

THE CLIMATE EMERGENCY AND URGENCY OF SYSTEM CHANGE

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Abstract

Despite the acknowledged relationship between fossil fuel combustion and global warming and worsening climate disasters, powerful global corporations, governments and multilateral institutions including the United Nations are not addressing much needed psycho-social transformation. Instead, they are using market-based solutions, such as, carbon trading and strategies, such as, debt-for-nature swaps, to pass on the responsibility of climate protection to the poor in countries in the Global South who are the least responsible for carbon emissions.

Climate change is fundamentally a moral dilemma even more than a dilemma of political will. It is an ethical challenge between right and wrong. It calls for a fundamental change of dominant consumerist values and technological and market domination over Nature towards an ecological and compassionate worldview and socio-economic model.

The Buddha Dhamma explicates the Laws of Nature and the inherent impermanence, interdependence and balance of life. The Noble Eight Fold Path provides the direction to address the climate crisis and the underlying environmental, social and moral crises facing humanity. It gives guidance for transforming greed, hatred and delusion towards a consciousness and actions based on generosity, compassion and wisdom.

The Buddha Dhamma helps us transition from the profit-driven extremist and destructive global economic model causing climate change towards a balanced middle path of climate and environmental sustainability, social protection and ethical intelligence.

This presentation will refer to some exemplary global efforts on renewable energy, bioregionalism and social and economic justice rooted in universal Buddhist ethics although they are not necessarily identified as 'Buddhist'.

Introduction

Climate change is a complex phenomenon involving unknown changes in planetary biophysical systems. However, there is scientific consensus that climate change is caused by anthropogenic greenhouse gas emissions from fossil fuel combustion, deforestation and other human activities. The United Nations Intergovernmental Panel on Climate Change (IPCC) and other scientists warn that unless we bring down carbon emissions to less than 1.5 centigrade a year and keep the carbon dioxide level in the atmosphere below 350 parts per million molecules (ppm) in this century, the effects on planetary life will be catastrophic.¹

Greenhouse gas emissions have increased every year since the United Nations issued its last climate assessment eight years ago.² As of April 2023, the atmosphere is at 418.56 ppm and increasing by 2.27 ppm each year.³ According to 2022 reports from NASA, the

previous nine years were the warmest years since modern record keeping began in 1880.⁴ The most recent report of the IPCC released in March 2023 warns that global warming is “more likely than not” on course to surpass 1.5 centigrade limit by 2040, even in the unlikely event that the most aggressive emission-reduction scenarios are pursued in the U.S. and Europe.⁵ Furthermore, The IPCC Report raises alarm that: ⁶

- “There is a rapidly closing window of opportunity to secure a livable and sustainable future for all.”
- “Without a strengthening of policies, global warming of 3.2°C is projected by 2100.”
- “Every region in the world is projected to face further increases in climate hazards.”
- “Public and private finance flows for fossil fuels are still greater than those for climate adaptation and mitigation.”

Even without scientific data and warnings, the realities of climate change are increasingly evident: rising temperatures, declining Arctic sea ice, extreme weather events, heatwaves, wildfires, floods, droughts, stronger storms and hurricanes.⁷

As temperatures rise, the number and range of species on Earth declines. According to the International Union of Conservation of Nature’s (IUCN) Red List, 10,967 species are at risk of extinction due to climate change.⁸ In fact, scientists warn that the world has entered its sixth mass extinction, the dying off of the majority of species on Earth. Unlike past events, this mass extinction is due overwhelmingly to human activity.⁹

Deforestation is a major cause of both species extinction and climate change. It causes carbon stored in trees to be released as carbon dioxide. Between 2015 and 2017, the global loss of tropical forests accounted for about 4.8 billion tons of carbon dioxide produced per year; about 8–10% of annual human emissions of carbon dioxide.¹⁰ Four commodities – beef, soy, palm oil, and wood products – account for the majority of deforestation globally.¹¹

A 2017 study in the Proceedings of the National Academy of Sciences (PNAS) called the on-going massive loss of wildlife a “biological annihilation” and a “frightening assault on the foundations of human civilization.”¹² A March 2023 *Scientific American* article, entitled ‘Will Humans ever go extinct?’ considers the climate emergency a possible contributor to human extinction.¹³ The article concludes:

“Today’s reality is that some human beings are undermining or even destroying living conditions of many, many other people,” ... “From a human-scale perspective, this is an existential crisis already, not a risk somewhere up ahead.”¹⁴

Given the intimate connection between indigenous livelihoods and their ecosystems, indigenous people and farming communities worldwide are the most vulnerable to climate change. Due to rising sea levels, five islands in the South Pacific have already sunk. The Pacific islands of Kiribati and Tuvalu and the Maldives in the Indian Ocean are also preparing for extinction and seeking to relocate their populations.¹⁵

According to UN estimates, there will be 1 billion ‘climate refugees’, i.e. victims of disasters induced by climate change in the world by 2050.¹⁶ Scientists warn that heat waves in India are likely to intensify, aggravating drought and leaving people with little access to water.¹⁷ Climate change driven sea level rise in Bangladesh results in heavy rains making millions homeless on a regular basis.¹⁸ In Sri Lanka, the sea level is rising by 3 mm every year, and in recent years, the country has experienced unprecedented floods and landslides, displacing hundreds of thousands of people.¹⁹

Those most affected by climate change are those least responsible: the poor nations and communities of color that have historically provided the natural and human resources for the enrichment of the privileged classes in the industrialized nations. While responsibility for climate change is spread across global society, the industrialized and rapidly industrializing countries account overwhelmingly for carbon emissions. In 2014, China, the USA and the EU accounted for more than 50% of total global carbon emissions: China, 30%, USA 15% and the EU 9%.²⁰

Instead of broadly speaking of a collective and global “we” in the context of climate action, it is necessary to explore the differential responsibilities and burdens borne by different communities for the climate and related crises. The North–South conflict over climate mitigation speaks to this reality.²¹ According to the 2020 Oxfam Report, *Confronting Carbon Inequality*, during the critical 25-year period between 1990 and 2015, the richest one percent of the world’s population were responsible for more than twice as much carbon pollution as the 3:1 billion who represented the poorest half of humanity.²²

Fossil Fuel Economy

Over 75% of global greenhouse gas emissions and nearly 90% of carbon emissions are attributed to the burning of coal, oil and gas fossil fuels, the energy-rich remains of carbon-based organisms concentrated and processed over millions of years. These carbon-rich deposits are non-renewable and supply about 80% of the world’s energy today.²³

The extraction, refining and distribution of fossil fuels is an enormous industry representing the engine of global economic production and growth. Five of the top six companies in the Fortune Global 500 including BP (British Petroleum), ExxonMobil, Shell, Sinopec and China National Petroleum are in the petroleum refining industry. As a July 2015 report by the Union of Concerned Scientists pointed out, the fossil fuel industry’s concentration is as remarkable as its size.²⁴ Almost 30% of all industrial emissions since 1850 can be traced to just 20 companies. Even more significantly, the report also points out that “...more than half of all industrial carbon emissions have been released into the atmosphere since 1988, *after* major fossil fuel companies indisputably knew about the harm their products were causing to the climate.”²⁵

Inside Climate News has revealed that internal documents of fossil fuel companies – especially Exxon which was doing cutting-edge climate research – show that they were already aware of the connection between fossil fuel combustion and global warming by the late 1970s.²⁶ *Inside Climate News* argues that, without revealing what their own scientists confirmed, the world’s largest fossil fuel companies sought to ‘manufacture

uncertainty’ with a massive disinformation campaign to deceive the public and sow uncertainty about climate change. They funded climate denial scientists and organizations (many fake ‘astroturfed’ groups) and lobbied Congress to block climate action.²⁷ Unethical corporate funding, lobbying and the silence of the mainstream media have enabled polluting companies to project an environmentally friendly public image while simultaneously derailing legislation for emissions reduction.²⁸

In her whistle blowing book, *Green Inc.*, investigative journalist Christine McDonald has shown that major conservation groups in the United States, such as The Nature Conservancy, the Conservation Fund, Conservation International, the Environmental Defense Fund, and the Natural Resources Defense Council receive financial contributions from ExxonMobil, BP, the BG Group, Chevron, Conoco Philips, and Shell Oil.²⁹ Even more shocking, according to secret documents revealed by the ‘Paradise Papers’ leaks, some environmental groups, for example, the World Wide Life Fund, also directly invest in oil drilling.³⁰

Another often neglected but powerful relationship of the fossil fuel business is with the military. As US energy experts point out, military activity is a “direct production component” of the trade and as “necessary for imports as are pipelines and supertankers.”³¹ In terms of emissions, military jet fuel, for example, is a major source of carbon emissions worldwide. The Pentagon is estimated to be the “largest institutional user of petroleum products and energy in general,” but is exempt from all international climate agreements.³² *Climate Collateral*, a November 2022 Report from the Transnational Institute shows that “military spending accelerates climate breakdown’ and that ‘the richest countries most responsible for the climate crisis are spending more on the military than on climate finance.’³³

The short-term costs of ending dependence on fossil fuels are significantly less compared to the staggering long-term environmental and social costs of accelerating climate change. However, the leading international policy framework, the Paris Climate Agreement and neoliberal strategies, particularly carbon trading, are far from adequate to address the urgency of the climate crisis.

Status-Quo ‘Solutions’

The Climate Treaty signed in Paris in December 2015 and entered into force in November 2016 is hailed as a historic achievement in international consensus and a turning point in climate policy. By signing the agreement, all countries in the world (except Iran, Libya and Yemen) agreed to hold the increase in the global average temperature to 1.5 °C.³⁴

However, the Paris Agreement – unlike the previous international climate agreement, the Kyoto Protocol – provides no detailed timetables or country-specific goals for reducing emissions. Each country that has ratified the agreement is required to set a target for emission reduction, but the amount will be voluntary. There is neither a legal mechanism to force a country to set a target by a specific date nor enforcement measures if a set target is not met.³⁵ It seems a fraud of neoliberal virtue signaling and perhaps not worth the pixels and bytes it is written and read on.

The Paris Agreement was a victory for the United States in its opposition to mandatory emissions reduction targets. It was, however, a failure for smaller nations including those most vulnerable to the effects of climate change that wanted to include stricter emissions targets and enforcement mechanisms. The US succeeded in ensuring that the agreement was not legally binding and that countries were not allowed to litigate for non-compliance.³⁶

The agreement also does not mention fossil fuels, let alone the need to leave 80% of what remains in the ground as many experts believe is necessary to mitigate climate change. It also does not address the need to cut government fossil fuel subsidies, military expenditures, air travel, shipping, etc. as keys to global de-carbonization. No wonder the Paris Climate Conference was sponsored by fossil fuel companies and the discussions were dominated by market-based solutions, notably emissions trading.³⁷ As the *Washington Post* owned by Amazon owner Jeff Bezos puts it, “For better or worse, billionaires now drive climate policy.”³⁸

The United Nations Framework Convention on Climate Change strongly supports carbon trading. Since the agreement, seeing a huge new market and business opportunity, international financial interests have geared up to expand carbon trading. Even the World Bank has established a Carbon Finance Unit to create an international system to price carbon. In 2016, Jim Yong Kim, then World Bank President, stated that “putting a price on carbon pollution is by far the most powerful and efficient way to reduce emissions.”³⁹ Christine Lagarde, former director of the International Monetary Fund called carbon pricing the ‘crown jewel’ of efforts to mitigate climate change.⁴⁰

Climate justice activists, however, are deeply concerned about the possible effects of this approach motivated by profit. As scholar-activist Patrick Bond from South Africa states, carbon trading will lead to increasing ‘financialization of nature’, “the quantification and commodification of everything that can be seen as a carbon sink, especially forests but also agricultural land and even the ocean’s capacity to sequester carbon dioxide for photosynthesis via algae.”⁴¹

Activists argue that the market-based cap and trade system, designed to reduce carbon emissions has actually aggravated the problem by giving unfair financial advantages to major polluters to continue polluting while putting the onus of climate protection and maintenance of carbon sinks on the poorer countries and inhibiting their economic development.⁴² Reducing Emissions from Deforestation and forest Degradation (REDD), a type of avoidance credit and market based forest conservation promoted by the Paris Climate Agreement, is an often cited example.⁴³ Critics also point out that emissions trading takes attention away from the search for less complicated strategies, such as a straightforward carbon tax on polluters, as well as fundamental changes needed in patterns of economic production and energy use.

Notwithstanding growing demands for corporate accountability and government action, governments and multilateral banks around the world are providing massive subsidies to companies for fossil fuel production and exploration. Since the Paris Agreement, the World Bank Group has invested over \$12 billion in fossil fuels of which \$10.5

billion were “new direct fossil fuel project finance.”⁴⁴ According to a report by the International Energy Agency (IEA), governments spent more than €900 billion on fossil fuel subsidies in 2022, over double of what they spent in 2021.⁴⁵ However, as the Report argues, “It is far better for governments to spend time and money on structural changes that bring down fossil fuel demand, rather than on emergency relief when fuel prices go up.”⁴⁶

The limits and failures of the dominant neoliberal approach demand that we critically reassess the global economic system and its underlying assumptions, values and (lack of) consciousness as the root of the climate crisis.

Global Economic System

Lest we forget, the capitalist economy has advanced since the Industrial Revolution to integrate the entire world within one interconnected globalized market and ideological and technological system. Driven by materialism, private accumulation and modern technology, this system has now become a monolithic and extremist global “economic fundamentalism.”⁴⁷

So-called ‘free market’ trade liberalization in the last few decades has led to a consolidation of corporate control in every sector of the global economy, deepening economic inequality. In 2019, the world’s richest 26 individuals owned the same amount of wealth as half the world’s population.⁴⁸ Extreme wealth and income inequalities are increasingly apparent within and across countries. According to Oxfam, almost two-thirds of the USD 26 trillion new wealth amassed since the start of the Covid pandemic have been accumulated by the richest 1%.⁴⁹

Led by finance capital, a few large transnational corporations control greater shares of global wealth and resources and wield more power over people’s lives and the environment than most nation states.⁵⁰ Akin to “world empires of the 21st century,” they have increasingly ‘captured’ governments and multilateral institutions compelling governments to adjust their policies to suit corporate interests, not least those of the fossil fuel industry.⁵¹

The capitalist system has brought forth tremendous advances in material development but without a corresponding development in human psychological and social well-being. When corporate profit prevails over social, environmental and ethical criteria, production and marketing of goods and services with negative use values become common. Thus, defense has become one of the biggest sectors of the global economy and fossil fuel extraction continues despite overwhelming evidence of its harm to life on the planet. Even when solutions are sought to problems created by unbridled market expansion, economic growth and the profit motive prevail as evident from the trade in carbon pollution poised to become a highly profitable financial enterprise.

As the market values seep into all areas of life, the environment and humanity increasingly become mere resources and outlets for production and consumption. The modern economy disrupts and dissects the natural integration of planetary life seeking instead to

reintegrate, recreate and control human society and the environment through modern science, technology, and the market.⁵² The extremism of this approach is clearly evident in current technological and market developments to redesign life and to create, what some scientists call a 'post-nature', 'post-human' world.⁵³

Genetic modification is projected to become the norm as more and more bioengineered transgenic fruits, vegetables, trees, and animals are released into the environment. According to some scientists, in 50 years there could be more lab-created forms of plant and animal life on the planet than those identified in nature.⁵⁴ Is this, then, the technological and market-based solution to species extinction resulting from climate change, deforestation and other human induced changes to the environment? Likewise, as earth-based indigenous people and communities in low lying coastal areas are extinguished from the face of the Earth, genetic engineering, robotics, artificial intelligence and other new types of cognitive tools are being utilized by some scientists to design a new transhuman species increasingly merged with technology and more and more divorced from nature.⁵⁵

As the environment and humanity become mere resources and appendages of technology and the economy, we face an existential crisis of what it means to be human in nature. The visions of technological domination over nature fail to recognize that if the climate is not stabilized, we will unleash long term planetary forces far beyond our capacity to control. Human induced natural forces, such as droughts, wildfires and floods – like a dreadful planetary immune system attempting to fight an infection – will come to dominate and radically curtail our activities, as they appear to be doing already. As Karl Polyani warned in *The Great Transformation* nearly 80 years ago, “To allow the market mechanism to be the sole director of the fate of human beings and their natural environment... would result in the demolition of society.”⁵⁶

The contemporary climate, environmental and political-economic crisis, however, is more than a crisis of capitalism. Technology and the market *per se* are not the problems. It is the underlying consciousness and the intention that determine their advancement. The crisis represents the disjuncture between the exponential growth of the profit-driven economy and the lack of an equivalent development in human consciousness, morality, compassion, and wisdom.

The failure and inadequacy of false solutions requires that we question the fundamental assumptions of the dominant market and technological paradigm and shift towards an ecological partnership paradigm that can provide genuine solutions to the climate and related crises. The Buddha's teaching of the laws of Nature, the *Dhamma* guides us towards such a sustainable and equitable transition. While sectarian terms such as 'Buddhist' may be cast aside, the universal relevance of the Buddha's teaching is undeniable.

Transformation of Consciousness

The roots of the climate crisis lie in the mistaken dualism between self and other stemming from ignorance of the interdependence of all mental and physical phenomena.

Today, “ego consciousness” and its ethics of individualism, domination, and competition is the driving force at the personal, social and national levels as well as how humans relate toward other living beings. This myopic consciousness has led and continues to lead to massive destruction of the environment and human society, widening economic disparities and social conflicts.

The alternative to ego consciousness, rooted in the psychology of fear and ‘self vs. other’ mentality, is a universal consciousness grounded in the truth of unity within diversity. This higher consciousness sees the other as an extension of the self and the well-being of the self and the other as inherently interdependent. It contributes to an ethic of partnership.

The synthesis of science and Buddhist and other non-dualistic philosophies is contributing to an eco--centric, holistic approach that takes the entirety of nature rather than its separate parts as its point of departure. This partnership thinking allows the mind to see the organic unity of life and the interdependence of all phenomena.⁵⁷

Humanity, like all life, is not an independent and isolated species, but is part of the animal system, which in turn is part of the eukaryote system and, further, the Earth organism, and ultimately of the ever-evolving Universe or multiple universes. In this sense, the term ‘interbeing’, coined by Vietnamese Buddhist scholar and monk Thich Nhat Hanh, helps us move away from hierarchical dualisms towards an understanding of the inherent connectedness and the realization that the survival of the self depends on the survival of the other.⁵⁸

The environment – planet Earth – encompasses human society and the economy within its fold. The economy, the production and distribution of the material means of existence, is only one subsystem of society.⁵⁹ The environment has primacy over the human-created spheres of society and the economy. The natural world does not need humanity for its survival, but humanity cannot survive without the natural environment, the soil, water, air, sunlight, etc. The central idea of the ecological approach is that we are part of the Earth, not apart and separate from it. Policymaking and action to mitigate climate change and foster environmental sustainability and wellbeing must be grounded on ecological consciousness rather than a worldview that upholds market and technological dominance over Nature.

The transformation required in the world now is not simply an intellectual one; it is primarily a change in consciousness.

Only as human beings begin to transcend the numbing of our hearts by excessive technology, materialism and bureaucratic regimentation and begin to soften inside can we feel the pain of the suffering caused by our destructive fossil fuel-driven economic system. Taught to live within an individualistic, exploitative, competitive and mechanistic economic system lacking compassion, many people are cynical about non-violent and collaborative processes.⁶⁰

The climate emergency is a call to transcend the corporate-government ‘greenwashing’ and shift towards a genuine change of the global capitalist economic system.

'Buddhist Economics' and the Middle Path

The Buddha taught the Middle Path based on his own life experiences, first as an heir to a royal throne living the life of sensual pleasures and later as a spiritual seeker experimenting with self-mortification.⁶¹

The Middle Path is applicable to both individual and societal liberation and transformation of the global economic system rooted in the three 'poisons' of the mind – greed, hatred and ignorance – through cultivation of the positive attributes: generosity, compassion and wisdom.⁶²

Economists E.F. Schumacher and Herman E. Daly envisaged the needed transition as 'Buddhist economics' and 'ecological economics' respectively, while others have termed it 'compassionate economics'.⁶³ As Schumacher explained, the Buddhist Middle Way is by no means "antagonistic to physical well-- being. It is not wealth that stands in the way of liberation but the attachment to wealth; not the enjoyment of pleasurable things but the craving for them."⁶⁴ This teaches us to distinguish between human needs and wants and to understand that mind matters most as we have the power to transform our individual and collective consciousness. This has great relevance for the conscious transformation of the global economic system and the inclusion of ethical, social and ecological criteria in economic decision making. These principles would, for example, incorporate non-violence and compassion respect for all life including biodiversity; generosity and honesty in speech and action, including corporate transparency and accountability.

Instead of attempting to dominate and subsume society and the environment within the logic of unbridled economic growth, the components of the economy – technology, property relations, the market, and finance – must be redesigned to serve the needs of environmental sustainability and human well-being.⁶⁵ Rather than upholding and extending the extremist growth-oriented system through new strategies, such as carbon trading, the world's economic structures must be transformed so that the exploitation of people and plunder of the Earth and the relentless pumping of greenhouse gases into the atmosphere are replaced by systems that honor environmental sustainability and social justice.⁶⁶

There is plenty of evidence that the shift to solar, wind and other renewable sources of energy can be achieved soon.⁶⁷ Engineers at Stanford University have put forward plans for transforming the US from dependence on fossil fuels to 100 percent renewable energy by 2050.⁶⁸ Germany, which is the fourth largest economy in the world has a plan in place to obtain 45% of its energy from renewable sources by 2030, showing that other countries can also make the shift.⁶⁹

As well as shifting to renewable energy, we need to shift away from the consumption of unsustainably produced commodities, such as beef, and to increase the democratization of control over global resources and economic decision-making. The accumulation of wealth by a few at the expense of the survival of the many and the natural environment is simply unsustainable. Increasing global economic inequality is sharpening the divergence between under-consumption and over-consumption among different segments of the

global population. To eradicate poverty and hunger among marginalized groups, overconsumption by the wealthy and underconsumption among the poorer groups must be reduced and a fairer distribution of wealth and income put in place.⁷⁰

Community economics is vital for the survival of local ecosystems, cultures, ethnic groups, communities and families. As futurist Hazel Henderson noted, the demand for bioregionalism and decentralization carries within it a critiques of monopoly capitalism and unsustainable technological growth.⁷¹ Bioregionalism honors local self-sufficiency as well as control of water, land and other natural resources including plant and seed varieties by local populations.

Still, given deepening globalization and centralization, calls for economic decentralization and a ‘small is beautiful’ ideology must not override the need for a global social and ecological agenda. As global inequality, poverty and resistance and repression increase, codes of conduct to regulate transnational corporations and nation states, carbon emissions, militarism and deforestation, for example, are essential.

Social Movements

It is the privileged groups, especially those at the top of the global social hierarchy, that need to shift away from their egoistical consciousness and consumption and to instead share more within the global commons. Indeed, countries, communities, and social classes that are heavily dependent on the arms trade, fossil fuels, and other harmful industries bear a greater responsibility to change. This is not happening as, despite the climate emergency and related environmental and social collapse, the ‘top’ 1% business-government media elite that rule the world are resistant to change, as power protects power.⁷² Distraction strategies are used to divide and pit people against each other along ethno-religious, gender-sexuality and other ‘identity’ lines deflecting attention away from class-based domination that is mostly responsible for climate and related crises.⁷³

Social change does not come by change in consciousness or individual mindfulness practice alone, but through increased citizen participation.⁷⁴ It is only by building social movements and strengthening political will that the required qualitative changes can be achieved. In the face of dramatically accelerating global warming, the failure of the Paris Agreement to address divesting from fossil fuel and the support of governments and multilateral organizations for new fossil fuel projects, simultaneous action for climate protection and social justice – i.e., climate justice – is intensifying around the world.⁷⁵

Just a few pioneering examples from the Buddhist world include: *The Time to Act is Now: Buddhist Declaration on Climate Change*; the anthology *A Buddhist Response to the Climate Emergency*⁷⁶; efforts against logging and deforestation led by Buddhist monks in Southeast Asia;⁷⁷ and the inclusion of a carbon neutral policy and the goal of Gross National Happiness (over the Gross National Product) in its constitution by the small Himalayan kingdom of Bhutan.⁷⁸

Activists are confident that just as the struggle against the tobacco industry, which hid the connection between smoking and health from the public, was won, the global citizens’

struggle against the fossil fuel industry can also be victorious. We must believe that the larger goals of environmental sustainability and social justice can be achieved if we come together to ‘Change the System, not the Climate’.⁷⁹

As the Buddhist Declaration on Climate Change, *The Time to Act is Now* clearly states:

“Instead of an economy that emphasizes profit and requires perpetual growth to avoid collapse, we need to move together towards an economy that provides a satisfactory standard of living for everyone while allowing us to develop our full (including spiritual) potential in harmony with the biosphere that sustains and nurtures all beings, including future generations. If political leaders are unable to recognize the urgency of our global crisis, or unwilling to put the long-term good of humankind above the short-term benefit of fossil-fuel corporations, we may need to challenge them with sustained campaigns of citizen action.”⁸⁰

¹ “SYNTHESIS REPORT OF THE IPCC SIXTH ASSESSMENT REPORT (AR6).” The Intergovernmental Panel on Climate Change, March 2023. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf.

² Mark Schapiro. “The World Will Miss the Climate Change Target. Time to Prepare.” *Capital & Main*, April 4, 2023. <https://capitalandmain.com/the-world-will-miss-the-climate-change-target-time-to-prepare>.

³ Carl Edward Rasmussen. “Atmospheric Carbon Dioxide Growth Rate,” April 5, 2023. <https://mlg.eng.cam.ac.uk/carl/words/carbon.html#:~:text=This%20means%20that%20currently%2C%20the,to%20the%20plots%20presented%20here>.

⁴ Roxana Bardan. “NASA Says 2022 Fifth Warmest Year on Record, Warming Trend Continues.” *NASA*, January 12, 2023. <http://www.nasa.gov/press-release/nasa-says-2022-fifth-warmest-year-on-record-warming-trend-continues>.

⁵ Mark Schapiro. “The World Will Miss the Climate Change Target. Time to Prepare.” *Capital & Main*, April 4, 2023. <https://capitalandmain.com/the-world-will-miss-the-climate-change-target-time-to-prepare>.

⁶ “SYNTHESIS REPORT OF THE IPCC SIXTH ASSESSMENT REPORT (AR6).” The Intergovernmental Panel on Climate Change, March 2023. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf; Lange, Jeva. “The 5 Quotes You Need to Know from the IPCC Report.” *Heatmap News*, March 20, 2023. <https://heatmap.news/climate/the-5-quotes-you-need-to-know-from-the-ipcc-report>.

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⁸ *International Union for Conservation of Nature*. “Species and Climate Change.” October 2021. <https://www.iucn.org/resources/issues-brief/species-and-climate-change>.

⁹ <https://www.scientificamerican.com/article/will-humans-ever-go-extinct/#:~:text=Humans%20could%20be%20wiped%20out,could%20wipe%20us%20out%20completely>.

¹⁰ Annika Dean. “Deforestation and Climate Change.” *Climate Council*, August 21, 2019. <https://www.climatecouncil.org.au/deforestation/>.

¹¹ *Union of Concerned Scientists*. “Tropical Deforestation and Global Warming,” November 10, 2021. <https://www.ucsusa.org/resources/tropical-deforestation-and-global-warming>.

¹² Damian Carrington: “Earth’s Sixth Mass Extinction Event under Way, Scientists Warn.” *The Guardian*, July 10, 2017, sec. Environment. <https://www.theguardian.com/environment/2017/jul/10/earths-sixth-mass-extinction-event-already-underway-scientists-warn>; Gerardo Ceballos, Paul R. Ehrlich, and Rodolfo Dirzo. “Biological Annihilation via the Ongoing Sixth Mass Extinction Signaled by Vertebrate Population Losses and Declines.” *Proceedings of the National Academy of Sciences* 114, no. 30 (July 25, 2017): E6089–96. <https://doi.org/10.1073/pnas.1704949114>.

¹³ Stephanie Pappas. “Will Humans Ever Go Extinct?” *Scientific American*, March 21, 2023. <https://www.scientificamerican.com/article/will-humans-ever-go-extinct/>.

¹⁴ *Ibid.*

¹⁵ Randy Astaiza. “11 Islands That Will Vanish When Sea Levels Rise.” *Business Insider*, October 12, 2012. <https://www.businessinsider.com/islands-threatened-by-climate-change-2012-10>.

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