arq (2023), 27.4, 357–361. © The Author(s), 2024. Published by Cambridge University Press.
doi: 10.1017/S1359135524000162

The climate emergency: Reality bites!

Chris Abel

In his insight article for a previous issue of arq (27:1, 79–84), the author examined the complex social and psychological reasons why the majority of humankind appears incapable of responding effectively to runaway climate change and the challenge it poses for the future of life on the planet. Taking an evolutionary approach to the problem, he argued that the origins of the instinctive resistance to changing habits of behaviour lie in the limited capacity of all sentient beings to handle complex environmental factors, other than those interpreted as being of immediate concern to their identity and survival. Human beings, however, have generally insulated themselves from nature's normal constraints in a technology-driven world of their own creation. Nevertheless – the author writes in this updated reflection – try as we might, humanity can no longer avoid the grim reality of a rapidly heating planet. Covering current issues, he finds a continuing lack of effective action by both fossil fuel industries and governments to deal with the climate emergency, but also promising signs that justice may be finally catching up with those culpable parties in each sector, for their role in the escalating crisis.

The profligate species

It is barely two years since my first 'insight' article for **arq** was published, but such are the speed and accumulating impacts of climate change upon the planet – now virtually *irreversible*, as reported by the Geological Society of London[1] and other sources cited here – that a fresh examination of the natural and human forces driving that process is urgently called for. That first article was titled: 'The problem is not runaway climate change. The problem is us'. It might be thought, as the title of this second essay suggests, that the grave reality of the situation is indeed finally 'biting', and that humanity is now firmly set upon a fundamental change of behaviour in an existential race against time. As I write this piece, however, climate scientists estimate we are currently headed for 3.0 degrees centigrade above pre-industrial levels – an already calamitous increase in temperature. And there is worse to come. According to James Hansen, the former NASA scientist who first warned the US Congress about climate change in the 1980s, global warming is *accelerating* and will continue to do so due to the unabated use of fossil fuels, much of which is already 'in the pipeline'.[2] Meaning that there is nothing much we can do about it. Tragically, not only have both governments and populations everywhere generally failed to rise to the occasion and put the planet firmly on a different course, but – blind as ever to any other reality but their own – the same industries and their commercial backers stoking the crisis are hell-bent on sticking to their ultimately suicidal goals. Nature, however, has its own goals and timetable, and would seem to be impatient now to be rid of us. We are what I call the 'profligate species', and have freely exploited the planet's resources with scant regard for their impact on nature. Unfortunately for practically every form of life on this planet, for most of its history *homo sapiens* has invented ingenious artificial ways of avoiding nature's judgement. Recently possessed of worldwide systems of electronic communication, modern humans have in turn created a virtual global niche entirely of their own, thus avoiding, at least for a time, the fate of more restricted empires. Given the continuing progress of events described here, however, it is now highly likely that we will suffer the same fate and, most probably, sooner than we care to think.

we are currently headed for 3.0 degrees centigrade above pre-industrial levels – an already calamitous increase in temperature

Denial takes many forms

The situation is further complicated by the fact that climate change denial itself takes many, often deceitful forms, not only among fossil fuel industries. The international conferences on climate change known as COP (Conference of the Parties), for example, which have thus far failed to alter the fatal trajectory on which the planet is set, notably practice their own forms of delusion. Convened by the United Nations every year since 1992, the COP 21 conference held in Paris in 2015 produced the first legally binding treaty of its kind, requiring all participating countries to keep average temperature increases to below two degrees centigrade above pre-industrial levels – and ideally 1.5 degrees. There was a gap in its legal framework, however, in the

https://doi.org/10.1017/S1359135524000162 Published online by Cambridge University Press

form of its so-called 'bottom-up' approach, which allows individual nations to determine just *how much* they will reduce their emissions each year. In the absence of firm and enforceable means – i.e., heavy trade sanctions – which might compel nations to actually keep their promises, seeing the delegates happily applauding themselves at the conclusion of every such meeting, one could be forgiven for thinking their true purpose is to conseil their failure.

Like all COP meetings, the actual choice of location is the responsibility of the UN. The decision, however, to locate the most recent meeting – COP 28, 2023 – in the United Arab Emirates, a major oil producing country, defies belief. Moreover, Sultan Al Jaber, the CEO of the Emirate's state oil company, and an oil oligarch himself, was selected to chair the conference – a decision that Al Gore, the climate change campaigner, described as 'absurd'. Incredibly, in addition to being already engaged in the largest expansion plans for oil production of any similar company in the world, representatives of the company were suspected of using the occasion of the conference to promote sales of their product to other country's delegates, as would be the case in any commercial fair. Given that the Secretary General of the UN himself, Antonio Guterres, has repeatedly warned that, unless speedy action is taken, the world is heading for a 'hellish' 3 degrees centigrade rise, it would appear that is clearly not a message that Al Jaber's state owned company appreciates.

the US has produced more crude oil over the past six years than any country has ever done in history

The Emirates, however, is not the only nation to exploit such conferences for their own purposes. The US's current production of oil is by far the world's largest, and is set to increase many times over. In sharp contrast to promises by the Net Zero Banking Alliance – of which US banks are prominent members – to strive for lower emission levels, or President Biden's own declared efforts to reduce the country's dependence on fossil fuels, the facts tell a different story. According to the US's own figures, as much as 12.9 million barrels of crude oil *per day* was extracted in 2023 alone.[3] This comes just as other countries at COP 28 – if not the Emirates – were doing their best to limit fossil fuel production. Still worse, data gathered by the Global Energy Monitor, an independent agency, confirms that the US has produced more crude oil over the past six years than any country *has ever done in history*, and has led the way through 2023 to 2024 in both new oil and gas projects. Nevertheless, John Kerry, the former special presidential envoy for climate change at COP 21 in Paris, when challenged with such facts on his recent retirement from government, defended his country's record, insisting that the US was playing its part in the *transition* to a carbon free economy, as he describes it, by supporting investment in clean energy technologies; an essential but insufficient part of any attempt to lower temperatures when fossil fuel production and consumption by the US and other countries continues to rise at an exponential rate.

Deadly obsession

The obsession with private automobiles constitutes another, rarely acknowledged form of climate change denial. Coupled with our profligate consumerist habits, these powerful status symbols and expressions of individual identity are proving to be amongst the most difficult to control elements boosting climate change. It is not only the polluting impacts of automobiles themselves that remains the problem, but also the historic influence they have had – and still do have – on the growth of cities. Cities in general account for as much as 70% of greenhouses gases, but it has been the low-density, dispersed patterns of modern cities dependent upon the private automobile and commercial road traffic that is mainly responsible. Idealised in Frank Lloyd Wright's 1935 project 'Broadacre City' – an ultra, low-density model city of single-family homes on one-acre plots – Wright's vision captured the American dream, inspiring dispersed cities like Los Angeles and its imitators across the world.[4]

Aside from the growing toll on populations whose health is directly or indirectly affected by the general impact of urbanisation on the climate, there is the all but ignored daily count of death and injury on the roads. The World Health Organisation estimates that around 1.19 million people die *each year* from road traffic crashes, or 'accidents' as they are commonly described. The great majority of these – over 90% – occur in low- and middle-income countries. Non-fatal injuries account for another 20 to 50 million people, including many disabilities. Treated as so much collateral damage, what sort of civilisation, it can be asked, is it that tolerates the slaughter and injury of its populations on scales of this sort as a 'normal', if unfortunate aspect of modern life?

Risk of unanticipated events

Not, I believe, any kind of society governed by rational thought and values, as some may still like to think of modern

our sensibilities are normally limited to handling only those environmental factors that are interpreted as needing regular or urgent attention

democracies. Whether it is automobile owners' personal dreams epitomised in advertisers' seductive images, or the commercial dictates of international industries oblivious to any reality but their own, as with climate change denial itself the apparent disregard of these monstrous road casualties is the outcome of narrow, self-centred instincts. The problem is that, as I argued in my previous essay, far from being exclusive to the psychology of modern humans, such instincts are a common feature in the behaviour of *all* animal species and other creatures. Just like other species, our sensibilities are normally limited to handling only those environmental factors that are interpreted as needing regular or urgent attention. Everything else is placed in the nervous system's 'in-tray', i.e., can be safely ignored for now.

Except that, when it comes to the climate emergency, having denied and delayed for so long, we can no longer turn a blind eye to its devastating effects. The verdict of the science-based Intergovernmental Panel on Climate Change (IPCC) in its 2022 report, 'Summary for Policy Makers',[5] is unequivocal: 'Human-induced climate change, including more frequent and intense extreme events, has caused widespread adverse impacts and related losses and damages to nature and people, beyond natural climate variability.'

Created in 1988 to produce regular assessments of the causes and potential future dangers of climate change, the IPCC's reports, however, – which have commonly framed its forecasts in vague phrases such as 'by the end of the century' – were not always as clear as this. For much of the Panel's operational life, the conclusions of the meteorologists and numerous other scientists consulted from all parts of the world have also been influenced by the need to achieve international consensus. Final agreement on the reports, which the IPCC updates every four years, was generally assured by the participation of political representatives of every national government involved, effectively excluding any factors, such as the possible *risk* of unanticipated events arising, which are not covered in the report. Only recently have

https://doi.org/10.1017/S1359135524000162 Published online by Cambridge University Press

such considerations been included, allowing for unexpected but potentially dangerous changes in the rate and effects of climate change. Signifying a major change in the IPCC's approach, the *Summary Report* places the concept of risk at the heart of the working groups' investigations, providing 'a framework for understanding the increasingly severe, interconnected and often irreversible impacts of climate change on ecosystems, biodiversity, and human systems', including for the first time, 'the risk that can be introduced by human responses to climate change'.

Tipping point dominoes

Several independent reports highlight the dangers of ignoring such risks. In *Global Tipping Points*, the authors write: 'Environmental stresses could become so severe that large parts of the natural world are unable to maintain their current state, leading to abrupt and/or irreversible changes.'[6] These are called Earth system 'tipping points.' The report lists five major tipping systems as being already at risk of crossing tipping point thresholds at the present level of global warming: the Greenland and West Antarctic ice sheets; warm water coral reefs; the North Atlantic Subpolar Gyre circulation of ocean currents, which includes the Gulf Stream responsible for the mild climate around North Atlantic coasts, and permafrost regions. Another report studied the *interactions* between tipping point systems, and found 'domino effects' in as many as a third of the tests, even when simulated temperature rises were below 2 degrees centigrade – the proposed upper limit of the Paris agreement.[7]

What these and related studies reveal is that such interactions between diverse climate systems can actually *reduce* the critical temperature at which each tipping point is exceeded. The implication is that there may be less time than is generally assumed to cut greenhouse gas emissions sufficiently to avoid any domino effects. Moreover, some tipping point systems, including sections of the Antarctic ice sheets and the Amazon rainforest, may have *already* passed their safe limits. Unlike melting polar ice in the North, which, while having other negative effects on the climate, has no effect on rising sea levels, the Antarctic sea ice surrounds the ice-covered high land like a safety belt. Any weakening of that belt could trigger a melting of land-based ice, with direct impacts on rising sea levels. According to the authors of an article in *Nature Climate Change*, that process may even now be irreversible.[8] The Antarctic ice shelf in particular is losing ice at such a rate that any 'mitigation of greenhouse gasses now has limited power to prevent ocean warming that could lead to the collapse of the West Antarctic Ice Sheet'. A more recent paper confirms those fears.[9] Consecutive summers of low Antarctic sea ice cover, including record lows in 2022 and 2023, 'has led researchers to question whether there has been a regime shift', i.e., a change signifying a critical loss of ice beyond recovery.

The implications for coastal cities and settlements, as well as numerous islands around the world, many of which are already affected by rising levels, are dire. A foretaste of the future can already be seen in Indonesia, where the government, having abandoned the former capital Jakarta – already inundated by the rising sea – are building a costly new capital, Nusantara, elsewhere in the centre of the archipelago in a forest area on higher ground, leaving the drowning city's population to cope as best they can.

The precarious state of the Amazon rainforest is equally worrying. A recent study in *Nature* observes that 'the region is increasingly exposed to unprecedented stress from warming temperatures, extreme droughts, deforestation and fires, even in central and remote parts of the system'.[10] Should the forest finally collapse, as is feared, combined with the continued rates of deforestation in other parts of the world,the planet would lose much of its carbon storing capacity, speeding up the whole climate change process still further – a cataclysmic loss on a scale that no so-called 'carbon capture' technologies could supplant, let alone the countless forms of wildlife that prospering forests support as part of a normal day's work.[11]

The implications for coastal cities and settlements, as well as numerous islands around the world, many of which are already affected by rising levels, are dire.

The destruction does not stop there. The warming of permafrost regions such as the circumpolar Boreal Forest, is releasing highly flammable methane gas – eighty times more powerful than carbon dioxide – that was formerly locked up in the frozen ground, and if not controlled can spark off fierce fires. Australia's Great Barrier Reef, where significant bleaching has been detected for over 60% of surveyed reefs,is also suffering badly from warmer seas and can no longer sustain the rich forms of marine life it used to.[12] Neither is the famous Great Barrier the only reef system to be affected. The US Government's National Oceanic and Atmospheric Administration's (NOAA) Coral Reef Watch reports that 54% of global ocean waters containing coral reefs are now impacted by heat stress sufficient to cause bleaching – an ominous sign of the failing health of the world's oceans.

Topping the growing list of dangers to the biosphere, there is no sign yet of any meaningful reduction in the levels of the three primary greenhouse gasses themselves: carbon dioxide, methane and nitrous oxide, which have all soured to new highs.[13] The levels of carbon dioxide alone are now more than 50% higher than they were before mass industrialisation, while methane expelled from livestock and the ground itself during oil and gas drilling, has an atmospheric concentration 160% greater than in pre-industrial times. In turn, levels of nitrous oxide, a bi-product of nitrogen fertiliser, have also risen steeply together with industrialised agriculture, or 'agri-business', with widespread and mortal effects on the health of consumers.

A final reckoning

It has been the case that, as with other crimes against humanity in its violent history, justice has been notoriously slow in catching up with the principal perpetrators. Modern crimes, such as the worldwide promotion of cigarette smoking, have had especially devastating effects upon human health, for which the major companies involved eventually pleaded guilty to having prior knowledge of, paying out billions in compensation. Not enough, however, to persuade governments that stronger measures than health warnings on cigarette packets were needed to match the dangers of smoking.

There are encouraging signs, however, concerning the vital matter of climate change and related liability for its human impacts, which may be about to change. Tired of their own country's duplicity, climate change activists in the US are increasingly turning to sophisticated forms of legal action. Among these, Public Citizen, a consumer advocacy group, is promoting a radical legal theory that suggests the primary culprits responsible for climate change related deaths – i.e., the major fossil fuel companies – could be *held accountable* for those deaths and tried for homicide. Given that five million lives are lost each year to temperature extremes and another 400,000 people die from climate-related hunger and decease, together with hundreds more from floods and wildfires, the decision to finally bring the relevant parties to justice marks a revolutionary change in climate activists' strategies. The group's legal approach focuses on the well-documented evidence from the principal perpetrators' *own records* that they not only *knew* of the future impact of fossil fuel production and use on the planetary climate, but also accurately *predicted* their harmful effects

https://doi.org/10.1017/S1359135524000162 Published online by Cambridge University Press

well into the future. Accordingly, so the argument runs, they are potentially guilty of 'reckless or negligent homicide', a form of crime that the legal minds involved believe they can make a strong case for.

In another widely reported development, a group of 2,400 older Swiss women called the *KlimaSeniorinnen*, accused their government of failing to take action against climate change, the health impacts of which are more severe on older people than younger groups. Supporting their case, in April last year the European Court of Human Rights ruled against Switzerland for not taking sufficient and timely measures to reduce greenhouse gas emissions, thus depriving Swiss women of their right to a healthy and peaceful old age. Charlotte Blattner, a specialist in climate law at the University of Berne, described the Court's decision as a bold judgement in support of action against climate change, setting a powerful example for other countries and legal bodies to follow: 'The nature and gravity of the threat of climate change – and the urgency to effectively respond to it – require that governments can and will have to be held accountable for their lack of adequate action.'

The Swiss verdict opens the way for all forty-six members of the Council of Europe to be taken to national courts for similar cases, for which they are now vulnerable. Moreover, while the ruling did not specify any precise actions governments should take in response to the verdict, according to Nikki Reisch, climate and energy director at the Center for International Environmental Law, the Court's decision clearly stipulates their responses must comply with what the relevant *science* demonstrates is 'required to prevent further harm' – a condition which predictably drew hostile reactions from the Swiss government.

Terminal inertia

We can be sure however that, unable to overcome their own terminal inertia, both lax governments and fossil fuel industries will do everything they possibly can to derail any such attempt to bring them to court for their part in this story, for which there is no shortage of well tried dirty tricks to employ. Investor-State Dispute Settlements (ISDS), for example, or 'litigation terrorism', as Joseph Stiglitz, the Nobel Prize winning economist describes them, are explicitly designed to pursue and *penalise* anyone, including governments, that might threaten their interests. In a report by David Boyd, the UN Human Rights Special Rapporteur on environmental issues, the author writes that the secretive ISDS disputes have:

> *become a major obstacle to the urgent actions needed to address the planetary environmental and human rights crises. Foreign investors use the dispute settlement process to seek exorbitant compensation from states that strengthen environmental protection, with the fossil fuel and mining industries already winning over $100 billion in awards.*[14]

Summing up his experience on his recent retirement as a Special Rapporteur, Boyd expressed his frustration at the general inability of people to comprehend the seriousness of the climate emergency: 'It's like there's something wrong with our brains that we can't understand just how grave the situation is.'

Moreover, complicit governments *themselves* are employing increasingly severe methods to prevent and punish – in effect to criminalise – *any* forms of public protest against private or governmental inaction on climate change.[15] Commenting on such actions, the UN rapporteur on human rights defenders, Mary Lawlor, like Boyd, is equally clear about the nature of the challenge:

> *These are people we should be protecting, but are seen by governments and corporations as a threat to be neutralized. In the end it's about power and economics.*

In a further warning to climate change activists, following the behaviour of all repressive governments, some countries such as the US and UK have also passed broad anti-protest laws supposedly designed to protect national security.

without such stalwart groups, there would be no standards by which to judge the behaviour of those who have brought the world to its present impasse

Paying the price

Whether or not Public Citizen's campaigners and the European Court of Human Rights succeed in their endeavour to bring those responsible for the crisis to justice, they remind us that, without such stalwart groups, there would be no standards by which to judge the behaviour of those who have brought the world to its present impasse, or to decide just who, amongst all the potential personal and organizational candidates, should be held legally responsible.

The question is further complicated by the manner in which climate change itself is often framed as a *process*, minus any identifiable human actors. In *The Self-Field: Mind, Body and Environment*, from which both my essays for **arq** draw, I was critical of Michael Weinstock's interpretation of the concept of emergence, and its implications for the present and future impacts of climate change upon life on the planet. As Weinstock expresses it, all forms of life, including the form and settlement patterns of human construction, are the outcome of the same emergent *forces* and, as such, are beyond human control, including the likely future of human civilisation:

> *It is clear that the world is within the horizon of a system change, and that transitions through multiple thresholds will cascade through all the systems of nature and civilization. New forms will emerge down through all the generations to come, and they will develop with new connections between them as they proliferate across the surface of the earth.*[16]

However, given the present accelerating course of climate change and its consequences, those same tipping point dominoes that Weinstock alludes to, suggest there is no guarantee whatever that his optimistic scenario will ever come to pass, nor indeed, that humanity or civilisation itself as we know it will survive into the future. I do not personally believe, however, that all life on the planet will necessarily perish along with us. Nature has proven many times over that it is capable of surviving the most drastic of geological transformations. Pockets of human life may even survive underground and in the polar regions or some other cooler parts of the globe. But what is truly disturbing in Weinstock's dehumanising perspective is the inability to acknowledge the very real suffering from the impacts of climate change already endured not only by human life, but by the great majority of all living creatures on this earth. Whilst it is vital to understand the systemic processes underlying climate change, as the sole profligate species on the planet no record can be complete without recognising the human responsibility for the crisis, for which we are all now paying the price. As late as it is, it is heartening to see individuals and bodies like Public Citizen's soldiers, and the European Court of Human Rights, tackling some of the most powerful deniers on their home ground. Should they and the many other committed activists around the world fail in their crusade, I doubt if the passive populations of this planet, who have so far stayed silent, will be able to contain their fears for the future for much longer. Let us hope they succeed.

https://doi.org/10.1017/S1359135524000162 Published online by Cambridge University Press

Notes

1. Caroline H. Lear, Pallavi Anand, Tom Blenkinsop and others, 'Geological Society of London Scientific Statement: What the Geological Record Tells Us About Our Present and Future Climate', *Journal of the Geological Society*, 178 (2020), 1–13.
2. James E. Hanson et al., Global Warming in the Pipeline, *Oxford Open Climate Change*, Vol. 3, Issue 1, 2 November 2023
3. US Energy Information Administration, *EIA's 2023 Annual Energy Outlook*.
4. Peter Hall, *Cities of Tomorrow: An Intellectual History of Urban Planning and Design Since 1880*, 4th edn (Hoboken, NJ: Wiley/Blackwell, 2014).
5. International Panel on Climate Change, 'Impacts, Adaptation and Vulnerability: Summary for Policy Makers', IPCC WGII Sixth Assessment Report (2022).
6. *Global Tipping Points*, ed. by Tim M. Lenton, David I. Armstrong McKay, Sina Loriani (Exeter: University of Exeter Press, 2023).
7. Nico Wunderling, Jonathan F. Dongnes, Jurgen Kurths, Ricarda Winkelmann, 'Interacting Tipping Elements Increase Risk of Climate Domino Effects Under Global Warming', *Earth System Dynamics*, 12:2 (2021), 601–19.
8. Kaitlin A. Naughten, Paul R. Holland, Jan De Rydt, 'Unavoidable Future Increase in West Antarctic Ice-Shelf Melting Over the Twenty-first Century', *Nature Climate Change*, 13 (2023), 1222–8.
9. Will Hobs, Paul Spence, Amelie Meyer and others, 'Observational Evidence for a Regime Shift in Summer Antarctic Ice', *Journal of Climate* (1 April 2024), 2263–75.
10. Bernando M. Flores, Encarni Montoya, Boris Sakschewski and others, 'Critical Transitions in The Amazon Forest System', *Nature*, 626 (2024), 555–64.
11. Jayden E. Engert, Mason J. Campbell, Joshua E. Cinner and others, 'Ghost Roads and the Destruction of Asia-Pacific Tropical Forests', *Nature* (10 April 2024), available at: https://doi.org/10.1038/s41586-024-07303-5 [accessed 14 May 2024].
12. Australian Government Great Barrier Reef Authority, 'Reef Health Update' (12 April 2024).
13. Global Monitoring Laboratory, 'No Sign of Greenhouse Gasses Increases Slowing in 2023', National Oceanic and Atmospheric Administration (NOAA).
14. David Boyd, 'Paying Polluters: The Catastrophic Consequences of Investor-State Dispute Settlement for Climate and Environment Action and Human Rights', *United Nations Human Rights Thematic Report A/78/168*, 13 July 2023.
15. N. Lakhani, D. Gayle, M. Taylor, 'How Criminalisation Is Being Used to Silence Climate Activists Across The World', *The Guardian*, 12 October 2023.
16. Michael Weinstock, *The Architecture of Emergence: The Evolution of Form in Nature and Civilization* (Chichester: Wiley, 2010).

Competing interests

The author declares none

Author's biography

Chris Abel is a graduate of the Architectural Association School of Architecture (1968) and the University of Sydney (2012, PhD). He has been exploring interdisciplinary approaches in his work since the late 1960s and has taught at universities around the world. His publications include *Architecture and Identity: Responses to Cultural and Technological Change*, 3rd edn (2015), and *The Extended Self: Architecture, Memes and Minds* (2015), winner of the *Comité International des Critiques d'Architecture* (CICA) 2017 Book Award.

Author's address

Chris Abel
www.chrisabel.com

https://doi.org/10.1017/S1359135524000162 Published online by Cambridge University Press