



The Sustainable Development Goals, climate crisis and sustained injustices

OÑATI SOCIO-LEGAL SERIES, VOLUME 11 ISSUE 1 (2021), 285–314: CLIMATE JUSTICE IN THE ANTHROPOCENE

DOI LINK: [HTTPS://DOI.ORG/10.35295/OSLS.IISL/0000-0000-0000-1158](https://doi.org/10.35295/osls.iisl/0000-0000-0000-1158)

RECEIVED 21 JANUARY 2020, ACCEPTED 07 SEPTEMBER 2020

PAOLA VILLAVICENCIO CALZADILLA * 

Abstract

In 2015, the UN adopted the 2030 Agenda and the Sustainable Development Goals (SDGs), a set of universal goals in key areas of action linked to sustainable development. The SDGs address not only highly relevant socioeconomic issues, but also pressing environmental challenges associated with the Anthropocene, such as climate change. The integration of a specific climate goal – SDG 13 – into the SDGs is paramount as climate change is a global and urgent threat compromising the realisation of all the SDGs. However, the SDGs' focus on issues linked to the current economic growth pattern and development paradigm may prevent them from addressing the climate crisis and the inequalities and injustices associated with it. This paper attempts to establish the extent to which the SDGs promote progress towards achieving climate justice or if, on the contrary, they maintain the *status-quo* and continue to fuel the climate crisis while leaving millions behind.

Key words

Agenda 2030; Sustainable Development Goals (SDGs); climate crisis; climate justice

Resumen

En 2015, las Naciones Unidas adoptaron la Agenda 2030 y los Objetivos de Desarrollo Sostenible (ODS), un conjunto de objetivos universales en áreas de acción esenciales vinculadas al desarrollo sostenible. Los ODS no sólo abordan cuestiones socioeconómicas de gran relevancia, sino también desafíos ambientales apremiantes

I would like to express my gratitude to professors Sam Adelman, Louis Kotzé and Duncan French for their helpful comments on an earlier draft of this paper.

* Paola Villavicencio Calzadilla is a Martí Franquès Postdoctoral Researcher at the Universitat Rovira i Virgili, Tarragona (Spain). E-mail address: p_villavicencio@hotmail.com Funding: *The Global Climate Constitution: Governance and Law in a Complex Context* (CONCLIMA-DER2016-80011-P, MINECO/ERDF, EU), State Program for the Promotion of Scientific and Technical Research of Excellence, State Secretariat of Research, Development and Innovation (SEIDI), Ministry of Economy and Competitiveness, Spain.

asociados al Antropoceno, como el cambio climático. La integración de un objetivo climático específico –SDG 13– en los ODS es primordial ya que el cambio climático es una amenaza global y urgente que compromete la realización de todos los ODS. Sin embargo, el hecho de que los ODS se centren en cuestiones relacionadas con el actual patrón de crecimiento económico y el paradigma de desarrollo podría impedirles enfrentar la crisis climática y las desigualdades e injusticias asociadas con la misma. Este artículo intenta establecer hasta qué punto los ODS promueven el progreso hacia el logro de la justicia climática o si, por el contrario, mantienen el *statu quo* y siguen alimentando la crisis climática, al tiempo que dejan atrás a millones de personas.

Palabras clave

Agenda 2030; Objetivos de Desarrollo Sostenible (ODS); crisis climática; justicia climática

Table of contents

1. Introduction.....	288
2. The 2030 Agenda and SDG 13 on climate change: A framework for delivering climate action and justice in the Anthropocene?	290
3. Climate-related SDGs: A window of opportunity or a recipe for climate disaster?	295
3.1. SDG 8: Dressing conventional growth paradigms in green-growth rhetoric	296
3.2. SDG 7: Missing the opportunity to achieve a major transformation of the unsustainable energy system	299
3.3. SDG 12: Addressing consumption and production patterns without transforming systems	301
3.4. SDG 15: delaying action while ignoring the imminent threat to forests.....	303
4. Conclusion.....	304
References.....	305

The science is clear and the alarm bells are ringing! (...) We can see how our humanity's *Titanic* is moving faster and faster towards hitting the iceberg.
(Cristiana Paşca Palmer, Executive Secretary, Convention on Biological Diversity)

1. Introduction

In September 2015 the United Nations General Assembly (UNGA) unanimously adopted the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs), a set of 17 goals and 169 associated targets that are to be fully implemented by 2030 (UNGA 2015).¹

Presented as a plan of action for “people, planet and prosperity” and with a normative commitment to “leave no one behind”, the SDGs – also known as the Global Goals – aim to stimulate action in areas of “critical importance for humanity and the planet” (UNGA 2015). Built on the Millennium Development Goals (MDGs),² the SDGs go further³ as they attempt to integrate in a balanced manner the three interdependent and mutually reinforcing pillars of sustainable development – the economic, social and environmental dimensions – in a set of integrated and indivisible goals that apply to all countries (UNGA 2015).⁴ Indeed, the Global Goals bring together a wide range of economic, social and environmental concerns and call for action to mobilise collective efforts to end all forms of poverty and hunger, ensure quality education, fight inequalities, promote decent work and economic growth, build sustainable cities, tackle climate change, protect biodiversity and achieve peaceful, just, and inclusive societies. The universal and so-called “transformative” SDGs aim then to promote economic growth, social equity and environmental protection at the same time (UNGA 2015).

The SDGs are laudable as they address climate change, the “defining issue of our era” (UN News 2007). In addition to integrating issues that impact on or are impacted by

¹ The SDGs emerged out of intergovernmental negotiations over three years. The preparatory work on them started in 2012 at the UN Conference on Sustainable Development (the Rio+20 Conference), when the states agreed to establish a working group to develop a set of overarching goals by the end of 2015 that would replace the Millennium Development Goals (MDGs) (UNGA 2012). Finally, the SDGs were adopted on 25 September 2015 by Heads of State and Government at a special UN summit and they came into effect on 1 January 2016.

² The MDGs were derived from the Millennium Declaration adopted at the UN Millennium Summit held in New York in September 2000. The set of eight goals that applied only to developing countries ran from 2000 to 2015. See <https://www.un.org/millenniumgoals/>

³ The SDGs are far broader in scope than the MDGs as the world has significantly changed since the time when the former were formulated. Yet the SDGs are also aimed at finishing the job that their predecessors started almost 20 years ago. Particularly remarkable is the inclusion of specific “environmental goals” on Climate Action (SDG 13), Life below Water (SDG 14) and Life and Land (SDG 15), which contrast to a vague and weak MDG 7 on environmental sustainability.

⁴ The report *Our Common Future* (also known as Brundtland Report), published by the UN World Commission on Environment and Development in 1987, coined the landmark definition of sustainable development as the “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. The origins of the three-pillar paradigm have been attributed to the Brundtland Report, as well as the Agenda 21 and the 2002 World Summit on Sustainable Development. For an insightful exploration of the origins of the concept of sustainable development as well as its three pillars see, for instance, Purvis *et al.* 2019.

climate change,⁵ an entirely separate goal (SDG 13) focusses on “taking urgent action to tackle climate change and its impacts”. The incorporation of climate change issues in the global agenda and the SDGs makes sense, not only because climate change and sustainable development are inextricably linked but also because climate change poses a serious threat to humanity’s survival. Indeed, the profound impacts of climate change are already being felt in different parts of the world, disproportionality affecting the poorest and the most vulnerable and marginalised communities and individuals who, despite being least responsible for causing the climate crisis, suffer the worst consequences. In the absence of the drastic action that needs to be taken now, global temperatures and sea level continue to rise (Intergovernmental Panel on Climate Change – IPCC – 2018), and more intense heatwaves, powerful storms, prolonged droughts and frequent mega wildfires will deepen the global injustices of the Anthropocene’s climate crisis, while making the planet an impossible place for most people (Tollefson 2018).

As climate change is a global challenge that does not know borders, it requires concerted action based upon the widest possible international cooperation to deliver a stable and secure world for generations to come. Without replacing any of the existing agreements or forums on climate change, the SDGs – and more precisely SDG 13 – are presented as a window of opportunity not only for strengthening the linkages between climate and development, but also to strengthen climate action at global level and to reduce the risks it poses to development and poverty eradication. Moreover, by complementing climate action agreed under the United Nations Framework Convention on Climate Change (UNFCCC), it has been said that the SDGs could incentivise climate action prior to 2020, when implementation of the Paris Agreement (UNFCCC 2015) is due to begin (Munro 2014). Nonetheless, despite the worldwide enthusiasm for them, it is not clear that the SDGs are sufficiently transformative to address the climate crisis and avoid perpetuating historical and current injustices linked to it. With time running out to tackle climate change, do the SDGs offer an opportunity to avoid dangerous climate change and to prevent the greatest threats it poses to the most vulnerable people? Or are the Global Goals a recipe for accelerating climate disaster?

This paper attempts to establish the extent to which the SDGs catalyse action on climate change and, perhaps, promote progress towards achieving climate justice⁶ in the Anthropocene.⁷ Referring to the inextricable link between sustainable development and

⁵ The first ones include, for instance, energy, economic growth, industry and infrastructure and production and consumption, while between the areas impacted by climate change are poverty, health, water, and food security, among others.

⁶ Climate justice is a relatively new concept that arose from a number of political, activist and academic traditions. Although there is no clear definition of climate justice (Meikle *et al.* 2016), it has been noted that it addresses the “triple inequality” of the climate crisis: mitigation, responsibility and vulnerability (Goodman 2009). For Gonzalez (2019), climate justice, which refers to the North-South asymmetry of climatic effects, has four dimensions: distributive justice, procedural justice, corrective justice and social justice. According to Abate (2016), climate justice can be defined “as addressing the disproportionate burden of climate change impacts on poor and marginalized communities and as seeking to promote more equitable allocation of the burdens of these impacts at the local, national, and global levels through proactive regulatory initiatives and reactive judicial remedies that draw on international human rights and domestic environmental justice theories” (Abate 2016, p. xxxiii).

⁷ Due to unmitigated GHG emissions and other human activities that altered the planet’s natural cycles and systems, especially in the global North, the Earth has moved into a new and uncertain geologic epoch, the Anthropocene (Crutzen 2002). On this concept and its critics see, for instance, Biermann *et al.* 2016.

climate change, the next section reviews how climate issues have been integrated in the 2030 Agenda, giving special attention to SDG 13, and discusses the extent to which this Global Goal relates to climate justice. Section 3 critically examines the SDGs in the light of ongoing climate injustices, focusing especially on those goals (on energy, economic growth, consumption and production patterns, and life and land – respectively SDGs 7, 8, 12 and 15) that are directly relevant to the climate crisis.⁸ The paper concludes by arguing that although the SDGs represent a strong aspiration to make the world “a better place” in 2030 (UNGA 2015), in reality, they do not foster the transformational changes urgently needed to avoid the climate catastrophe.⁹ Locked in a contested neoliberal agenda that focuses primarily on economic growth, the SDGs, as currently formulated, embrace and promote dominant and unsustainable paradigms, addressing the symptoms of climate change but not its underlying causes. Given the scale and urgency of the climate crisis, that is not the best route toward a better or even a habitable world.

2. The 2030 Agenda and SDG 13 on climate change: A framework for delivering climate action and justice in the Anthropocene?

The inextricable link between sustainable development and climate change, including poverty eradication, has been stressed by a large body of literature offering important insight into that relationship (see, for instance, Beg *et al.* 2001, Markandya and Halsnaes 2002, and Swart *et al.* 2003). A comprehensive assessment of the implications of climate change for sustainable development has been provided by the IPCC. The Panel’s 5th Assessment Report emphasises that climate change is a threat to equitable and sustainable development and that it exacerbates other threats to social and natural systems by placing additional burdens on the poor. Limiting the effects of climate change is therefore necessary for the achievement of sustainable development and equity, including poverty eradication (IPCC 2014, pp. 17 and 31). Recently, in its special assessment report on the science of 1.5 °C – in which it analyses the severe consequences of a 1.5 °C global temperature increase – the IPCC dedicated an entire Chapter to examining the interplay between sustainable development and climate actions in a 1.5 °C warmer world, as well as the interactions, synergies and trade-offs of climate measures with sustainable development and the SDGs (IPCC 2018). While noting that limiting global warming to 1.5 °C rather than 2 °C above pre-industrial levels would make it easier to achieve many aspects of sustainable development and the SDGs, the report also stresses that 1.5 °C of global warming would nonetheless pose heightened risks to sustainable development, particularly in regions that already face the most severe consequences of climate change (IPCC 2018, pp. 447, 477–478).

The interlinkages between climate change and the SDGs are crystal clear. For instance, extreme weather events and slow onset events, such as rising sea levels and ocean

⁸ Of course, these are not the only Global Goals in which climate change is embedded. For instance, SDG 1 (target 1.5), 2 (target 2.4) and 4 (target 4.7), which focus on areas impacted by climate change (more generally, poverty), also refer indirectly to the need for mitigation and adaptation as well as education on sustainable lifestyles. Yet, this paper will address those SDGs on economic and environmental issues (SDGs 7, 8, 12 and 15) that are climate change’s driving forces. For a comprehensive analysis of the relationship between climate change and the whole SDGs see, for instance, Nerini *et al.* 2019.

⁹ For further discussion of the limitations of the SDGs in the face of the global environmental change, see Kotzé 2018.

acidification, have detrimental effects on several of the SDGs and limit the ability to achieve them (International Council for Science – ICSU – and International Social Science Council – ISSC – 2015, IPCC 2018). Moreover, in the absence of viable responses to climate change – in the form of adaptation and mitigation measures – it will be difficult, if not impossible, to achieve many of the Global Goals (ICSU and ISSC 2015).

In this context, the 2030 Agenda recognises that climate change and sustainable development need to be addressed together because it is very difficult to achieve the envisaged socioeconomic benefits if environmental threats are neglected. Thus, climate change issues have been integrated, at least in theory, in the global governance agenda in a more deliberate and explicit way than in the MDGs.¹⁰

Formally, climate change is mentioned 25 times in the text of the 2030 Agenda. The Preamble affirms that climate change is “one of the greatest challenges of our time” and that its adverse impacts, which are seriously affecting the most vulnerable countries, undermine the ability of all countries to achieve sustainable development and put at risk the survival of many societies and the biological support systems of the planet. Given the urgent situation, states affirmed that they are determined “to protect the planet from degradation” and “to address decisively the threat posed by climate change and environmental degradation” (UNGA 2015, Preamble and para. 31). Also, the 2030 Agenda notes “with grave concern” the significant gap between states’ mitigation pledges and the expected aggregated emission pathways consistent with a likely chance of holding the increase in global temperature below 2 °C or 1.5 °C above preindustrial levels (para. 31). In this context, the need for the widest possible international cooperation in order to accelerate the mitigation of climate change and to address adaptation needs is also emphasised (UNGA 2015, para. 31).

Moreover, while several SDGs expressly include references to climate issues,¹¹ a standalone goal – SDG 13 – commits states to “take urgent action to combat climate change and its impacts”. Acknowledging that the UNFCCC is the primary international, intergovernmental forum for negotiating the global response to climate change, the specific targets of SDG 13 focus on strengthening resilience and adaptive capacity (13.1), integrating climate change measures into policies and strategies (13.2), and improving education and raising awareness about climate change issues (13.3). In addition, states agreed on two additional targets on climate funding and capacity building to support action in developing countries (13.a and 13.b) (UNGA 2015).

Despite its significance, achieving agreement on the wording of SDG 13 was not straight forward (Ferrero y de Loma-Osorio 2016). During the negotiations, many developed and developing countries opposed the inclusion of references to climate change into the global agenda, arguing that climate change and sustainable development are two separate agendas and that the former should be addressed by the UNFCCC. Ferrero y de Loma-Osorio (2016) points out that “the reference to climate change within the SDG framework was one of the last obstacles in the negotiations until the last minute, and was very close to bring the SDGs either back to the least common denominator – an

¹⁰ In the case of the MDGs, climate change was included only as an indicator of GHG emissions in MDG 7 (7.A) on integrating the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources.

¹¹ For instance, SDGs 1.5, 2.4 and 11.b.

“MDG+” poverty focused North–South agenda, or to an agenda on sustainable development lacking a specific goal on climate and, hence, all sort of credibility” (Ferrero y de Loma-Osorio 2016, p. 225). However, despite the sensitivity of the issue, some state and civil society actors managed first to bring the debate on climate change issues into the deliberations on sustainable development, and then include it in the SDG framework through the formulation of a specific goal: SDG 13 (Ferrero y de Loma-Osorio 2016).

Considering that climate change was not specifically mentioned in the MDGs, the integration of a specific goal on climate action is important not only because poverty eradication, sustainable development and climate change cannot be addressed as separate concerns, but also because the global nature of climate change calls for the highest possible cooperation by all countries and their participation in providing effective and appropriate international responses. Yet, as climate change intensifies and exacerbates injustices in many parts of the world, with the poor and vulnerable suffering the most, has the SDGs framework, and more precisely SDG 13, been designed to push for immediate action on climate change and to advance climate justice in the Anthropocene?

The 2030 Agenda underscores climate change as one of the greatest challenges of our time and SDG 13 expresses states’ concerns about the adverse impacts of it, particularly on the most vulnerable people. Moreover, it has been pointed out that the 2030 Agenda and the SDGs are “the indispensable and complementary framework to deliver on [c]limate [j]ustice” as they address the drivers of climate change and its consequences and establish targets that are key to mitigation and adaptation (Ferrero y de Loma-Osorio 2016).

Indeed, one of the main achievements of SDG 13 is that it helped to raise the visibility of climate change as a key issue of sustainable development and its relevance to poverty eradication. However, as described below, when analysing the wording of SDG 13 it can be observed that states spurned the opportunity to accelerate urgent global action on climate change and promote climate justice. In fact, climate justice is not explicitly mentioned neither in the 2030 Agenda, nor in SDG 13.¹²

In addition to including targets that are too vague and too weak, and not outlining binding timelines and actions, SDG 13 neither refers to the urgent need to reduce greenhouse gas (GHG) emissions, nor to the need of states, especially developed countries, to urgently reduce the carbon intensity of their economies, all this in order to maintain the global temperature increase below 1.5 °C and to prevent catastrophic levels of climate change (IPCC 2018). The warming limit of 1.5 °C is not only a matter of justice, but also a matter of survival for millions of people (IPCC 2018, Hoegh-Guldberg *et al.* 2019). While maintaining the global temperature increase below 1.5 °C can still be achieved, it seems that the window of opportunity is rapidly closing (Rogelj *et al.* 2015, Höhne *et al.* 2020). Thus, as constraining global climate change to 1.5 °C requires urgent and deep societal and behavioural transformations, SDG 13 could have included a reference to the warming limit of 1.5 °C as well as quantitative targets with specific timelines to limit and reduce global emissions of GHG in order to stay within that limit.

¹² This is not a surprise as the foundational documents that inspired the Global Goals, for instance, the UN document *The Future We Want* (UNGA 2012), included no reference to climate justice.

By doing so, SDG 13 could not only have been more in line with the aspirational and transformational ambitions of the 2030 Agenda, but also could have incorporated the concerns of the most vulnerable countries – such as small island developing states (SIDS)¹³ – whom for years have been demanding to limit global temperature rise below 1.5 °C as it is, while not the best, the only possible option “to stay alive”;¹⁴ a call supported by former executive secretary of the UNFCCC, Christiana Figueres, and members of the climate science community.¹⁵ However, no quantitative objectives apart from target 13.a have been included in SDG 13. Yet, this target, which calls for the implementation of the commitment taken by developed countries to contribute \$100 billion annually to the Green Climate Fund by 2020, merely repeats what was already agreed without seeking to speed up and extend that commitment.¹⁶ While this funding is insufficient to meet the needs of developing countries related to mitigation, adaptation and loss and damage from climatic harms, barely 10 per cent of the promised funds had been delivered at the time of writing.¹⁷

The main issue related to SDG 13 is that actions under this goal are largely based on the outcomes of the climate change negotiations under the UNFCCC. Agreeing on a Global Goal on climate change that relies on the agreements already reached by Parties to the UNFCCC was seen as an option to reinforce existing commitments and to avoid duplicating ongoing efforts and political controversy, especially during the negotiation process of the Paris Agreement.¹⁸ However, in relying on the UNFCCC commitments, SDG 13 does not take into account the fact that more than 20 years of negotiations under the UNFCCC have achieved very little in delivering climate action and justice, and that what states have currently agreed on is not sufficient to prevent dangerous anthropogenic climate change. For instance, the adoption of the 2015 Paris Agreement is considered a major achievement. Yet, current states’ commitments under the agreement – in the form of Nationally Determined Contributions (NDCs) – fall short of what is needed to meet its central goal of keeping the global temperature increase below 1.5 °C above pre-industrial levels.¹⁹ In fact, it has been noted that under emissions in line with current pledges in the NDCs, global warming is expected to surpass 1.5 °C, leading us to an increase above 3 °C (United Nations Environment Programme – UNEP – 2016, p. 16, IPCC 2018, p. 32). None of the NDCs of G20 states is in line with the Paris Agreement

¹³ On the impacts of climate change on these countries, see, for instance, Burkett 2015.

¹⁴ For instance, the Alliance of Small Island States (AOSIS) has been calling for such a limit since 2008 under the slogan “1.5 °C to stay alive”. On the role of the AOSIS in the negotiations under the UNFCCC, see <https://www.aosis.org/home/>. See also Benjamin and Thomas 2016.

¹⁵ On the story of the 1.5 °C limit see, for instance, Bjermeland n.d.

¹⁶ This collective pledge by developed countries is established in the Cancun Agreements (Decision1/CP.16, para 98), as well as in the Paris Agreement (article 9 and Decision 1/CP.21, para 53), although the latter calls for continuing this collective mobilisation through 2025.

¹⁷ See <https://www.greenclimate.fund/about/resource-mobilisation> [Accessed 15 November 2019].

¹⁸ Kelman (2015) notes that the acknowledgement that the UNFCCC has control over climate change and that it is a separate entity from the wider sustainable development processes was a practical, pragmatic and probably the only option for achieving the global agenda. However, despite the aspirations expressed in several parts, such acknowledgement “explicitly separate[s] the UN’s legal process to address climate change from the UN’s voluntary process to address sustainable development (...) thereby retaining the separation for the next 15-and-more years” (Kelman 2015, p. 118).

¹⁹ It has been pointed out that to keep the 1.5 °C limit global GHG emissions should fall by 7.6% every year between 2020 and 2030 (UNEP 2019).

and those of Russia, Saudi Arabia and Turkey would lead to an increase that exceeds 4 °C (Climate Transparency 2018, p. 6). While it is not surprising that SDG 13 is less comprehensive than the Paris Agreement, as the 2030 Agenda and the SDGs were approved three months before the adoption of the new climate agreement, SDG 13 could have been more ambitious to strengthen global climate change action and thus sending a very strong signal to UNFCCC politics, so that they could agree on an ambitious climate agreement in 2015. For this, it could have relied on scientific knowledge and previous UNFCCC agreements and processes, including the Cancun Agreements – the first UNFCCC document to mention the 1.5 °C limit²⁰ – and the conclusion of the first review of the long-term global temperature goal, established by the Cancun Agreements. This review process, which was conducted simultaneously with the SDG negotiations, concluded that the 2 °C limit was inadequate, especially to reduce the very high risks of climate impacts on the most vulnerable people, and that such a risk could be significantly reduced if warming is limited to below 2 °C, something that requires deep cuts in global GHG emissions (UNFCCC n.d.).²¹ SDG 13 could also have taken advantage of the growing support for the 1.5 °C target which emerged from COP16.²² Thus, as the 2030 Agenda and the SDGs framework were meant to form a universal framework to “transform our world” and for addressing the global challenges of poverty eradication and sustainable development, SDG 13 could have gone beyond what has been agreed under the UNFCCC. In order to deliver the scale or rate of changes needed to avoid dangerous climate change, it could have stated high-ambition, science-based climate targets linked to emissions reductions, especially of those who contributed the most, and financial and technological support to those who are on the frontlines of the climate crisis. However, this did not happen. States decided to agree on a shy and vague SDG 13 – and, later on, an unambitious Paris Agreement – that falls short of what is urgently required to tackle climate emergency.

Even the obvious lack of ambition of SDG 13 has not enabled major progress to be made in the goal’s implementation. For instance, many of the G20 countries, which together are responsible for about 80% of the world’s total primary energy consumption and global energy-related CO₂ emissions (Roehrkasten *et al.* 2016), are making little progress or even regressing on the implementation of SDG 13 (Sachs *et al.* 2018). Consequently, progress on SDG 13 “is falling short of what is needed to meet its targets by 2030” and “[i]f the international community does not change course by 2020, it risks disastrous consequences” (High-Level Political Forum on Sustainable Development – HLPF – 2019, para. 30).

²⁰ At the COP 16 in Cancun, parties recognised that deep cuts in global GHG emissions were required according to science and agreed on the long-term global goal “to hold the increase in global average temperature below 2 °C above pre-industrial levels” in order to achieve the UNFCCC objective, as well as on the need to consider strengthening the long-term global goal on the basis of the best available scientific knowledge to a global average temperature rise of 1.5°C (Decision1/CP.16, paras 4 and 139(a) (iv)).

²¹ To support the review, the COP established in 2012 a structured expert dialogue (SED) in order to ensure the scientific integrity of the process through a focused exchange of views, information and ideas. After four sessions, the SED’s final report (FCCC/SB/2015/INF.1) was published in May 2015. For more information on the SED and its final report see UNFCCC n.d.

²² For instance, SIDS and African countries, together with NGOs, took the task of gathering and spreading scientific information on the 1.5 °C limit, and joined forces to gain support from other countries. On this, see the website created by the Climate Vulnerable Forum and CARE (www.1o5c.org).

In light of the above, it has been argued that SDG 13 “is a completely scaled down aspiration” and that states do not need to make any additional efforts to implement the targets of this goal (Jha 2017, p.3). By deciding to follow this politically safe and unambitious route, they have increased the likelihood of missing the 1.5 °C target in the Paris Agreement and missed the opportunity to agree on targets which respond to the urgent action needed to ensure justice for the planet and the most vulnerable people.

As SDG 13 failed largely on addressing the climate crisis, are there other climate-related SDGs – such as SDG 7, 8, 12 and 15 – that might represent a beacon of hope for Earth’s climate and justice? The following section aims to provide some answers to this question.²³

3. Climate-related SDGs: A window of opportunity or a recipe for climate disaster?

The SDGs have achieved greater prominence and are receiving wide attention. They are a buzzword discussed in countless conferences and meetings and billions of dollars have been spent on and donated – by traditional foundations, wealthy individuals, and corporate foundations – to the cause (Ogden *et al.* 2018). Moreover, numerous working groups, task forces, family foundations, philanthropic endeavours, government delegations and businesses “have formed part of a growing army dedicated to spreading the SDG gospel” (Smith and Gladstein 2018). The SDGs are being used as a global framework for the promotion of investment, philanthropy and development budgets (Ogden *et al.* 2018). Businesses in several parts of the world are also aligning their strategies to contribute to the realisation of the Global Goals.²⁴

However, beyond this frenzy lies a glaring problem, that the SDGs promote an agenda based on the strongly contested concept of sustainable development (Williams and Millington 2004, Hopwood *et al.* 2005, Dernbach and Cheever 2015, Washington 2015), that supports the *status quo* and the “unambitious sustainable development’ path”, addressing the symptoms but not the underlying causes of the most pressing challenges they aim to address (Kotzé 2019, p. 224). Despite being presented as “a comprehensive, far-reaching and people-centred set of universal and transformative goals of critical importance to humanity, other species and the planet” (UNGA 2015), the SDGs are riven with tensions and designed in a manner that do not promote the deep societal transformations needed to avert ecological catastrophe (Kotzé and French 2018).

By recognising, albeit superficially, the inherent tension between economic development and environmental protection and by including calls for *inter alia* sustainable patterns of consumption and production (SDG 12) and halting deforestation (SDG 15), the SDGs “reflect an awareness that something about our economic system has gone terribly awry – that the mandatory pursuit of endless material growth is chewing through our living planet, and producing poverty at a rapid rate” (Hale 2016, para. 2). In an inconsistent manner, the SDGs promote a strategy for an anthropocentric sustainable development that relies on old paradigms causing ecological destruction and breaching the planet’s ability to cope. Any goal that addresses the unsustainable growth, over-consumption

²³ The analysis of the climate-related SDGs presented in section 3 starts with SDG 8 on economic growth as it allows framing the analysis of the other SDGs.

²⁴ See, for instance, <https://www.unglobalcompact.org/>

and unsustainable lifestyles in the global North is welcome, but the SDGs repeatedly set targets without providing means.

The highly anthropocentric Global Goals suffer from a profound contradiction in that they call on us to combat climate change – in SDG 13 – while conveniently ignoring the root causes of the climate crisis and its related injustices. As the impacts of climate change are reflective of grave injustices, it is not enough to refer to such impacts without also addressing the factors causing it. Reducing vulnerability to climate change does not require politically correct intentions or statements, but does require political courage and concerted efforts, mainly of the world's wealthiest countries, to considerably reduce GHG emissions. However, as it was the case with SDG 13, other climate-related SDGs – such as SDG 7, 8, 12 and 15 – also do little in confronting the climate crisis and injustices in the Anthropocene. As Adelman (2018) argues, by promoting a weak, anthropocentric form of sustainable development that ignores ecological reality, “[t]he SDGs are incommensurate with the scale and urgency of the unfolding planetary catastrophe and offer no real possibility of global, climate or social justice for current or future generations” (Adelman 2018, p. 39).

3.1. SDG 8: Dressing conventional growth paradigms in green-growth rhetoric

SDG 8 promotes “sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all” (UNGA 2015). However, this Global Goal is entirely devoted to economic growth.²⁵ Although it has been “peppered” with vague or even meaningless qualifications, such as “inclusive” and “sustainable” (Hale 2016), SDG 8 prioritises per capita economic growth and calls for annual GDP growth of more than 7% in the least developed countries, and higher levels of economic productivity across the board (targets 8.1 and 8.2). While the precision of SDG 8 and its targets is striking – especially in comparison with the vague and imprecise SDG 13 – this is not surprising as it precisely reflects the neoliberal nature of an agenda that appears to give greater weight to economic growth than social justice and environmental protection (Hickel 2015a, Weber 2017, Adelman 2018). Yet, it has been noted that the success in reaching the socio-economic goals using “conventional growth policies” would make it virtually impossible to reduce the speed of global warming and environmental degradation (Randers *et al.* 2018, p. 6; emphasis in original).

Endless economic growth requires endless primary resources and increases the pressure on a finite planet. Prioritising GDP increases inequality within and between countries and drives social and environmental instability. As Washington (2015) argues, in “a finite world, we need to accept once and for all that sustainability *cannot* be about further growth” (Washington 2015, p. 36).

Lim and coauthors (2018) stress that the prioritisation of economic growth as the solution to poverty “raises significant sustainability alarm bells” (Lim *et al.* 2018, p. 5). SDG 8, the key message of which is that GDP growth is all that ultimately matters, not only misses

²⁵ Linked to SDG 8 is SDG 9 on *Industry, Innovation and Infrastructure*, which promotes increased industrialisation and production “to support economic development”, despite their negative impacts on global climate. Although this goal suggests that such industrialisation should be “sustainable” and calls for the promotion of green technologies, it focuses on *increased* industrialisation and production. SDG 8 is also linked to SDG 10, which considers economic growth as the primary means to reduce inequality.

the opportunity to promote more sustainable models of development, but also glosses over the fact that enabling the poor to live sustainable lives while avoiding greater climate imbalances and injustices, requires the rich to change their unsustainable lifestyles (Hickel 2015b). Avoiding dangerous anthropogenic heating requires not only regulatory and technological solutions but drastic changes to the unsustainable lifestyles and consumption and production habits of the wealthy (Alfredsson *et al.* 2018).²⁶ In reality, the SDGs and more precisely SDG 8 offer superficial solutions while locking the planet into a 15-year global agenda that promotes a failing economic model based on the continued destruction of Mother Earth, and sidesteps viable solutions (Hickel 2015a). The call for economic growth that is simultaneously “sustained” and “sustainable” is therefore deceptive (Adelman 2018). SDG 8 only dresses conventional economic growth paradigms in green-growth rhetoric designed to maintain business as usual (Hickel and Kallis 2019) despite the ecological risks they entail.²⁷ States are willfully underestimating the consequences of unrestricted economic growth on the Earth’s carrying capacity. Achieving SDG 8 is possible only by jeopardising goals 12 and 13 and efforts to limit the impacts of global warming (Lim *et al.* 2018).

Moreover, expanding economic growth by increasing production and consumption also increases demand for energy and causes higher GHG emissions (Azfar Anwar *et al.* 2019). Use of and access to energy to sustain economic growth is intensifying as economies and populations expand. As a result of an increase in energy consumption worldwide – by 2.3% – driven by a robust global economy that expanded by 3.7%, the global energy-related CO₂ emissions increased by 1.7% in 2018, hitting a new record (International Energy Agency – IEA – 2019).²⁸ China, the United States and India together accounted for nearly 70% of the rise in energy demand and 85% of the increase in emissions (IEA 2019). Yet, while energy consumption is pulled by developing economies such as China, India, Brazil and others, there are still large global inequalities as the per capita energy consumption and CO₂ emissions in these countries remain well below the ones in countries such as the United States, Canada and Australia (Ritchie and Roser 2015, Ritchie 2019). Similarly, energy demand in Europe also increased, and emissions per capita remained much higher than the global average (Climate Transparency 2018, IEA 2019, United Nations Economic Commission for Europe – UNECE – 2019). In addition, a large part of the energy consumption in developing countries, such as in China and India, is embodied in commodities that are exported by them to developed countries (Duan and Chen 2018). In short, CO₂ emissions are increasing because the world is consuming more energy and deployment of low-carbon technologies is not increasing fast enough (IEA 2019). While it has been stressed that to

²⁶ As the Paris Agreement recognises in its Preamble: “[S]ustainable lifestyles and sustainable patterns of consumption and production, with developed country parties taking the lead, play an important role in addressing climate change” (UNFCCC 2015).

²⁷ Adelman (2018) argues that “just as sustainable development fosters the illusion that it is possible to achieve endless economic growth and social justice while protecting the environment, so the SDGs promote the delusion that capitalism is the solution rather than the cause of the rupture in the Earth system and the ecological degradation and destruction that accompanies it” (Adelman 2018, p. 16).

²⁸ Thus, while the average concentration of atmospheric CO₂ in 1994 was 359 parts per million (ppm), in 2018 it was 409 ppm, representing a major increase from pre-industrial levels. See National Oceanic and Atmospheric Administration records (<https://www.esrl.noaa.gov/gmd/ccgg/trends/global.html> [Accessed 24 June 2019]).

have a chance of meeting the 1.5 °C target CO₂ emissions must be halved by 2030 (IPCC 2018), global demand for primary energy and energy-related emissions are both predicted to increase in the decades to come (IEA 2017). SDG 8, which focuses on stimulating global economic growth – and therefore, increasing energy consumption and related CO₂ emissions – does not confront this worrying scenario.

In an attempt to align economic growth and environmental protection, target 4 of SDG 8 calls for the decoupling of economic growth from environmental degradation, which above all requires decoupling economic growth from GHG emissions, and improving resource efficiency in consumption and production.²⁹ However, this is not a clear and quantified target, and by proposing that states should merely “endeavour” to decouple economic growth from all environmental pressures it is made clear that sustained growth is the underlying objective of SDG 8. The idea that economic growth can be decoupled from environmental impacts seems illusory in practice mainly because “growth in GDP ultimately cannot be decoupled from growth in material and energy use” (Ward *et al.* 2016, p. 10). Indeed, as Ward and coauthors (2017) point out “[f]or GDP to keep growing we would need ever-increasing numbers of wind turbines, solar farms, geothermal wells, bioenergy plantations and so on – all requiring ever-increasing amounts of material and land” (Ward *et al.* 2017, para. 14).³⁰ While between 2014 and 2016 global emissions decoupled from economic growth due to improvements in energy efficiency and the deployment of low-carbon technology, in 2017 and 2018 the dynamics changed: CO₂ emissions increased due to a higher energy consumption resulting from a robust global economy, as well as from weather conditions in some regions that led to increased energy demand for heating and cooling (IEA 2019). This demonstrates that the idea promoted in the SDGs that a state’s economy and GDP can continue to grow without using more resources and without exacerbating environmental problems is unachievable because the neoliberal development model based on GDP growth “associates value with systematic exploitation of natural systems and society” (Ward *et al.* 2017). Hence, as Fletcher and Rammelt (2017) point out, the decoupling fantasy incorporated in SDG 8 “serves to sustain faith in the possibility of attaining sustainable development within the context of a neoliberal capitalist economy that necessitates continual growth to confront inherent contradictions” (Fletcher and Rammelt 2017, p. 450). Yet, the empty rhetoric that economic growth and environmental protection can be achieved simultaneously is used to excuse the promotion of economic and GDP growth at the expense of the environment (Ghebretekle 2017).

²⁹ SDG 8.4 calls to progressively improve by 2030 “global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead”.

³⁰ Even marine renewable technologies – such as offshore wind and wave energy – that do not require land as they are deployed in marine space, require materials and could potentially have long-term consequences on marine life beyond those occurring during the construction phase. Yet, the effects of these technologies on ocean ecosystems are still unclear. See, for instance, Berwyn 2017.

3.2. *SDG 7: Missing the opportunity to achieve a major transformation of the unsustainable energy system*

In an effort to address the world's energy challenges, states agreed on an energy goal within the SDGs framework. SDG 7 promotes access to energy as well as energy efficiency and the development of renewable technologies (UNGA 2015). Targets 7.2 and 7.3 call for states to “increase substantially the share of renewable energy in the global mix” and “double the global rate of improvement on energy efficiency” by 2030. Despite their limitations and ambiguities (Villavicencio Calzadilla and Mauger 2017), the agreement on both targets is important especially when it has been estimated that “[b]y 2050, renewables and energy efficiency would meet the vast majority of emissions reduction needs (90%)” (Organisation for Economic Co-operation and Development/International Energy Agency – OECD/IEA – and International Renewable Energy Agency – IRENA – 2017, p. 10).

Nevertheless, an increase in energy efficiency and the provision of renewable energy will not be sufficient to counter the climate crisis. Greater energy efficiency implies improvements in the consumption of energy that would be good for the climate but without necessarily altering consumption habits due to the “rebound effect” (Greening *et al.* 2000).³¹ Moreover, as the IEA has pointed out, this is the area where the least progress has been made (IEA 2019). The Agency notes that energy efficiency saw lackluster improvement in 2018, mainly due to the continued slowdown in the implementation of related policies (IEA 2019). Similarly, despite the rapid expansion of renewable energy technologies and favourable trends in deployment and costs – especially for wind and solar – renewables do not seem to be the preferred option. Instead of opting for renewables, the trend is towards the use of coal and particularly the use of natural gas (IEA 2019). Thus, it has been noted that “[t]here are unmistakable signs that the much-needed global energy transition is underway, but not yet at a pace that leads to a lasting reversal of the trend of rising CO₂ emissions” (IEA 2015, p. 7).

It is striking that SDG 7 calls on developed states – that are largely responsible for climate change – neither to reduce their carbon intensity and reverse their current unsustainable consumption of fossil fuels nor to achieve the deep emissions reductions required to meet the goals in articles 2 and 4 of the Paris Agreement. Unless these countries significantly alter their current modes of production and consumption, “there will be a progressively smaller carbon space available to accommodate the development needs” and survival emissions of developing states (Saran 2015, para. 7). Under SDG 7, the main victims of climate change – mainly the poorest and most vulnerable groups in *global South countries* – who already suffer most from its major impacts, are called to do much more than most people in developed states. They are called to save energy or promote renewable energy and energy efficiency, while no limits have been imposed on the energy intensive lifestyles – especially of the rich minority – in developed states.³²

³¹ As Greening and coauthors (2000) note, “[t]he “take back” or “rebound” effects refers to an increase in the supply of energy services with a corresponding decrease in the effective price (...). This in turn may result in an increase in demand in response to these price decreases. Therefore, increased demand for the service, without an offsetting increase in fuel price, can erode technological efficiency gains” (Greening *et al.* 2000, p. 389).

³² On this aspect, see section 3.3.

Moreover, SDG 7 (target 7.a) calls for action to enhance international “cooperation” to facilitate access to clean energy research and technology, but it does not refer to the responsibility of developed countries – due to their historic emissions – to transfer finance and technology to developing countries in order to assist them in moving on to low-carbon development pathways and, ultimately, to achieve a just energy transition.³³ Clean energy technology transfer that enables a just energy transition is not only crucial for mitigating and avoiding dangerous climate change, but also to achieve climate justice (The International Council on Human Rights Policy 2016).

SDG 7 does not question the current unsustainable energy system that is responsible for the greater share of GHG emissions. While strong action is needed across all sectors of the economy, in some areas, such as electricity, emissions can decrease faster than in others. This is due to the fact that renewable energy is available at lower costs than fossil fuels (OECD/IEA and IRENA 2017), especially in developed countries. SDG 7 could therefore have challenged developed states to be more ambitious and to do more, for instance by setting higher targets for renewable energy. Besides that, we cannot lose sight of the fact that green technologies such as renewable energy require materials and land – actually a wide range of minerals in vast quantities – so their use and production cannot grow indefinitely on a planet with finite resources (Alfredsson *et al.* 2018). Consequently, reducing the current unsustainable trends in energy consumption in developed countries is arguably the only real option which should be deemed acceptable. The 1.5 °C goal simply would not be reached without a major transformation of the unsustainable energy system (Rogelj *et al.* 2015).

Since the SDGs in general, and SDG 7 and SDG 8 in particular, do not require deep reform of the economic and energy systems, they are popular with large polluters – states and companies – who have not only been involved in drafting them but have also become their enthusiastic promoters. G20 leaders, for instance, have reaffirmed their commitment to leading the transformation towards sustainable development and supporting the 2030 Agenda and the SDGs as a framework to advance their Action Plan (SDG Knowledge Hub 2018). Worryingly, they encourage energy transitions that combine growth with decreasing GHG emissions, recognise the role of “all” energy sources and technologies in the energy mix, and foster the idea that a strong economy and a healthy planet “are mutually reinforcing” (G20 2018, paras. 19 and 22). Thus, they propagate the neoliberal sustainable development myth that a robust and expanded economy and the protection of the planet are entirely compatible. Similarly, the United States has reaffirmed its strong commitment to economic growth and energy security, utilising “all” energy sources and technologies while protecting the environment (G20 2018, para. 21). Meanwhile, oil companies, which have historically contributed heavily to the climate crisis and thus should play a key role in the response to it, are integrating the SDGs – especially SDG 7 and SDG 13 – into their core operations (International Petroleum Industry Environmental Conservation Association – IPIECA – *et al.* 2017). Yet, by maintaining the *status quo* they are not using the SDGs to change core business strategies and activities, they are instead waging an aggressive “greenwashing” war on the SDGs.

³³ On the term “just energy transition” see, for instance, Hirsch *et al.* 2017.

3.3. *SDG 12: Addressing consumption and production patterns without transforming systems*

SDG 12 is devoted to ensuring sustainable consumption and production (SCP)³⁴ patterns in our society (UNGA 2015). By agreeing on this Global Goal, countries recognised, at least at the headline level, the need for substantial changes in current unsustainable patterns of consumption and production of goods and services that not only deplete natural resources, but also cause environmental degradation and the generation of huge amounts of GHG (Tukker *et al.* 2008).

As current consumption and production patterns are one of the major drivers of GHG emissions, a paradigm shift in current lifestyles and production and consumption patterns, especially of resources such as food or fossil fuels, is urgently needed to address the climate crisis and to reduce the ecological footprint of human societies (Alfredsson *et al.* 2018).³⁵ SDG 12 proposes some measures which could prove impactful, such as target 12.3 aiming at preventing food waste and losses. If reached, it could decrease demand for agricultural land for food production, the main driver of deforestation, which in turn could reduce GHG emissions (Schröder *et al.* 2019).

However, SDG 12 faces limitations.³⁶ It does not define SCP,³⁷ it mainly repeats earlier agreements and it only includes vague, non-specific and unambitious targets and indicators making it hard to see how it can be fulfilled. The 2030 Agenda refers to the countries' commitment to make "fundamental changes in the way that our societies produce and consume goods and services" (UNGA 2015, para. 28). Yet, neither the 2030 Agenda, nor SDG 12 describes in any greater detail the nature of those changes. As a consequence, this Global Goal "is unlikely to inspire the kind of transformation needed for achieving systems of sustainable consumption and production" (Bengtsson *et al.* 2018, p. 1545).

SDG12 has been found to be "instrumental for reconciling economic, social and environmental objectives and decoupling GHG emissions from economic growth" (HLPF 2018b, p. 5). However, as already explained, the idea that economic growth can be decoupled from GHG emissions is illusory as there is no evidence that this can be possible at the scale and speed needed (Alfredsson *et al.* 2018). Moreover, this Global Goal refers to the need for *efficient* rather than sustainable consumption of natural resources (target 12.2), and it does not clearly recognise the necessarily radical transformation of the existing systems relying on high consumption, production and disposal – especially in developed countries – that is urgently required to avoid climate disaster (Alfredsson *et al.* 2018, Bengtsson *et al.* 2018).

³⁴ SCP is not a new concept. It has been part of international policy debates at least in the last forty years. On the appearance and development of this concept see, for instance, Bengtsson *et al.* 2018 and Gasper *et al.* 2019.

³⁵ This is highlighted in the Paris Agreement, which states that "sustainable lifestyles and sustainable patterns of consumption and production, with developed country Parties taking the lead, play an important role in addressing climate change" (Preamble) (UNFCCC 2015).

³⁶ For a complete critical appraisal of SDG 12 see, for instance, Bengtsson *et al.* 2018 and Gasper *et al.* 2019.

³⁷ As Geels and coauthors (2015) note, SCP "is still an ambiguous 'umbrella' concept with different meaning and conceptualisations" (Geels *et al.* 2015, p. 8).

Indeed, SDG 12 does not include any reference to the highly consuming lifestyles of wealthy countries – especially from the affluent part of their population – or to the need to limit or reduce their unsustainable levels of production and consumption of goods and services for addressing climate change.³⁸ No target to limit or reduce developed countries' excessive consumption of fossil fuels or carbon intensive food products – such as meat – that drives deforestation was included in this Global Goal. It also does not address the issue of the massive offshoring of production from developed countries towards developing countries that causes resources, components and goods to cross the world various times, therefore hardly reducing global GHG emissions. Meanwhile, consumption and production patterns show no sign of a downward trend. Domestic material consumption per capita and in absolute terms is steadily growing globally and per capita material footprint of both developing and developed countries continues to rise. Yet, despite their greater scientific and technological capacity, developed countries have a much higher per-capita environmental impact than developing countries: they at least double the per-capita footprint of developing countries for all types of materials and in the case of fossil fuels, their material footprint is currently more than four times higher (HLPF 2018b, Bengtsson *et al.* 2018).

Fossil fuels subsidies (FFS) reform has been included in SDG 12.c as a means to “rationalize inefficient fossil fuel subsidies that encourage wasteful consumption”. However, in addition to not containing specific timelines to achieve it, this target refers only to “inefficient” FFS, but not to the need of phasing out all of them, especially in developed countries. As Bengtsson and coauthors (2018) note, this target “makes possible for governments to maintain such subsidies if they so wish” (Bengtsson *et al.* 2018, p. 1541). While phasing out FFS would have important benefits for the global climate, especially in terms of reducing CO₂ emissions from fossil-fuel dependent sectors, data shows that fossil fuel support schemes' decline is slowing down in OECD and G20 countries (IEA and OECD 2019). Moreover, reduced subsidies could help decarbonise production and consumption of goods and services, but the trade-offs may worsen the environmental and climate crisis if fossil fuels are only replaced without addressing overall consumption patterns, as the case of biofuels has showed (Bengtsson *et al.* 2018).

SDG 12 should have acknowledged the necessity to reduce global energy and material flows as well as the fact that developing countries will still need and are entitled to increase their consumption of these resources to improve the quality of life of billions of people. Thus, it could have promoted a more equitable distribution of consumption opportunities between countries and between current and future generations, as well as a fair sharing of the available carbon budget or the redistribution of carbon shares from developed to developing countries (Alfredsson *et al.* 2018, Bengtsson *et al.* 2018). After all, the climate crisis is the product of wealth accumulation and overconsumption by a minority of privileged people.

But this has not been the case. In line with a global agenda that stimulates economic growth, SDG 12 thus relies on technological solutions and enhanced efficiency to marginally change consumption and production patterns rather than on substantial

³⁸ While the world's richest 10% are responsible for around 50% of global emissions, the poorest half of the global population contributes to only 10% of emissions (Oxfam 2015).

transformations of the consumer society; something that, as shown by developed countries, is insufficient to achieve a sustainable society (Bengtsson *et al.* 2018).

3.4. SDG 15: *delaying action while ignoring the imminent threat to forests*

Finally, it is worthwhile highlighting SDG 15 on life and land, and more precisely its target 15.2, which calls for halting deforestation by 2020. This target is significant for two main reasons. First, deforestation, which is driven mainly by agribusiness – for soy, palm oil and cattle ranching – and is responsible for more than 80% of global forest loss, is the second-leading cause of climate change after burning fossil fuels and accounts for around 20% of the world’s GHG emissions (Griscom *et al.* 2017). Second, forests mitigate climate change through carbon sequestration, representing one of the largest and most cost-effective solutions, and better forest stewardship could provide more than one-third of the GHG reductions needed by 2030 to stabilise warming to below 1.5 °C (Griscom *et al.* 2017). Forests are not only critical in the battle against climate change. They also play a key role in contributing to achieving sustainable development; their conservation, sustainable management and restoration contribute to poverty alleviation, food and water security, biodiversity and ecosystems conservation, and secure the rights of local communities and indigenous peoples.

The willingness of countries to endorse a commitment to halt deforestation is welcome and a major step forward. However, it is undermined by delaying action to 2020. Setting 2020 as the target date not only ignores the imminent threat to forests, but also retards action to avoid continued forest clearance and increased emissions from deforestation. Since 2015, when the SDGs were endorsed, deforestation has continued, exacerbated by the rising demand for biofuels – especially from soybean and palm oil – and mining, so that tropical forests currently emit more carbon than they capture. As Weisse and Goldman (2019) note, despite efforts to reduce tropical deforestation, tree cover loss hit record highs in 2016 and 2017, especially due to fires, and remained above historical levels in 2018 (Weisse and Goldman 2019, para. 3). In fact, it was reported that in 2017 every second an area of forest the size of a football pitch was lost (Carrington *et al.* 2018). A 2018 review of implementation of SDG 15 revealed that global rates of deforestation were still “alarmingly high” (HLPF 2018a, p. 3). In Latin America, for instance, while deforestation of Brazil’s Amazon rainforest reached in 2018 its highest rate in a decade due to fires and clear cutting (Teixeira 2018), it accelerated after President Jair Bolsonaro took office in January 2019 (Phillips 2019). Deforestation and the intentionally set fires raged throughout Brazil’s Amazon rainforest in 2019 and 2020, causing devastating consequences for the environment and indigenous peoples, as well as violence against Brazilian environment leaders in the region, have been attributed to the Brazilian president’s detrimental pro-business development policies (Krauss 2019, Mendes 2019, Phillips 2020). It is estimated that the unprecedented number of fires in the Amazon in 2019, preceded by deforestation, resulted in a loss of over 900 thousand hectares of rainforest (CBS News 2019). Therefore, it has been noted that at current rates of deforestation, the world’s rainforests may disappear altogether within a century (Vidal 2017). Moreover, a 2018 report that assessed the level of implementation by the most powerful companies in forest supply chains which committed themselves to eliminating deforestation from agricultural supply chains by 2020, concluded that “the 2020 deadline will not be met” (Rogerson 2019, p. 6).

The difficulty in addressing deforestation reflects the tension inherent in the SDGs framework, especially in relation to SDG 8 on economic growth. While there are many factors that contribute to deforestation, the imperative of economic growth is particularly responsible, especially in developing countries (Crespo Cuaresma *et al.* 2017). Deforestation in poor countries is caused mostly by the conversion of forests to agricultural land, but high-income countries also import and appropriate forest resources – wood products – from poor countries to sustain their consumption. The latter are responsible for more consumption driven forest loss than any other income group (Mills Busa 2012).³⁹ The design and implementation of integral solutions to tackle the complex issue of deforestation seems to be difficult, if not impossible, under a framework that promotes and prioritises economic growth and neither challenges the business as usual paradigm of the current economic system nor questions consumerist lifestyles in wealthy countries. Thus, by delaying action until 2020, states have not considered that the continued clearing of rainforest represents not only a disaster for curbing climate change, but also that it has deadly effects on climate justice and human rights, particularly those of indigenous peoples as they are the most common victims of related injustices.⁴⁰

4. Conclusion

Facing the Anthropocene's ecological and climate crisis requires not only profound re-examination of currently-accepted paradigms, but also rapid and unprecedented changes in all aspects of society. The radical transformation of unsustainable economic, energy and consumption and production systems is especially required to avoid disastrous climate imbalances and the perpetration of greater injustices. The focus of the SDGs on climate-related issues and the creation of a standalone goal – SDG 13 – calling states to “take urgent action to combat climate change and its impacts” are commendable, especially because of the inextricable link between sustainable development and climate change as well as the magnitude of the climate challenge we face. However, the Global Goals fall short of addressing the root causes of the climate crisis. In fact, they contain weak and, in some cases, contradictory climate-related aspirations likely to exacerbate rather than counter climate change and its negative impacts.

By including goals that embrace and promote the dominant unsustainable paradigms, the SDGs maintain the *status quo* on climate change. Not only do they refuse to acknowledge that the climate crisis is the product of wealth accumulation and overconsumption by a minority of privileged people, they also deny the need to limit the wealth and power of those largely responsible for it. Given the global nature of climate change and its impacts, some might argue that the SDGs call on all states to contribute as much as they can, regardless of their self-interest. In reality, the Global

³⁹ At present, major emerging import markets, such as China, are also playing a key role in increasing deforestation in developing countries from Africa and Latin America. For instance, the Congo Basin is the second-biggest source of wood used to make furniture in China. However, the wood furniture made by the Asian country is ultimately imported by high-income countries such as the United States (see Fuller *et al.* 2018).

⁴⁰ See, for instance, the case of the Amazon rainforest's defenders in Brazil in Muñoz Acebes 2019.

Goals safeguard the narrowly conceived economic self-interests of wealthy elites while the victims of climate change are left behind.

The SDGs are an ambiguous and politically driven framework designed to reconcile the irreconcilable. As currently formulated, they do not promote the structural changes we urgently need because they remain locked into the rhetoric of economic sustainability, and by failing to do so they help to sustain the unsustainable. By keeping the business-as-usual approach going until 2030, the Global Goals could end up being not only a missed opportunity but also a recipe to promote the climate disaster. Implementing agents are therefore urgently required not only to make efforts to reach the SDGs, but also to correct their limitations and go beyond what has been agreed if they are seriously committed “to build a better future for all people” (UNGA 2015), including the millions who are suffering disproportionately from the climate crisis. Otherwise, as a recent analysis shows, if these and other issues are not corrected “the SDGs could unknowingly promote environmental destruction in the name of sustainable development” (Zeng *et al.* 2020).

References

- Abate, R.S., ed., 2016. *Climate Justice: Case Studies in Global and Regional Governance Challenges*. Washington, DC: ELI Press.
- Adelman, S., 2018. The Sustainable Development Goals, Anthropocentrism and Neoliberalism. In: D. French and L. Kotzé, eds., *Sustainable Development Goals: Law, Theory and Implementation*. Cheltenham: Edward Elgar, 15–40.
- Alfredsson, E., *et al.*, 2018. Why achieving the Paris Agreement requires reduced overall consumption and production. *Sustainability: Science, Practice and Policy* [online], 14(1). Available from: <https://doi.org/10.1080/15487733.2018.1458815> [Accessed 20 June 2019].
- Azfar Anwar, M., *et al.*, 2019. Mapping the Evolution of Energy-Growth Nexus: Synergies and Trade-Offs. *Journal of Economic Surveys* [online], 33(3). Available from: <https://doi.org/10.1111/joes.12306> [Accessed 11 March 2019].
- Beg, N., *et al.*, 2001. Linkages between climate change and sustainable development. *Climate Policy* [online], 2(2) 129–144. Available from: [https://doi.org/10.1016/S1469-3062\(02\)00028-1](https://doi.org/10.1016/S1469-3062(02)00028-1) [Accessed 21 October 2020].
- Bengtsson, M., *et al.*, 2018. Transforming systems of consumption and production for achieving the sustainable development goals: moving beyond efficiency. *Sustainability Science* [online], 13, 1533–1547. Available from: <https://doi.org/10.1007/s11625-018-0582-1> [Accessed 21 October 2020].
- Benjamin, L., and Thomas, A., 2016. 1.5 To Stay Alive? AOSIS and the Long-Term Temperature Goal in the Paris Agreement [online]. Available from: <https://doi.org/10.2139/ssrn.3392503> [Accessed 18 August 2020].
- Berwyn, B., 2017. How do offshore wind farms affect ocean ecosystems? *DW Akademie* [online], 22 November. Available from: <https://www.dw.com/en/how-do-offshore-wind-farms-affect-ocean-ecosystems/a-40969339> [Accessed 15 December 2019].

- Biermann, F., *et al.*, 2016. Down to Earth: Contextualizing the Anthropocene. *Global Environmental Change* [online], vol. 39, 341–350. Available from: <https://doi.org/10.1016/j.gloenvcha.2015.11.004> [Accessed 21 October 2020].
- Bjermeland, M., no date. The story of 1.5 °C. *Cicero* [online]. Available from: <https://cicero.oslo.no/en/understanding-one-point-five/the-story-of-15> [Accessed 15 August 2020].
- Burkett, M., 2015. A Justice Paradox: Climate Change, Small Island Developing States, and the Absence of International Legal Remedy. In: S. Alam *et al.*, eds, *International Environmental Law and the Global South*. Cambridge University Press, 435–450.
- Carrington, D., Kommenda, N., and Gutiérrez, P., 2018. One football pitch of forest lost every second in 2017, data reveals. *The Guardian* [online], 27 June. Available from: <https://www.theguardian.com/environment/ng-interactive/2018/jun/27/one-football-pitch-of-forest-lost-every-second-in-2017-data-reveals> [Accessed 26 October 2020].
- CBS News, 2019. Brazil's Bolsonaro says he will accept aid to fight Amazon fires. *CBS News* [online], 27 August. Available from: <https://www.cbsnews.com/news/amazon-wildfires-brazil-spurns-20-million-aid-offer-from-g-7-nations-today-2019-08-27/> [Accessed 15 December 2019].
- Climate Transparency, 2018. *Brown to Green. The G20 Transition to a Low-Carbon Economy* [online]. Climate Transparency, c/o Humboldt-Viadrina Governance Platform. Available from: <https://www.climate-transparency.org/wp-content/uploads/2019/01/2018-BROWN-TO-GREEN-REPORT-FINAL.pdf> [Accessed 25 January 2019].
- Crespo Cuaresma, J., *et al.*, 2017. Economic Development and Forest Cover: Evidence from Satellite Data. *Scientific Reports* [online], 7. Available from: <https://doi.org/10.1038/srep40678> [Accessed 12 April 2019].
- Crutzen, P.J., 2002. Geology of mankind. *Nature* [online], (415)23. Available from: <https://doi.org/10.1038/415023a> [Accessed 12 April 2019].
- Dernbach, J., and Cheever, F., 2015. Sustainable Development and Its Discontents. *Transnational Environmental Law* [online], 4(2), 247–287. Available from: <https://doi.org/10.1017/S2047102515000163> [Accessed 21 October 2020].
- Duan, C., and Chen, B., 2018. Analysis of global energy consumption inequality by using Lorenz curve. *Energy Procedia* [online], 152, 750–755. Available from: <https://doi.org/10.1016/j.egypro.2018.09.240> [Accessed 27 October 2020].
- Ferrero y de Loma-Osorio, D., 2016. The 2030 Agenda for Sustainable Development: Bringing Climate Justice to Climate Action. *Development* [online], 59(3–4), 223–228. Available from <https://doi.org/10.1057/s41301-017-0122-9> [Accessed 15 March 2017].
- Fletcher, R., and Rammelt, C., 2017. Decoupling: A Key Fantasy of the Post-2015 Sustainable Development Agenda. *Globalizations* [online], 14(3), 450–467.

Available from: <https://doi.org/10.1080/14747731.2016.1263077> [Accessed 21 October 2020].

- Fuller, T., *et al.*, 2018. Assessing the impact of China's timber industry on Congo Basin land use change. *Area* [online], 51(2). Available from: <https://doi.org/10.1111/area.12469> [Accessed 12 January 2020].
- G20, 2018. G20 Leaders' Declaration: Building Consensus for Fair and Sustainable Development. *G20* [online], 1 December. Available from: <http://www.g20.utoronto.ca/2018/2018-leaders-declaration.html> [Accessed 20 April 2019].
- Gasper, D., Shah, A., and Tankha, S., 2019. The Framing of Sustainable Consumption and Production in SDG 12. *Global Policy* [online], 10(1), 83–95. Available from: <https://doi.org/10.1111/1758-5899.12592> [Accessed 21 October 2020].
- Geels, F., *et al.*, 2015. A critical appraisal of Sustainable Consumption and Production research: The reformist, revolutionary and reconfiguration positions. *Global Environmental Change* [online], vol. 34, 1–12. Available from: <https://doi.org/10.1016/j.gloenvcha.2015.04.013> [Accessed 15 August 2020].
- Ghebretekle, T.B., 2017. Interrogating the Economy-First Paradigm in “Sustainable Development”: Towards Integrating Development with the Ecosystem in Ethiopia. *Mizan Law Review* [online], 11(1). Available from: <https://doi.org/10.4314/mlr.v11i1.3> [Accessed 26 March 2019].
- Gonzalez, C.G., 2019. Climate Justice and Climate Displacement: Evaluating the Emerging Legal and Policy Responses. *Wisconsin International Law Journal* [online], 36(2). Available from: <https://ssrn.com/abstract=3398442> [Accessed 30 August 2020].
- Goodman, J., 2009. From global justice to climate justice? Justice ecologism in an era of global warming. *New Political Science* [online], 31(4), 499–514. Available from: <https://doi.org/10.1080/07393140903322570> [Accessed 21 October 2020].
- Greening, L., Greene, D., and Difiglio, C., 2000. Energy efficiency and consumption – the rebound effect – a survey. *Energy Policy* [online], 28(6–7), 389–401. Available from: [https://doi.org/10.1016/S0301-4215\(00\)00021-5](https://doi.org/10.1016/S0301-4215(00)00021-5) [Accessed 21 October 2020].
- Griscom, B., *et al.*, 2017. Natural Climate Solutions. *PNAS Proceedings of the National Academy of Sciences of the United States of America* [online], 44, 11645–11650. Available from: <https://www.pnas.org/content/pnas/114/44/11645.full.pdf> [Accessed 12 June 2019].
- Hale, B., 2016. The SDGs fail to offer the new economy we so desperately need. *Eldis Blog* [online], 22 March. Available from: <https://www.eldis.org/blogpost/sdgs-fail-offer-new-economy-we-so-desperately-need> [Accessed 28 March 2019].
- Hickel, J., 2015a. Five reasons to think twice about the UN's Sustainable Development Goals. *LSE blog* [online], 23 September. Available from: <https://blogs.lse.ac.uk/southasia/2015/09/23/five-reasons-to-think-twice-about-the-uns-sustainable-development-goals/> [Accessed 5 April 2019].

- Hickel, J., 2015b. The problem with saving the world? *Jacobin Magazine* [online], 8 August. Available from: <https://www.jacobinmag.com/2015/08/global-poverty-climate-change-sdgs/> [Accessed 5 April 2019].
- Hickel, J., and Kallis, G., 2019. Is Green Growth Possible? *New Political Economy* [online], 25(4). Available from: <https://doi.org/10.1080/13563467.2019.1598964> [Accessed 25 June 2019].
- High-Level Political Forum on Sustainable Development (HLPF), 2018a. *HLPF Background Note - Review of progress towards achieving SDG 15* [online]. Available from: https://sustainabledevelopment.un.org/content/documents/20069200087.8_Formatted_Background_NoteSDG_15.pdf [Accessed 17 June 2019].
- High-Level Political Forum on Sustainable Development (HLPF), 2018b. *Review of SDGs implementation: SDG 12 – Ensure sustainable consumption and production patterns* [online]. Available from: https://sustainabledevelopment.un.org/content/documents/196532018background_notesSDG12.pdf [Accessed 22 August 2020].
- High-Level Political Forum on Sustainable Development (HLPF), 2019. *Summary by the President of the Economic and Social Council of the high-level political forum on sustainable development convened under the auspices of the Council at its 2019 session (E/HLPF/2019/8)* [online]. UN Economic and Social Council, 9 August. Available from: <https://undocs.org/en/E/HLPF/2019/8> [Accessed 12 January 2020].
- Hirsch, T., Matthess, M., and Fünfgelt, J., 2017. *Guiding Principles & Lessons Learnt for a Just Energy Transition in the Global South* [online]. Available from: <https://library.fes.de/pdf-files/iez/13955.pdf> [Accessed 8 January 2020].
- Hoegh-Guldberg, O., et al., 2019. The human imperative of stabilizing global climate change at 1.5 °C. *Science* [online], 365(6459). Available from: <https://doi.org/10.1126/science.aaw6974> [Accessed 21 October 2020].
- Höhne, N., et al., 2020. Emissions: world has four times the work or one-third of the time. *Nature* [online], vol. 579, 25–28. Available from: <https://doi.org/10.1038/d41586-020-00571-x> [Accessed 21 October 2020].
- Hopwood, B., Mellor, M., and O'Brien, G., 2005. Sustainable development: mapping different approaches. *Sustainable Development* [online], 13(1), 38–52. Available from: <https://doi.org/10.1002/sd.244> [Accessed 21 October 2020].
- Intergovernmental Panel on Climate Change (IPCC), 2014. *Climate Change. Synthesis Report Summary for Policymakers* [online]. Geneva: IPCC. Available from: https://www.ipcc.ch/site/assets/uploads/2018/02/AR5_SYR_FINAL_SPM.pdf [Accessed 20 February 2018].
- Intergovernmental Panel on Climate Change (IPCC), 2018. *Summary for Policymakers. In: IPCC, Global Warming of 1.5°C* [online]. Geneva: IPCC. Available from: <https://www.ipcc.ch/sr15/> [Accessed 18 February 2019].
- International Council for Science (ICSU) and International Social Science Council (ISSC), 2015. *Review of the Sustainable Development Goals: The Science Perspective*
-

[online]. Paris: ICSU. Available from: <https://council.science/cms/2017/05/SDG-Report.pdf> [Accessed 4 April 2019].

- International Energy Agency (IEA), 2015. *World Energy Outlook 2015. Executive Summary* [online]. Paris: OECD/IEA. Available from: <https://webstore.iea.org/download/summary/224?fileName=English-WEO-2015-ES.pdf> [Accessed 14 March 2019].
- International Energy Agency (IEA), 2017. *World Energy Outlook 2017* [online]. Flagship report. Paris: IEA. Available from: <https://www.iea.org/weo2017/> [Accessed 14 March 2019].
- International Energy Agency (IEA), 2019. *Global Energy & CO₂ Status Report: The latest trends in energy and emissions in 2018* [online]. Paris: IEA. 26 March. Available from: <https://webstore.iea.org/global-energy-co2-status-report-2018> [Accessed at 20 April 2019].
- International Energy Agency (IEA), and Organisation for Economic Co-operation and Development (OECD), 2019. *Update on Recent Progress in Reform of Inefficient Fossil-Fuel Subsidies that Encourage Wasteful Consumption* [online]. 2nd Energy Transitions Working Group Meeting. Toyama, 18–19 April. Available from: <http://www.oecd.org/fossil-fuels/publication/OECD-IEA-G20-Fossil-Fuel-Subsidies-Reform-Update-2019.pdf> [Accessed 23 August 2020].
- International Petroleum Industry Environmental Conservation Association (IPIECA), United Nations Development Programme (UNDP) and International Finance Corporation (IFC), 2017. *Mapping the Oil and Gas Industry to the Sustainable Development Goals: An Atlas* [online]. London/Washington, DC/New York: IPIECA/IFC/UNDP. Available from: https://www.commdev.org/wp-content/uploads/2017/07/MappingOilAndGasToSDGAtlas_Web_052118.pdf [Accessed 21 April 2019].
- Jha, A., 2017. *SDG 13: Take Urgent Action to Combat Climate Change and It's Impact* [online]. New Delhi: Parvi. Available from: <https://pairvi.org/Publications/SDG%2013%20Booklet.pdf> [Accessed 5 March 2019].
- Kelman, I., 2015. Climate Change and the Sendai Framework for Disaster Risk Reduction. *International Journal of Disaster Risk Science* [online], 6(2), 117–127. Available from: <https://doi.org/10.1007/s13753-015-0046-5> [Accessed 21 October 2020].
- Kotzé, L.J., 2018. The Sustainable Development Goals: An Existential Critique Alongside Three New-millennial Analytical Paradigms. In: D. French and L. Kotzé, eds., *Sustainable Development Goals: Law, Theory and Implementation*. Cheltenham: Edward Elgar, 41–65.
- Kotzé, L.J., 2019. International Environmental Law's Lack of Normative Ambition: An Opportunity for the Global Pact for the Environment? *Journal for European Environmental and Planning Law* [online], 16(3), 213–238. Available from: <https://doi.org/10.1163/18760104-01603002> [Accessed 21 October 2020].

- 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(1), 5–36.
- Krauss, C., 2019. In the Amazon, Fires Steal Breath, but Smoke Smells of Money. *The New York Times* [online] 2 November. Available from: <https://www.nytimes.com/2019/11/02/world/americas/brazil-amazon-fires-cowboys.html> [Accessed 11 January 2019].
- Lim, M.M.L., Søgaard Jørgensen, P., and Wyborn, C., 2018. Reframing the sustainable development goals to achieve sustainable development in the Anthropocene – a systems approach. *Ecology and Society* [online], 23(3), 22. Available from: <https://doi.org/10.5751/ES-10182-230322> [Accessed 8 March 2019].
- Markandya, A., and Halsnaes, K., eds., 2002. *Climate Change and Sustainable Development: Prospects for Developing Countries*. London: Earthscan.
- Meikle, M., Wilson, J., and Jafry, T., 2016. Climate justice: between Mammon and Mother Earth. *International Journal of Climate Change Strategies and Management* [online], 8(4). Available from: <http://doi.org/10.1108/IJCCSM-06-2015-0089> [Accessed 20 August 2020].
- Mendes, K., 2019. “Guardian of the Forest” ambushed and murdered in Brazilian Amazon. *Mongabay* [online], 2 November. Available from: <https://news.mongabay.com/2019/11/guardian-of-the-forest-ambushed-and-murdered-in-brazilian-amazon/> [Accessed 10 January 2020].
- Mills Busa, J., 2012. Deforestation beyond borders: Addressing the disparity between production and consumption of global resources. *Conservation Letters* [online], 6(3), 192–199. Available from: <https://conbio.onlinelibrary.wiley.com/doi/pdf/10.1111/j.1755-263X.2012.00304.x> [Accessed 8 June 2019].
- Muñoz Acebes, C., 2019. Brazil’s Amazon—and Its Defenders—Are Under Attack from Illegal Loggers. *Foreign Policy* [online], 14 November. Available from: <https://foreignpolicy.com/2019/11/14/brazil-amazon-indigenous-defenders-deforestation-illegal-loggers/> [Accessed 20 August 2020].
- Munro, K., 2014. *The Right Climate for Development: Why the SDGs Must Act on Climate Change* [online]. Report. Produced by CARE *et al.* September. Available from: <https://insights.careinternational.org.uk/publications/the-right-climate-for-development-why-the-sdgs-must-act-on-climate-change> [Accessed 20 January 2019].
- Nerini, F.F., *et al.*, 2019. Connecting climate action with other Sustainable Development Goals. *Nature Sustainability* [online], vol. 2, 674–680. Available from: <https://doi.org/10.1038/s41893-019-0334-y> [Accessed 21 October 2020].
- Ogden, K., Prasad, S., and Thompson, R., 2018. Philanthropy Bets Big on Sustainable Development Goals. *Stanford Social Innovation Review* [online], 18 September. Available from:

https://ssir.org/articles/entry/philanthropy_bets_big_on_sustainable_development_goals [Accessed 10 January 2020].

- Organisation for Economic Co-operation and Development/International Energy Agency (OECD/IEA) and International Renewable Energy Agency (IRENA), 2017. *Perspectives for the energy transition – Investment Needs for a Low-Carbon Energy System* [online]. OECD/IEA and IRENA. Available from: https://www.irena.org/DocumentDownloads/Publications/Perspectives_for_the_Energy_Transition_2017.pdf [Accessed 20 February 2019].
- Oxfam, 2015. *Extreme Carbon Inequality: Why the Paris climate deal must put the poorest, lowest emitting and most vulnerable people first* [online]. Media briefing. Oxfam, 2 December. Available from: https://www-cdn.oxfam.org/s3fs-public/file_attachments/mb-extreme-carbon-inequality-021215-en.pdf [Accessed 12 August 2020].
- Phillips, D., 2019. Amazon rainforest “close to irreversible tipping point”. *The Guardian* [online], 23 October. Available from: <https://www.theguardian.com/environment/2019/oct/23/amazon-rainforest-close-to-irreversible-tipping-point> [Accessed 10 January 2020].
- Phillips, D., 2020. Brazil experiences worst start to Amazon fire season for 10 years. *The Guardian* [online], 13 August. Available from: <https://www.theguardian.com/environment/2020/aug/13/brazil-experiences-worst-start-to-amazon-fire-season-for-10-years> [Accessed 15 August 2020].
- Purvis, B., Mao, Y., and Robinson, D., 2019. Three pillars of sustainability: in search of conceptual origins. *Sustainability Science* [online], vol. 14, 681–695. Available from: <https://doi.org/10.1007/s11625-018-0627-5> [Accessed 21 October 2020].
- Randers, J., et al., 2018. *Transformation is feasible. How to achieve the Sustainable Development Goals within Planetary Boundaries* [online]. A report to the Club of Rome from Stockholm Resilience Centre and BI Norwegian Business School. 18 October. Available from: https://www.stockholmresilience.org/download/18.51d83659166367a9a16353/1539675518425/Report_Achieving%20the%20Sustainable%20Development%20Goals_WEB.pdf [Accessed 20 March 2019].
- Ritchie, H., 2019. Where in the world do people emit the most CO₂? *OurWorldInData* [online]. Available from: <https://ourworldindata.org/per-capita-co2> [Accessed 24 August 2020].
- Ritchie, H., and Roser, M., 2015. Energy. *OurWorldInData* [online]. Available from: <https://ourworldindata.org/energy> [Accessed 20 August 2020].
- Roehrkasten, S., Thielges, S., and Quitzow, R., eds., 2016. *Sustainable Energy in the G20: Prospects for a Global Energy Transition* [online]. IASS Study. Potsdam: IASS. December. Available from: https://www.iass-potsdam.de/sites/default/files/files/iass_study_dec2016_en_sustainableenergyg20_0.pdf [Accessed 20 December 2019].

- Rogelj, J., *et al.*, 2015. Energy system transformations for limiting end-of-century warming to below 1.5 °C. *Nature Climate Change* [online], 5, 519–527. Available from: <https://doi.org/10.1038/nclimate2572> [Accessed 15 June 2019].
- Rogerson, S., 2019. *Forest 500: Annual Report 2018 – The Countdown to 2020* [online]. Oxford: Global Canopy. Available from: https://forest500.org/sites/default/files/forest500_annualreport2018_0_1.pdf [Accessed 8 March 2019].
- Sachs, J., *et al.*, 2018. *SDG Index and Dashboards Report 2018. Global Responsibilities. Implementing the Goals* [online]. New York: Bertelsmann Stiftung and Sustainable Development Solutions Network (SDSN). Available from: <https://sdgindex.org/reports/sdg-index-and-dashboards-2018/> [Accessed 17 March 2019].
- Saran, S., 2015. Paris climate talks: Developed countries must do more than reduce emissions. *The Guardian* [online], 23 November. Available from: <https://www.theguardian.com/environment/2015/nov/23/paris-climate-talks-developed-countries-must-do-more-than-reduce-emissions> [Accessed 4 March 2019].
- Schröder, P., *et al.*, 2019. SDG 12: Responsible Consumption and Production – Potential Benefits and Impacts on Forests and Livelihoods. In: P. Katila *et al.*, eds., *Sustainable Development Goals: Their Impacts on Forests and People*. Cambridge University Press, 386–418.
- SDG Knowledge Hub, 2018. G20 Declaration Focuses on Fair, Sustainable Development. *SDG Knowledge Hub* [online], 6 December. Available from: <https://sdg.iisd.org/news/g20-declaration-focuses-on-fair-sustainable-development/> [Accessed 20 April 2019].
- Smith, J., and Gladstein, A., 2018. How the UN’s Sustainable Development Goals undermine democracy. *Quartz Africa* [online], 7 June. Available from: <https://qz.com/africa/1299149/how-the-uns-sustainable-development-goals-undermine-democracy/> [Accessed 15 March 2019].
- Swart, R., Robinson, J., and Cohen, S., 2003. Climate change and sustainable development: expanding the options. *Climate Policy* [online], 3(1), S19–S40. Available from: <https://doi.org/10.1016/j.clipol.2003.10.010> [Accessed 21 October 2020].
- Teixeira, M., 2018. Deforestation in the Brazilian Amazon has reached a 10-year high. *World Economic Forum* [online], 27 November. Available from: <https://www.weforum.org/agenda/2018/11/deforestation-in-the-brazilian-amazon-reaches-decade-high> [Accessed 8 March 2019].
- The International Council on Human Rights Policy, 2016. Beyond Technology Transfer: Protecting Human Rights in a Climate-Constrained World. In: J. Sarnoff, ed., *Research Handbook on Intellectual Property and Climate Change*. Cheltenham: Edward Elgar, 126–57.
- Tollefson, J., 2018. IPCC says limiting global warming to 1.5 °C will require drastic action. *Nature News* [online], 8 October. Available from:

- <https://www.nature.com/articles/d41586-018-06876-2> [Accessed 27 February 2019].
- Tukker, A., *et al.*, 2008. Fostering change to sustainable consumption and production: an evidence based view. *Journal of Cleaner Production* [online], 16(11), 1218–1225. Available from: <https://doi.org/10.1016/j.jclepro.2007.08.015> [Accessed 21 October 2020].
- UN News, 2007. Climate change “defining issue of our era”, says Ban Ki-moon, hailing G8 action. *UN News* [online], 8 June. Available from: <https://news.un.org/en/story/2007/06/221622-climate-change-defining-issue-our-era-says-ban-ki-moon-hailing-g8-action> [Accessed 20 February 2019].
- United Nations Economic Commission for Europe (UNECE), 2019. *Snapshot Report: SDGs in the UNECE Region* [online]. Geneva: Regional Forum on Sustainable Development for the UNECE Region, 21–22 March. Available from: https://www.unece.org/fileadmin/DAM/RCM_Website/RFSD_2019_SDG_Snapshot_Report.pdf [Accessed 24 June 2019].
- United Nations Environment Programme (UNEP), 2016. *The Emissions Gap Report 2016. Synthesis Report* [online]. Nairobi: UNEP. November. Available from: https://wedocs.unep.org/bitstream/handle/20.500.11822/10016/emission_gap_report_2016.pdf [Accessed 12 December 2018].
- United Nations Environment Programme (UNEP), 2019. *Emissions Gap Report 2019* [online]. Executive Summary. Nairobi: UNEP, 26 November. Available from: <https://www.unenvironment.org/resources/emissions-gap-report-2019> [Accessed 25 July 2020].
- United Nations Framework Convention on Climate Change (UNFCCC), 2015. *Paris Agreement* (U.N. Doc. FCCC/CP/2015/10/Add.1) [online], 29 January 2016. Available from: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement> [Accessed 29 October 2020].
- United Nations Framework Convention on Climate Change (UNFCCC), no date. Summary of the SED. *UNFCCC* [online]. Available from: <https://unfccc.int/topics/science/events--meetings/calendar/summary-of-the-sed> [Accessed 20 August 2020].
- United Nations General Assembly (UNGA), 2012. *The Future We Want* (A/RES/66/288) [online]. New York: United Nations General Assembly. 11 September. Available from: <https://undocs.org/A/RES/66/288> [Accessed 15 February 2019].
- United Nations General Assembly (UNGA), 2015. *Transforming our world: the 2030 Agenda for Sustainable Development* (A/RES/70/1) [online]. New York: United Nations General Assembly. 21 October. Available from: <https://undocs.org/A/RES/70/1> [Accessed 15 February 2019].
- Vidal, J., 2017. We Are Destroying Rainforests So Quickly They May Be Gone in 100 Years. *The Guardian* [online], 23 January. Available from: <https://www.theguardian.com/global-development-professionals-network/2017/jan/23/destroying-rainforests-quickly-gone-100-years-deforestation> [Accessed 5 April 2019].

- Villavicencio Calzadilla, P., and Mauger, R., 2017. The UN's new sustainable development agenda and renewable energy: The challenge to reach SDG7 while achieving energy justice. *Journal of Energy & Natural Resources Law* [online], 36(2), 233–254. Available from: <https://doi.org/10.1080/02646811.2017.1377951> [Accessed 20 June 2019].
- Ward, J., *et al.*, 2016. Is decoupling GDP growth from environmental impact possible? *PLoS ONE* [online], 11(10), 1–14. Available from: <https://doi.org/10.1371/journal.pone.0164733> [Accessed 8 March 2019].
- Ward, J., *et al.*, 2017. The decoupling delusion: rethinking growth and sustainability. *The Conversation* [online], 12 March. Available from: <https://theconversation.com/the-decoupling-delusion-rethinking-growth-and-sustainability-71996> [Accessed 2 March 2019].
- Washington, H., 2015. *Demystifying Sustainability: Towards Real Solutions*. New York: Routledge.
- Weber, H., 2017. Politics of “Leaving No One Behind”: Contesting the 2030 Sustainable Development Goals Agenda. *Globalizations* [online], 14(3), 399–414. Available from: <https://doi.org/10.1080/14747731.2016.1275404> [Accessed 21 October 2020].
- Weisse, M., and Goldman, E.D., 2019. The World Lost a Belgium-sized Area of Primary Rainforests Last Year. *World Resources Institute Blog* [online], 15 April. Available from: <https://www.wri.org/blog/2019/04/world-lost-belgium-sized-area-primary-rainforests-last-year> [Accessed 20 December 2019].
- Williams, C., and Millington, A., 2004. The Diverse and Contested Meanings of Sustainable Development. *Geographical Journal* [online], 170(2), 99–104. Available from: <https://rgs-ibg.onlinelibrary.wiley.com/doi/abs/10.1111/j.0016-7398.2004.00111.x> [Accessed 21 October 2020].
- Zeng, I., *et al.*, 2020. Environmental destruction not avoided with the Sustainable Development Goals. *Nature Sustainability* [online], 3. Available from: <https://doi.org/10.1038/s41893-020-0555-0> [Accessed 2 August 2020].