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THE ETHICS OF CLIMATE CHANGE, CLIMATE POLICY AND CLIMATE JUSTICE

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Abstract The fossil fuel industry is the driving force behind our current carbon-centric socioeconomic systems. The industry has imposed fossil fuel-dependent business models and behaviours on the global socioeconomic system. The actions and plans of the industry are far from being aligned with the 1.5°C target set by the Paris Agreement. Moreover, they remain overlooked in the global climate discourse and negotiations. This paper builds its arguments starting from a moral issue: climate change is an ethical failure, and the industry has had a unique role in causing, shaping, advancing, and defending the current unsustainable fossil fuel-dependent global economy, and thus bears responsibility and has duties of reparation to limit consequent harm. This paper examines the various moral principles of rectifying the unjust situation created by the actions that produced climate change. Although the Paris Agreement assigns responsibilities to states, climate lawsuits against fossil fuel companies are also on the rise. This paper helps link legal frameworks and the relationship between climate justice, sustainable development, and environmental human rights to make radical, systemic changes to ensure a sustainable future.

Keywords
climate ethics, causal responsibility, moral responsibility, historical responsibility, legal responsibility, climate justice, sustainable development, polluter pays principle, loss and damage, environmental human rights-based climate litigation

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1 Introduction

The world is reeling from record-breaking heatwaves, raging wildfires and torrential rainfall. We see them play out on our TV screens, in our newspaper headlines and in our social media feeds. The summer of 2023 has brought one climate disaster after another, as climate change supercharges storms, rainfall, heat, and drought, and produces devastating weather patterns. Climate scientists confirmed July 2023 was the hottest month ever recorded on Earth (Stillman, 2023) and July 6th was the hottest day ever recorded (Jacobo, 2023). The first three quarters of 2023 saw exceptional heat globally, putting 2023 on track to be the warmest year since records began in the mid-1800s (Hausfather, 2023). In August, torrential rains and heavy floods in Slovenia caused millions of dollars' worth of damage, affecting two-thirds of the country; many villages were cut off from the outside world (Johnston, 2023). Wildfires ripped through Canada, southern Europe and the Hawaiian island of Maui (Lukiv and Walsh, 2023; Cooney and Roberts, 2023; Drenon, 2023).

We are facing a climate catastrophe. There is nowhere to hide and no one can deny the impacts of climate change anymore. Gone now is the era of the 1970s and 1980s, when the scientific evidence for climate change was meaningfully debated by scientists themselves. The 21st century saw the dawn of a new era of climate consensus: one in which the scientific agreement was bolstered by high-profile empirical evidence (Parsons 2023, p. 16). Of all the prominent environmental issues in recent decades, global climate change is the most serious and has been widely regarded as the most pressing global environmental problem of the current age (Woods 2020, p. 297). However, multilateral climate policymaking and cooperation are currently at a low ebb. There is an obvious divide between who has caused climate change and who is suffering its effects. Climate changes projected for the next several decades are substantially larger than those observed now.

There are two primary physical drivers of current climate change: human emissions of greenhouse gases (GHGs), and human destruction of carbon sinks (forests, soil, and oceans all serve as vital carbon sinks) (McKinnon 2022, p. 3-4). Human-caused climate change has long been acknowledged as essentially an ethical issue that threatens humanity and ravages the planet (Heede and Grasso 2023). Anthropogenic

climate change[1] is predicted to have severe impacts on human well-being. These impacts will have clear implications for human rights to life, health, and subsistence. Human rights theory and practice are beginning to reflect the fact that humans are ecologically embedded beings (Woods 2020, p. 297). UN human rights entities and European courts[2] confirm that climate change and pollution endanger human rights.[3] Human rights standards are justified moral claims universally held by all persons vis-à-vis their governments, allowing them the opportunity to enjoy, at the very least, the bare minimums of a decent life. The climate crisis threatens to undermine the fulfilment of many human rights. Therefore, human rights norms serve as the clear moral standard against which a government's climate policies and practices must be measured (Kerns 2022, p. 45-46).

In July 2022, the United Nations General Assembly (UNGA) declared the existence of an international human right to a clean, healthy and sustainable environment by an overwhelming vote of 161-0.[4] Although the UNGA resolution is not legally binding on UN Member States, it has the moral force and will empower people to claim their rights to a healthy environment and encourage states to implement national laws and regional treaties that safeguard the environment. A healthy and functioning environment is a precondition for human welfare. Moreover, environmental rights (or human rights and the environment or environmental human rights[5]) have been articulated and refined by regional human rights bodies and judiciaries around the world (Atapattu and Schapper, 2019: p. 36; Kotze, 2021: p. 89).

The climate extremes seen this year have come when global average temperatures are 1.2 degrees Celsius (°C) higher than they were before the Industrial Revolution;

[1] Anthropogenic climate change is a result of increasing human emissions of GHGs into the atmosphere since industrialisation. It is recognised by the majority of the international scientific community that anthropogenic GHGs have been increasingly distorting the earth's climate system. CO_2 is the most potent contributor and the main sources of the increasing atmospheric concentrations of these gases are the combustion of fossil fuels as well as land use change.

[2] The European Court of Human Rights is expected to rule on three cases that further question states' obligation to protect human rights through the adoption of ambitious mitigation targets; *KlimaSeniorinnen v. Switzerland* and *Careme v. France*, heard in May 2023, and *Duarte Agostinho et al. v. Portugal and 32 Others*, heard in September 2023.

[3] The ruling of the Dutch Supreme Court on 20 December 2019 in state of the *Netherlands v. Urgenda*, confirming that Article 2 (right to life) and 8 of the European Convention on Human Rights (right to private and family life) entail legal duties of the Dutch government to reduce GHG emissions by at least 25 percent (compared to 1990 levels) by the end of 2020.

[4] "In historic move, UN declares healthy environment a human right," *UNEP*, July 28, 2022, In historic move, UN declares healthy environment a human right (unep.org) (accessed on August 15, 2023).

[5] Environmental human rights have emerged as a link between environmental protection and human rights agenda, and ultimately, as a language within which to frame environment-related social justice claims.

this year's sweltering summer of record heat saw global temperatures reach the Paris Agreement[6] target of 1.5°C above pre-industrial levels for more than one month (Nilsen, 2023).[7] While science has played a fundamental role in the United Nations Framework Convention on Climate Change (UNFCCC)[8] from the start, its role became particularly significant during the preparation of the Paris Agreement, where a new science-policy interface enabled improved collaboration between the scientific community spearheaded by the Intergovernmental Panel on Climate Change (IPCC)[9] and the policy community generally and negotiators more specifically (Fischlin, 2017: p. 3). Paris Agreement states a commitment to keeping global average temperatures "well below 2°C above pre-industrial levels…pursuing efforts to limit the temperature increase to 1.5°C" (Nicholas, 2021: p. 20). Humanity is not currently remotely on track to succeed in limiting temperature increase to 1.5°C, the aspirational goal of the Paris Agreement. Reaching a 1.5°C world would be an epic victory for humans and nature (Nicholas, 2021: p. 28). It has been frustrating to realise the human and economic toll of extreme weather events related to climate change, and yet not have it be part of the political conversation. The concept of contemporary climate change did not invade the earth from somewhere else in the universe. Climate change is a product of this planet, made here by particular choices by particular people in specific nations at specific times (Shue, 2021: p. 30).

The planet has previously experienced warmer and colder times. Today, however, Earth's climate is changing rapidly because of human activity. Successive findings of the IPCC attest to a worldwide near-consensus among scientists that atmospheric concentrations of GHGs are rising, and have the effect of raising temperatures through the greenhouse effect, and that these increases are anthropogenic or due to human-generated emissions of these gases (Attfield 2015, p. 202). The latest IPCC report projects that without more urgent climate action, the world will pass the key 1.5°C threshold by the early 2030s, risking a far deadlier future for our children and future generations (Hausfather, 2021).

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[6] Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016), UN Doc FCCC/CP/2015/L.9/Rev.1.

[7] It must be stressed that the 1.5°C and 2°C limits set in the Paris Agreement are targets for the average temperature of the planet over the twenty or thirty-year periods typically used to define climate.

[8] United Nations Framework Convention on Climate Change (UNFCCC) (adopted 9 May 1992, entered into force 21 March 1994) UNTC XVII.7.

[9] The IPCC (the world's leading authority on climate science) was established by the United Nations Environment Programme (UNEP), the World Meteorological Organisation (WMO), and the World Health Organisation in1988 to synthesize research on climate change. IPCC reports intended to provide policymakers with regular scientific assessments on climate change, its implications, and potential future risks, as well as to put forward adaptation and mitigation options.

In this paper, I explore how the organisation of our fossil fuel-centred economies has driven climate change, one of the defining challenges of the 21st century. Who should bear the rapidly increasing burdens of the harm caused by anthropogenic climate change? Is it states, or affected individuals, families, and future generations, who had no role in creating the harm? Or should the burden fall on those agents that have contributed the most while simultaneously greatly profiting? I argue that the fossil fuel industry bears substantial responsibility for the cost of redressing climate harm. It seems that the international community is ignoring the elephant in the room of the global climate debate. Fossil fuel companies have a moral responsibility to affected parties for climate harm and have a duty to correct such harm. Climate ethics literature refers in this regard to three moral principles of rectifying the unjust situation created by the actions that produced climate change.

In the international law world, the polluter pays principle[10] forms the backbone of Principle 16 of the 1992 Rio Declaration,[11] which requires polluters to pay for the damage caused by their activities. An essential innovation of the Rio Declaration is that it embraces the principle of sustainable development as a way of balancing two potentially competing priorities, namely economic development and environmental protection (Rose, Blokker and Dam-De Jong, et al. 2022, p. 325). After the establishment of the Warsaw International Mechanism for Loss and Damage (WIM)[12] in 2013, the concept of loss and damage,[13] whereby the nations that emit the bulk of GHGs help address the needs of lower-emitting nations who nonetheless bear the brunt of the climate change impacts, is now considered the third pillar (Broberg and Romera, 2021) of climate action under the UNFCCC. Loss and damage as a climate strategy was recognised in a stand-alone article (Article 8) in the Paris Agreement. At the 2022 Conference of the Parties (COP27) summit in Egypt, all of the world's governments agreed to establish a loss and damage fund for

[10] The polluter pays principle, whereby a state should ensure that it is the actor responsible for pollution that bears both the more immediate and the longer term costs thereof. While the principle is hardly reflective of customary international law, it features as an important guiding principle in a wide range of conventions and legal instruments. See: Henriksen, 2023: p. 198.

[11] Rio Declaration on Environment and Development, UN Doc. A/CONF. 151/26/Rev.1, annex I (June 14, 1992).

[12] Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts (22 November 2013) UN Doc FCCC/CP/2013/L.15.

[13] Loss and damage refers to the harms associated with the adverse effects of human-induced climate change, including the inability to respond adequately to climate stressors and the costs and adverse effects associated with the adaptation and coping measures themselves.

countries worst-hit by climate change.[14] However, it is too early to determine whether the loss and damage provisions of the Paris Agreement will deliver climate justice as rich nations are not obligated under the Paris Agreement to pay for loss and damage.

Despite that, climate lawsuits against fossil fuel companies and governments, which are a rapidly developing field, are on the rise. One of the cases was brought by Milieudefensie, a Dutch environmental organisation, against Royal Dutch Shell. On 26 May 2021, the District Court of the Hague passed a judgement recognising the obligation of Shell to mitigate climate change (Mayer, 2021). International climate agreements have reflected climate justice repeatedly, emphasising the principle of "common but differentiated responsibilities" (CBDR)[15]. However, developed countries have failed to live up to their commitment to help their poorer counterparts adapt (Worland, 2022).

This paper does not claim to be the first to have pointed the finger at the fossil fuel industry for its role in the climate crisis, nor should the industry become the only agent responsible for addressing climate change. Different agents have different roles and responsibilities in tackling climate change; most importantly states should provide the appropriate legislative and political frameworks for ensuring that, in accordance with their responsibility, the fossil fuel industry complies with their duties. Climate impacts will not be mitigated or avoided without collective action and governmental regulation; moreover, individuals also have duties to bring about effective collective action on climate change. Of course, a hesitant yet accusatory finger has long been aimed at the industry's way over broader issues such as environmental degradation, economic exploitation, social disruption, political instability, and cultural estrangement.

This paper has six sections in addition to the Introduction and Conclusion. I begin in section two with a brief overview of the global climate change problem and summarise the present state of scientific knowledge which documents the human

[14] See "COP27 Reaches Breakthrough Agreement on New "Loss and Damage" Fund for Vulnerable Countries," UN Climate Change News, COP27 Reaches Breakthrough Agreement on New "Loss and Damage" Fund for Vulnerable Countries | UNFCCC (accessed January 26, 2023).

[15] The CBDR principle seeks to take account of the special needs of developing states and the fact that developed states generally hold greater responsibility for existing environmental damage and are better equipped to deal with the consequences than developing states. There is both an element of contribution or responsibility for the creation of an environmental problem and an element of ability to offer a remedy inherent in the principle. See: Henriksen, 2023: p. 198.

causes and disastrous impacts of climate change. Section three examines the moral responsibility of the fossil fuel industry for the climate crisis and explores the role the industry has played and still plays in climate change. Section four explores the moral arguments for responding to climate change and discusses the types of moral duty that govern our response to climate change. Section five discusses the concept of climate justice, recognising that those least responsible for climate change are those who are most vulnerable to its effects. Section six considers people's fundamental rights and interests and the planet they inhabit. Section seven outlines the fossil fuel industry's causal responsibility and duties towards society and outlines the present deadlock on the issue.

2 Overview of the Human-Caused Climate Change Problem

The Earth is in uncharted territory now due to global warming from burning fossil fuels, and further irreversible damage is likely without accelerated efforts to reduce GHG emissions. Scientific research is crucial in the face of these threats, to help better understand these changes now and over the longer term and to feed into climate policy interventions. The Industrial Revolution and the discovery and widespread use of fossil fuels kicked climate change into overdrive and now the situation is dire. The Industrial Revolution was powered by an energy revolution that produced today's global energy regime based on the exploration for and the extraction, transport, and combustion of fossil fuels. The damage from industrialisation has been universally distributed in the form of the growing dangers constituting climate change that face everyone, including everyone in future generations of all nations, and the massive problems of air pollution that kill millions every year (Shue, 2021: p. 33 and 36).

While the Global North's historical carbon emissions have exceeded their fair share of the planetary boundary by an estimated 92 per cent, the impacts of climate change fall disproportionally on the Global South, which is responsible for a trivial share of excess emissions (8 percent) (Heede and Grasso, 2023). Humans are exceeding planetary limits on multiple fronts, and the impacts of human activity in different areas are interrelated and create synergistic effects. The latest assessment on the "planetary boundaries" framework, published in the journal Science Advances and based on 2000 studies found that six of the nine planetary boundaries had been broken because of human-caused pollution and destruction of the natural world (Guardian Editorial, 2023).

By far the most important factor causing climate change is the accumulation in the planet's atmosphere of carbon dioxide (CO_2) from the burning of fossil fuels. It turns out that because CO_2 remains in the atmosphere for almost unimaginably long times, the crucial factor is the cumulative amount of CO_2 emitted since around 1750 (Shue, 2021: p. 62). CO_2 represents 75 per cent of GHG emissions; methane and nitrous oxide make up most of the rest (Nicholas 2021, p.16). It is firmly established as long as the atmospheric concentration of GHGs – and especially CO_2 – continues to expand, climate change will continue to become more severe (Shue, 2021: p. 19). Present and future emissions matter primarily because we humans have already injected so much CO_2 into the atmosphere in the past. The earth's climate system has a single carbon budget for any given probability for any given amount of change in the foreseeable future. This means that the carbon budget is both global and cumulative, which means there can be no separate budgets for the past, present, and future. There is one carbon budget for all the centuries of any relevance to humans (Shue, 2021: p. 29).

The 2022 Emissions Gap Report[16] found: "The world is still falling short of the Paris climate goals, with no credible pathway to 1.5°C in place." The report finds that the nationally determined contributions[17] (NDCs) that governments have put on the table currently leave us on course for warming up to 2.8°C this century. The latest IPCC report uses 2019 as a baseline, indicating that GHG emissions need to be cut by 43 per cent by 2030. This is critical to meeting the Paris Agreement goal of limiting temperature rise to 1.5°C by the end of this century and avoiding the worst impacts of climate change.

It is critical for global emissions to peak and then start declining sharply very soon, which is physically and technologically possible. It simply has to be made politically possible by acts of determination and will that unseat incumbent politicians blocking action (Shue, 2021: p. 63). Studies have outlined a range of political activities that preserve fossil energy's near stranglehold on public policy, including using political

[16] The Emissions Gap Report (EGR) series tracks our progress in limiting global warming well below 2°C and pursuing 1.5°C in line with the Paris Agreement. With the aim to inform the climate negotiations among UN Member states, the ECR is launched every year ahead of the UN Climate Change Conference of the Parties (COP).
[17] The Paris Agreement has a pledge and review structure, whereby countries commit to making emissions reductions, and collectively review progress overtime. These pledges are made in countries nationally determined contributions (NDCs). Parties to the Agreement are legally required to submit their NDCs but there are no legal requirements for them to make any specific commitments in those NDCSs.

campaigns to outflank arguments for renewable energy, discrediting opponents (especially climate scientists), lobbying and funding politicians and funding conservative think tanks and social movements supportive of the industry (Nyberg, Wright and Bowden 2023, p. 24). By about 2050, CO_2 emissions from energy use must completely stop, which means humanity must exit the fossil fuel, or carbon, energy regime entirely and use nothing but alternative energy, that is, noncarbon energy, meaning, anything but fossil fuel. This is because if we keep adding to the cumulative total, the atmospheric concentration will exceed the carbon budget by 2°C (Shue, 2021: p. 63).

It is the extent to which governments manage the energy transition that will ultimately define them. That is difficult, when more than 75 per cent of global GHG emissions and close to 90 per cent of all CO_2 (Shue, 2021: p. 32) come from burning fossil fuels that still supply about 80 per cent of the world's energy (Nyberg, Wright and Bowden 2023, p. 12). Fossil fuels are deeply woven into our industrial society and global economy. They played a central role in creating the material comforts many of us take for granted, as well as the harrowing inequalities that characterise our world. Moreover, their continued use threatens human life as we know it on this planet (Chomsky, 2022: p. 180). Fossil fuel companies and their allies actively promote business models and economic systems that cause carbon emissions. The energy transition is a shift from a concentrated, expensive, polluting commodity-based system with no learning curve, to an efficient, manufactured, technology-driven system that offers continuously falling costs and is available everywhere. The powerful state-owned companies as well as public investor-owned companies have to decide whether they transition to the energies of the 21st century and thereby accelerate the exponential curve of the energy transition, or if their flame dies out while they remain blind and in pernicious resistance. The challenges in making the transition from a carbon-burning energy regime to alternative sources of energy are, on the whole, relatively minor compared to the gargantuan consequences of persisting in the carbon energy business as usual (Shue, 2021: p. 80).

By framing climate change as an ethical challenge requiring the reduction of injustice, the first step is to think about the victims (sufferers of harm, loss, or damage) of climate change. The fact that vulnerability, resilience, power, and emissions flows are not evenly distributed across people, combined with the fact that climate change is being caused by human activity - and that its impacts on some people can be addressed by other people in positions of advantage - brings climate change into the

domain of justice (McKinnon, 2022: p. 36). Climate change is one of the cruellest manifestations of injustice confronting humanity. Caused primarily by the world's most affluent populations, its consequences are being borne disproportionately by the planet's most vulnerable states and peoples (Gonzalez, 2021: p. 72). The impacts of climate change on poor people in developing countries allow further ethical themes to be emphasised. It is widely agreed to be wrong to impose risks on others, particularly when those others have no ability to avoid them; this is uncontested in cases of reckless driving and of reckless endangerment of workers by factory owners, and should be equally clear in cases where the potential climate victims live further away from those who cause the risks, and are harder to identify (Attfield, 2015: p. 204).

3 The Fossil Fuel Industry's Direct Contribution to Climate Change: A Moral Perspective

Ongoing emissions from burning fossil fuels are behind the planet's warming trend and thus it is accurate to say that the burning of fossil fuels is causally responsible for most of the climate change (Shue, 2021: p. 37). The fossil fuel industry has had a unique role in causing, shaping, advancing, and defending the current unsustainable fossil fuel-dependent global economy: by indiscriminately providing their products to the global economy, the carbon majors are the heartbeat of the current carbon-intensive socioeconomic system (Grasso, 2022: p. 35). The contribution to the damage done begins with the role played in the creation of the global carbon energy regime that relies on extracting, transporting, refining, and burning fossil fuels, whose emissions continue to force the climate to become increasingly inhospitable to human flourishing (Shue, 2021: p. 34).

Questions of responsibility for climate change also address causal responsibility, duties to address injustice, and the agent to which these duties attach. However, the answers to these questions in the climate case are far from straightforward. This is in part because climate change is arguably a perfect moral storm: its causes and impacts are geographically and temporally splintered and dispersed; the agency fit to tackle it is fragmented; and the nature of the wrongs at the heart of climate justice is disputed (McKinnon, 2022: p. 91). Causal responsibility alone is not sufficient to justify the consequent duties that the fossil fuel industry must shoulder. Furthermore, moral responsibility is a complex matter.

Marco Grasso develops a moral framework that lays out the fossil fuel industry's duties of reparation and decarbonisation to mitigate the harm it has done in his book *From Big Oil to Big Green: Holding the Oil Industry to Account for the Climate Crisis*. Grasso argues that the fossil fuel companies enabled harm to humanity and the planet as opposed to their direct contributions in terms of emissions that did harm. He highlights the industry's harm-related morally relevant facts thwarted harm prevention, giving rise to costs in terms of the climate harm generated.

In brief, Fact 1, *Awareness*: fossil fuel companies have known for several decades that their activities were causing long-term damage to the climate; Fact 2, *Behaviour*: for decades after their internal knowledge of climate change, the industry did not change its carbon-intensive business models to less carbon-intensive and sustainable business models. On the contrary, they continued to explore, produce, refine, and distribute fossil fuels; Fact 3, *Capacity*: studies show that the largest fossil fuel companies held the technical capacity for clean energy well within their grasp: they were the proud holders of several early patents on various technologies that would have helped reduce their carbon output; Fact 4, *Denial*: through an intensive, systematic, and sophisticated denial campaign, major fossil fuel companies have successfully opposed any political efforts to move socio-economic systems away from fossil fuels, thereby inducing decision makers to commit a morally relevant omission that has seriously aggravated the negative repercussions of the climate crisis on a global scale; Fact 5, *Enrichment*: The fossil fuel companies have made substantial profits that have seen them acquiring extraordinary wealth through their fossil fuel-related activities.

In this regard, climate ethics literature refers to two backward-looking moral principles, the polluter pays principle (PPP) and the beneficiary pays principle (BPP), and one forward-looking moral principle, the ability to pay principle (APP). While the morally relevant Facts 1, 2, 3, and 4 are all related to harm and therefore refer mostly to the PPP, Fact 5, which is not related to harm, refers to the BPP and the APP. In other words, the inclusion of the wealth component intrinsic to Fact 5 reinforces the justifications for the industry's moral responsibility, especially in view of a consequent duty of reparation that should take the form of disbursement of funds (Grasso, 2022: p. 38-60 and 81-83). All these principles aim to establish and justify a positive responsibility for sharing the burden of correcting the unjust situation caused by climate change and will be covered in detail in Section 7.

For decades, public funds have been guided into the coffers of politically connected fossil fuel companies as subsidies. Fossil fuels cannot compete on their own: more than ever, they need the political favouritism and subsidies that they have enjoyed. According to the most recent International Monetary Fund[18] (IMF) analysis, despite being the primary cause of the climate crisis and at a time when the world is starting to experience worsening impacts of climate change from heatwaves, wildfires and floods from the Americas to Europe to Asia, fossil fuels benefited from record subsidies of US$13 million a minute in 2022. The total subsidies for fossil fuels in 2022 were US$7 trillion, which is equivalent to 7 per cent of global GDP. Implicit subsidies, which represent the enormous costs of the damage caused by fossil fuels through climate change and air pollution, made up 80% of the total (Black, *et al.*, 2023).

In 2009, the G20 nations, which cause 80 per cent of global carbon emissions, pledged to phase out inefficient fossil fuel subsidies. However, according to an estimate by the International Institute for Sustainable Development think tank, the G20 poured a record US$1.4 trillion into fossil fuel subsidies in 2022 (Laan and Geddes, 2023). In June 2023, the World Bank reported that fossil fuel and agricultural subsidies combined could amount to US$12 trillion a year and were causing environmental havoc (Carrington, 2023).

With fossil fuel companies gaining record profits amid the energy crisis in 2022, resulting from Russia's war in Ukraine, there is little incentive for them to change their business models in line with what is needed to limit global warming. The scale of fossil fuel subsidies is a worrying sign for energy transitions. By underpricing fossil fuels, governments not only incentivise overuse but also perpetuate inefficient polluting technologies and entrench inequality. There would be enormous benefits from subsidy reforms, and governments have the power to push them in the right direction. To stabilise global temperatures, we must move away from fossil fuels instead of propping up an industry that is contributing directly to climate change.

While 2022 inflicted hardship upon many people around the world due to inflation, war, and climate-driven disasters, the fossil fuel industry had its most profitable year in history. The world's biggest fossil fuel companies released their earnings reports,

[18] The negotiations at the 1944 Bretton Woods conference resulted in the creation of what are known as the Bretton Woods Institutions, namely the International Monetary Fund (IMF) and the World Bank. The IMF was established to regulate monetary relations between states.

revealing record-breaking profits; just five companies (ExxonMobil, Shell, BP, Chevron, and Total Energies) reported a total of nearly US$200 billion in profits in 2022 (Milman, 2023). Saudi Arabia's state-controlled oil company Aramco reported a record profit of US$161 billion for 2022, the highest-ever annual profit by an energy company (BBC News, 2023). While these companies are making hundreds of billions of dollars in profit, the world is incurring record losses due to extreme weather events. As the field of attribution science advances, researchers are increasingly able to show when and how particular extreme events are occurring due to human-caused climate change and trace these changes back to the source of the GHG emissions. While climate impacts are often discussed in terms of economic damages, we must never lose sight of the fact that much of the loss and damage suffered involves things so precious that it is impossible to place a monetary value on them, including losses of life, cultural heritage, and a sense of safety.

Ending the fossil fuel subsidies should be the centrepiece of efforts over the next few years to get on track with limiting global warming to below 2°C, as well as preventing 6.7 million (World Health Organisation, 2022) premature deaths annually due to air pollution and household air pollution. If we are to have any chance of avoiding the irreversible and tragic consequences of climate change, governments simply have to show bolder leadership by phasing out their support for the production and consumption of fossil fuels. The researchers of the IMF report found that ending fossil fuel subsidies would cut GHG emissions by 34 per cent by 2030 compared with 2019 levels, representing a large chunk of the 43 per cent cut needed to ensure a reasonable chance of keeping global warming below 1.5°C (Black, *et al.,* 2023).

By and large, states are the principal players involved in addressing climate change. Other stakeholders, such as civil society, individuals, local authorities and communities, private-sector actors, and international institutions are considered subordinate players. While all stakeholders are involved in global efforts to combat climate change, fossil fuel companies are the truly overlooked players in the current climate policies and initiatives. Fossil fuels should now be looked upon as a harmful product, the use of which is affecting the health, lives, and well-being of present and future generations of all Earth's inhabitants. It is time to acknowledge not only the role of the fossil fuel industry but also the moral and political implications deriving from its involvement in such harmful products. Indeed, climate activists have started to train their focus on fossil fuel companies and projects (Grasso, 2022: p.33-36). It

is vital that humanity close down the fossil fuel regime and make the transition to a safe and sustainable energy regime. Energy-poor developing countries must be enabled to the greatest extent possible to leap-frog over carbon-based energy to noncarbon energy, because their carbon emissions will exceed the remaining carbon budget if they follow the same high-polluting path originally taken by the now-developed countries (Shue, 2021: p. 38).

Climate change discussions need to be based on facts. The fact remains that the accumulated effects of the fossil fuel regime have long been undermining human economies and societies. The most straightforward testament to the role the fossil fuel industry has played and still plays in climate change is the direct contribution of GHG emissions generated by its activities. Research by Richard Heede's Climate Accountability Institute has focused on the contribution of the large carbon producers, providing overwhelming grounds for an investigation into Big Oil's contribution to climate change in terms of emissions, thus paving the way for an analysis of its responsibility and its consequent duties. Heede's findings demonstrate that 62 per cent of the global industrial emissions of GHGs from 1751 to 2015 can be traced to the activities of one hundred currently operating carbon majors (41 public investor-owned companies, 16 private investor-owned, 36 stated-owned and seven government-run) and eight non-extant ones. Heede's data also demonstrates that the one hundred currently operating carbon majors have produced 71 per cent of the global industrial emissions since 1988. The top twenty were responsible for more than 30 per cent and the top ten accounted for almost 22 per cent of cumulative global industrial emissions in the period of 1988-2015 (Grasso, 2022: p. 31).

Through its informed and self-advantageous choice to continue the exploration, production, refinement, and distribution of fossil fuels – all the time denying the harmfulness of such products and using its lobbying clout on political decision-makers – the industry has imposed this reliance on fossil fuels on other industries, which have had to shape their business models accordingly with a limited number of costly alternative options; the same is true for individuals, whose lifestyles have evolved in parallel to the business choices made by this influential industry. However, an increasing number of people are waking up to the prominent role the fossil fuel industry plays in the climate crisis. The bad news is the world will continue to heat and extremes of heat and rainfall will worsen until net zero is reached globally – in every country and every sector.

4 Moral Foundations of Climate Action: A Philosophical Perspective

Environmental ethicists and moral and political philosophers who have engaged with climate change have pulled no punches in their condemnation of our many ethical failures in the face of climate challenges. Climate action is not a luxury but a must. At the most fundamental level, the reasons to respond to climate change arise from the enormous human suffering and loss that climate change could bring. If humanity cannot prevent climate change through mitigation, people will face increased climate-related hazards, including both extreme events, such as droughts, and wildfires, and slow-onset events, such as rising temperatures and oceans. If people cannot adapt to protect themselves against those hazards, they will suffer. Thus, suffering is sometimes listed as a third kind of response to climate change: it is what remains to be done where mitigation and adaptation fall short (Morrow, 2020: p. 91).

One simple moral argument for responding to climate change is as follows: death, human suffering, and loss are very bad things. Morally speaking, we ought to prevent very bad things from happening when we can do so without excessive sacrifice. We can prevent much of the death, disease, mental and physical suffering, and cultural and social losses around the world that climate change could bring by mitigating and adapting to climate change, and we could do so with relatively little sacrifice compared to the scope of the problem. However, mitigation and support for adaptation are not only about preventing harm but also about stopping ourselves from inflicting harm on others (Morrow, 2020: p. 92-95).

Two different types of moral duty govern our response to climate change. The moral philosopher John Broome put the point this way: We have "duties of goodness" that require us to make the world a better place, but we also have far more stringent "duties of justice." Broome explains that duties of goodness are not owed to people. Morality requires you to try and improve the world, and not make it worse. For instance, when you are getting rid of surplus clothing, you should give it to someone who can use it rather than throw it out. That person has no right to your clothing. If you do not give it to her, you do her no injustice. You do not owe it to her to give it to her. Morality also requires governments to make the world better. For instance, it requires them to design their regulations about carbon emissions (Broome, 2012: p. 49-54).

Broome states that duties of justice plainly differ from duties of goodness. Duties of justice are owed by one person to another particular person, or to other particular people. To express the fact that the duty is owed to some person, we often say that the person has a right to your performance of the duty. The notion of a right goes along with a duty of justice. For instance, you have a right not to have your house demolished without compensation, and people have a right not to have their property stolen or to be killed. If you breach a duty of justice, you are doing an injustice. Some moral rights are also legal rights; for example, the right to private property is among them. Individuals do indeed have a duty of justice to reduce emissions by their private actions. The duty to promote good is a very serious moral duty, as justice is (Broome, 2012: p. 49-54).

Duties of goodness and duties of justice do not always conflict. In the case of climate change, they generally pull in the same direction. When you cause emissions, they harm other people. This is an injustice done to those people, and it also makes the world worse. Therefore, reducing emissions is a duty of justice and also a duty of goodness. These are obligations that we owe to particular people, specifically, those whom we wrong if we fail to live up to those obligations. Much of what we owe to one another is governed by morality and, as such, has the force of moral duty. This is certainly true of duties to reduce climate injustice. These are duties either to avoid action that causes climate change and/or to take remedial action to address the damage done to the victims of climate change (McKinnon, 2022: p. 109-110).

Broome argues the harms we inflict through our GHG emissions are unjust because several features of those harms mean that we lack adequate justification. First, the harm results from something we do; we cannot try to justify it by appealing to the distinction between what we do and what we merely allow to happen. Second, the harms are serious harms that cannot be easily excused. Third, even if they are not exactly deliberate – we are not emitting GHGs for the purpose of harming others – they are not accidental; we can no longer excuse ourselves by saying that we did not expect the harm to occur. Fourth, we do not compensate the victims of these harms. Fifth, each person's emissions are produced in the pursuit of their own self-interest; we cannot try to justify them as regrettable side effects of our pursuit of the greater good. Sixth, they are not fully reciprocated, meaning that the harms are largely inflicted by one group of people (wealthier people in the current generation) on other groups (poorer people and future generations); we cannot try to excuse them by noting that the victims are doing the same to us. Seventh, we could easily avoid

these harms; while the costs of mitigation will not be trivial, they are small in comparison to the harms we would inflict through unmitigated climate change. Taken together, Broome concludes, these facts mean that we are harming others unjustly (Morrow, 2020: p. 96; Broome, 2012: p. 54-59).

Climate change is essentially a matter of justice and is nothing new. All major ethical systems would strongly condemn behaviour that poses serious risks to the things that humans hold value, such as life, health, family and the ability to make a living. Thus imposing mortal threats on fellow-humans, however distant, and without the strongest of justifications, is manifestly wrong. Yet this is what disproportionate emissions of GHGs standardly do if the general scientific consensus is to be accepted. Furthermore, this means that ignoring the precautionary principle[19] in these circumstances is ethically intolerable (Attfield, 2015: p. 204). The UNFCCC Article 3(3) provides, "Parties should take precautionary measures to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effects. Where there are threats of serious irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures."

The customary law status of the precautionary principle has been confirmed by numerous findings of international courts and tribunals. In general terms, this principle declares that where there is reason to regard a substance or process as environmentally damaging, preventive action or regulation should be undertaken despite the absence of scientific certainty (Attfield, 2015: p. 156). That principle applies wherever there is reason to credit a risk of environmental damage that is severe or irreversible (or both); and even those who do not fully accept climate change science can hardly deny that, even in the absence of complete scientific consensus, reasons exist for regarding these as serious dangers, and ones likely to be caused by human activity (Attfield, 2015: p. 203).

As Simon Caney (Caney, 2010 a; Caney 2010 b) argues, the unjust disadvantages suffered by victims of climate change, for example, loss of livelihoods, illness, and displacement, are not new, and the distribution of these disadvantages by climate impacts are deeply intertwined with other injustices such as global poverty, histories

[19] The so-called precautionary approach stipulates that a lack of scientific certainty about the negative effects of an activity must not prevent states from taking preventive measures. Notions of precaution are found in many treaties in international environmental law, including in the 1985 Vienna Convention for the Protection of the Ozone Layer and the 1992 UNFCCC. See also Principle 15 of the Rio Declaration.

of colonialism, injustice in trade, and corporate tax avoidance (McKinnon 2022, p.37). A common way of understanding the damage done to people in the Global South by climate change is in terms of human rights. They are legally enforceable protections and/or claims that correlate with obligations held by others. Human rights provide a prima facie attractive framework for thinking about climate injustice because they focus on people, are action-guiding, and already exist in multiple legal agreements in the international domain that reach within state borders (McKinnon, 2022: p. 40-41).

Caney notes a human rights-based approach focuses our attention on individuals' overriding moral claims not to be treated in certain ways – claims that cannot be trumped by benefits to other people or even to the people whose rights are violated. A human rights approach focuses on protecting individuals' rights. The most straightforward argument of this sort starts from the claim that climate change will violate people's basic human rights. Caney argues that by causing climate change, emitters are collectively violating individuals' rights to life, understood as the right not to be arbitrarily deprived of one's life; as well as individuals' right to health, understood as a right against others' creating serious threats to one's health; and individuals' right to subsistence, understood as a right not to be deprived of the means of subsistence. A human rights approach highlights emitters' moral obligation to address loss and damage, particularly by compensating victims, and emitters' obligation to help people adapt to climate change (Morrow, 2020: p. 96-97).

Steve Vanderheiden (Vanderheiden, 2008) argues for a human right to an "adequate environment", which includes a right to a "stable climate." Principle 1 of the Stockholm Declaration[20] from the 1972 UN Conference on the Human Environment declares that humans have "the fundamental right to freedom, equality, and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being," and that as a result, humanity "bears a solemn responsibility to protect and improve the environment for present and future generations. " In this view, the right to an "adequate environment" follows from basic rights to life, freedom, equality, and dignity because it protects the necessary physical conditions for human flourishing. He asserts that the right to "climatic stability" appears to be an obvious corollary of such a right, to the extent that the "preventing dangerous anthropogenic interference with the climate system"

[20] Stockholm Declaration on the Human Environment (A/Conf/48/14/Rev.I, United Nations 1972).

mentioned in the UNFCCC (the ultimate aim of the UNFCCC) poses a direct threat to the basic environmental conditions for a decent life (Morrow, 2020: p. 97).

As Stephen Gardiner (Gardiner, 2011) argues, there are some special features of climate change that open the door to morally corrupt reasoning about action on climate policy. These special features are as follows. First, scientific uncertainty about the severity and distribution of climate impacts; these uncertainties can be exploited by ideologically motivated groups to thwart action on climate change. Second, the deep roots of the problem in the infrastructures and ways of life of the global rich whose emissions have done most to cause climate change. The massive increases in GHG emissions are the result of a transformation in the lives of those living in consumerist, highly industrialised countries. In the long term, the transition to zero carbon economies need not be damaging to the quality of people in these countries. In the short term, the changes necessary to reach net zero emissions by 2050 would have an impact, and it is naïve to think that this would not be resisted by those who have to make sacrifices. Finally, the skewed vulnerabilities of people who will be worst affected by climate change. People in rich, industrialised countries are causing most of the climate problem and also have the power to tackle it. Given the entrenchment of luxury in these societies, these people have the least incentive to exercise that power to deliver just and effective climate policy (McKinnon, 2022: p. 21-22).

5 Anthropogenic Global Climate Change: Through the Lens of Climate Justice

Human beings and their communities are not all in this together. Some people are much better placed than others to adapt to climate impacts. Certainly, some communities and nations are more able than others to influence which climate scenarios for the future become history. This could be because their historical and/or present emissions make a large contribution to climate change, or because they have more power to influence the political and economic direction of travel on climate change, or both (McKinnon, 2022: p. 35). The world's most vulnerable people – those with the lowest average incomes, least wealth, and worst health – are not well protected from climate impacts by climate policy. Current climate policy fails even on the minimum content of climate justice. These minimal standards for climate justice involve the requirement on at least states and regional bodies to radically reduce emissions and enable adaptation; the commitment to protect the

world's most vulnerable people from climate impacts that will exacerbate their disadvantage; the adoption of a long-term frame for just and effective climate policy that inter alia recognises the interests, needs, and claims of future people (McKinnon, 2022: p. 12).

Climate change is an issue for all people, especially the world's poorest people or members of socially marginalised communities from developing countries, who are more likely to live in the world's vulnerable areas and less likely to have the resources. Globally, poor and working class people have been disproportionally relegated to lands that are less fertile and more vulnerable to climate-caused disasters. They have benefited the least from the advances of industrial society enjoyed by the world's wealthy. They often lack access to clean food, water, and air. They have poorer infrastructure and fewer resources to protect themselves and recover. Living closer to the edge of survival, they are less able to withstand losses or rising prices. They also hold less power to enact policies that protect their interests. They are also those who have suffered the most from fossil fuel extraction, which continues to displace them as it poisons and destroys their lands. Their lack of economic resources and political power leaves them more vulnerable to environmental hazards of all sorts (Chomsky, 2022: p. 100).

Climate change is treated as a global responsibility in spite of the fact that the bulk of the CO_2 emissions were until recently produced by the minority consisting of the now-wealthiest nations in the process of generating their own national wealth (Shue, 2021: p. 43). Furthermore, climate change disproportionately affects the rights of people in vulnerable situations more severely and rapidly, such as those in low-lying small islands or the least developed countries, the global poor, the elderly, the disabled and children. Moreover, climate change amplifies hunger and poverty, increasing risks of resource scarcity that can in turn exacerbate political instability and even create or worsen refugee crises (climate refugees). According to the Internal Displacement Monitoring Centre's annual report, the number of internally displaced people around the world due to climate-related natural disasters reached 32.6 million as of the end of 2022.[21] According to the IPCC, the adverse effects of the global climate crisis due to the "intensification of heavy precipitation and associated flooding, tropical cyclones, drought and, increasingly, sea level rise" linked

[21] "All-Time High of 71 Million People Internally Displaced Worldwide*," IDMC Media Centre*, May 11, 2023, All-time high of 71 million people internally displaced worldwide | IDMC - Internal Displacement Monitoring Centre (internal-displacement.org) (accessed on August 25, 2023).

to global warming will force millions to leave their homes in the coming decades (Kalin, 2023: p. 3).

While everyone will suffer in some way from climate change, most of us in the temperate zones of industrial societies have benefitted from the economic growth that accompanied the burning of fossil fuels. This is, therefore, a straightforward case in which one group benefits at the expense of another: a classic case of distributive injustice. The impacts are problems for retributive justice because the most severely affected people are not the people responsible for the emissions that cause climate change. From this perspective, the harm suffered from climate change is something that was done to you by someone else. If the emissions occurred in the distant past, there is no way for the legal system to punish them, but a retributive justice might hold that victims of climate harms are owed reparations paid by those who benefitted the most from the unjust actions of past generations (Thompson and Norris, 2021: p. 138-139).

The climate justice approach recognises that those least responsible for climate change, such as indigenous peoples, the low-lying small-island nations, and the global poor, are also those who are most vulnerable to its effects, and those who lack the resources to protect themselves from extreme weather, rising seas, famine, and other environmental disasters. Climate justice means recognising climate change as a moral, political, and economic issue that requires fundamentally reorganising our global society and economy. A climate justice approach asks how the social and economic divisions that characterise our world relate to the causes of climate change and its impacts (Chomsky, 2022: p. 101). How have our institutions and structures enabled an elite minority to over-extract, overproduce, and overconsume to the extent that their squandering of resources threatens human survival, while the consequences fall disproportionately on the global poor? Not only do rich people consume more of virtually every resource than poor people, but rich people control the global economy and the institutions that have overseen and profited from this global system based on ever-increasing consumption and destruction of resources (Chomsky, 2022: p. 102). For many of the low-lying small-island nations and indigenous peoples around the world, the catastrophe has already occurred, and they are currently involved in picking up the pieces and adapting to a world in which their traditional way of life is no longer feasible (Thompson and Norris, 2021: p. 139).

Rich countries – the former European colonial powers and their settler colonial, industrialised offspring like United States, Australia, Canada, and New Zealand, populated primarily by Euro-descended people, along with a few small outliers like the oil-producing countries of the Middle East – grew rich mostly by exploiting the land, labour, resources of their colonies (which are today poor countries) and using those advantages, along with fossil fuels, to develop their own industry and increase their own consumption and emissions. Every one of these wealthy countries maintains internal colonies of poor people. Everywhere, wealth came from finding ways to intensify production, thus consumption, which meant using more resources and increasing pollution and emissions (Chomsky, 2022: p. 102). Overconsumption of resources by the few creates dangerous pressure on the other planetary boundaries. Extreme weather is hitting the world's poorest communities the hardest, despite their negligible contributions to global emissions. The rich can insulate themselves from the full impact of these human-made threats or even profit from them; the poor cannot (Chomsky, 2022: p. 103 and 108).

The concept of climate justice calls for a recognition of the unfair burden placed on those who are the least responsible for climate change yet who will suffer its effects more acutely. The early industrialising nations that today count as developed have clung to the wealth produced by their respective Industrial Revolutions but some have treated the problems produced as shared by all, beneficiaries and non-beneficiaries alike. Climate change is treated as a global responsibility in spite of the fact that the bulk of the carbon emissions were until recently produced by the minority consisting of the now-wealthiest nations in the process of generating their own national wealth (Shue, 2021: p. 43).

Despite innumerable studies, meetings, international agreements, and increased public awareness and concern about the climate emergency and despite generations of scientific and technological advances, we inhabitants of planet Earth collectively continue to emit more GHGs into the atmosphere each year than the one before. People alive right now are living through the decade that will define the future for both humanity and life on Earth. Climate change affects nearly everything that we already care about. It will make us and our children less healthy, our communities less prosperous, and our world less stable. We humans know that we are causing profound damage with our climate pollution and the destruction of nature.

The climate breakdown is the result of a social and economic system that relies on extracting and consuming the earth's resources in ever-increasing quantities. If we are not able to change our habits at the fundamental, systemic scale needed, the consequences for humanity will be incalculable. The fossil fuel industry itself, and the industries and institutions that rely on it for their profits, collectively have a strong interest in maintaining the current system (Chomsky, 2022: p. 184). Therefore, the challenge of climate change is political – which is to say this is a question of addressing the political by constructing a new foundation for societies. This foundation must not be built on the notion of fossil energy as the basis for perpetual growth and endless consumer capitalism (Nyberg, Wright and Bowden, 2023: p. 166).

Gardiner presents climate change as being not only a global challenge raising questions of international fairness but also an intergenerational one. He implies that looking at climate change as a matter of intra-generational equity misses the point. In other words, the intergenerational problem is the more pressing one of the two, and the allocation of moral responsibility should be guided by a sense of obligation toward future generations (Gardiner, 2011). Gardiner is right to claim that the presentation of climate change as creating duties for members of the current generation to future people because those to whom these duties are owed can do nothing whatsoever to influence our performance of them: they are entirely at our mercy (McKinnon, 2022: p. 23).

Shue takes on this issue in his important book *The Pivotal Generation: Why We Have a Moral Responsibility to Slow Climate Change Right Now*. He argues that today's citizens of developed countries – inheritors of fossil fuel benefits and liabilities – have an undeniable moral responsibility to tackle climate change. He states that we are the pivotal generation to change the direction of our climate, and at the date-of-last-opportunity to prevent a disastrous event. Unlike previous generations, which did not fully understand the danger of burning carbon, we have the knowledge to control rising carbon emissions. Moreover, unlike future generations, this generation still has the power and time to mitigate the worst effects of global warming. He warns that shirking that responsibility only leaves the future generation with an even heavier burden (Shue, 2021). Vanderheiden also incorporates sustained discussions on taking into account intergenerational cooperation and discusses the analytic challenges it poses.

The case is clear for fossil fuel companies to pay reparations for the harm their products have caused. In May 2023, a ground-breaking study, published in the journal One Earth, calculated that the top 21 fossil fuel companies owe (are liable for) climate reparations of $209 billion annually to compensate communities and countries which have contributed the least but are losing the most as the climate breaks down. It is the first time researchers have quantified the economic burden caused by major carbon fuel producers that have extracted wealth from planet-heating fossil fuels, providing a starting point for discussion of the financial duty owed by the fossil fuel industry to climate victims. This is only a conservative estimation as the methodology excludes the economic value of lost lives and livelihoods, species extinction and other biodiversity loss (Heede and Grasso, 2023).

This new study, which reframes the debate on international climate funding by focusing on the financial responsibility of fossil fuel companies, could help shift the focus in the loss and damage negotiations. As climate litigation moves forward in jurisdictions across the world, evidence-based methodologies may assist courts in calculating damages. This is the next step in holding fossil fuel companies accountable for their trillions of dollars of climate impacts. Not only have their products wrecked the climate, but they have, in many cases, spent millions of dollars on lobbying and misinformation to prevent climate action.

Concerning harm related to the environment, the idea of corrective justice is most concretely enshrined in the polluter pays principle, which holds that those who pollute and thereby cause harm, loss or damage should meet the costs related to ceasing the polluting activity and those related to any ill effects which have arisen (Thornton, 2018: p. 73-74). The matter of loss and damage associated with climate impacts in developing countries that are particularly vulnerable to the adverse effects of climate change is addressed in a stand-alone article (Article 8) in the Paris Agreement. At the 2022 Conference of the Parties (COP27) summit, a landmark decision was struck to establish a loss and damage fund for countries worst hit by climate change (Sritharan, 2023: p. 8).

6 Climate Change Problem under International Law

Few would argue that climate change does not pose severe existential threats to people's fundamental rights and interests and to the planet they inhabit. The knock-on effects of climate change are causing havoc to the planet. A novel, more effective

approach to dealing with the disastrous consequences of the climate crisis can be had in calling attention to the significant role fossil fuel companies have played in engendering the climate problem and placing a burden on them to urgently help make amends (Grasso, 2022: p. 80).

The drafters of the Universal Declaration of Human Rights[22] never dreamed of including environmental rights in the list of rights that are fundamental to a decent human life. However, by the early years of the 21st century, it had become clear that environmental problems generate profound human rights impacts and that a sustainable environment is essential to the enjoyment of all human rights (Woods, 2020: p. 297). An environment of a particular quality is necessary to enjoy many of the rights recognised under human rights law. In a degraded or polluted environment, it becomes difficult to enjoy protected rights. Indeed, human beings need services provided by nature to survive.

The link between human rights and environmental degradation was recognised fairly recently under international law. The decision of the International Court of Justice (ICJ) in the *Gabcikovo Nagymaros Project* case[23] Judge Christopher Weeramantry noted:

The protection of the environment is a vital part of contemporary human rights doctrine, for it is a sine qua non for numerous human rights such as the right to health and the right to life itself. It is scarcely necessary to elaborate on this, as damage to the environment can impair and undermine all the human rights spoken of in the Universal Declaration and other human rights instruments.

This clearly explains the link between environmental damage and human rights. The first seeds of the link between human rights and environmental degradation were sown by the Stockholm Declaration on the Human Environment itself. Principle 1 of the Declaration stated:

Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations.

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[22] Universal Declaration of Human Rights 1948 (UNHR) (GA Resolution 217A (III) 1948)
[23] *Gabcikovo – Nagymaros Project (Hungary v Slovakia)* [1997] ICJ Rep 7.

Principle 1 of the Stockholm Declaration clearly recognised that an environment of a certain quality is necessary for human beings to lead a life of dignity and well-being. In other words, a degraded environment could result in a violation of protected rights (Atapattu and Schapper, 2019: p. 35).

In 1992, the UN Conference on Environment and Development in Rio de Janeiro (also known as the "Earth Summit") avoided using "rights" language. Instead, it states, in the first principle of the Rio Declaration, that human beings "are entitled to a healthy and productive life in harmony with nature" (Knox and Pejan, 2018: p. 2). The 1992 Earth Summit also produced Agenda 21, a plan of action calling for further development of international law on sustainable development (Crawford, 2019: p. 339). Some of the principles included in the Stockholm and Rio Declarations restate existing international law. The no-harm principle (also known as the principle of due diligence) is an example (Rose, Blokker and Dam-de Jong, *et al.*, 2022: p. 323). The no-harm principle can be traced back to the 1941 *Trail Smelter*[24] Arbitration, from the ICJ, *Gabcikovo Nagymaros Project* case, *Pulp Mills*[25] case, and was included in the Preamble to the UNFCCC (Sritharan, 2023: p. 24).

The Paris Agreement was the first environmental treaty on climate change that explicitly liked climate change and human rights and it has thus helped pave the way for the rights-based approach to climate litigation (Henriksen, 2023: p. 202). Together with the 1992 UNFCCC, the Paris Agreement established a legal framework that will shape climate actions at the national and international levels for decades to come. The Paris Agreement has been described as a human rights treaty. It states that "Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights," thereby making it the first global environmental agreement to recognise that human rights obligations are an integral element of the regime it establishes (Knox, 2020: p. 323). To be more specific, a government has three primary obligations to protect people's rights and meet its primary obligations as a government. It must respect, protect, and fulfil people's rights. All three kinds of duties, to respect, protect, and fulfil, bear directly on a government's obligation to specifically secure the rights put at risk by climate change. This is particularly true if that government is involved in any way

[24] *Trail Smelter Case (United States v Canada)* (1941) III RIAA 1905.
[25] *Pulp Mills on the River Uruguay (Argentina v Uruguay)* [2010] ICJ Rep 14.

with licensing, permitting, monitoring, subsidizing, or otherwise supporting fossil fuel extraction, infrastructure, distribution, or usage (Kerns, 2022: p. 52).

At the outset of any consideration of the global recognition of a human right to a healthy environment, it is important to bear in mind that the right to live in a healthy environment is a firmly established legal principle throughout most countries in Africa, Latin America, and Europe. According to the UN Special Rapporteur on Human Rights and the Environment, David Boyd, 161 out of 193 UN Member States recognised in their domestic law the right to a clean, healthy and sustainable environment. In the 2019 United Nations *Safe Climate* report, David Boyd wrote that climate change is already having "a major impact on a wide range of human rights today, and could have a cataclysmic impact in the future unless ambitious actions are undertaken immediately (Kerns, 2022: p. 79 and 42-43).

In the United States, the right to a healthy environment is found in six state constitutions. This right has been the subject of many court decisions. Montana, one of the nation's largest coal producers, is one of a handful of states with a clause that guarantees citizens a clean and healthy environment included in its constitution. On August 14, 2023, in a landmark ruling in a climate lawsuit, *Held et al. v. State of Montana* (Columbia Climate School, 2023) a Montana state court ruled in favour of 16 young Montanans who sued their state, claiming its continued fossil fuel development without considering the future impacts to the state and the world's climate, violated their right to clean and healthy environment. District Court Judge Kathy Seeley agreed with the youths, writing in her ruling that Montanans "have a fundamental constitutional right to a clean and healthful environment, which includes climate as part of the environmental life-support system." The ruling is a paradigm shift in climate litigation that will have a ripple effect across the world. It could also set a ground-breaking precedent for other legal cases outside of Montana and in answering the question: Does the government need to protect its citizens from climate change?

In recent years, one notable development has been an explosion in climate litigation. As the climate emergency intensifies, rights-based climate cases are becoming an increasingly important tool for securing more ambitious climate action. The cases are being brought against governments for breach of environmental and human rights obligations to pressure them to take more ambitious climate action, for example in recent high-profile cases against the Netherlands, Germany, Australia,

and the United States, and against corporate emitters seeking compensation for damage caused, such as those brought against large fossil fuel companies.

In the first of what may be more of its kind, in the *Urgenda*[26] case, the Dutch Supreme Court in December 2019 concluded that the European Convention on Human Rights (Article 2 and Article 8) obliged the Netherlands to reduce its GHG emissions by a minimum of 25 percent by the end of 2020 when compared to 1990 levels. The Court noted that the Netherlands is a party to the UNFCCC that is based on the premise that all member states must take measures to prevent climate change, in accordance with their specific responsibilities. A state, therefore, cannot escape its own share of the responsibility to take measures by arguing that its emissions are relatively limited in scope compared to that of other states and that a reduction of its own emissions would thus have little impact on a global scale (Henriksen, 2023: p. 202-203).

Cases have been brought before regional human rights courts, such as the European Court of Human Rights and the European Court of Justice, and before international human rights bodies, including the UN Human Rights Committee. Some of the recent climate litigation has involved litigants asking courts to treat the climate goals of the Paris Agreement as benchmarks by which to judge government action while using human rights provisions and enforcement mechanisms to hold those governments to account (De Burca, 2021: p. 212).

There is another framework that is useful to articulate, interpret, and give context to environmental rights: sustainable development, including a high-profile agenda, the 2030 Agenda for Sustainable Development, with its seventeen Sustainable Development Goals[27] (SDGs) adopted by the international community in 2015. Agenda 2030 further recognised that each country faces specific challenges in its pursuit of sustainable development and that vulnerable people must be protected. The 2030 Agenda and the SDGs are explicitly based on human rights (Atapattu, Gonzalez and Seck, 2021: p. 5). The 1987 Brundtland Report is commonly recognised as having created the term sustainable development[28] (Bosselmann, 2021: p. 31). The report of the Brundtland Commission sought to reconcile the economic

[26] Supreme Court of the Netherlands, *State of the Netherlands v Urgenda*, Case19/00135, 20 December 2019.
[27] UNGA Res 70/1 'Transforming Our World: The 2030 Agenda for Sustainable Development' (21 October 2015).
[28] UN World Commission on Environment and Development, *Our Common Future, Report of the World Commission on Environment and Development* (Oxford: OUP, 1987).

imperative of economic growth, poverty alleviation, and development with the aims and objectives of environmental protection (Crossley, 2022: p. 37). Since its expression in the Brundtland Report in 1987, the legal concept of sustainable development has had far-reaching implications on a global scale: forming the subject of three Earth Summits (1992, 2002, 2012), being incorporated into a multitude of (hard and soft law) international agreements and being given weight in international and national jurisprudence.

Sustainable Development has been recognised in international jurisprudence. Examples of this include the aforementioned *Gabcikovo Nagymaros Project* and the *Pulp Mills* cases, both of which are decisions of the ICJ. The decision in *Gabcikovo Nagymaros Project* was the first time sustainable development was given express recognition in international jurisprudence. The Court expressly referred to the concept of sustainable development and defined it as "the need to reconcile economic development with protection of the environment". In the Separate Opinion of Judge Weeramantry, it was stated that sustainable development was "more than a mere concept […] - a principle with a normative value which is crucial to the determination of this case." (Bosselmann, 2021: p. 40). By invoking the concept of sustainable development, the ICJ indicated that the term has a legal function (Sands, *et al.*, 2018: p. 220). Sustainable development has been referred to in many key treaties, including the 1992 UNFCCC (Bosselmann, 2021: p. 41).

The central message of the Brundtland Report revolves around the concept of sustainable development, defined as "Development that meets the needs of the present generation without compromising the ability of the future generations to meet their needs". The Brundtland formulation of sustainable development refers to balancing two pillars – economic development and environmental protection. A third pillar – social development – was added by the international community at the Copenhagen Summit[29] for Social Development in 1995. Thus, sustainable development now comprises three pillars: environmental protection, economic development, and social development. To meet the needs of the current generation and those of future generations, economic, social, and environmental objectives must be balanced (Atapattu and Schapper, 2019: p. 18-19). The third pillar, social development, seems to encompass basic human needs such as access to food, water,

[29] UN, *Report of the World Summit for Social Development, Copenhagen*, Mar. 6-12, 1995, UN Doc. A/CONF.166/9 [Copenhagen Declaration].

healthcare, shelter, and education. Thus, the social pillar intersects with human rights because many of these basic needs are expressed in the rights language (Atapattu, Gonzalez and Seck, 2021: p. 4).

The 1992 Rio Declaration did not define the concept of sustainable development. Instead, it laid out a series of principles relevant to achieving sustainable development. Principle 2, for example, provides for development to meet the needs of present and future generations. Principle 3 of the Declaration refers to the right to development that needs to be implemented to equally meet the developmental and environmental needs of present and future generations. Notably, Principle 7 stipulates the duty of states to "co-operate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem." The duty of states to cooperate to protect and restore the integrity of the Earth's ecosystem has since been repeated in more than 25 international environmental agreements, including, for example, the 2015 Paris Agreement (Bosselmann, 2021: p. 34), which emphasises "the intrinsic relationship that climate change actions, responses and impacts have with equitable access to sustainable development and eradication of poverty" (Sands, *et al.,* 2018: p. 219).

In the world of international law, the polluter pays principle (in the form of soft law) forms the backbone of Principle 16 of the Rio Declaration (Thornton, 2018: p. 73). In hindsight, the absence of a specific reference to the private sector in the Rio Declaration is remarkable. The private sector drew attention at the 2002 Johannesburg World Summit on Sustainable Development,[30] which called for the promotion of public-private partnerships, especially in its Plan of Implementation.[31] The Johannesburg Declaration refers to the duty of the private sector "to contribute to the evolution of equitable and sustainable communities and societies" and to the need of the private sector to "enforce corporate accountability" (Hey, 2016: p. 58). Philippe Sands outlined seven general principles "having particular relevance in the field of sustainable development," and the polluter pays principle is one of them (Bosselmann, 2021, p. 37). While the principle is hardly reflective of customary

[30] Johannesburg Declaration on Sustainable Development, UN Doc. A/CONF.199/20 (2002), para. 32 (reaffirming "commitment to the principles and purposes of the Charter of the United Nations and international law, as well as to the strengthening of multilateralism").

[31] The 2002 Johannesburg Declaration did recognise the importance of international law and multilateralism in confronting global environmental degradation. The accompanying Plan of Implementation was more explicit in linking human rights and environmental concerns.

international law, it features as an important guiding principle in a wide range of conventions and legal instruments, including in EU law (Henriksen, 2023: p. 198).

7 Climate Policy: The Fossil Fuel Industry's Responsibility and Duties Toward Society

Few issues attract as much interest in climate ethics and climate policy as the question of how the burdens of climate policy ought to be distributed within generations. In other words, who is going to pay for the various aspects of climate policy? Or, who are the agents among whom we must divide the burdens? In the context of international climate policy, states are the relevant agents as the UNFCCC applies directly to states. For example, the Paris Agreement assigns responsibilities to states and lets them decide how to discharge their legal duties under the Agreement. This is part of what is reported in states' NDCs (McKinnon, 2022: p. 108). However, environmental scholars have raised concerns about this approach, suggesting we ought to focus on corporations (fossil fuel companies and projects), individuals or other kinds of entities (Morrow, 2020: p. 106; Grasso, 2022: p. 33; Shue, 2021: p. 43). Furthermore, it is worth bearing in mind that the world's largest fossil fuel firms are all state-owned and, in this respect, part of a sovereign state. While sovereign states readily claim the wealth resulting from national industrialisation, they do not readily claim the damage resulting (Shue, 2021: p. 43).

There is much disagreement about the full demands of climate justice and on whom these demands fall most heavily. When we ask, "who is responsible?" for an injustice, we can mean a number of things. We could be asking who perpetrated the injustice, that is, who is causally responsible for it. We could be asking who ought to address the injustice, that is, who has a duty to bear the burden of action to make good on the injustice. We could be asking about the agents (individuals, communities, states, or multinational corporations) to whom or to which these responsibilities attach (McKinnon, 2022: p. 90). The core claim of climate justice movements is that richer agents, including corporations (the fossil fuel industry), repay their climate debt, divided into impacts debt and emissions debt. The impacts debt implies a rectification of the harm brought about by climate change, while the emissions debt requires action to reduce carbon emissions overall and the associated future harm, possibly in conjunction with some form of historical contribution to the problem (Grasso, 2022: p. 64).

The various moral principles that climate ethics literature usually refers to in this regard on the industry for divvying up burdens within a generation come in different forms. On whom should these burdens fall? Who ought to do most, soonest, to absorb these burdens? Call these the primary duties questions. There are three types of answers in the literature. First, those who have caused (and are causing) climate change bear primary responsibility (the polluter pays principle). Second, those who benefit from activities that cause climate change bear primary responsibility (the beneficiaries pay principle). Third, those who can afford to take on primary responsibilities for reducing climate injustice bear primary responsibility (the ability to pay principle) (McKinnon, 2022: p. 97-98). The idea of climate justice emphasises the historical responsibility of rich countries for the current climate change the world is facing (Parsons, 2023: p. 4).

7.1 The Concept of Cumulative or Historical Responsibility

Both environmental ethicists and climate negotiators have wrestled with the question of historical responsibility since the earliest days of the international climate regime.[32] The nations with historical responsibility are those who contributed to climate change by deriving the energy for their industrialisation from the combustion of carbon-based fuels. Within scientific and political discussions, the concept of historical responsibility appears in two forms: proportional responsibility, according to which historically high-emitting countries' responsibility increases in proportion to their historical emissions, and conceptual responsibility, according to which historically high-emitting countries have some kind of greater responsibility but not necessarily proportion to their historical emissions (Morrow, 2020: p. 111). Decisions on how to count emissions are political ones, with social justice implications. International climate agreements have required emissions reporting and national plans to reduce emissions on a country-by-country basis (Chomsky, 2022: p. 112)

Two main factors motivate calls for historical responsibility. The first is that because CO_2 lingers in the atmosphere for so long, emissions from the 19th and 20th centuries continue to affect the climate and constrain the amount of emissions that current and future generations can emit without exceeding any given climate policy target.

[32] Currently, the financial costs associated with losses and damages are borne by those experiencing the climate impacts. As a matter of justice, this needs to change so that polluting companies and rich nations – who bear much more responsibility for causing climate change – bear the financial cost of addressing loss and damage impacts.

The second is that because the process of industrialisation began so much earlier in some countries than in others, the vast majority of historical emissions originated in a relatively small number of countries containing a relatively small fraction of the world's population. Civil society groups and activists in developing nations have a strong intuition that these historically high-emitting countries bear a special responsibility for climate change precisely because of their historical emissions. Counting cumulative emissions shows that the United States and the European Union have by far the greatest responsibility. From this perspective, the United States and Europe owe a huge climate debt to the world[33] (Chomsky, 2022: p. 113).

However, calls for historical responsibility face two main theoretical problems. The first theoretical problem is the Excusable Ignorance objection: although the basics of climate science had emerged well before then, most people did not know that GHG emissions could harm anyone until sometime in the late 20th century. Furthermore, it would have been unreasonable to expect them to know this. They were, therefore, excusably ignorant of the risks they were creating through their emissions. Since we do not generally hold people responsible for the damage they do out of excusable ignorance, it would be unfair to hold parties responsible for historical emissions (Morrow, 2020: p. 112).

The second theoretical problem for historical responsibility is the Disappearing Perpetrators objection. Many of the individuals and corporations responsible for historical emissions no longer exist. It is simply not possible to make those polluters pay for their own emissions and it is not fair for present and future individuals to suffer for the sins of past individuals. Having current generations in the industrialised nations inherit the climate debts of past generations arguably violates the polluter pays approach since it does not hold deceased polluters themselves accountable (Morrow, 2020: p. 112).

One common suggestion for dealing with both the Excusable Ignorance objection and Disappearing Perpetrators objection is to introduce a beneficiary pays principle (Morrow, 2020: p. 112).

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[33] A study published by the Sustainability Research Institute at the University of Leeds and the Doughnut Economics Action Lab in Oxford claims industrialised nations responsible for excessive levels of CO_2 emissions could be liable for $170 trillion in compensation by 2050 to ensure climate targets are met. See: "Global North owes $170 trillion for excessive CO_2 emissions," *Faculty of Environment News, University of Leeds*, June 6, 2023, 'Global North owes $170 trillion for excessive CO2 emissions' | Faculty of Environment | University of Leeds (accessed on November 15, 2023).

7.1.1 The Beneficiary Pays Principle

According to the beneficiary pays principle, states that have benefitted the most from GHG emissions in the past bear the greatest responsibility for taking climate action. The basic idea is that even if the individuals and corporations that emitted so many GHGs in the 19th and 20th centuries are gone, the benefits they enjoyed, as a result, have passed on to their descendants in the form of accumulated capital, and that as a result of having inherited those benefits, those descendants ought to bear more of the burden of climate action. Therefore, the argument asserts that it is reasonable to ask them to contribute more to climate action than those who did not inherit such benefits, even if the actual emitters have disappeared and even if those emitters were excusably ignorant of the harm their emissions would do (Morrow, 2020: p. 113). Contribution to solving the problem ought to bear some relation to contribution to creating the problem, especially when those who have, in fact, created the problem have benefited so handsomely from doing so, and those who suffer most have made little or no contribution to the problem (Shue, 2021: p. 55).

7.1.2 The Ability to Pay Principle

According to the ability to pay principle, states should bear the burden of climate policy in proportion to their per capita wealth and/or income. Shue suggests that the ability-to-pay approach follows from the pure fairness argument. He notes China's and India's present and future emissions are a problem only because of the United States' and the European Union's past (and present and future) emissions (Shue, 2021: p. 40). In the case of climate change, it seems fairer that richer or higher-income states should pay more, at least in absolute terms, than poorer or low-income states. Furthermore, this approach rests on a general duty of beneficence – that is, an obligation to help others, especially when you can do so at relatively little cost. Wealthy countries can afford to contribute a great deal to deal with climate change, whereas poor countries can afford much less. Therefore, the duty of fairness demands more from the wealthier countries. Whatever its appeal as a general principle, it runs into problems as a way of dividing up the burdens of climate policy. The principle ignores moral and causal responsibility. It distributes burdens without any concern for the fact that some countries have contributed far more to climate change than others. However, it proves irrelevant in the case of climate change because most GHG emissions have come from industrialised and developed nations, and industrialised nations are generally wealthier than non-industrialised

nations, and consumption-based accounting reveals how the people of those countries are still reaping the benefits of this history by enjoying high consumption levels (Morrow, 2020: p. 107-108; Chomsky, 2022: p. 116).

7.1.3 The Polluter Pays Principle

The polluter pays principle indicates that the costs of pollution should be borne by the person responsible for causing the pollution (Sands, *et al.*, 2018: p. 240). The principle determines that the perpetrator of pollution should pay for the environmental damage that its activity generates. The principle calls for states to adopt measures that internalise the cost of pollution. According to this conception, negative externalities are the costs of a transaction between two market actors that are borne by third parties and not reflected in the price. Internalisation is thus seen as a way of correcting this side effect by making the actors engaged in the transaction bear the cost they impose on society (Gaeta, Vinuales and Zappala, 2020: p. 465). In other words, it should not be public funds that pay for the rehabilitation of polluted ecosystems; such costs should instead be defrayed and internalised by the polluter (Hey, 2016: p. 77). This principle has an economic dimension that differentiates it from other environmental principles. It can be understood as a principle that seeks to correct market failures by internalising the costs of environmental pollution; in broad terms, it requires that polluters pay for the environmental harm they cause (Fisher, Lange and Scotford, 2019: p. 224). According to the principle, those who have emitted more GHGs should bear greater responsibility for addressing climate change.

The polluter pays principle could rest on two distinct philosophical foundations. The more familiar foundation is corrective justice: when one party wrongs another party, they incur an obligation to correct that wrong, either by fixing the problem they created or by compensating the wronged party. In the case of climate policy, it implies that those who wrong others through their GHG emissions bear responsibility for fixing the problem and for compensating those who are wronged, and that because those who have emitted more GHG emissions have committed a more serious wrong, they bear more responsibility than those who have emitted less. Another possible philosophical foundation for the polluter pays principle is more economic policy-related: making polluters pay discourages pollution. If a company knows that it will have to pay a fee for emitting CO_2, it will look for ways to reduce or eliminate its emissions (Morrow, 2020: p. 109). Birnie, Boyle, and Redgwell

describe the principle as "an economic policy for allocating the costs of pollution or environmental damage borne by public authorities" with "implications for the development of international and national law on liability for damage" (Birnie, Boyle and Redgwell, 2009: p. 322).

The most common objection to the principle concerns its impact on poorer countries. Wealthier countries can more easily afford to pay for climate action. However, developing countries like India and many poorer countries, whose economies currently depend heavily on fossil fuels, face a stark short-term trade-off between climate action and urgently needed economic and human development. Perhaps, variants of the polluter pays principle can help address this problem. Typically, the polluter pays principle has focused on emissions produced within a country (territorial GHG emissions accounting approach), rather than on the carbon emissions embodied in goods consumed within that country, wherever the goods were made (consumption-based GHG emissions accounting approach). Therefore, a consumption-based emissions accounting approach accounts for the full international impact of final demand for products; this is a vital step towards global equity and acknowledging the UN principle that states have a "common but differentiated responsibility" to decarbonise, given the disparities in economic development and historical carbon emissions between developed and developing nations (Morrow, 2020: p. 110). Because of the importance of global trade and the ways rich countries have outsourced their production to poor countries, it makes more sense to measure emissions by what is consumed in a country. Wealthy, high-consuming countries should be held responsible for the emissions of everything they consume, even if they have outsourced the dirtiest aspects of their economies (Chomsky, 2022: p. 113).

Other approaches focus on the fact that the biggest emitters are industries. After all, it is the fossil fuel and related industries that make the decisions and investments that are expanding the extraction, production, and sale of fossil fuels.

8 Conclusion

Climate change is not just an environmental problem or a political issue, but also a moral issue of the 21st century, one that affects the survival of human civilisation. It has long been acknowledged as fundamentally an ethical issue that threatens our lives and our world. Unjust climate impacts are a symptom of deep, historical, and

structural injustices, and those with the most power and riches in the world (the fossil fuel industry) continue to serve their narrow self-interest in resisting real change. Despite the growing recognition that urgent action will need to be deployed to sustainably avert the uncertainties of the Anthropocene, explicit and agreed moral guidance to tackle the climate breakdown is still very much lacking. A lack of moral guidance could lead to a paralysis of policy and governance and worsen moral corruption in engaging sustainably with the climate crisis. Bringing climate change under control will require tough political fights against ruthless, mendacious, and entrenched combinations of political and economic power.

States have been the main agents of action against climate change for decades. However, by far the most important factor in causing climate change is the accumulation in the planet's atmosphere of CO_2 from the burning of fossil fuels. The fossil fuel industry bears substantial responsibility for the cost of redressing climate harm. Fossil fuel companies have a moral responsibility to affected parties for climate harm and have a duty to correct such harm. Holding the fossil fuel industry accountable for their harmful activity, with very precise and unique moral responsibility, is crucial to advancing efforts to combat climate change. The fossil fuel industry has contributed to climate change by causing, shaping, advancing, and defending the current unsustainable fossil fuel-dependent global economy.

The industry has essentially imposed on the global socioeconomic system a carbon-intensive model of development rather than engaging in a concerted search for alternatives and phasing out fossil fuels, as warranted by the urgency of climate change. In this light, it is morally unacceptable to equate the fossil fuel industry's responsibility with those of other agents. Climate justice and governance should reflect the unique agency of the industry, as it has played a very significant role in climate change and should contribute to tackling it. Our global economic system is the result of colonialism, extraction, production, profit, and economic growth. A climate justice approach positions the cause of climate change in the political and economic systems that place the interests of humanity above the interests of profits and increasing production. The idea of climate justice emphasises the historical responsibility of rich countries for the current climate change the world is facing.

Climate ethics literature refers to three moral principles (the beneficiary pays principle, the ability to pay principle, and the polluter pays principle) of rectifying the unjust situation created by the actions that produced climate change. All these

principles aim to establish and justify a positive responsibility for sharing the burden of correcting the unjust situation caused by climate change. However, it is better to prevent the harm done by climate change than to repair (the prevention principle, Environmental Impact Assessment, the duty to cooperate and precautionary principle) and then move to principles which are mostly concerned with distributive justice (polluter-pays, intergeneration equity, common but differentiated responsibilities and sustainable development).

Human suffering (the victims of harm, loss, or damage of climate change) is listed as a third kind of response to climate change. A human rights approach highlights emitters' moral obligation to address loss and damage, particularly by compensating victims, and emitters' obligation to help people adapt to climate change. Basic human rights are not just lofty aspirational ideals. Most, rather, are moral floors, moral minimums, delineating the most basic requirements for a person to live a minimally decent life. Human rights are recognised as both moral imperatives to guide the behaviour of governments and as legally binding law. Climate change is already undermining the realisation of a broad range of internationally protected human rights. So, just as civil laws represent hard legal boundaries outside of which certain behaviours are not legally permissible, human rights norms represent hard ethical boundaries outside of which certain behaviours are not permissible.

Exploring the concepts of justice and goodness that have long guided the morality of climate change, the acclaimed moral philosopher Broome elaborates the harms we inflict through our GHG emissions are unjust human because they harm other people. This is an injustice done to those people, and it also makes the world worse. So reducing emissions is a duty of justice and also a duty of goodness. Morality requires governments to make the world better. It requires them to design their regulations about carbon emissions. A more just and equal world would use its scarce resources at a sustainable level and distribute the benefits more equally. It would allow the global poor access to the resources necessary to fulfil basic needs and obligate the global elite to reduce their consumption and emissions to a just and sustainable level. Restructuring how we use our knowledge, science, and technology in a way that is equitable and sustainable is the political and moral problem that now faces us. It is more a question of political and moral change.

Confronting climate change means challenging some of the basic ways our society and economy are organised. Almost everything we buy makes a contribution to climate breakdown, through emissions, local environmental degradation, or most commonly both. Fighting climate change means transforming our current global economic and political systems that are embedded in fossil fuel-centred economies, placing the interests of humanity above the interests of profits, and reducing production and consumption to a just and sustainable level. Due to webs of economic oppression, the largest polluters on the planet tend to suffer less, while those who contribute the least – low-income populations, working-class people, the Global South – are tragically the most affected. Yet no one is safe, for no region will be untouched by climate change. Scientifically, we know what we must do: we must phase out coal, oil, and gas at once, reshape our transit systems and housing plans, design a more humane and sustainable food system, and decarbonise every sector of the economy. Politically though, this can seem like an impossible undertaking.

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