

Too late

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Photo: Jad Davenport/National Geographic

The Uninhabitable Earth David Wallace-
Wells Penguin: 2019

Carbon Ideologies. No Immediate Danger and No
Good Alternative (Volumes One and Two) William T
Vollman Viking: 2018

Carbon Capture Howard J Herzog MIT Press
Essential Knowledge Series: 2018

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ear Maldivian in exile,

I don't know where to send this letter as I have no idea where you are. A crowded high-rise on one of the man-made islands floating off New Zealand if you were one of the fortunate ones. Maybe a sodden refugee camp outside Thiruvananthapuram if you weren't so lucky. I know where you won't be: Shanghai, New York, Mumbai, Singapore, Ho Chi Minh City, Yangon. Those great centres of trade, heedlessly built on the water's edge by colonial powers, will have been submerged just a few decades after the Maldives.

Do you think much about your old home? Before the

waves took your islands, they were a place of wonder. Settled so low in the seascape that the sky formed a vast blue dome, filled at dusk with towering pink clouds. So bright with white coral sand that even deep waters refracted into shades of turquoise seen nowhere else. Skittering silver-blue schools of fish swam over the reefs that formed these islands over thousands of years. Each year huge manta rays with wingspans of more than a metre would swarm into lagoons to feed on an abundance of tiny organisms, leaping from the water in what appeared to be a performance of joy. The coral died off just a few decades after I wrote this, too delicate for the rising temperatures and acidity of the water.

When I spent time on your islands in 2019, the signs were already there. In Addu City, water pooled on the streets, brackish white puddles that never dried up. The fresh water was gone, driven out by rising seas and tainted with pollution. Rainfall was in decline so the thin layer of sweet water on the atolls was no longer replenished. In the twentieth century it had been possible to dig a well almost anywhere and drink the water. In Male, once your capital, people relied on a desalination plant. When a fire caused it to stop working, bottled water had to be flown in from India. Fights broke out when people thought the bottles were running out.

In your climate exile, you may have read William T

Vollman's *Carbon Ideologies*, a two-volume, 1,500-page letter to all of you in the future about how the world ended up in the place it did. You may have struggled through it, not just because of its length, its impenetrable tables and meandering self-indulgence, but because it must be so painful to read. It lays out our unalloyed stupidity and selfishness, our refusal to see what was in front of our faces, our rejection of science and embrace of charlatans. All of that doomed you to fifty degree centigrade days and annual thousand-year storms. Most people still have countries, burnt, shrunken countries blighted by fire and floods, but not you. Your islands would have been abandoned at some point, the last few people living on floating platforms anchored to dead coral.

Do you still have a passport? Does your country exist in any form? Are embassies your only territory now? Academics have already started to discuss questions along those lines. Would the Maldives still be a nation with a seat at the United Nations, a telephone code and a flag if it no longer had any territory and its people were no longer gathered in one place? When exactly would you cease to exist as a nation? Under what is known as the Montevideo Convention, a state must have territory and that land should house most of its people. If a state refuses to recognise a person, they become stateless, a condition the world had been wrestling with long before your country disappeared. But if your state disappears, you are not officially

stateless, you just don't exist under international law. When I wrote this, we didn't have an answer for what you are. We weren't even looking for one.

Early in the twenty-first century, your country made what was a desperate gamble. The Maldives embraced a form of tourism that was probably among the most carbon-intensive anywhere. Some of the largest jets brought visitors in from an average of ten hours' flying time away. They were taken on powerful launches or flying boats to resorts that ran desalination plants and generators twenty-four hours a day. Food was all imported, much of it by air. In high season, the private jets were so numerous, they had to fly to Colombo to park. It all added to the greenhouse gases that would warm and expand the ocean. The hundred or so resorts, each on its own island, applied varying degrees of luxury to the fantasy of living on an unspoiled desert island, all at vast expense in money and greenhouse gas emissions. The hope was that by offering US\$65,000-a-night villas and undersea suites to Russian oligarchs and Saudi princes, the islands could make enough to find a way to survive.

It didn't work out. Not because there wasn't enough money but because there wasn't the will to spend it in a useful way. Your country was the richest in South Asia, something of a development miracle when measured by gross domestic product growth. But too many of your politicians were corrupt, your oligarchs greedy, your

gangs violent and your people dragged under by living in one of the most crowded and expensive places on the planet. It seemed that at any moment, Male might just halt entirely, the streets so clogged there would be no space between mopeds, people and delivery trucks. Maldivians, always patient and restrained, would just stand still forever.

A country of fishermen, farmers, traders and sailors scattered over about 180 tiny islands (out of about 1,000 in total) had a rapid confrontation with modernity. In less than fifty years it went from being remote and almost unknown to being a place where tourists outnumbered locals each year by four to one. The Boxing Day tsunami of 2004 had washed over the islands, giving a premonition of what was to come. Many took solace in religion. More women covered their heads, more men went to the mosque. Democracy did not come until 2008 but was as fractious and fragile as it always is after decades of dictatorship. The first popularly elected president was overthrown. The next one rigged his election, returned the dictator's cronies to power and looted the treasury.

His greed and incompetence meant that he soon felt the firm slap of electoral defeat and those who favoured a more open tolerant society returned to power. But the damage had been done. Corruption was endemic. Those at the top of the economy also controlled the gangs, the drugs, the judges, the television channels,

the religious leaders and the parliament. The machinery of government had all the gears needed in a modern society but none of them ever meshed. They turned but nothing emerged. Reforming the country while tackling the ever-rising debts to China would prove beyond anyone.

And so there was no plan to adapt to the rising waters. Those at the top bought themselves boltholes in London or Colombo, Paris or Sydney. Increasingly, money moved abroad. Enormous tourist resorts were built and marketed to the global elites who wanted to holiday in splendid isolation, away from the toxic air of Beijing or New Delhi. Male grew into a city of islands and towers, the reefs of Faafu Atoll a circle of bridges and ever more crowded islands. Your religious leaders dismissed the problems of the environment out of hand. God would provide: “There have always been as many fish in the water as raindrops upon the sea,” said one. The country consumed more oil each year, its emissions growing but nevertheless remaining the tiniest blip in the global output. Your country didn’t cause climate change. The West mostly did that; although by the start of the twenty-first century, India, your patron and neighbour, and China, donor, owner of resorts and sender of the most tourists, was where your life was determined.

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eventy years before your islands drowned, we knew that climate change was going to have a devastating effect. In 1990, the UN Intergovernmental Panel on Climate Change issued its first assessment report on climate change, a cautiously worded compendium of all the science that urged all nations to lower the rate at which they pumped carbon dioxide into the air. Some countries made dramatic steps forward in carbon efficiency but the rise in prosperity globally meant that emissions were 60 per cent higher in 2014 than they were a quarter century earlier.

We didn't lack for information. We just didn't care or we couldn't grasp the consequences of our actions. Communications were part of the problem but so were the limits of our minds and our preference not to think about the unknown. Climate change was described as a "hyper-object", too vast and complicated to understand. It induced a sense of powerlessness that bred complacency. Vollman's exhaustive roll of facts about coal and its deadly effects mirrored climate change itself — too huge and depressing to absorb, too overwhelming and saturated with dread for the mind to stay focussed. But even the shorter, sharper work, *The Uninhabitable Earth* by the journalist David Wallace-

Wells, a distillation of the most up-to-date science of what had already happened by 2019 and the best-informed predictions of what was to come, induced a desire to close one's mind to the horror. About half way through the book, he even wondered if anyone was still reading.

We cared in an abstract way but not enough to untangle the enormous problems we knew were already upon us. Sea-level rise obsessed us — everyone knew your country was doomed. The Antarctic lost 200 billion tonnes of ice in 2017 alone. But we paid less attention to the other issues that were attributed to climate change: the more frequent heatwaves that took the lives of the young and the elderly; the declining crop yields and alarming reduction in nutritional value of food; the rising temperatures and droughts that saw suicides among Indian farmers surge with each additional degree of heat; the water shortages afflicting cities across the world as aquifers dried up; or the 28,000 rivers in China that were estimated to have disappeared in only a decade.

Our problem was to some degree a lack of imagination, as several authors in our time pointed out, notably Amitav Ghosh in a peerlessly thoughtful book called *The Great Derangement*. He complained that no author had successfully tackled climate change in fiction. But, as Wallace-Wells wrote, movies and television were full of images of a bleak climate future:

the “Winter Is Coming” prophecy of *Game of Thrones* or the more realistic aridity of sequels to *Mad Max* and *Blade Runner*. These, however, served more as a diversion or soporific than a warning. No movie or novel could communicate the scale of climate change, nor did it fit the conventions of our novels. There was no individual hero nor the possibility of redemption, no world changing moment, no clear arc, no gripping narrative that could offer a better future. A novel that laid out the facts that we had already pumped enough carbon into the atmosphere to irrevocably change the Earth might have struggled to hold its readers, as both Vollman’s and Wallace-Well’s doom-laden tomes did. Even as the science came into better focus — computer modelling improved vastly in the first decades of the twenty-first century — we averted our gaze.

So we knew what was in store for you, even if we somehow couldn’t bring ourselves to stop it or even reduce the harm. By 2018 it was probably already too late to stop temperatures rising by two degrees as carbon dioxide and methane can linger in the atmosphere for centuries. But we could have headed off the catastrophe of further rises. Instead we stumbled on in an unthinking way, climate zombies, unable to contemplate the future we were making.

If we had started in 2000, we would have had to have cut carbon emissions by a manageable 3 per cent a year to keep temperature rises to two degrees. If we had

started in 2019, it would have been 10 per cent a year. That would have cost about US\$3 trillion a year in investments into clean energy to limit global warming to 1.5 degrees — a huge amount but less than the approximately five trillion a year that fossil fuels received in various subsidies. As Wallace-Wells asserted, if the richest 10 per cent of the global population had reduced their emissions to the average level of the European Union, we could have reduced global carbon dioxide output by 35 per cent. Our lack of political will and a leadership that openly mocked any effort to bring the problem under even the most limited control made it impossible. If we had stayed on our current path, it would take us 400 years to implement a green energy revolution that would end the use of fossil fuels, something we needed to do within thirty years.

As well as our political failings and our cognitive biases, we had an inane belief in a technological saviour (Elon Musk will rescue us — and if not, he will fly us to another planet on one of his rockets!). As we awaited our techno-Messiah, we paradoxically developed a new suspicion of science. “Experts” wanted to ban burgers and replace your truck with a tiny, tinny car. We were worse than just stupid. We were heedless and indulgent in ways that must appall you. Someone invented a new currency for speculators and money launderers called bitcoin. To produce this currency, warehouses of energy intensive computers had to grind through code in what was called “mining” but was in fact an entirely artificial

and unnecessary process that could be changed with some rewriting of the algorithm. The amount of energy consumed was staggering: to make a currency that served absolutely no public good whatsoever used energy equivalent to the entire solar capacity installed on earth up to 2018. Each year bitcoin produced the same amount of carbon dioxide as a million transatlantic flights.

When we saw profligacy on this scale, it no longer seemed worth making the changes we needed to make. We could all drive little electric cars and eat vegan burgers but the benefits would be utterly obliterated by the expansion of India's coal industry alone. China poured more concrete in three years in the early twenty-first century than the United States had done in the previous hundred years. And that was mostly to ensure the Communist Party could keep up the growth rates it felt were necessary to shore up its power. Anything we could have done as individuals paled into insignificance against the decisions made by the Politburo.

Our every effort to reduce emissions or stop warming came with a cost we decided we couldn't pay. Biofuels meant more forests were cut, releasing the carbon stored there. It was also complicit in driving up food prices. Sprinkling the atmosphere with sulphur dioxide to cool the planet, in the way volcanic eruptions do, meant acid rain and yet more disruptions to the

weather. Carbon capture from coal plants might have been affordable if we'd been able to impose a sufficient tax on emissions; squaring that circle eluded politicians. But actually removing carbon from the atmosphere using so-called negative emission technologies remained a distant prospect — it can cost up to US\$1,000 per tonne of carbon dioxide. Our capacity for magical thinking led us to ignore what the engineer Howard Herzog wrote in his short guide to carbon capture: “The best way to remove CO₂ from the air is not to release it into the air in the first place.”

I

sat on a wide beach on Kinolhas island in Raa Atoll, an area in the north of the Maldives that had been declared a protected UN World Biosphere Site, a meaningless designation it turned out. It was early evening, the sun was setting and families were spread out along the white sand. Across the Maldives, the equatorial heat was always softened by the sea and the breezes. The temperature of the air and water was perfect. A catamaran was moored a few hundred metres from the shore, by the uninhabited “picnic island” next to Kinolhas, where the locals went to collect palm fronds and coconuts. The Dutch family who had chartered it had come over to eat tuna fried rice and to

snorkel over the reef. Over millennia, schools of parrot fish had chomped their way through the coral, grinding it into the fine talc-like sand that made up the island, each fish adding about a quarter of a kilogram of sand each day.

You probably are nostalgic for your old home. The Maldives of the past was no paradise. It had unemployment and heroin addiction, venality and stupidity. Saudi preachers inflicted their harsh mores on people who had learned that compromise was a key to living in close proximity on a tiny island. But in the late afternoon on Kinolhas, life had a languor and peace that was irresistible. Palms and tall bushes of moringa hid the island's houses, most of which were built back from the beach. Their coral stone walls that sheltered courtyards and homes from the world were painted fuchsia and white. A small boy helped his mother water the bougainvillea growing in pots around their house, splashing more water on himself than on the dry plants. While their mothers talked, children chased each other through the palms. Those children would be the last generation to know this.



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