *et al* 2022,

Wang-Erlandsson *et al* 2022), and above all, *just*, not only for present but also for future generations (McAlpine *et al* 2015, Adelman 2021).

In this paper we focus on the increasingly important and influential role that youth movements are playing in ensuring justice for future generations as a key element of efforts to maintain a safe and just operating space in the context of the Anthropocene. There is a growing mobilization of young people in many different climate movements;³ one of the most prominent being Fridays for Future (FFF). Although youth movements are not a new phenomenon, there is nevertheless something peculiar about the emerging climate movement, namely activists are often very young children and comparably younger than people in past youth movements (Sommer *et al* 2019). Furthermore, young people involved in the current climate movement often claim for themselves to represent future generations and thus use their representation of future generations as self-empowerment (Wahlström *et al* 2019). They do so informally through protests, and more formally in legal processes through climate litigation (Slobodian 2020). Collectively, these efforts are starting to shift, more tangibly, the image of future generations from absent and distant unborn generations to living and present young people who already suffer, and will continue to suffer far into the future, from the climate crisis at a disproportionately higher level than older people.

While there is a large body of literature on future generations, the Anthropocene, and climate litigation, we endeavour to make an original contribution by exploring the role of youth marginalization and (dis)empowerment in the context of the Anthropocene's deep time. We aim to show that while the deep time temporal (dis)order of the Anthropocene changes our understanding of time, the vulnerability of young people is not a distant future concern any longer, but instead manifests itself in their present lived realities in the form of sudden or slow onset, and often catastrophic, climate events. Worryingly though, young people remain largely politically disempowered to do anything about their vulnerability and the multiple patterns of climate injustice that affect them (Parker *et al* 2022). Thus, planetary governance in the Anthropocene must also tackle the question of intergenerational injustice (Burch *et al* 2019), including specifically regarding young people. By outlining opportunities to make way for more ambitious, radical, and forward-looking youth-driven interventions, we present youth led climate litigation as one example of such an innovative political-legal strategy.

We commence the discussion with a brief reflection upon the temporal context of the Anthropocene and what it means for social institutions such as law and politics. We particularly focus on the deep time aspects of the Anthropocene, and on what the implications of these could be for future justice considerations amidst the planet's continuously shrinking safe operating space. We then investigate which types of new political practices are emerging from the planetary context of the Anthropocene, including its clear demands for intergenerational justice and the associated responsibility for historical causes of the climate crisis. Here, we focus on the role of young people and their (still) limited opportunities to become fully acknowledged political citizens.

One promising legal-political practice that is arising as a response to the marginalization of young people in politics is climate litigation. Climate litigation involving youth claimants is a relatively new phenomenon and much has been written on this topic (e.g., Jourdan and Wertin 2020). A recent study identifies 32 youth-led cases that have been filed in countries in the global North and global South, as well as in regional and international fora (Parker *et al* 2022). A particularly prominent case that is often discussed is *Juliana versus The United States* (e.g., Powers 2018). To avoid a repetition of extant views on youth-led climate litigation, and with a view to adding to the existing literature, we focus on the 2021 decision of the German Constitutional Court in *Neubauer et al versus Germany* in the final part of this paper. As one of the most recent examples of youth led climate litigation, the decision highlights how young people can assert claims for intergenerational justice before a court that is open to innovatively accommodate their claims. We believe the Neubauer decision merits specific attention because it is particularly sensitive to the temporal aspects of climate change and the resultant impacts on future generations. It also clearly emphasises the urgent need for present laws and political institutions to ensure that future generations do not suffer disproportionately from climate mitigation burdens, while acknowledging that these institutions must also offer better care for young people and future generations (Kotzé 2021). Our brief discussion aims to add to the recently emerging scholarship on the case (e.g., Buser 2021, Callies 2021, Kotzé 2021, Pittel 2021, Minnerop 2022).

2. The Anthropocene: a new deep time governance context

Humans have become powerful geological agents. We are exerting a telluric force that is changing the planet in ways that no living beings before us have managed to do. We have possibly entered the Anthropocene (*Anthropos* meaning 'human' and *cene* meaning 'new/recent'); a term that was introduced two decades ago by the late Nobel

³ We refer in this paper mainly to young people, defined by the United Nations as the age group of 15-24 years. However, children in the age group of 0-14 years are also often included in studies of young people (e.g., <https://www.un.org/en/global-issues/youth>), which is why we differentiate between these two age groups.

Laureate, Paul Crutzen (2002). The Anthropocene is characterized by, among others, rapidly decreasing Earth system resilience; increasing zoonic diseases; intensified, differentially distributed vulnerabilities and multi-species injustices that characterize the uneven world order; the rise of geopolitical conflicts; and possibly even a sixth mass extinction event (Waters *et al* 2016). Several studies now confirm the extent, depth and severity of the planetary emergency that we observe through the lens of the Anthropocene (e.g., Steffen *et al* 2015a), and there is ample scientific evidence that human activities have ‘transformed the Earth’s natural systems, exceeding their capacity and disrupting their self-regulatory mechanisms, with irreversible consequences for global humanity’ (UNEP 2019).

The extent of planetary decay is evident through the planetary boundaries framework (Rockström *et al* 2009, Steffen *et al* 2015b). This framework is an attempt to quantify the ‘safe operating space’ for Earth system processes and sub-systems that determine whether the Earth system can be kept in a stable state comparable with the equilibrium conditions in the Holocene (Steffen *et al* 2018). In this sense, the boundaries symbolize guardrails that delineate the extent to which the sum of human activities can perturb the Earth system without risking an irreversible departure from relative benign Holocene stability (Rockström *et al* 2009, Steffen *et al* 2015b). Humanity is rapidly leaving the safe operating space, as six of nine planetary boundaries are now estimated to have been crossed, including those for climate, biosphere, land use, biogeochemical cycles of key nutrient elements, as well as novel entities and green water (Persson *et al* 2022, Wang-Erlandsson *et al* 2022).

While the process formally denoting the Anthropocene as the new geological epoch is still underway (Sub-commission on Quaternary Stratigraph-; see for an in-depth discussion, Damianos 2021), the term has become widely used in popular culture, scientific discourse, and policy debates. In addition to the more conventional scientific qualities that denote the Anthropocene as an ‘epochal manifestation of concrete socio- and bio-material conditions’ (Gear 2015: 227), it has also become ‘a device for re-examining and discussing the role of humanity in the natural world, on timescales from the deep past to the far future, and on scales from the intimately reflective and personal to the planetary and geological’ (Malhi 2017: 82). In terms of its temporal dimensions, the Anthropocene collapses the modern distinction between historical and geological timescales to the extent that it ‘has inscribed humankind into a long geological time span [where] [T]he human present must be seen in relationship with the deep past and the far future’ (Svensen *et al* 2019: 332). By situating humans in a coupled historical *and* Earth system context, the Anthropocene therefore, among others, shifts our attention to the temporal dimension of planetary transformations: we are now dealing with past, present and future Earth system transformations not on a human time scale of thousands or even hundreds of thousands of years, but on a geological time scale of billions of years, with the aftereffects of past and present anthropogenic impacts likely to continue for billions of years to come.

The Anthropocene’s geological conception of time, also referred to as ‘deep time’, is unimaginably greater than human timescales and conceptions of time. Compared to human time (or the human experience of time as a ‘lifetime’ of approximately 100 years), deep time instead ‘gives us a Universe existing for an unfathomable duration before our Solar System took shape. Even after the Earth formed, another great duration had to unfold before human beings first appeared’ (Shoshitaishvili 2020: 129). Within the context of the Anthropocene, the notion of deep time allows us to compare ongoing Earth system changes to past changes, which at once also presents an opportunity to shape our thinking around present and future Earth system transformations, and more importantly, how to respond to these transformations:

The Anthropocene is both a state of nature and a state of mind. Anthropocene thought has an intergenerational rhythm; what each generation thinks sets the stage for what the next generation does, and what that generation does shapes the planet its children will live on as well as the society its children will live in. In the Anthropocene, what we think as a planet is what our grandchildren get as a planet ... What we did unthinkingly in the past two generations we could undo in the next two ... we must decide together what kind of society we want to live in and what kind of planet we want to live on (Kennel 2021: 93).

Scholars already argue that the Anthropocene’s temporal condition of deep time necessitates bold, deliberate, and thoughtful action as far as the design and implementation of social institutions that must govern futures are concerned (Galaz 2019). To this end, the Anthropocene’s temporal dimension confronts current political practices and social institutions in a fundamental way: it challenges the short-sighted pathways of linear development politics that operate within brief time horizons, often for the exclusive benefit of a privileged few living in the present, and to whom none or little responsibility for past and ongoing activities that impact planetary resilience are being attributed.

Short-termist, linear and corporate-driven development politics form the foundation of the current global environmental governance order and are apparent in, for example, the unambitious and path-dependent Sustainable Development Goals (SDGs) that have an astonishingly limited short-term time horizon of only 15

years until 2030 (Kotzé and French 2018). A recently published mid-term assessment of the political impacts of the SDGs suggests that they have been unable to ensure planetary integrity in ways that also fully address inter- and intra-generational multispecies injustices (Kotzé *et al* 2022). Clearly, the time horizons of our social institutions, and what they are able to achieve in the short periods of time they have been designed to address, neither adequately map onto or respond to the past, present and future geological time scales and the massive Earth system disrupting events during this period of time. Nor do they offer solutions to adequately address the deepening socio-ecological crisis of the Anthropocene in ways that take into account historical responsibilities for present and future harm.

The deep time context of the Anthropocene that we can observe in the geological past (Yusoff 2018, Hanusch and Biermann 2020), and anticipate into a long Anthropocene future (Galaz 2019), is now challenging political practices to seriously consider the impacts that current policy choices might likely have on future generations: 'Th[e] linking of past and future generations within current political decisions is one of the key characteristics of the Anthropocene condition' (Biermann and Löwbrand 2019: 10). Rejecting the linear trajectory of current short-term political practices will therefore also entail tackling, in more deliberate and explicit ways, historical responsibilities for causing climate change by incorporating the legacies of the past into Anthropocene futures (Yusoff 2018, Kelz and Knappe 2021), while at once also ensuring that present legal and political institutions fully cater for the interests of all future human and non-human beings in inclusive and representative ways. As we argue below, youth movements are playing an increasingly important role in revealing and articulating these responsibilities and in demanding action to tackle the multiple injustices that occur, and that will increase over time, as a result of the deepening climate crisis.

3. New political practices in the Anthropocene: the rise of youth climate movements

As we have seen above, current practices of political representation in standard democratic settings do not sufficiently consider the planetary scale dimensions of Earth system transformations (Dryzek and Pickering 2019). More specifically, current political practices largely ignore temporal dimensions of Earth system transformations, while nation state-oriented political practices do not fully embrace young and future generations, thereby reinforcing existing vulnerabilities and injustices in climate governance, and increasing the future political marginalization of already marginalized and vulnerable people. By challenging the short-termist design of political institutions, the Anthropocene reveals the weaknesses of political representation and accountability practices in the face of deep time challenges.

With regard to the need for new political practices that are better adapted and responsive to the Anthropocene context and its temporal complexities and resultant governance challenges, Mert (2019) argues for a new scale and art of political practices in the Anthropocene: '[T]o construct a democratic imaginary wherein political agency is possible for citizens, as well as the non-human environment and future generations, the Anthropocene has to be reconstructed not only as an epoch but also as a new scale of democratic governance' (Mert 2019: 142). To achieve this, those living entities that are commonly marginalized in standard democratic settings must be identified, recognized and included in whatever new practices of democratic planetary governance will evolve. This would obviously require studies to understand:

...how structural inequalities, power imbalances and intersecting axes of privilege and marginalization shape vulnerabilities to global environmental change, and in turn are shaped by them. Likewise, attention to the relationship between the intersecting forms of discrimination on the basis of age, class, race, caste, ethnicity, indigeneity, religion, (dis)ability and Earth system governance needs to be strengthened (Burch *et al* 2019: 5).

But beyond and in addition to the need for more research, it would also require listening to, learning from, embracing and empowering marginalized voices, such as the youth. One encouraging development that seems to be both a consequence of and response to calls for a more radical planetary democratic imaginary of political agency for future generations, is the rise of youth climate movements. These movements are a response to a prevailing general concern that:

...despite being most affected by climate change, young people, as a demographic, are not only the least responsible for the current state of global emissions, but they are also the least able to influence policy efforts that could avert its worst impacts. Due to the latency of climate change, the climate impacts experienced today are the result of decisions made or not made by governments several decades ago (Parker *et al* 2022: 66).

In recent years, young people have been increasingly engaging to respond to their political disempowerment, and they have been giving some political agency to future generations through their mobilization of mass demonstrations, notably under the banner of the FFF climate movement. In 2018, Greta Thunberg started her climate strike and with this she initiated a mass mobilisation of young people striking on Fridays and gathering in mass demonstrations. These protests are different from environmental campaigning in earlier years in that they mobilize many more (very) young people and have a clear focus on climate change and climate justice (Wahlström *et al* 2019, Camier *et al* 2021). Young people feel empowered, they experience themselves and their peers as agents of change (Wallis and Loy 2021). Other climate movements were founded around the same time, like the Sunrise movement in the United States and Extinction Rebellion in the United Kingdom. While Sunrise, Extinction Rebellion and FFF differ in their repertoires of protest, they collectively form a new and broadly visible climate protest movement that increasingly influences public discourse on climate change and intergenerational justice (Kenis 2021, Bornemann *et al* 2022, Knappe and Renn 2022).

Furthermore, the new youth-led climate movement started to shift the problem narrative connecting individual consumer choices to climate change as a structural problem that necessitates systemic level interventions (Haugestad *et al* 2021), while young people are also increasingly using their power as consumers for civic engagement (e.g., Zukin *et al* 2006). With the gradual empowerment of young people through the climate movement, we can now observe how they claim to embody future generations through their shared affectedness and vulnerability to climate change. On the back of the growing youth activist climate movement, intergenerational justice is therefore gradually shifting from an abstract notion inadequately embodied in the amorphous pro-growth ideal of neoliberal 'sustainable development' (Kotzé and Adelman 2022), to a much more tangible and more contentious matter that affect young people and future generations very directly.

However, despite these positive developments in recent years, we also observe that youth actors are still struggling considerably to actually be included and heard in formal (global) climate politics. Some studies show that youth participation in international negotiations under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC) and the SDGs is a mixed bag at best (e.g., Thew 2018, Thew *et al* 2020, Knappe and Schmidt 2021). While being formally accredited in the Children and Youth Constituency to the UNFCCC (YOUNGO) and the UN General Assembly-mandated Major Group for Children and Youth (MGCY), many members of such already formalised and privileged groups continue struggling with being heard, putting their claims forward, and reaching the addressees of their claims (Knappe and Schmidt 2021). The most recent UNFCCC COP27 in Sharm el Sheikh is a case in point, with media reports indicating deliberate measures that were allegedly taken to limit the participation of some youth movements (Africa News 2022).

These struggles are directly linked to some of the specificities typically characterising the youth age group, namely their economic and political disempowerment and the false impression that the youth, or the condition of being young, is not a valid and legitimate 'political position':

Rather than developing a shared identity and maximising their agency as YOUNGO, youth are encouraged to transition into adult constituencies as quickly as possible. This transience is specific to YOUNGO and the lack of paid roles for youth advocates institutionalises the lack of participatory parity that youth experience, creating ... 'status inequality'. (Thew *et al* 2020: 17)

Thus, the question remains: do young people themselves have political agency in the Anthropocene's deep time context? While we believe they should have such agency, this is still not the case. Children and young people have a peculiar double status: they belong to present *and* future generations. While they certainly can be seen as the ones who will become future citizens, they also should be recognized in the present as full 'human beings with equal worth to those who belong to the current decision-making generations' (Paré 2021: 163). However, studies on children and young people explain that they are usually not treated as real or legitimate political subjects. Trott (2021), for example, argues that children in Western societies are often not regarded as human beings, but rather as 'human becomings'; they are seen as imperfect adults who still need to learn to become 'real' human beings.

Such generalized and incorrect assumptions about children and youth also influence the discourse on intergenerational justice, sustainability and climate change. Intergenerational justice has been defined in the context of sustainable development without a specific reference to children and young people as a matter addressing unborn generations. For example, the Brundtland Report famously coined intergenerational justice in its definition of sustainable development: '[S]ustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs.' (WCED 1987). This standard conception of intergenerational justice is usually seen as some form of distributive justice that has as its goal not to burden future generations with the costs of unsustainable present politics. Moreover, in the philosophical debate around intergenerational justice, young people usually do not play a dominant role, and their formal participation in political decision-making are often met with scepticism. Young peoples' capacity to engage in

'better' and more sustainable decision-making is questioned because they are seen as less knowledgeable or motivated to engage in pro-environmental behaviour, while they do not form part of (problematic) categories such as 'experts'. A representation of future generations by young people is therefore not seen as a political instrument to effectively act on behalf of future generations (Karnein and Roser 2015). A related concern is that even where some politicians are willing to take drastic and more progressive climate protection action, youth actors are not allowed to vote for such candidates because of the inherent design limits of most legal and political systems where children have no voting rights (Donger 2022).

A similar worrying narrative is also apparent in the practice of sustainability politics. Here, young people are usually addressed as consumers rather than as full-fledged political citizens (Wallis and Loy 2021). Motivating young people to consume more sustainably is more apparent in the political agenda than empowering young people to act politically in their own best interests. Moreover, the dominant climate change discourse rather asks how behavioural change can be initiated among young people with regard to climate change, thereby addressing young people and other marginalized communities 'as the problem rather than part of the solution' (Börner *et al* 2021: 278). Thus, young people are usually either invisible or seen as mere addressees (as opposed to active participants) of a top-down patriarchal political agenda in climate change and sustainability discourse and political practices. This non-recognition is even more striking when considering how children and young people are disproportionately impacted by the climate crisis. They are more vulnerable to environmental hazards, extreme weather events and the effects of climate change, such as malnutrition or forced displacement and migration (Vaghri 2018), with some arguing that they could face seven times more heat waves than current adults if governments do not commit to more rigorous climate policies (Thiery *et al* 2021).

As young people become more visible as political agents for future generations, the potential and actual conflict between older and younger generations is also garnering more attention. However, power asymmetries remain stark. While young people are becoming increasingly empowered, they are confronted with powerful political actors and elected politicians who rather govern for the present (and present voters) than for climate futures and future generations: '[E]lected representatives are prone to ignore their responsibility for trans-boundary or trans-temporal harm produced by their decisions by hiding behind their exclusive political responsibility to *existing* citizens who authorise their political authority, in the same way that the directors of corporations are able to hide behind their responsibility to their shareholders.' (Eckersley 2017: 991-emphasis added). Scholars correctly argue that this short-termism is built into democratic institutions that are bound to election cycles and the pressure to getting re-elected by present voters (Smith 2020). None of the foregoing are particularly conducive to creating an accommodative political environment that actually empowers youth actors to exercise at least some autonomy and power over the marginalising decisions that very clearly negatively affect them now and in future.

4. Reclaiming political agency in the Anthropocene through climate litigation

As young people are confronted with inert political systems and are affected by exclusion from political processes, some have turned to the law to use climate litigation as a powerful vehicle to claim political agency and to act on their own behalf and on behalf of future generations. While Parker *et al* (2022) observe a growth in youth-led climate litigation cases, and while some cases are successful, many cases are also dismissed by courts. This could mean that 'courts' refusal to deal with the merits of these claims undermines not just the agency of young people, but also constitutes a denial of their rights to redress for human rights infringements resulting from worsening climate change' (Parker *et al* 2022: 64). Other challenges facing youth claimants include situational barriers to justice such as lack of awareness of available legal remedies and processes and significant financial burdens that litigation inevitably involves, as well as technical procedural hurdles of limited standing and inadequate representation (Donger 2022).

One must recognize at the same time, however, that youth-led climate litigation is a relatively new phenomenon, and that success will likely be incremental, but might increase as courts and youth litigants increasingly become more familiar with how to navigate complexities. Moreover, the fact that courts and climate litigation are used as an alternative legal avenue to claim political agency is encouraging. Courts, after all, can impact and shape power dynamics in politics by empowering various stakeholders to have a say in the making of climate policies, influence path-dependent climate governance, and increase liability for climate damaging activities. In doing so, courts afford new forms of political power to youth actors by allowing them to actively challenge climate action (Donger 2022).

In the remainder of this section, we briefly focus on the Neubauer case as an innovative example where a court seems to understand the temporal challenges of climate change and the need to change existing laws to better protect the youth and future generations in the light of strong scientific evidence that the climate crisis is

severe, and that existing laws are not commensurate with this science and therefore unable to meaningfully address this crisis now and in the future (see also Kotzé 2021).

The claimants in *Neubauer* were a German youth group who alleged that the German government had failed to introduce laws that are sufficient to reduce greenhouse gases and to limit the increase in global temperature to well below 2 °C, and preferably to 1.5 °C, compared to pre-industrial levels as stipulated in the 2015 Paris Climate Agreement. They also claimed that the reduction of CO₂ emissions specified in the Federal Climate Protection Act (55% reduction by 2030 from 1990 levels) would be insufficient to meet Germany's obligations under the Paris Climate Agreement and to stay within the remaining CO₂ budget. They also argued that the Act does not make provision for any measures to reduce CO₂ beyond 2030. Their claim was based on the argument that certain provisions of the Federal Climate Protection Act are incompatible with some of their fundamental rights guaranteed in the German Basic Law (the Constitution). These include, among others, the right to life, physical integrity and personal freedom (art. 2(2)); and the right to an ecological minimum standard of living (art. 20(a)).

In its unanimous decision on 29 April 2021, the Constitutional Court declared the Federal Climate Protection Act partly unconstitutional because it does not sufficiently protect young people against future infringements and limitations of their existing fundamental rights as a result of climate change. The Court generally held there is an obligation on the state to revisit the intertemporal distribution effects of its climate laws and to equitably distribute allowable emissions over time and generations. It found that the state's duty of protection arising from the right to life, physical integrity and personal freedom, encompasses the duty to protect life and health against the risks posed by climate change, and it can give rise to an objective duty to protect future generations (Headnote 1). In accordance with its responsibility towards future generations, the state must also protect the natural foundations of life and animals; an obligation that arises from art. 20(a) of the Basic Law that also obliges, by implication, the state to take climate action, and which includes the aim of achieving climate neutrality (Headnote 2). Art. 20a of the Basic Law is a justiciable legal provision designed to commit the political process to a favouring of ecological interests, partly also with a view to future generations (Headnote 2e). Most revealingly, and worth quoting in full, the Court found that:

Under certain conditions, the Basic Law imposes an obligation to safeguard fundamental freedom over time and to spread the opportunities associated with freedom proportionately across generations. In their subjective dimension, fundamental rights—as intertemporal guarantees of freedom—afford protection against the greenhouse gas reduction burdens imposed by Art. 20a of the Basic Law being unilaterally offloaded onto the future. Furthermore, in its objective dimension, the protection mandate laid down in Art. 20a of the Basic Law encompasses the necessity to treat the natural foundations of life with such care and to leave them in such condition that future generations who wish to carry on preserving these foundations are not forced to engage in radical abstinence. Respecting future freedom also requires initiating the transition to climate neutrality in good time. In practical terms, this means that transparent specifications for the further course of greenhouse gas reduction must be formulated at an early stage, providing orientation for the required development and implementation processes and conveying a sufficient degree of developmental urgency and planning certainty (Headnote 4).

This is arguably one of the clearest articulations yet by any court of the obligations on the state to ensure that current legal, political and broader governance arrangements fully embrace and account for the rights and interests of future generations in ways that do not unfairly defer mitigation obligations onto future generations.

While there are other factors that guided the Court throughout a highly technical and complexly argued judgment to come to the foregoing conclusions, aspects that stand out are the role that climate science has played in this decision to reveal the complexity of the climate system; the role that humans play in changing the climate system; the temporal characteristics of climate change, ranging from historical and present contributions to carbon emissions to the future effect of these emissions on the youth and the unborn; and the way in which this temporal dimension introduces both a new context of urgency for existing climate laws and the need for much more stringent conditions that must be adhered to in order to ensure future generations are better protected (Kotzé 2021).

The Court relied, among others, on the reports of the Intergovernmental Panel on Climate Change (IPCC), which task it is (according to the Court) to 'present the state of scientific research on climate change in a comprehensive and objective manner, thereby providing a basis for science-based decisions' (Para. 17). A plain reading of 'virtually unanimous scientific opinion', would suggest that 'the rapid acceleration of global warming that is currently observable in comparison with historical levels is essentially due to the change in the material balance of the atmosphere caused by anthropogenic emissions'; and '[W]ithout additional measures to combat climate change, it is now considered likely that the global temperature will increase by more than 3 °C by 2100'

(Para. 19). It is also clear that '[T]he effects of recent climate-related extreme events ... are regarded by the scientific community as demonstrating significant human vulnerability to climate change' (Para. 23).

Through its science-based approach, the Court managed to construct the larger scientifically informed context for its legal reasoning; a context which is sensitive to some of the deep time considerations of the Anthropocene and that enabled it to interpret and evaluate Germany's existing climate laws, including their objectives, targets and ambition. In the words of the Court, the right to a future consistent with human dignity and the right to an ecological minimum standard of living place:

... the legislator under a permanent obligation to adapt environmental law to the latest scientific developments and findings. If the temperature target agreed in Art. 2(1)(a) PA [Paris Agreement] proves inadequate to sufficiently prevent climate change, the obligation arising from Art. 20a GG [Basic Law] to involve the international level in seeking to resolve the climate problem is also modified. In particular, attempts would have to be made to reach more stringent international agreements. On the other hand, any reorientation towards weaker climate goals would have to be justified in the light of Art. 20a GG [Basic Law] due to the associated ecological setback (Para. 211).

The Court derived maximum permissible emissions for Germany from the remaining global emissions budget (an approach developed by the IPCC), which was a central consideration in its assessment of the extent of climate burdens that will be imposed on future generations (Para. 36). In terms of the remaining carbon budget, an increased use of total greenhouse gas emissions by 2030 will disproportionately result in greater restrictions of future freedoms that are linked with the constitutional requirement to protect the climate and achieve climate neutrality. In other words, '[T]he more emissions currently permitted until 2030, the greater the risk that from 2031 the state will have to intervene more quickly and strongly in fundamental rights' (Bodle and Sina 2021: 4).

While the Court did not expand article 20a of the Basic Law to include any form of fundamental rights for future human generations, it did find certain provisions of the Federal Climate Protection Act to be 'unconstitutional to the extent that they create disproportionate risks that freedom protected by fundamental rights will be impaired in the future' (Para. 183). These provisions have the effect that they irreversibly offload major emission reduction burdens onto periods after 2030, which means they have a disproportionate intergenerational impact (Bundesverfassungsgericht 2021a , 2021b). According to the Court:

It follows from the principle of proportionality that one generation must not be allowed to consume large portions of the CO² budget while bearing a relatively minor share of the reduction effort, if this would involve leaving subsequent generations with a drastic reduction burden and expose their lives to serious losses of freedom—something the complainants describe as an 'emergency stop' (Para. 192).

The Court reasoned that the Basic Law:

... imposes an obligation to safeguard fundamental freedom over time and to spread the opportunities associated with freedom proportionately across generations. As intertemporal guarantees of freedom, fundamental rights afford the complainants protection against the greenhouse gas reduction burdens imposed by Art. 20a GG [Basic Law] being unilaterally offloaded onto the future ... In this respect, there is a lack of a legal framework specifying minimum reduction requirements after 2030 that would be suitable for providing orientation and incentives in time for the necessary development of climate-neutral technologies and practices (Para 183).

Such an assessment eventually led it to conclude that the constitutional obligation set out in article 20a of the Basic Law involves both the achievement of climate neutrality and a just and timely transition towards climate neutrality in a way that does not restrict fundamental rights from 2030 onwards in an intergenerational sense.

Apart from the overall positive finding of the Court in support of the youth claimants, the decision contains strong statements that: (i) confirm much more needs to be done much sooner to address the climate crisis; (ii) clearly reveal the extent and severity of the climate crisis and its multiple patterns of vulnerability and injustice affecting the youth and future generations; (iii) expose the inadequacies and failures of existing laws and political institutions and practices in Germany to recognize these vulnerabilities and injustice, with clear concomitant directions to address them; and reinforce the agency and power of the youth to assert themselves as influential political actors that can in fact have a say in, and deliberately change, inadequate and failing climate laws and policies.

5. Conclusion

The Anthropocene foregrounds the planetary crisis and our collective planetary stewardship obligations: '[W]e are the first generation with the knowledge of how our activities influence the Earth System, and thus the first generation with the power and the responsibility to change our relationship with the planet' (Steffen *et al* 2011: 749). Such a realization reflects on the new dimensions that the Anthropocene context introduces in how we view our relationship with and position in the Earth system: 'what global society chooses to do impacts the planetary environmental and ecological systems that must sustain later generations' (Kennel 2021: 90). The increased sense of urgency and of heightened collective responsibility to tackle the deepening climate crisis is long overdue and could hopefully initiate an honest reflection on the failures of past and existing climate governance, while initiating a discussion of what could be done better, much faster, in future (Lynch and Veland 2018).

After all, continuously declining planetary stability and resilience suggests that 50 years of global sustainable development summitry (Seyfang 2003, Biermann 2022), the institutionalisation of global environmental governance (Biermann and Pattberg 2012), and the creation of a comprehensive body of international environmental law (Rajamani and Peel 2021), have done little to achieve the type of radical transformations that are necessary to address the planetary emergency for both present and future generations. It is rather the case that 'the current institutional framework for sustainable development is deeply inadequate to bring about the swift transformative progress that is needed [and it] will not suffice to bring about societal change at the level and speed needed to mitigate and adapt to Earth system transformation' (Biermann *et al* 2012: 52).

More particularly, the planetary context of the Anthropocene emphasizes the need for innovative, far more radical, and ultimately more effective strategies to tackle the intensifying climate crisis and its temporal challenges. This crisis is characterized in particular by its differentially distributed patterns of injustice and vulnerability that impact both present and future generations (Kotzé 2019). Fully addressing all the justice and other concerns of the present generation is in and of its own a daunting task. Trying to ensure intergenerational justice is an even greater challenge, especially because our current political processes neither recognize youth as legitimate actors that must shape climate governance, nor do they meaningfully facilitate representation of unborn people.

But there are some encouraging signs that signal a possible shift in our thinking and practice about how to better accommodate the justice demands of future generations. Young people are increasingly asserting themselves as more influential political actors that have the power to change the course of climate governance. They do so through social resistance and increasingly through climate litigation: '[B]y telling a story of children and young people fighting in the courts to preserve their future, raising the profile of climate cases, and increasing public awareness of future generations' rights, intergenerational equity in climate litigation is itself a source of hope' (Slobodian 2020: 589). While it is impossible to generalise the Neubauer decision, or to suggest that other courts will be equally open to embracing a temporally sensitive planetary understanding of Earth system transformations and obligations towards future generations, as the German Constitutional Court did, the decision sets an example of what a court could do, in innovative ways, to ensure that the youth is afforded political agency and that present laws and political processes more fully consider the rights and interests of future generations.

Data availability statement

No new data were created or analysed in this study.

ORCID iDs

Louis J Kotzé  <https://orcid.org/0000-0001-5820-168X>

Henrike Knappe  <https://orcid.org/0000-0003-4343-8726>

References

- Adelman S 2021 Planetary boundaries, planetary ethics and climate justice in the Anthropocene *Research Handbook on Law, Governance and Planetary Boundaries* ed D French and L J Kotzé (Edward Elgar Publishing) pp 65–83
- Africa News 2022 Young Climate Activists Denied Participation at COP27. Available at <https://africanews.com/2022/11/07/young-climate-activists-denied-participation-at-cop27/>
- Biermann F *et al* 2012 Transforming governance and institutions for global sustainability: key insights from the earth system governance project *Current Opinion in Environmental Sustainability* 4 51–60

- Biermann F 2022 The End of Sustainability Summitry: Reflections on 'Stockholm +50'. Available at <https://frankbiermann.org/post/the-end-of-sustainability-summitry-reflections-on-stockholm-50>
- Biermann F and Lövbrand E 2019 Encountering the 'Anthropocene': setting the scene *Anthropocene Encounters: New Directions in Green Political Thinking* ed F Biermann and E Lövbrand (Cambridge: Cambridge University Press) pp 1–22
- Biermann F and Pattberg P (ed) 2012 *Global Environmental Governance Reconsidered* (MIT Press)
- Bodle R and Sina S 2021 The German Federal Constitutional Court's Decision on the Climate Change Act Ecologic Institute Berlin Policy Brief, May 10, 2021
- Bornemann B, Knappe and Nanz P 2022 General Introduction *Routledge Handbook of Democracy and Sustainability* ed B Bornemann *et al* (Routledge)
- Börner S, Krafl P and Giatti L L 2021 Blurring the '-ism' in youth climate crisis activism: everyday agency and practices of marginalized youth in the Brazilian urban periphery *Children's Geographies* **19** 275–83
- Bundesverfassungsgericht 2021a [Federal Constitutional Court], Mar. 24, Case No. BvR 2656/18/1, BvR 78/20/1, BvR 96/20/1, BvR 288/20. Available at http://bverfg.de/e/rs20210324_1bvr265618en.html
- Bundesverfassungsgericht 2021b [Federal Constitutional Court], Constitutional Complaints Against the Federal Climate Change Act Partially Successful, Press Release No. 31/2021, (Apr. 29). Available at <https://bundesverfassungsgericht.de/SharedDocs/Pressemitteilungen/EN/2021/bvg21-031.html>
- Burch S *et al* 2019 New directions in earth system governance research *Earth System Governance* **1** 100006
- Buser A 2021 Of carbon budgets, factual uncertainties, and intergenerational equity—the German constitutional court's climate decision *German Law Journal* **22** 1409–22
- Callies C 2021 Das 'Klimaurteil' des Bundesverfassungsgerichts: 'Versubjektivierung' des Art. 20a GG? *Zeitschrift für Umweltrecht* **32** 355–537
- Camier C *et al* 2021 Klimapolitik in der öffentlichen Diskussion *Informationen zur politischen Bildung* **347** 48–59
- Caney S 2018 Justice and future generations *Annual Review of Political Science* **21** 475–93
- Crutzen P J 2002 Geology of mankind *Nature* **415** 23
- Damianos A 2021 Ratifying the anthropocene: a study of the anthropocene working group's ongoing effort to formalize the anthropocene as a unit of the geologic time scale *PhD Thesis* London School of Economics and Political Science Available at <http://etheses.lse.ac.uk/4351/>
- Donger E 2022 Children and youth in strategic climate litigation: advancing rights through legal argument and legal mobilization *Transnational Environmental Law* **11** 263–89
- Dryzek J and Pickering J 2019 *The Politics of the Anthropocene* (Oxford University Press)
- Eckersley R 2017 Geopolitical democracy in the anthropocene *Political Studies* **65** 983–99
- Galaz V 2019 Time and politics in the Anthropocene: too fast, too slow? *Anthropocene Encounters: New Directions in Green Political Thinking* ed F Biermann and E Lövbrand (Cambridge: Cambridge University Press) pp 109–27
- Gonzalez-Ricoy I and Rey F 2019 Enfranchising the future: climate justice and the representation of future generations *WIREs: Climate Change* **10** e598
- Grear A 2015 Deconstructing anthropos: a critical legal reflection on 'anthropocentric' law and Anthropocene 'humanity' *Law and Critique* **26** 225–24
- Hanusch F and Biermann F 2020 Deep-time organizations: Learning institutional longevity from history *The Anthropocene Review* **7** 19–41
- Haugstad C A *et al* 2021 Why do youth participate in climate activism? A mixed-methods investigation of the #FridaysForFuture climate protests *J. Environ. Psychology* **76** 101647
- Jourdan D and Wertin J 2020 Intergenerational rights to a sustainable future: insights for climate justice and tourism *J. Sustainable Tourism* **28** 1245–54
- Karnein A and Roser D 2015 Saving the planet by empowering the young? *Youth Quotas and other Efficient forms of Youth Participation in Ageing Societies* ed J Tremmel *et al* (Berlin: Springer) pp 77–92
- Kelz R and Knappe H 2021 Politics of time and mourning in the Anthropocene *Social Sciences* **10** 368
- Kenis A 2021 Clashing tactics, clashing generations: the politics of the school strikes for climate in Belgium *Politics and Governance* **9** 135–45
- Kennel C 2021 The gathering Anthropocene crisis *The Anthropocene Review* **8** 83–95
- Knappe H and Renn O 2022 Politicization of intergenerational justice: how youth actors translate sustainable futures *European J. Futures Research* **10** 775
- Knappe H and Schmidt O 2021 Making representations: the SDG Process and major groups' images of the future *Global Environmental Politics* **21** 23–43
- Kotzé L J 2019 The Anthropocene, earth system vulnerability and socio-ecological injustice in an age of human rights *J. Human Rights and the Environment* **10** 62–85
- Kotzé L J 2021 Neubauer *et al* versus Germany: planetary climate litigation for the Anthropocene? *German Law Journal* **22** 1423–44
- Kotzé L J and Adelman S 2022 Environmental law and the unsustainability of sustainable development: a tale of disenchantment and of hope *Law and Critique* **1**–22
- Kotzé L J *et al* 2022 Planetary integrity *The Political Impact of the Sustainable Development Goals: Transforming Governance Through Global Goals* ed F Biermann *et al* (Cambridge: Cambridge University Press) pp 140–71
- Kotzé L J and French D 2018 The anthropocentric ontology of international environmental law and the sustainable development goals: towards an ecocentric rule of law in the Anthropocene *Global Journal of Comparative Law* **7** 5–36
- Lynch A and Veland S 2018 *Urgency in the Anthropocene* (Cambridge, MA: MIT Press)
- McAlpine C A *et al* 2015 Transformational change: creating a safe operating space for humanity *Ecology and Society* **20** 56
- Mert A 2019 Democracy in the Anthropocene: a new scale *Anthropocene Encounters: New Directions in Green Political Thinking* ed F Biermann and E Lövbrand (Cambridge: Cambridge University Press) pp 128–49
- Minnerop P 2022 The 'advance interference-like effect' of climate targets: fundamental rights, intergenerational equity and the German federal constitutional court *J. Environmental Law* **34** 135–62
- Paré M 2021 Children's rights or intergenerational equity? *The Cambridge Handbook of Environmental Justice and Sustainable Development* ed S A Atapattu *et al* (Cambridge: Cambridge University Press) pp 152–63
- Parker L *et al* 2022 When the kids put climate change on trial: youth-focused rights-based climate litigation around the world *J. Human Rights and the Environment* **13** 64–89
- Persson L *et al* 2022 Outside the safe operating space of the planetary boundary for novel entities *Environ. Sci. Technol.* **56** 1510–21
- Pittel P 2021 The intertemporal distribution of climate policy burdens and the decision of the German constitutional court *CESifo Forum* **22** 15–9

- Powers M 2018 *Juliana v United States*: the next frontier in US climate litigation? *Review of European, Comparative and International Environmental Law* **27** 199–204
- Rajamani L and Peel J (ed) 2021 *The Oxford Handbook of International Environmental Law* 2nd edn (Oxford University Press)
- Rockström J *et al* 2009 Planetary boundaries: exploring the safe operating space for humanity *Ecology and Society* **14** 32
- Sub-commission on Quaternary Stratigraphy 'Working Group on the Anthropocene'. Available at <http://quaternary.stratigraphy.org/working-groups/anthropocene/>
- Seyfang G 2003 Environmental Mega-conferences: from Stockholm to Johannesburg and Beyond *Global Environ. Change* **13** 223–8
- Shoshitaishvili B 2020 Deep time and compressed time in the Anthropocene: the new timescape and the value of cosmic storytelling *The Anthropocene Review* **7** 125–37
- Slobodian L 2020 Defending the future: intergenerational equity in climate litigation *The Georgetown Environmental Law Review* **32** 569–89
- Smith G 2020 Enhancing the legitimacy of offices for future generations: the case for public participation *Political Studies* **68** 996–1013
- Sommer M *et al* 2019 Fridays for future: profil, Entstehung und Perspektiven der Protestbewegung in Deutschland *IPB Working Papers* **2** 1–44
- Steffen W *et al* 2011 The anthropocene: from global change to planetary stewardship *Ambio* **2011** 739–61
- Steffen W *et al* 2015a The trajectory of the Anthropocene: the great acceleration *The Anthropocene Review* **2** 81–98
- Steffen W *et al* 2015b Planetary boundaries: guiding human development on a changing planet *Science* **347** 1259855–1
- Steffen W *et al* 2018 Trajectories of the earth system in the Anthropocene *Proc. Natl Acad. Sci.* **115** 8252–9
- Svensen H H, Bjerke M R and Kverndokk K 2019 The past as a mirror: deep time climate change exemplarity in the Anthropocene *Culture Unbound* **1** 330–52
- Thew H 2018 Youth participation and agency in the United Nations Framework Convention on Climate Change *Int. Environ. Agreements: Politics, Law and Economics* **18** 369–89
- Thew H, Middlemiss L and Paavola J 2020 'Youth is not a political position': Exploring justice claims-making in the UN Climate Change Negotiations *Global Environmental Change* **61** 102036
- Thierry W *et al* 2021 Intergenerational inequities in exposure to climate extremes *Sci.* **374** 158–60
- Trott C D 2021 What difference does it make? Exploring the transformative potential of everyday climate crisis activism by children and youth *Children's Geographies* **19** 300–8
- United Nations Environment Programme (UNEP) 2019 Global Environment Outlook 6: Healthy Planet, Healthy People. Available at <https://wedocs.unep.org/handle/20.500.11822/27539?show=full>
- Vaghri Z 2018 Climate change, an unwelcome legacy: the need to support children's rights to participate in global conversations *Children, Youth and Environments* **28** 104–14
- Wahlström M *et al* 2019 Protest for a future: composition, mobilization and motives of the participants in Fridays For Future climate protests on 15 March, 2019 in 13 European cities Retrieved from: https://protestinstitut.eu/wp-content/uploads/2019/07/20190709_Protest-for-a-future_GCS-Descriptive-Report.pdf
- Wallis H and Loy L S 2021 What drives pro-environmental activism of young people? A survey study on the Fridays for Future movement *J Environ. Psychology* **74** 101581
- Wang-Erlandsson L *et al* 2022 A planetary boundary for green water *Nature Reviews Earth & Environment* **3** 380–92
- Waters C *et al* 2016 The Anthropocene is functionally and stratigraphically distinct from the Holocene *Sci.* **351** aad2622-1/10
- Weiss E B 1989 *In Fairness to Future Generations* (Leiden: Brill Nijhoff)
- World Commission on Environment and Development (WCED) 1987 *Our Common Future* (Oxford: Oxford University Press)
- Yusoff K 2018 *A Billion Black Anthropocenes or None* (University of Minnesota Press)
- Zalasiewicz J *et al* 2019 *The Anthropocene as a Geological Time Unit: A Guide to the Scientific Evidence and Current Debate* (Cambridge: Cambridge University Press)
- Zukin C *et al* 2006 *A New Engagement? Political Participation, Civic Life, and the Changing American Citizen* (Oxford: Oxford University Press)