As the Weather Turns

A Field Guide for the Rest of the Century

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A detailed look at why institutions cannot correct themselves or the cheap-carbon-capitalism model they operate within - and what practical options remain for us, here and now, as the infrastructure we depend on comes under increasing strain over the coming decades. Section A (1 through 6) is a heavily sourced case for why institutional reform isn't coming in time. If you'd prefer to skip the argument and get to the human practicalities, jump to Sections B or C.

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0. Deep time

Civilisation is not humanity's default condition. Homo sapiens spent 199,000 of its 200,000 years as a cold-climate hunter-gatherer, adapting to swings of around 2.8 to 5 degrees Celsius that reshaped continents.[1] Agriculture, cities, and writing appeared only inside a narrow, unusually stable window, the Holocene, that has held for about 12,000 years. Industrial civilisation has spent roughly 200 of those years, one-tenth of one percent of the species' history, burning through the carbon budget that window was built on. The planet has been far colder, far hotter, and far more volatile than it is now, with humans on it. The fact is, the specific arrangement we call civilisation — dense coastal cities, agriculture at scale, a predictable coastline — was never guaranteed by anything except a few thousand years of ideal conditions, and those conditions are now shifting.

The Holocene's 12,000-year stability is the exception, not the rule, and the industrial economy has been built as though it were the rule. The reasonable expectation here is not the end of everything, or the extinction of humanity, but a return to something more like earlier condition of being human on this planet, in the larger time frame than our collective memory serves - a species that migrates, reorganises, and reinvents its food and settlement patterns under climate pressure. It has done this at every major climatic shift in the archaeological record. In each previous case human adaptation ran on knowledge already held by people who could pass it on: how to manage a grain crop, dig and maintain a canal, read the winds. Nothing about the response was automatic. It was skill, spread widely enough to survive the loss of any one person or place.

The Younger Dryas cold-dry snap (c. 10,800 BCE) is the likely trigger for the first deliberate cultivation of grain on the Euphrates; several thousand years later, the desiccation of the Sahara pushed people to migrate; a later cold snap didn't end agriculture, it drove Mesopotamian farmers to build irrigation canals, which is where cities, writing, and administrative hierarchy developed.[2] Climate stress has repeatedly been the forcing function behind human innovation and adaptation, not necessarily human catastrophe.

Around 2200 BCE, a period of severe aridification that marks the start of the current geological age, saw the contemporaneous decline of the Akkadian Empire, Old Kingdom Egypt, and the Liangzhu culture in China — representing parallel stress on multiple complex societies at once, but societies with no economic or political connection to each other. A shock to one didn't propagate to the next. There is no precedent for a single, mutually dependent system experiencing climate stress at once - where a shock to one node (a mineral supply, a grain exporter, an oil shipping lane) propagates to all the others, instead of each region absorbing its own version of the shock in relative isolation.

Additionally, every one of those precedents happened at a fraction of today's scale, at a time when migration could happen with no friction into a thinly populated world - around 5 million at the Younger Dryas and perhaps 40 to 60 million at the Akkadian collapse, against roughly 8 billion now. Today's is a global, interconnected civilisation, bordered by nation-states, competing sovereign claims, where migration itself is a trigger for conflict rather than the release valve it was historically. What's new this time isn't that adaptation will be required; it's the prodigious speed, and the fact that adaptation has to happen inside dense, fixed, coastal infrastructure earlier humans didn't have and weren't tied to.

The specific economic and political arrangement built on cheap carbon — not humanity itself, not civilisation as such, but *this* configuration of it — was never going to be permanent, and treating it as the fixed backdrop of normal life in the larger geological time frame, is itself a certain denial.

The research and reports cited below all indicate that this shift is expected to cascade over the coming decades, that it is not yet too late to mitigate given a coordinated effort, but that there also remains a lag in cognisance. The same drivers too, are producing a parallel loss of nonhuman life, at a scale itself this piece is not going to attempt to address.

What survives. Civilisation itself doesn't have to be the unit that survives. When Rome fell, Latin-speaking Europe lost direct access to much of the Greek canon — Aristotle, Galen, Ptolemy (philosophy, medicine, astronomy) — but it didn't disappear: Greek-speaking Byzantium kept reading it without interruption. Scholars at Baghdad's House of Wisdom translated it into Arabic, extended it, and Ibn Rushd's (known in Europe as Averroes) commentaries on Aristotle later shaped European scholasticism completely. Centuries later, at Toledo, it was translated again, into Latin, and returned to the civilisation that had lost it.[3] Knowledge outlasted the civilisation that wrote it down, migrated in its own way across peoples who inherited it, and came back full circle. The question this essay returns to, is not whether a given arrangement survives, but what gets carried past it, and by whom.

The question. A carbon tax or a sea wall is a response to the question, "how do we keep the current system running." This is the wrong question. The enduring question we need to be asking is — how does a person or a society hold onto what's worth keeping (knowledge, culture, community) while a way of life that has been taken for granted comes apart. That question doesn't require agreeing that collapse is certain or near. It only requires admitting that no amount of confidence in the current arrangement makes it permanent — and that the practical work of adapting - into communities that can see and support each other - reorienting and maintaining the skills and records needed to outlast any one system — is worth doing regardless of how fast or slow the change turns out to be.

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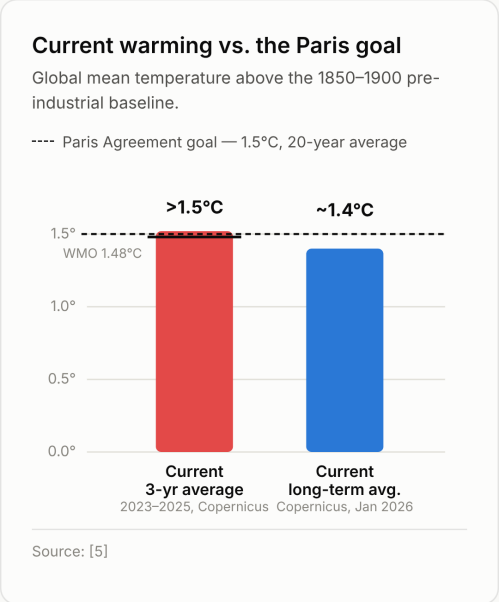
Vectors of change

For context, a swing of 2.8 to 5°C is not a small number at the planetary-average scale — it's the same magnitude of cooling that put an ice sheet down as far as Chicago, England, Germany, and northern China during the last glacial maximum. [4] A warming of similar magnitude is beginning, now that we have touched the 1.5°C threshold (3 year average, 2023-2025)[5] to produce three separable things at once:

- coastlines are retreating as Greenland and Antarctica shed ice and will continue to do so over the coming centuries
- specific low-lying, humid regions are approaching a heat-and-humidity threshold that the human body cannot survive outside
- the temperate, food-growing belt is sliding toward the poles at a measurable pace



Sea levels and frequency of flooding are projected to displace up to 1.2 billion people by 2050.[6] Under the continued high-emissions trajectory we are in now, this sees

- Bangkok with 96% of land below the 10-year flood level — roughly a third of the city submerged (fully submerged by 2100)
- New York with 37% of lower Manhattan in the storm-surge zone, 20 million people at risk
- 97% of the population of Amsterdam exposed
- Mumbai, Miami, Tokyo, London and Buenos Aires all facing significant coastal influence and exposure under current projections

- Manila is among the worst-hit cities, and Jakarta, as capital of Indonesia and the world's fastest-sinking megacity, is already being relocated.
- All coastal cities globally will be affected to greater or lesser degrees in the coming decades[7]

Heat. The human body cools itself by sweating, but sweat only works if the surrounding air can absorb the moisture. Combine heat and humidity into "wet-bulb temperature" and there's a rough ceiling around 35°C (95°F) wet-bulb, beyond which a healthy adult at rest, in the shade, cannot shed heat fast enough to survive more than a few hours.[8] That threshold has already been touched, briefly, in the Persian Gulf and parts of South Asia. It has never yet persisted. Under a business-as-usual emissions path, models project the Indus and Ganges river valleys — Pakistan, northern India, Bangladesh, a region of roughly a billion people — crossing that threshold for sustained stretches within this century. The Gulf states are projected to arrive there sooner. This isn't "hotter summers." It's specific, low-lying, humid river valleys becoming places the human body cannot survive without external cooling mechanisms for parts of the year. This becomes a place that stops being inhabitable.

Agricultural belts. The temperate zones that grow most of the world's food are moving. Temperate and boreal zones have been shifting poleward at roughly 35 and 16 kilometers per decade over the last half-century, and accelerating.

A 2025 study at the Centre for Ecology & Hydrology in the UK found the country’s historic wheat and barley heartland in the South East becoming measurably less suitable for those staples. Climatic suitability is shifting toward the South West and the Scottish borders, where summer rainfall remains reliable enough to turn added heat into gain rather than drought stress, though neither region has the field scale, terrain, or grain-handling infrastructure built around South East production. At the same time, other crops the UK does not currently grow on commercial scale — durum wheat, chickpeas, sunflowers, okra, even citrus and wine grapes — are becoming viable nationally as it gets warmer.[9]

In North America, a 1°C rise in growing-season temperature has historically pushed the corn belt about 175 kilometers north; multiple studies now project the current U.S. Corn Belt largely unable to grow corn without major agricultural innovation by 2100, with the crop's viable range shifted well into Canada. The same modelling puts Alberta's climate-feasible growing boundary shifting roughly 932 kilometers north by 2099, and the boreal boundary across Finland and northwest Russia moving 400–600 kilometers over the same period. The most pronounced shift, nearly 1,200 kilometers, falls in eastern Siberia.[10]

This is not abstract "warming" — it's the region capable of growing a given crop sliding across a map, at a pace measured in kilometers per decade, while the infrastructure (ports, mills, rail lines, land ownership, water rights) stays where it is.

Put together: The trajectory isn't "the whole world gets uniformly worse." It's specific belts — the wet tropics, subtropics and the coastal infrastructure zones on the one hand -- the fertile temperate zones where most of the world's calories are grown on the other -- sliding in opposite directions at measurable, mappable speeds. The reasonable scenario is large-scale, uneven pressure to move toward higher latitudes, higher elevations, and toward whichever regions retain both liveable heat and workable soil at the same time.

Theoretically, total global arable land isn't shrinking outright — high-latitude gains in places like Russia and Canada are projected to roughly offset tropical and subtropical losses — however, though newly-thawing boreal and permafrost land becomes climatically warm enough for crops on a decades timescale, usable soil — organic content, structure, drainage — takes centuries to form, has none of the existing infrastructure the losing regions do, and sits nowhere near the populations who need it.

The historical mechanism that has kept systemic infrastructure collapse from meaning large scale population decline, was redistribution — people, not complexity, moving to where the system still worked. That mechanism is geographically constrained in a way it wasn't for Akkad.

What's left is effectively simplification. That is, reorganisation of systems toward units small enough that a person or a community can actually run them. That is what "managed simplification" means in practice and this is the difference between depending on a single point of failure, and having enough local capacity that one failure doesn't cascade into large scale catastrophe.

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A: The Trajectory

Preamble: two reformers

Two leaders took office within the last eighteen months of this writing, with reform mandates and institutional credibility. Both hit incentive structure quickly.

Mark Carney, Prime Minister of Canada since March 2025, previously served as Governor of the Bank of Canada and later Governor of the Bank of England. He is the first non-Briton to lead the Bank of England since its founding in 1694 and the first person to head two G7 central banks. In 2015 he named climate change a "tragedy of the horizon": costs that land on people after the ones who could prevent them have moved on - which is why politicians and institutions systematically undervalue future harm — they won't be there to pay for ignoring it.[11] As prime minister, faced with two carbon prices, the first thing he did was cut the one voters would feel and keep the one they wouldn't.[12] The voter-facing price carried the immediate, election-relevant cost; he chose the near-term political advantage over the long-term climate benefit.

Andy Burnham became UK Prime Minister on 20 July 2026, the seventh in just over ten years. His agenda is redistributive reform — ending homelessness, expanding council housing, reforming adult social care — the intention is good, the mandate is fragile.[13] In May, he told the founder of the campaign group WakeUpGB, on record, that he backed a cap on political donations of around £500,000.[14] About five weeks into office, after lobbying by Labour's trade-union backers - whose political funds the cap would have caught - he withdrew that support. Meanwhile, Reform UK, the populist radical-right contest to the incumbent, received £72m from two donors (Ben Delo and Christopher Harborne, both crypto billionaires).[15]

These conditions show what constrains anyone who must be funded, elected, and re-elected inside the current democratic order. The pattern is familiar; incumbents of every stripe (Trudeau's carbon-tax repeal-under-pressure in 2024, Sunak's 2023 rollback of UK net-zero pledges, Macron's fuel-tax reversal after the *gilets jaunes* protests) show the same behaviour — climate or redistributive commitment meets an election or a funding base - the progressive commitment loses.

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Institutions cannot correct themselves or the cheap-carbon-capitalism model they operate within; the drivers and divisions of wealth are widening; and the 2030s decide which of two paths the century takes.

1. Reform stalls where funding and power overlap

Caps on political donations and taxes on extreme wealth are the two standard tests of whether a democracy can loosen the link between wealth and political power. Both are widely supported in principle by most voters, but legitimacy gets contested at the edges of all Western democracies.

Donation caps

Most democracies already cap donations in some way, to greater or lesser effect, on the grounds that political equality — one person, one vote — is undermined when a single wealthy donor can fund an entire party; the Council of Europe and the UN Convention against Corruption both recommend such caps.[16] The core democratic argument is that economic power should not translate into disproportionate political voice. The UK is a partial case: it restricts who can donate and requires disclosure, but sets no limit on how much a permissible donor can give (the Burnham illustration.)

The counter-case is strongest in the US, where the Supreme Court treats independent spending on politics as protected free speech, so limits on it are constitutionally barred, even though direct contributions to candidates remain capped.[17] The Court's reasoning, resting on the premise that corporate political spending is itself protected speech, is an extension effectively treating capital as a form of expression, thereby converting economic power into political voice in the name of the First Amendment. The Court here is prioritising one constitutional value (speech) over another democratic value (political equality), and discounting the trade-off — which undermines the egalitarian premise on which representative democracy rests. Even where caps exist, their edges get tested: Australia's High Court struck down donation-cap exemptions carved out for "nominated entities" in Victoria's Electoral Act on 15 April 2026, just before the state election that November.[18]

Wealth taxes

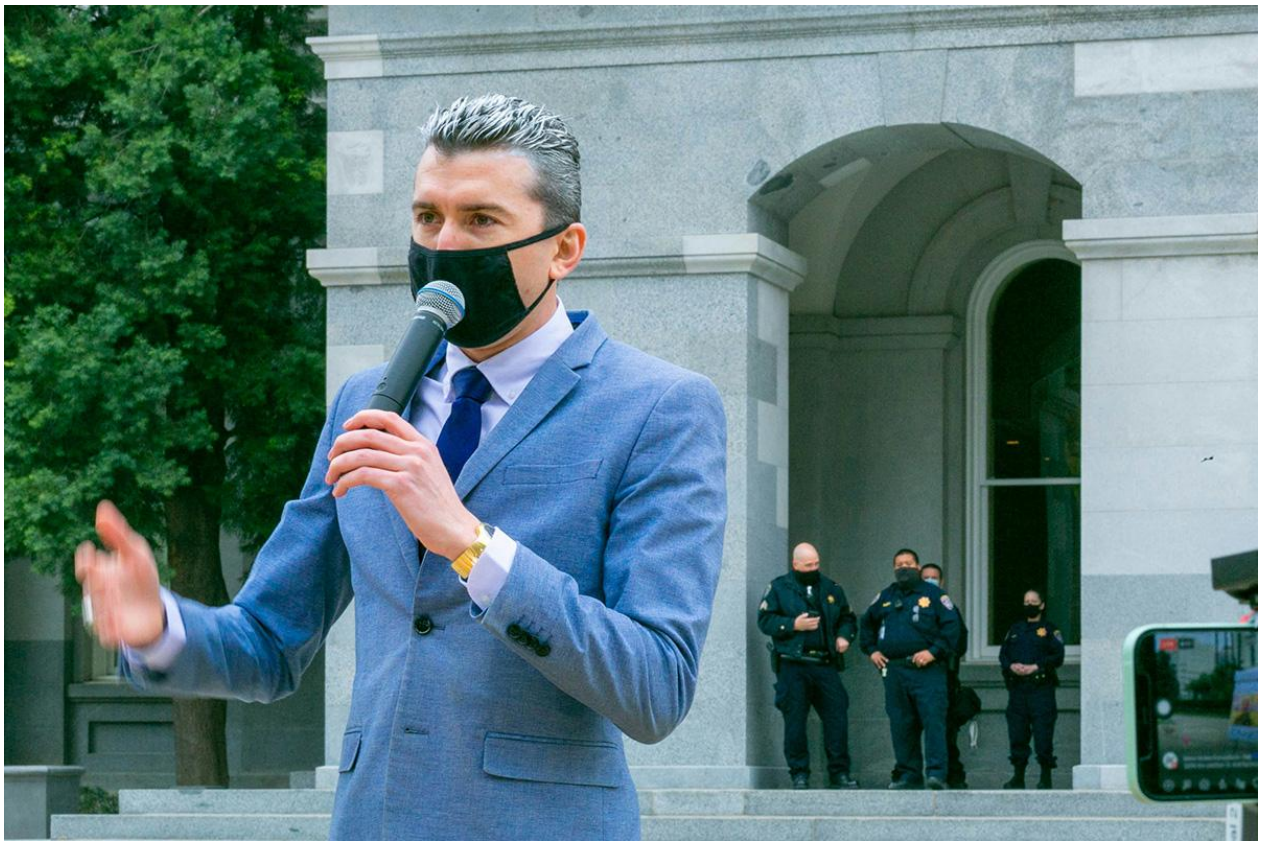
Polls consistently show broad majority support — 80% of Americans worry about inequality and the political power of the ultra-rich — and Denmark's March 2026 election put a 0.5% wealth tax at the centre of the campaign, though the left's poor result makes its passage uncertain.[19] The democratic argument is that if extreme wealth concentration distorts political influence, which research supports, then taxing it is a corrective

to democratic equality, not a punishment. As one EU tax researcher put it: "Is democracy about one person, one vote, or one dollar, one vote?" Supporters also argue it would restore trust in the tax system by showing the rich pay a fair share.

Against this stands capital flight — business leaders in Denmark, California, and elsewhere warn that even small wealth taxes drive the wealthy (and their jobs) elsewhere; California's 5% billionaire tax faces opposition from business groups and legal challenges. In the US, opponents also argue a wealth tax on unrealized gains violates the apportionment clause, the constitutional provision requiring direct taxes to be divided among states by population — a question the Supreme Court has never resolved. There are also practical design problems: valuing illiquid assets (family businesses, private companies) is enormously complex, and revenue outcomes vary sharply with design — of roughly a dozen European countries that had a wealth tax in 1990, all but three had abandoned it by 2019.[20]

The underlying tension

Both policies sit at the intersection of two competing democratic values: equality of political voice vs. individual economic liberty. Most voters support them in the abstract; the fight is over the degree, the design, and who bears the costs. The fact that they remain politically contested — even within parties that nominally support them — suggests there's no settled consensus on where the line between "just" and "overreach" falls.



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2. The structural drivers are widening, not converging

The World Inequality Report 2026 (Piketty et al., 200+ researchers) is the most rigorous recent statement: inequality is not a market accident but a product of deliberate institutional design.[21]

- The global financial system is structured so that reserve-currency countries (dominant global powers) can persistently borrow cheaply, lend expensively, and gain increasing global savings — while developing countries face the inverse. Every year, developing countries send back to rich countries roughly three times what they receive in aid. (About 1 per cent of global GDP a year, through debt service, profit repatriation, and financial flows.)
- The top 10 per cent of the global population own about 75 per cent of global wealth and are attributed about 77 per cent of emissions from privately-owned capital in emitting industries. That is, not a share of global emissions overall, but a share of the portion traceable to private ownership stakes, reflecting who profits from carbon-intensive activity rather than who personally consumes it.
- The report's key finding: these patterns are not converging; they are widening, and the growth rate of billionaire wealth (~8%/yr since the 1990s) is nearly double the growth rate of wealth held by the bottom half of the population over the same period. (For perspective, $100 compounding at 8% a year for thirty years grows to roughly $1,000; the same $100 at half that rate grows to roughly $320.)

Dominance and exit. Some of the people with the greatest capacity to invest in collective survival have chosen rather to remove themselves — to space, to fortress nations, or secure compounds — rather than addressing the conditions driving the need to leave. None of them are stepping back from power to make this possible: Bezos still runs the trillion-dollar company whose own operations he wants Earth eventually zoned around; Thiel's proposed seasteads would be capitalized by wealth extracted from the very jurisdictions he wants to escape; Altman keeps building the infrastructure he intends, eventually, to stop needing a body to use. The exit is funded by continuing to dominate the system it's exiting from. Bezos calls life on our planet a "civilization of stasis" — his term for a world that respects ecological limits — and has said repeatedly that Earth should eventually be "zoned residential and light industrial" while heavy industry and growth move off-planet.[22] Peter Thiel names his three routes to "true freedom" as cyberspace, outer space, and seasteading — permanent settlements built outside any existing jurisdiction.[23] Sam Altman, building systems meant to exceed human reasoning, has written that "We will be the first species ever to design our own descendants. My guess is that we can either be the biological bootloader for digital intelligence and then fade into an evolutionary tree branch, or we can figure out what a successful merge looks like." Altman has paid Nectome to freeze his own brain and is anticipating being uploaded to the cloud. The shared gesture is the same: the world as a problem to be evacuated, not a condition to be remediated — physically, technologically, or (in Altman's case) by ceasing to be fully human in it.[24]

In October 2021, at 90, William Shatner was given a seat on Bezos's own Blue Origin rocket — built on the premise that leaving Earth, even briefly, would be transcendent. His own account published later: "All I saw was death... It was among the strongest feelings of grief I have ever encountered." On landing: "I discovered that the beauty isn't out there, it's down here, with all of us." Researchers call this the overview effect - a documented pattern among astronauts[25] - one this essay elsewhere argues could be built proactively as an infrastructure of shared knowledge.[26]

Naomi Klein and Astra Taylor, writing on the same pattern of exit and domination, document political figures defending the right not to live near people of a different culture, the diverse city of New York held up as a warning of what happens when a nation "fails to control" who belongs — the sorting of people into, as they put it, "protected versus disposable."[27] Exit and domination aren't separate impulses. Both accept that the trajectory of climate change and infrastructure disruption is real. Both respond, not by staying and seeing clearly what can be done collectively, but by exclusively deciding in advance who is worth saving.

Unmet capacity for constructive action. Bezos's personal net worth — accumulated over three decades — is eight to ten times the combined total that the Green Climate Fund, the main UN vehicle for channeling climate finance to developing countries, pledged from 2014 to 2023. In 2020, Bezos pledged $10 billion to climate and nature causes — roughly 5% of his net worth at that time — with a 2030 deadline. After six years, under a quarter of it has been disbursed, while Amazon's own emissions rose to 80.85 million metric tons of CO2-equivalent in 2025 alone — equivalent to running roughly 21 average coal-fired power plants (or 16.9 million homes' electricity use) for a year.[28]

The capacity to act and the willingness to act are not the same thing. None of this is specific to one industry or one fortune: it's the same pattern — billionaire wealth compounding at nearly double the rate of wealth held by the bottom half of the population — visible here at the scale of a single, named balance sheet.

Policy analyst Olufunke Baruwa put it bluntly in January: "2026 is already showing that inequality is no longer cyclical; it is structural... Without renewed commitment to international law, diplomacy, mutual restraint, and equitable global governance, the fault lines between power and vulnerability, particularly in resource-rich regions, will continue to widen."[29]

Why resolution seems unlikely on current trajectories

The cooperation problem. The World Economic Forum's (WEF) Global Risks framework[30] identifies two variables that determine whether the next decade ends in managed scarcity or resource war: the degree of global cooperation and the speed of climate impact. Every indicator on the first variable is moving the wrong way — trade decoupling, resource nationalism (the EU's Critical Raw Materials Act, the US Inflation Reduction Act's domestic-sourcing mandates, China's rare-earth export controls), reflecting the rise of what

WEF calls "resource autarkies," states that try to become self-sufficient in resources rather than trade for them, and the fragmentation of multilateral institutions. The IMF's April 2026 economic outlook describes "waves of trade restrictions from major economic blocs, harming international cooperation"[31] — large groups of countries aligning their trade, technology, and security policy as a unit, competing against rival blocs rather than trading openly in global coordination.

The resource transition creates new conflicts even as it solves old ones. Critical mineral demand is expected to quadruple by 2040 under a Paris-aligned trajectory (the emissions pathway keeping warming to 1.5 °C), and sixfold by 2040 if the world were on track to hit carbon net-zero by 2050 — decarbonizing faster means building more solar, wind, battery, and EV capacity, all of which require far more mineral input per unit of energy than fossil fuel infrastructure did.[32]

A world where resource exports increasingly substitute for investment as a measure of global soft power; where states fracture alliances to secure supply; and where transboundary conflict becomes a growing mechanism for securing strategic resources, is building on an already well-documented pattern: The UN Environment Programme (UNEP) estimates roughly 40% of intrastate conflicts since the 1950s have had a link to natural resources, and the World Bank has tied some 50 armed conflicts between 2001 and 2009 to resource competition.[30] Research on fossil-fuel-dependent states warns of "traumatic decarbonization."[33]

The political economy is self-reinforcing. The World Inequality Report (WIR 2026) documents that political donations are heavily concentrated among the wealthiest (in France and South Korea, the richest decile is the largest contributor to political donations). This creates a feedback loop: economic inequality > political inequality > policy choices that entrench economic inequality. The same dynamic plays out internationally — the countries with the most to lose from reform (reserve-currency states, mineral-exporting oligarchies) have the most power to block it.

Climate change is an inequality multiplier, not a separate problem. By 2030, an additional 130 million people could be pushed into climate-driven poverty.[34] Water stress affects the majority of the world's population, and the acute phase is projected to worsen through mid-century.[35] The people least responsible for emissions (the poorest 50% contribute only 3%) bear the most impact.[21]

This is not a problem that resolves through economic growth — it worsens with growth under current energy and distribution structures.

What the serious thinkers say about the conditions for resolution

- **WIR 2026** calls for reforming the international financial system (a global currency or new monetary arrangements), progressive wealth and inheritance taxation, and "corrective taxes on excessive surpluses" to increase growth in developing countries.
- **WEF's own risk logic implies** an achievable path through resource collaboration, where cooperation holds and adaptation investment keeps pace, but that path requires sustained political commitment that is currently absent.[30]
- **Carnegie's 2030s US-China scenario** suggests a US-China *modus vivendi*;[36] a binding international framework for climate displacement. Climate migrants fall outside the 1951 Refugee Convention entirely, and existing instruments (the 2018 UN Global Compact for Migration, UNHCR's "planned relocation" guidance) remain non-binding.[37]

Each is achievable and each is currently absent.

- **Maplecroft** identifies a "Drift" baseline (trade volatility expanding) with a tipping point toward "Fracture" triggered by "sharp trade decoupling, regional arms buildups, or abrupt resource nationalisation."

  The report's underlying question — whether the current trajectory holds, breaks down, or reverses — has three non-exclusive scenarios rather than a single baseline:

  - Drift (the most likely, a continuation of current volatility)
  - Fracture (a breakdown of the multilateral system)
  - Adaptation (renewed cooperation) — with any one scenario able to evolve into another, depending on "signposts" such as further tariff escalation, military crises, or renewed institutional cooperation.[38]

The bottom line

The consensus among serious analysts is that the current institutional architecture is not self-correcting. In the WIR's framing, it is designed to generate and maintain inequality. The political will to restructure it is declining, not rising, in most major democracies (as the Burnham donation-cap example again illustrates). The resource transition is creating new axes of competition even as it addresses the fossil-fuel problem. And climate change is compressing the timeline.

What this does not mean is that resolution is impossible — it means it requires deliberate, coordinated institutional change at a scale and speed that no current political system is demonstrating. The WEF framework is the most useful way to think about it: the outcome is not predetermined, but the two levers (global cooperation, climate adaptation investment) are both moving in the wrong direction, and the political incentives for reversing them are weakest precisely where the problem is most acute.

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3. The coordination failure — it's not denial, it's pluralistic ignorance

There is a coordination failure, not a cognitive one. People do know. They don't believe others do.

The 2024 *Nature Climate Change* study of 130,000 people in 125 countries found 69% willing to give 1% of income to climate action, 89% demanding more political action, and 86% endorsing pro-climate social norms. [39] But the same people believed only 43% of their peers would contribute. That's a 26-percentage-point perception gap — not a knowledge gap.

The 2026 World Risk Poll confirms: climate-concerned majorities mistakenly believing they are minorities, which produces self-censorship and inaction. In high-income countries only one in five believes fellow citizens feel the same way.

The Montreal Protocol resolving the ozone-depletion problem is a standard counter-argument reinforcing this dichotomy - but the conditions that made that protocol work are what the climate issue lacks: compliance passed a cost-benefit test in that case (CFC substitutes were already commercially available), whilst fossil fuels are still cheaper than any alternative and global emissions are diffuse across every economy, failing a unilateral cost-benefit test for any major emitter - with incumbents benefiting from the status quo.[40]

Centola's experimental work (Science, 2018) found that a committed minority of ~25% can overturn an established social norm — below that threshold, it fails; above it, change cascades rapidly. The polling data suggests the relevant threshold is already well above 25% in most populations (69% willing to contribute, 89% demanding action). The reason it hasn't cascaded is the perception gap: people don't see the 25%, so they don't act, which confirms their belief that they're in the minority.[41]

> This is the single most important insight: the tipping point may already have been crossed in terms of underlying willingness, but it's being suppressed by the perception that it hasn't. The "denial" is actually a perception failure — people are hiding their own concern because they think it's socially costly to express it.

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4. The mechanism of sustained ignorance

The literature now has a name for this: agnotological capitalism (*2026, Frontiers in Political Science*). Mass ignorance is not always an accident — it can be a structurally produced and strategically maintained condition.[42] The mechanism isn't suppression — it's counterbalancing facts with seemingly equivalent alternatives. This is a job algorithmic social media performs at scale by design, creating confusion that obstructs meaningful engagement with social and economic realities. The result is paralysis through apparent equipoise.

An older, related mechanism manufactures misdirected blame. In 2004, BP paid Ogilvy & Mather roughly $200 million for the "Beyond Petroleum" rebrand, which included inventing and popularising the term "carbon footprint," and the personal footprint calculator. One of the campaign's own creators admitted that it was a marketing strategy, not a sincere framework.[43] Ogilvy & Mather have run similar campaigns for Shell since the late 60's, showing a standing industry pattern.[44]

Why informing people is not enough: a 2026 PNAS paper finds the gap in the shared perception of truth persist even when everyone reports their views accurately, because beliefs about others update more slowly than private beliefs. Central figures such as media and gatekeepers can sustain this gap indefinitely by controlling which signals are visible.

Transition

The historical pattern: regimes look stable while private dissent runs high, then collapse quickly once an event removes the perceived cost of dissent.[45] The Eastern European transitions of 1989 to 1991 are the canonical case. White Americans in the 1960s overestimated each other's support for segregation; this collapsed rapidly once civil rights legislation made the private view safe to express publicly.

The phase transition is real but not controllable. The conditions are building: the underlying willingness is there, the evidence is becoming overwhelming, and the perceived cost of dissent is falling in many contexts. But the timing of the phase transition is not something any actor can engineer. It depends on a precipitating event — a crisis, a scandal, a charismatic figure, a policy failure that makes the status quo visibly untenable.

The window for a managed transition is closing. The climate timeline is compressing the window. If the phase transition happens in 2027–2029, there's still time for institutional changes to matter. If it happens in 2033–2035, the tipping points have already crossed and the "solution" becomes managing the consequences of the Fracture scenario rather than preventing it. The speed of the social learning process (second-order belief updating) is slower than the speed of the climate process. That gap is the fundamental problem.

Given the structural incentives, the most probable path is not a coordinated, rational, well-informed collective decision. It's more likely to be:

- A crisis-driven transition (a climate disaster, a resource war, a financial collapse) that makes the status quo visibly untenable, removing the perceived cost of dissent.
- A coalition of the willing among a subset of states (not all) that builds parallel institutions, creating a "critical mass" that others must join or be marginalised.
- A generational shift — the second-order belief updates faster among younger cohorts who have no attachment to the existing institutional arrangements.

The one thing that makes this not fully deterministic is that it requires the "seemingly equivalent alternative" to remain credible. As the evidence accumulates and the consequences become visible — not abstract, but experienced: heat waves, floods, food prices, water shortages — the "alternative" becomes harder to maintain. You can't credibly tell someone whose city is flooding that the evidence is "contested."

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5. The timeline, fracture and resource-control scenarios

The data now supports the reading that tipping into Fracture or Resource Control scenarios is the expected trend. Here's what the synthesis looks like when you overlay the climate acceleration timeline on the resource-competition and geopolitical-fragmentation trajectories. These frameworks are conditional trajectories, not predictions.

Phase 1: 2025–2030 (now > 1.5°C decadal average)

This phase is already underway. 2024 hit 1.55°C; a three-year window ending in 2025 has breached the threshold. The Climate Action Tracker (Nov 2025) projects a 20–30 year average exceeding 1.5°C (on a decadal average) by the early 2030s under current policies, and pointing to +2.6°C by 2100. (Where this report cites warming projections, it uses the current Climate Action Tracker central estimate rather than the formally retired high-end scenario (RCP8.5/SSP5-8.5)

What this looks like in practice:

- First tipping point already crossed — coral reef dieback confirmed (threshold: 1.0–2.0°C).
- Critical mineral shortages begin. A March 2026 report flagged a 500% surge in tungsten prices as an "early signal of a system under stress. Lithium demand expected to double by 2030. Copper faces a 30% supply gap by 2035 (data centres alone need an additional 512,000 tons of copper by 2030).
- Resource nationalism hardens. The US is building stockpiles (Project Vault), China is imposing export bans on gallium and germanium, the EU is passing Critical Raw Materials legislation, and a "Critical Minerals NATO" is being discussed. The GCSP (Geneva Centre for Security Policy) warns that export bans, accidents, or conflict at any dominant node could trigger 500–1,000% price spikes.[32]
- Trade fragmentation becomes structural. 18% of Global Risks Perception Survey respondents now name geoeconomic confrontation as the single biggest risk of 2026, with 48% describing the two-year outlook as 'turbulent.'[30] The IMF projects just 3.2% annual global GDP growth — the weakest multi-year outlook in decades.[46]
- Climate-driven displacement accelerates. An additional 130 million people pushed into climate poverty by 2030.[34] The Niger crisis (2023–24) is widely cited as a template: a military coup in a state supplying a critical mineral — uranium, largely to France's nuclear industry — followed by threats to nationalise the foreign-owned mining operations that had been extracting it.

Phase 2: 2030–2040 (1.5 > ~2°C, tipping cascade begins)

This is where the Resource Control and Fracture scenarios start to overlap in practice.

- Multiple tipping points cross. At 1.5°C: boreal forest dieback, mangrove and seagrass loss. Approaching 2°C: onset of AMOC slowdown (the large-scale system of Atlantic Ocean currents moving warm surface water northward from the tropics, returning cold, dense deep water southward,) permafrost thaw, and West Antarctic ice sheet instability.[47]
- The resource transition creates its own conflicts even as it addresses the fossil-fuel problem — a resource control trajectory, playing out here as competition over the minerals the transition itself requires.[30]
- Fossil-fuel-dependent states in countries with weak institutions face sudden loss of revenue without replacement. This is seen as the single largest source of state-level instability in the 2030s.[33]
- The Arctic opens as a new frontier. Melting ice opens permafrost extraction in Greenland and new security competition in the Arctic Ocean. This is explicitly flagged as a medium-term escalation vector.
- Defence spending becomes a structural share of GDP. The US administration's proposed FY2027 defence budget request stands at $1.5 trillion — a 44% increase over FY2026, and nearly double 2023 levels — passage through Congress remains contested.[48] This is a *tech-based survival* trajectory: governments spend heavily on defence and technology development, deepening fiscal sustainability concerns.[30]
- As of July 2026, "almost three-quarters of the world's population live in countries classified as water insecure or critically water insecure" already, but the acute phase (agricultural failure, inter-basin conflicts) begins in this window.[35]

Phase 3: 2040–2050+ (2°C+, systemic stress)

This is the full Fracture scenario.

- Bloc-based economies with no global coordination. A *geotech spheres* trajectory: US–China rivalry marked by repeated crises, proxy conflicts, and persistent cyber threats, with global networks for goods, capital, knowledge, and data fracturing further as governments weaponise access to key technologies for military applications.[30]
- Resource competition becomes the primary mode of interstate conflict. The 2026–2055 conflict projections consistently place "climate-driven resource wars" and "critical mineral competition" among the top risks, with the 2040s identified as the peak window for "resource competition and environmental pressures."

- Internal political instability in major democracies as cost-of-living pressures, climate adaptation costs, and the fiscal burden of defence spending collide. A *fortress economics* trajectory: middle powers and resource-dependent economies face capital flight, marginalisation, and long-term deterioration of business ecosystems and living standards.[30]
- If multiple tipping points cascade (AMOC collapse + permafrost carbon release + boreal forest conversion from sink to source), the warming accelerates beyond the 2.6°C central projection, compressing adaptation timelines and making the resource-competition dynamics even more acute. Resource-nexus literature describes this kind of shift as moving from a "virtuous cycle" of resource sharing to a "vicious circle" of depletion.

In Summary

The 2.6°C figure above is a central estimate under current policies — the number with the narrowest uncertainty band. The tipping-point thresholds below are a different problem: wide, uncertain ranges, not central estimates, because the underlying science of exactly where each threshold sits is unsettled. Both are important, but not to be read with the same confidence.

- The AMOC collapse threshold has an estimated collapse range anywhere between 1.4 and 8°C, with transition most likely around mid-century.[49]
- Greenland ice sheet collapse: range 0.8 to 3°C.
  1.5°C is likely crossed in 2030 to 2035, 2°C in the 2040s to 2050s under current policies. [5]
- A cascade could begin anywhere from 2030 to 2070, skewed toward the earlier end.
- The Carbon Brief Q&A from July 2026 (the latest major assessment) puts it bluntly: "Our best models likely underestimate tipping point risks. The world is largely flying blind into this vast threat."[50]

The two levers that determine which scenario materialises are one, the degree of global cooperation and two, the speed of climate adaptation investment. Both are currently moving in the wrong direction.

The window for reversal is not closed — the 2030s are the decisive decade. If emissions halve by 2030 (the requirement to stay under 2°C and protect most tipping points), the cascade in Phase 2 is significantly delayed or averted.

If they don't, the Phase 2–3 trajectory becomes the baseline rather than the worst case. Therefore, the 2030s are the hinge decade. The tipping points that cross in that window (or don't) largely determine whether the 2040s look like managed scarcity or full Fracture.

What this looks like on the ground

The consequences are doing the work regardless of the timeline. A persistent, low-intensity, multi-front resource competition, closer to Cold War proxy-conflict dynamics than to a world war. The specific vectors:

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6. Location and reactive violence

Locations. The Sahel (semi-arid belt south of the Sahara), South and Southeast Asia, Central America, small island states, the Arctic littoral, and the Horn of Africa are consistently identified as the highest-risk vulnerability regions. Which specific country, region, or community becomes the next flashpoint is not knowable. However, the flashpoints will likely be where four conditions overlap — (1) acute resource scarcity (water, arable land, minerals), (2) weak or absent state capacity, (3) existing identity fault lines (ethnic, religious, pastoralist-agriculturalist), and (4) a triggering event (drought, flood, coup, price shock). Conditions 1–3 can be mapped where they exist, but condition 4 can not be predicted - and flashpoint potential is not limited to pre-existing zones.

State-level violence has a consistent pattern: resource scarcity > reduced tax revenue > reduced state capacity > inability to deliver services > anti-state sentiment > armed opposition. The Sahel is the live example. The decarbonization of fossil-fuel-dependent states (Nigeria, Angola, Iraq, Venezuela, parts of the Gulf) is the next wave, but the *specific* failure mode (coup, civil war, state collapse, negotiated transition) depends on domestic politics that are unpredictable at the 5–15 year horizon.

Individual and mob violence. The heat-stress mechanism (brain diverting resources to cooling, reduced prefrontal cortex function, increased aggression) is well-established at the individual level but becomes essentially unpredictable at the population level because it interacts with every other variable (social cohesion, institutional trust, poverty, alcohol, gun access).

A study modelling US violent crime data sees 2.3 million additional violent crimes by 2099, under a moderate-emissions trajectory)[51] and the 6% increase in homicidal violence per 1°C (global, 57 cities) is already being exceeded in the regions where warming is fastest (Sahel warming at 5× the global average).

Substitute governance. "Dark Green Governance" dynamic[52] shows this as the most important new variable. Where the state recedes, violent extremist organisations supply security, dispute resolution, and food. When scarcity deepens, their capacity fails, and the violence that follows is a structural failure of the substitute. Reactive violence is seen as a shift in distribution (more violence, in specific zones, following specific mechanisms), not as specific events. The state-level pattern is the most predictable (resource scarcity > state failure > armed opposition). The individual/mob level is the least predictable but also the most numerous. The violence is not a response to the crisis — it is the crisis, embedded in the governance structure.

> The system is not self-correcting, the window is narrowing, and the unanswerable questions remain unanswerable. The only thing that can be said with confidence is that the cost of the transition will be borne by the people who had the least power to prevent it, and that this is not an accident but a structural feature of the system.

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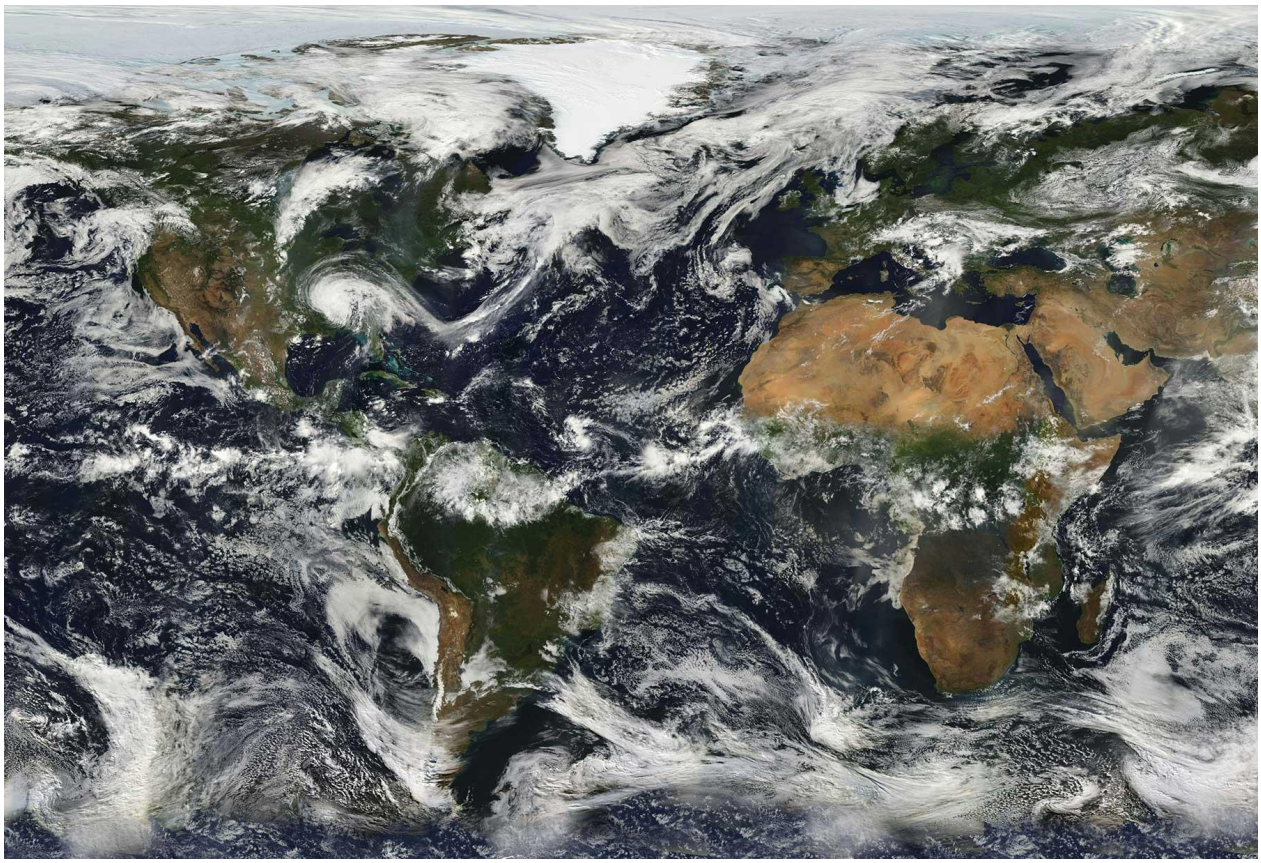
B: The Reckoning

The most probable result is simplification. The rational position is acceptance of radical change without the myth of progress.



7. What's already being tried in response to institutional failing

Working within existing institutions

- **National and sub-national citizens' assemblies on climate**
  - Ireland (2016–18, the first to put climate on a national assembly's agenda, with legislative and referendum follow-through)
  - France's Convention Citoyenne pour le Climat (2019–20, randomly selected and demographically representative, though its proposals were largely watered down despite Macron's pledge to submit them "without filter")
  - Denmark's Citizens' Assembly on Climate Issues (2020–21, 99 randomly selected citizens - advisory only)
  - Netherlands' 2025 National Citizens' Assembly on Climate (175 randomly selected citizens, also advisory - still monitoring government's response as of its report).
  - All use randomly selected, demographically representative panels; only Ireland shows a clear case of recommendations translating into binding outcomes — the others range from disregarded (France) to advisory-with-no-teeth-yet (Denmark, Netherlands).
- **The Coalition for a Global Citizens' Assembly**
  - 40+ organisations, launched at the 2024 UN Summit of the Future — building toward a Global Citizens' Assembly for People and Planet, kicked off around COP30 (Belém, 2025).

    - The closest existing real-world analogue to the "legibility infrastructure at scale" idea the Global Commons Consensus Protocol addresses (below.)

Increasing loss of faith in "authoritative" guidance, however, sees a shift documented in the 2026 Edelman Trust Barometer: national government leaders lost 16 points of public trust in a single year, and 70% of people now say they're unwilling or hesitant to trust anyone whose values or information sources differ from their own, trust moving instead toward whoever is nearest — an employer, a neighbour, a peer.[53]

Building parallel or infrastructural coordination tools

- **Metagov** — governance-protocol research and tools (PolicyKit, interoperability standards for online communities).
- **Pol.is** — an open-source tool that clusters large-scale public opinion by agreement/disagreement pattern rather than by up/down vote. Used at national scale in Taiwan for genuine policy deliberation. (Taiwan's vTaiwan process)
- **Jigsaw** / Napolitan Institute's "We the People" (2025) — AI-assisted digital deliberation surveying 2,400 Americans, designed around surfacing where perceived and actual opinion diverge.
- **The Global Commons Consensus Protocol**, a protocol I'm developing — a direct mechanism for making legibility of first-order beliefs visible to each other (those that pluralistic ignorance and manufactured confusion otherwise suppress) as a means to safeguarding the global collective commons[54]

Operating independently at local or regional scale

These are a handful of named instances. Hawken's *Blessed Unrest* estimated well over a million such organisations worldwide back in 2007;

- **Transition Network / Transition Towns** (originating in Totnes, UK, 2006; now several hundred initiatives worldwide) — community-led local economic and energy resilience projects. The closest existing real-world precedent to the "small shared record" proposal below - two decades of track record.
- **Global Ecovillage Network** — a federation of intentional communities organised around resource-sharing, low-footprint living, and mutual aid.
- **The Green Belt Movement** (Wangari Maathai, Kenya, since 1977) — grassroots, majority women-led reforestation and civic-empowerment movement, scaling to over 50 million trees planted through small, direct stipends paid to local women already organising their own tree nurseries, administered by the movement itself rather than an external body directing it. Maathai's own framing tied the ecological work explicitly to democratic participation and women's agency — recognised by the 2004 Nobel Peace Prize. The clearest working precedent against the assumption that grassroots initiative needs to be designed or directed from outside rather than simply resourced and trusted.[55]
- **Mutual aid and spontaneous cooperation under acute disaster**
    - disaster sociology consistently finds the "panic and looting" narrative is largely myth: the actual, repeated finding across major disasters (the 1906 San Francisco earthquake, the 1917 Halifax explosion, the 1985 Mexico City earthquake, 9/11, Hurricane Katrina) is spontaneous altruism and rapid self-organization among ordinary people.

- The greater threat to order in these events has often come from what researchers call "elite panic": authorities' fear that the public will turn savage, producing a militarized overreaction that causes more harm than the disaster itself, as documented in the response to Katrina.[56]
- The UK's 4,000+ COVID-era mutual aid groups, most of which scaled down once the acute threat passed, are one recent instance of this same underlying capacity — proof it can emerge fast without preparedness.

Working in spite of, or explicitly against, the institutional stalemate

- **Community land trusts and land-buyback movements** (e.g., Indigenous-led land return efforts in North America and Australia) — pursue durable local control of land and resources directly, without waiting for national policy alignment.
- **The Dark Mountain Project** — a cultural and literary network premised on the idea that "sustainability" framing within existing institutions has failed. Occupies the same acceptance-not-solutions register as this Part B section from a different angle.

None of the above solves the structural problem Part A diagnoses, and none has the scale to counter its current trajectory. What they show is uneven: some genuine, running infrastructure (Pol.is, Transition Towns, the ecovillage network); some real but latent capability — the mutual aid networks didn't persist, but proved how fast informal coordination can stand up from nothing when a threat is acute and shared; and some, like the Commons Protocol, exist as structured specification and intent. Together they're evidence the capacity exists in numerous different forms, not that it's already positioned to act.

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8. Simplification is the likely outcome, managed or not

The anthropologist Joseph Tainter describes what happens when the energy cost of maintaining civilisational or social complexity outgrows its returns: a society reaches an impasse with three exits; a new energy source, managed simplification, or sudden unmanaged simplification, which he calls collapse. In this sense, collapse means rapid loss of complexity, not disappearance.[57]

- The first exit depends on energy and cooperation, both moving the wrong way. Whilst a new abundant energy source is plausible in principle, nothing currently operates at the speed or scale that exit would require. Though renewables are cheapening and storage costs are falling, fusion and next-generation nuclear remain pre-commercial, and there's nothing with actual capacity on the horizon.
- The second, at the planetary, coordinated-policy scale, depends on the collective legibility that pluralistic ignorance and manufactured confusion suppress. However, this is not the only scale at which "managed" simplification is available, as Part C argues below.
- The third, unmanaged simplification, is the default.

Roy Scranton, in his book *Impasse, Climate Change and the Limits of Progress*, says "Societies coping with declining marginal returns on complexity may “choose” to collapse and may begin to disintegrate through political disaffiliation well before disaster strikes, with people detaching from centralized bureaucracies, disengaging from public fora, and disidentifying with unifying narratives and ideology."[58]

The adaptive cycle. Ecologists studying how complex systems change over time describe a four-phase pattern that recurs across scales in plant communities, economies and civilisations.[59]

1. Growth
2. Accumulation into increasing rigidity
3. Release
4. Reorganisation

This pattern can be seen in fungal networks that fruit and scatter spores once a given area stops sustaining growth; and in lodgepole pine forests, where the trees' cones are sealed shut with resin that only melts at fire temperature — the fire that burns the forest to the ground is what releases the seeds for the next one.

This cycling begins with what the ecologists call "Revolt" — the small-scale, fast-cycling collapse that corresponds to the Release phase above

- A small system's collapse "revolts" against the stability of the larger one it sits inside. In 2008, a wave of local mortgage defaults (small, fast, geographically scattered) cascaded upward into the collapse of major banks, then the entire global financial system — each scale up was brought down by instability at the scale below it.

followed by what they call "Remember" — the slower, larger-scale structure that carries continuity into the Reorganisation phase

- Rome's political and economic system collapsed fast, but what grew back in its place wasn't invented from scratch — it followed the roads, field boundaries, and the Church, which survived as an institution even though the empire didn't, and which carried Latin literacy, legal concepts, and administrative habits forward into whatever came next. The slower system (the Church, the physical infrastructure) "remembered" for the faster one, shaping its reorganisation.

The conservation phase just before release is the most volatile, where accumulated complexity becomes rigidity, and the system looks most stable right before rapid collapse.

The generative phase after collapse: reorganisation, concentrates more novelty and structural possibility than any other point in the cycle. It is most visible at the smallest, fastest-cycling scale — the case for the practices in Part C below, not because they alone determine the outcome at planetary scale, but because local, chosen reorganisation is where the pattern's own logic suggests renewal begins.

Given all the indicators in Section A, the question then becomes, not how to stop the trajectory, but what remains worth doing if the result increasingly points towards simplification.

During Argentina's 2001 economic and political collapse, faith in the state evaporated overnight; people turned to each other in a multitude of creative forms at once — worker occupations of abandoned factories, neighbourhood assemblies, informal barter networks, all became the functional mechanisms of the society. A decade later, the pattern had split: the neighbourhood assemblies and barter clubs had mostly been absorbed back into the political system once the acute crisis passed, while the worker-recovered factories — over 200 of them — were still operating, self-managed on the same cooperative basis they had reinvented themselves on.

[60] The difference wasn't commitment or ideology; it was structure. The recovered factories had a concrete, ongoing function anchoring them — something to produce, every day, regardless of urgency. The assemblies had only the crisis itself to organize around, and dissolved once it passed.

Cuba's "Special Period" demonstrates another forced version of simplification. When the Soviet Union's collapse cut off fuel, fertiliser and food imports, dependent agricultural production fell by more than half between 1989 and 1994. What followed was rapid, largely improvised localisation: by 1998 Havana had more than 8,000 urban farms and rooftops gardens, balconies and vacant lots, supported by state-provided land access and training in organic methods. When subsidised Venezuelan oil and inputs arrived in the 2000s, however, the wider food system rebuilt its dependence on a single patron, and when that patronage failed, the country was exposed once more. Cuba's economy has struggled since 2016, and declining farm output, fuel shortages and inflation have produced a deepening food crisis as the country relies on imports for an estimated 70–80% of its food.[61] Urban gardens have persisted and supplied fresh vegetables, but not staples.

Reimagining proactively, as an approach to rebuilding, can be seen at Vallagarina, in the Italian Alps. The collective Brave New Alps began by asking what a village with many empty buildings and little work needed, and how existing buildings and skills could be recombined to meet it. Two decades on it runs a community academy, a research lab and participatory community projects in and around a previously disused railway station. From the outset, the working ethos was, "no money, no problem" and in their case, the money ultimately followed their lead with EU and municipal recognition and support.[62]

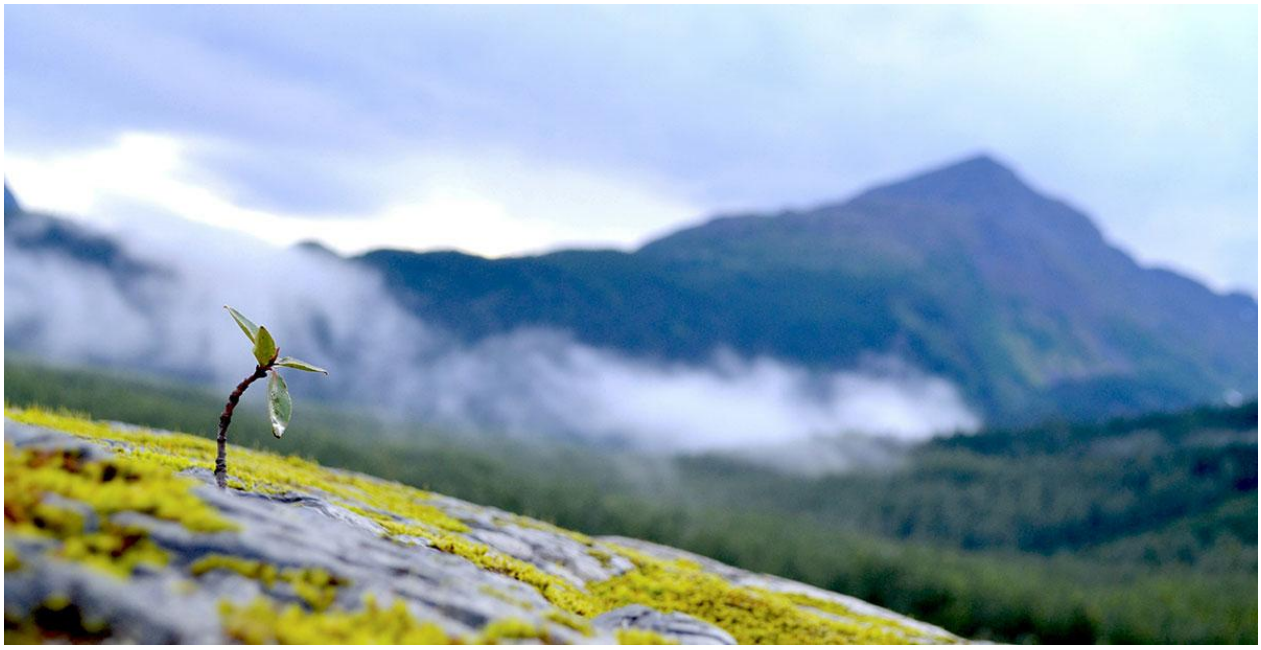
The point for each of these examples is that localised solutions are what prevails given systemic disengagement. For each of these examples, though, disengagement is from a system still standing elsewhere — Argentina’s state, Cuba’s trading partners, Rome’s surviving eastern half. None is a precedent for simultaneous, global systemic stress with no larger system left to reabsorb or resupply the local effort once the acute phase passes. What they’re evidence for isn’t that local reorganisation succeeds regardless of context — Cuba’s own relapse into dependency says otherwise — but that the disposition to reorganise locally recurs reliably under stress. That disposition, not a guarantee of outcome, is what Part C below is built on.

Positive, unscripted, precipitating-event outcomes: Kuran's mechanism for the 1989–91 Eastern European transitions is symmetrical[45] — it doesn't specify the direction of the outcome, only the speed once triggered. During the pandemic-era Great Resignation — millions of independent, uncoordinated decisions converged into a lasting, measurable shift in work and life priorities, with no institution directing it.[63] The Montreal Protocol, which — despite real disanalogies — remains a case where a global, binding treaty was agreed and implemented in under three years once the ozone hole became visible and undeniable. The mechanism that could produce rapid negative change is exactly the same mechanism that could produce rapid positive change — the model doesn't predetermine which direction the release goes, only that once visible, once forced, it moves fast.

Simplification as a choice now vs. an imposition later: Managed simplification at the only scale an individual or community can choose it is described in Part C below, versus the imposed version Part A's Phase 2/3 above describes happening to people who didn't choose it.

Tainter does cite Byzantium, which survived roughly another thousand years after the western empire fell, as the one clear case of a large society systematically simplifying and thriving, though argues the simplification was forced by scarcity, temporary, and offers little hope that it could be repeated systemically.[57]

Simplification chosen now, at a scale a person or community can actually control, is not the same event as simplification imposed later by a state, a market, or a climate system that has run out of options — it is the only version of the exit Tainter describes that any individual can choose.



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C: The Practice

9. Acceptance is not resignation, it is a practice

In the book *Learning to Die in the Anthropocene*, Roy Scranton argued that the central problem is philosophical: accepting that the civilisation we live in is ending, and learning to die, individually and collectively, to what is no longer tenable.[58] In *Impasse*, he adds that the obstacle is cognitive and narrative as well as political: warming exceeds what minds can grasp, and the narrative of progress keeps any perception of the reality beyond arm's length. He adopts Tainter's frame and names his stance *ethical pessimism*: a disciplined realism valuing accuracy, resilience, compassion, and shared responsibility, resting on the Stoic, Buddhist, and existentialist traditions, and on the idea that mild depressives may actually judge reality more accurately.[64] Actually facing the realities we see all around us in the world today, depression would not be an unnatural sentiment. Scranton rejects optimism partly because it defers present suffering to an imagined future and is inclined to be fanciful. What he offers is a way to live inside the impasse. Not escape to space, or a gated compound, not deciding who is worth saving, but staying, seeing clearly what is real, present, needed, and extending that same attention to whoever is close.

The Buddhist parallel

Some traditions never forgot what needs to be remembered. This moment is the only one we can ever actually be present in, whether we chose it or not.

The Upajjhatthana Sutta (AN 5.57) is a Buddhist discourse titled Subjects for Contemplation. This, as a practice, is designed to disarm the conceits, attachments, and irresponsibilities we are inclined towards in society at large - emphasising ethical accountability instead. These statements of fact are intended to keep us individually and collectively present and real to the moment, and are intended to be reflected upon regularly.[65] The five remembrances are:

- I am of the nature to grow old; I cannot escape old age.
- I am of the nature to have ill health; I cannot escape illness.
- I am of the nature to die; I cannot escape death.
- All that is dear to me and everyone I love are of the nature to change; I will be separated from them.
- I am the owner of my actions, heir to my actions; I have actions as my origin, relative, and resort. Whatever I do, good or bad, to that will I fall heir.

The Stoic memento mori originating in Greek philosophy is a near-identical practice - contemplating mortality to live more fully, virtuously, and mindfully. Likewise, it is not intended to evoke fear or sadness, but rather to serve as a transformative tool that sharpens priorities, reduces trivial anxieties, and cultivates gratitude for the present moment. By acknowledging that life is finite and death is inevitable, the practice aims to:

- Eliminate procrastination and create a sense of urgency to act with purpose.
- Detach from worldly possessions and status, which are transient and not within our full control.
- Prioritize virtue, wisdom, kindness, and meaningful relationships over superficial pursuits.
- Accept the natural order of life, freeing the individual from the fear of loss and the dread of death.
- Ultimately, Memento Mori is a reminder to cherish each day and ensure that one’s time is spent on what truly matters, thereby preventing regret and fostering a deeper appreciation for existence.

Both treat acceptance as the ground of clear action, not a retreat from it — not as a source of dread, but as a clarifying tool for how to live.

What acceptance changes

It does not change the outcome. It changes the manner in which a person and a community meet it: honestly, accurately, without deferring obligation to a hoped-for future, and with mutual, supportive attention to those close by. This will not restore the climate or dissolve the incentive structure, but it can change whether communities meet simplification as isolated individuals guessing at each other's condition, or as groups that can see what each member needs and knows and can mutually benefit from.

For nearly all of the species' history, material survival was a matter of skills held collectively and passed on by direct teaching: food, shelter, clothing, tools, fire. Industrial civilisation moved almost all of that out of sight, into supply chains that most people neither see nor could replace. This works while the chains hold. What happens when they don't can be seen in Roman Britain as an example, where the Oxfordshire potteries and

other wheel-thrown industries had largely closed within decades of the empire's withdrawal in 410. Wheel-thrown pottery did not then return at scale for several centuries.[66] Collapse did not mean regression everywhere. But specialised skill lives in the systems that support it, and goes when they go - unless enough people hold some of it themselves.

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10. Practices at personal and institutional scale

These ideas may seem mundane given the scale and context of climate change and civilisational shift over time - and yet this *is the work* of managed simplification, by choice, as a way of life, and as a means to an end now and over coming decades. These operate at the fast, local scale the adaptive cycle argument above describes — not because local action alone determines the planetary outcome, but because it’s the scale at which reorganisation can actually be chosen rather than imposed. Coordinating what many separate local records know, at any scale larger than one group, is the open problem the Commons Protocol, referenced in Section 7 above, is attempting to solve.

It remains that it may be our children who will be most affected by coming changes and who will most benefit from these practices themselves. It falls to us to practice by example, and keep the record going.

Each practice below assumes some slack — time, tenure, savings, an existing social network — yet we have already seen that this is distributed as unevenly as climate exposure itself: the people with the least capacity to adapt are also the least likely to have the spare time or standing to keep a shared record or learn a craft. Without attention to that gradient, these practices risk becoming another expression of the inequality they’re meant to counter — visible resilience among those who already had room to build it, while the people with the least room stay invisible. The corrective isn’t abandoning the practices; but for those who are able, it’s additionally directing whatever support exists toward the people with the least slack to begin with - resourcing the unresourced.

Learn and teach material crafts and skills. Pick one skill with a living holder nearby — growing, preserving, building, repairing, a trade — and learn it by doing, not by reading about it. A skill held by only one person is as fragile as a single supply chain, so the practice isn't complete until it's been taught to at least one other person. The UK's Heritage Crafts Association is tracking endangered crafts the way conservationists track species, with a fund providing small grants to keep skills going while a senior practitioner is still alive to teach them. Of 285 traditional crafts assessed in 2025, 72 are now "critically endangered" — meaning too few practitioners, no trainees coming through, and no mechanism left to pass the skill on (this number is up from 17 when the tracking began in 2017).[67] The gap between "endangered" and "extinct" is almost always one missing act of teaching. Each one of us can fill that gap.

Build community. This can be as simple as paying attention and participating when drawn — know your neighbours. Klinenberg's study of the 1995 Chicago heat wave found mortality rates differing sharply between neighbourhoods, tracking the shared spaces and ties that let people notice who was struggling.[68] The same knowing applies to capability as well as vulnerability: who nearby can grow food, repair equipment, build, cook or nurse. This is the "what do you have to offer" prompt in Section 11 below, applied to skills, and it turns a neighbourhood from a set of individuals into something self-sufficient.

Reduce fragile dependence. Shorten the chain between oneself and food, water, energy, care, and skills — this is simplification chosen at personal scale, which is the only scale at which it is actionable. The most durable form of this is skill rather than stockpile: growing, preserving, mending, building and cooking are the capacities that keep a household or neighbourhood functioning when a supply chain doesn't. A skill held by one person is a single point of failure, like a single supplier, so the practice isn't complete until it's taught to someone else. The aim is reduced dependence, not self-sufficiency — a fully isolated household is more fragile, not less.

Join the swarm. *Blessed Unrest*[69] (Paul Hawken, 2007) documented well over a million organizations worldwide working on ecological restoration and social justice — an unparalleled movement with "no name, no leader, no ideology," spontaneous across every culture and sector. Most of this remains invisible precisely because it has no corporate centre to report to; yet these represent countless individuals and groups assuming responsibility and doing the work institutions have consistently failed to take accountability for. Joining an existing effort — lending a skill to a group already doing this work — is itself a form of reorganization: not waiting for permission or a plan, but adding capacity to something already underway. **ProjectDrawdown.org** provides a rigorous database of quantifiable climate solutions, supported by extensive scientific modeling and analysis, and **Regeneration.org/Nexus**, affiliated, adopts a broader **regenerative** approach, integrating ecological solutions with social equity, indigenous knowledge, and systemic transformation — described as "the most complete listing and network of climate solutions in the world."

So much of this remains below the public radar for the same reason the perception gap in Section 3 persists — not suppression, which is an adversarial mechanism of manufactured confusion, but absence of aggregation: each organisation knows its own commitment; few have visibility into how many others share it. The solution isn't different from the one this essay proposes at smaller scale — making first-order action visible to itself. This is not a prediction that aggregation adds up to a reversal at planetary scale; the ethical pessimism running through this essay doesn't rest on that outcome. It's a narrower claim — that joining existing effort is a rational use of whatever capacity a person has, towards functional community, whether or not it changes the trajectory Part A describes.

Speak your truth. Part A's most tractable finding remains that concern is hidden by the belief that it is a minority view amid a compromised consensus. Each person who states their concern plainly — to themselves first, and then to friends and neighbours — shifts others' beliefs about what is normal, and what is possible.

Keep the archive. Preserve and pass on what is worth keeping: knowledge, skills, texts, records of what a community knows and needs (Section 11 below). It's worth noting that reading a modern archive requires an intact global supply chain for rare-earth elements, semiconductors, and a functioning electrical grid to manufacture and power the hardware that makes the data legible at all — NASA's own Viking Mars tapes sat unreadable for over a decade because the file format had been lost. Person-to-person knowledge has continued to survive across millennia regardless.

Contemplative practice. A daily discipline, whether the Five Remembrances, memento mori, or another, keeps acceptance a practice and not a slogan.

The seven practices above describe how to remain centred and stay visible through disruption. The same principles can be translated into organisational and institutional environments.

At institutional scale:

See it accurately. If you sit on a board, a risk committee, a pension trustee panel, or a public body, ask whether the climate assumptions in the documents you're given still cite retired scenarios (RCP8.5) or outdated central estimates — insurers, pension funds, and infrastructure planners routinely used RCP8.5-based numbers for years after they'd been superseded. The data is changing. The rate itself is accelerating: warming per decade has nearly doubled since 2015, and the scenarios and central estimates used to plan around it are being revised faster than institutions update their own assumptions.[70]

Speak your truth. The same perception gap exists inside organisations — colleagues routinely underestimate how many of their peers take a risk seriously. Saying it plainly in a meeting, a memo, or a public comment period is the professional-register version, and arguably carries more second-order weight than a private conversation.

Reduce fragile dependence. A business, a hospital, a local government that maps and shortens its own dependence on single suppliers, single water sources, or single energy contracts is better positioned in the event of disruption.

British farming is living this in real time, forced less by policy foresight than by cash flow. Tightening margins due to heat and erratic rainfall are pushing diversification beyond single-crop reliance, and *regenerative* farming has begun to make practical sense: with mixed arable-livestock systems, reduced-tillage practices, and shared-resource arrangements like “flying flocks” of sheep grazed across several farms in rotation — none of it waiting for a coordinated national strategy to show up first.

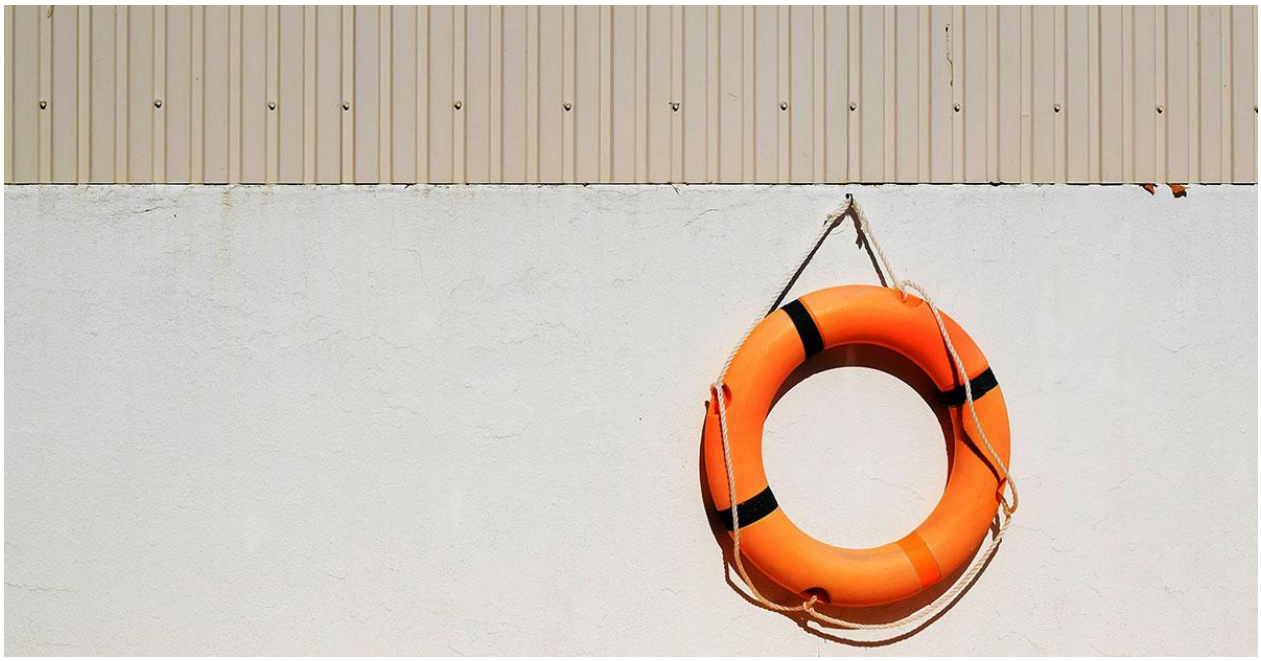
Know your colleagues. Who in your workplace, congregation, or professional network is isolated, overextended, or without a fallback — the "who would notice if you disappeared for a week" test, applied to whichever communities you belong to.

Resource the unresourced. If you hold grant-making, hiring, training-budget, or platform-access power, direct it first toward people and groups already doing the work. Green Belt Movement model is the template: small, direct stipends paid directly, administered by the movement itself rather than an external body designing any “correct” hierarchical version of the program. Support flows to existing initiative; it doesn’t redirect or take it over. See the UN's platform The Grand Bargain, and the Trust-Based Philanthropy Project.[71]

Keep the archive. This can mean documenting institutional knowledge before a retirement or restructuring, maintaining open-access versions of technical or craft knowledge rather than letting it live only inside a proprietary system, supporting a library or archive, or supporting an apprenticeship structure that outlasts any one employer.

See the live data. ProjectDrawdown.org's solutions database and Regeneration.org/Nexus are both live, comprehensive, continuously updated catalogues of ranked, evidence-based actions, built to be used by individuals and institutions.

Successor training. Support training time while an expert practitioner is still available to teach, rather than waiting until the knowledge is already gone. Any organisation with a retiring specialist, a sole expert, or a skill nobody has formally documented can follow the same logic: fund the overlap, don't wait for the gap.



[Top]

11. Small shared records make a community legible

Local integrity has persisted, in specific places, for a very long time. Villagers in Törbel, Switzerland, have managed shared alpine pasture, forest and irrigation amongst themselves since 1224. The farmer-judges of Valencia's Water Tribunal have settled irrigation disputes every Thursday for about a thousand years. Bali's subak irrigation institutions are over a thousand years old. Island populations are a particular vulnerability, but Tikopia (a Polynesian outlier in the southwestern Pacific) built an orchard-based food system and subsisted on 4.6 square kilometres for many centuries.[72] None of these examples are necessarily ideal or isolated however.

Each sits inside a state and a market, and each is under pressure from tourism, cyclones or climate. What they share is not self-sufficiency but rules: defined membership, locally incentivised protocols for shared resources — and skill passed on by direct practice. These are the properties a shared record is designed to support at small scale.

Create a shared record

The same principle that made Brave New Alps work applies at any scale: beginning from needs and existing resources — empty buildings, idle time, skills at hand, deliberation. But a street or neighbourhood can't see what it has the way a small, known group can. A simple shared log is what can provide that insight. Kept by people who share a binding constraint — water, land, skills, time — it's not a cooperative, a meeting, or a project. It's simply a record that makes meaningful coordination possible.

No facilitation. No moderation. No performance. Append-only — nobody edits what was already written. It's a record, not a conversation.

What this does is make each person's first-order state — what they actually need, have, or notice, not a guess about what everyone else is thinking — visible to everyone who shares the record. Read in full, once a month, the log gives a small, local version of what the overview effect gives an astronaut: a whole seen at once, assembled from parts no single person could see on their own.

The format. A shared document, a chat group, a physical notebook in a common space, a noticeboard in a lobby or a shed, whatever has the lowest friction for the people actually using it at this time. Once a week or fortnight, anyone who wants to adds a short entry, answering the same four optional questions:

1. What's working on your land/project/street this week?
2. What's not?
3. What do you need that you can't provide yourself?
4. What are you noticing that others might not be?

> The person who's answered the "what do you need" question for eight weeks is eventually likely to add "oh, and the water pressure's dropping" or "is anyone taking care of ...?" and the record begins to grow in content and pattern.

General design features

- As simple as one person setting up a group chat
- Use the channel people already look at - chat app, or simple noticeboard, not a new platform that requires onboarding.
- A shared constraint everyone already cares about: water, heat, energy, local agriculture, a single employer.
- Fixed prompts on a fixed cadence: what is working, what is not, what do you need or have to offer.
- Low-friction input: voice notes, photos, and single words all count.
- Append-only and unmoderated. The record is the product.
- An archive kept apart from the input: periodically a digest of what was reported, needed, and noticed is copied into a document that is not the chat.

- Nobody has to run it. If nobody posts for three weeks, that is information about the community and a part of the process.

Why this form, not a meeting. It works with the retired neighbour on a city block, or the rancher who's set in his ways and has no interest in a meeting or a committee — one line, or a voice memo, and it goes in the log. It works with the artist who shows up on weekends and disappears for three weeks, the shift worker, a nurse, a driver — whose hours never line up with anyone else's. It works with the retiree pottering in a rural garden — "surplus biomass from tree pruning, anyone want it for compost" is a coordination event that didn't exist before they wrote it down. On a street, it may be a neighbour with a ladder nobody else owns, or a free afternoon to watch a building or a pet or a person in need while someone's away.

The first few weeks will likely be quiet. The first real coordination event — a surplus meeting a need — is the tell; after that the incentive is self-reinforcing, no points or badges required. If it never happens, if the group stays at two people for six months, that's the answer to whether this particular place has the substrate for it. You'll know by month three.

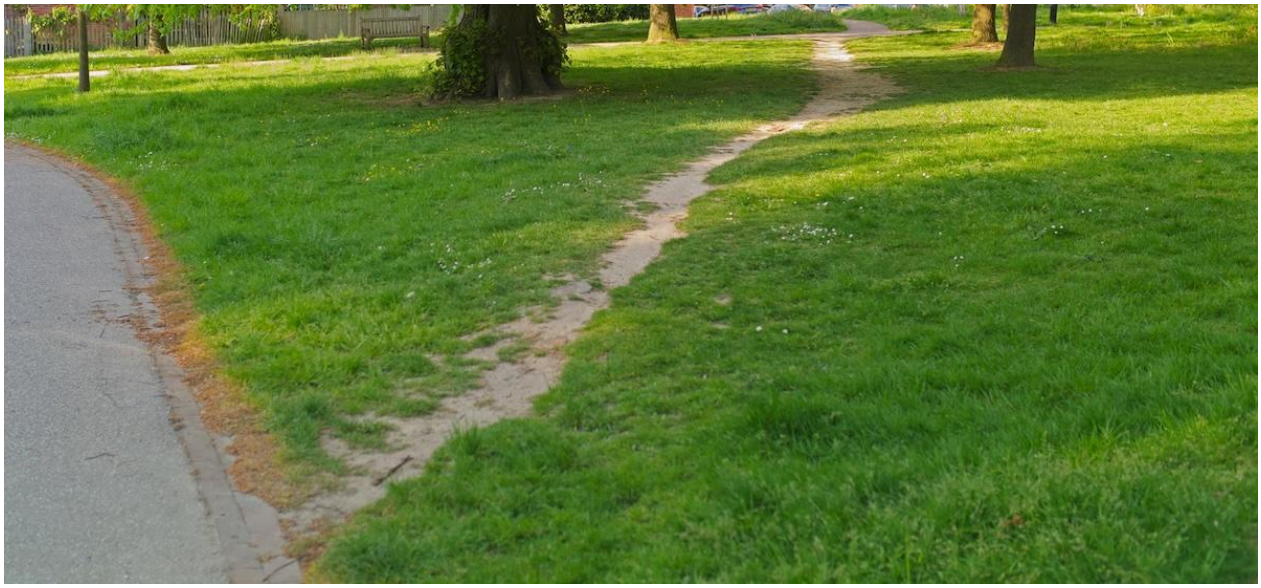
After the start.

Once the group has a habit, add one paired question answered privately:
how concerned are you about the shared constraint, and how concerned do you think most people here are?

The aggregate difference measures the second-order belief gap in that community. Publish it, and ask again three months later. (Note that WhatsApp polls show who voted for what, so this would need an alternative anonymous form.)

What happens next happens to the record, not through it: a neighbouring group starts its own, a local official finds value in the water data, someone publishes the pattern from a year of entries. It needs to exist — legible, append-only, and accurate. That's all it needs.

None of Törbel's shepherds knew in 1224 that they were founding something that would outlast seven centuries of weather, war and market change. Valencia's water tribunal wasn't an institution when it started; it was people with a shared constraint, meeting because the alternative was worse. A log kept on a noticeboard or in a shared chat is the same kind of beginning.



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12. Memento mori

Scranton opens *Impasse* in the ruins of Chaco Canyon where a thriving Ancestral Puebloan civilisation once stood. He reads ruins as reminders of mortality, evidence of what a complex society could do and of what limits it: "Ruins are both monuments and memento mori, emblems of our arrogance and warnings against our pride, concrete remains of our human glory and decaying reminders of our human monstrosity, which in the end are one and the same." He says, "The ruins of Chetro Ketl are a testament to Chaco's grandeur ... and—like all ruins—a warning."

Over four centuries, Chaco became the cosmopolitan trading and religious center of a host of communities across some 25,000 square miles of the San Juan Basin, trading goods from as far away as the Pacific Northwest and Mexico with a wide-reaching network of roads and signal towers. It was abandoned by 1300 as its own version of the trajectory discussed through this essay ran its course. It became overextended and undone by a drought it couldn't outlast. The people who built it, however, did not disappear. They migrated to the Rio Grande, the Hopi mesas, Zuni, Acoma, and more than two dozen Pueblo tribes today trace direct descent from them.[73] To the descendants who still hold the oral histories of that migration, Chaco isn't a ruin. It's the home their ancestors built, left, and migrated into the present from, by a people keeping what mattered with them.

The arrangement of the civilisation and the people in it were never actually the same thing, and only one of them had to end. What survives a civilisation is never the buildings. It's who carries what forward. This is as true for the corpus of Aristotle, the people of Rome or Chaco, and for us all. Ultimately, what we choose to carry forward is the only thing that can ever be up to us, and this remains a choice.

[Top]

Notes

1. Notes [Top] The 2.8–5°C / 5–9°F cooling range and its rough correspondence to Last Glacial Maximum ice extent (reaching the Ohio/Chicago latitude) is consistent with mainstream paleoclimate estimates (LGM ~5–6°C colder than pre-industrial globally). The specific 199,000/200,000-year framing is a reasonable summary of the Homo sapiens fossil record's ~200,000-year span. ↩

2. The Younger Dryas–early agriculture link (Fertile Crescent, Euphrates) is a well-established archaeological hypothesis, associated with archaeologist Brian Fagan among others. The Choga Mami irrigation date is disputed, at c. 6000 BCE (Helbaek, "Samarran Irrigation Agriculture at Choga Mami in Iraq," Iraq 34, 1972) versus 4700–4600 BCE in other summaries. Uruk period and c. 3300 BCE writing dates are conventional. Primary literature cited as Rost, "Water management in Mesopotamia from the sixth till the first millennium B.C.," WIREs Water 4:e1230. ↩

3. Byzantine continuity of Greek philosophical texts through the medieval period; the Abbasid translation movement (8th–10th century Baghdad); the 12th-century Toledo School of Translators rendering Arabic scientific and philosophical texts into Latin, feeding into Scholasticism. Appiah, "There is no such thing as western civilisation," The Guardian/BBC Reith Lecture (9 Nov 2016). For the primary scholarly literature on the Greco-Arabic translation movement, see Dimitri Gutas, Greek Thought, Arabic Culture (1998) — not checked directly this pass. ↩

4. 5–9°F difference converts to 2.8–5°C, broadly consistent with LGM-to-present temperature differences, though the "reaches Chicago" claim is about regional ice-sheet extent, which depends on more than global mean temperature alone — an approximation, not an exact equivalence. ↩

5. Climate Action Tracker, "Warming Projections Global Update," November 2025, climateactiontracker.org. Climate Action Tracker's November 2025 "policies and action" central estimate is 2.6°C. This figure is not derived from RCP8.5/SSP5-8.5, which was formally retired as implausible by the IPCC's scenario committee in 2026 (van Vuuren et al. scenario paper feeding into AR7). Where this essay cites warming projections, it uses the current Climate Action Tracker central estimate. On the 2023–2025 three-year average cited in the body text: Copernicus Climate Change Service, "Copernicus: 2025 was the third-hottest year on record" (January 2026), which states that the 2023–2025 average was the first three-year period to exceed 1.5°C above the 1850–

1900 pre-industrial baseline. The WMO's own figure for the same three years is slightly lower, at 1.48°C — "just below" the threshold — so the two leading trackers differ at the margin. The same Copernicus report states current long-term warming is "estimated to be around 1.4°C" above pre-industrial. Both the 3-year and long-term figures are distinct from the Paris Agreement's own 1.5°C measure, which is defined as a 20-year average specifically to filter out short-term natural variability. ↩ ↩

6. Institute for Economics & Peace, Ecological Threat Report: the source of the "up to 1.2 billion people displaced by 2050" figure, widely repeated since (including by UN overview pages). Primary IEP report edition and methodology should be confirmed directly before publication. ↩

7. City-level flood and sea-level-rise sources. Manila — MDPI Geographies (2026), tide-gauge and altimetry projections to 2150. London/Thames Barrier — GOV.UK, Thames Estuary 2100: 15-Year Monitoring Review (Aug 2026). New York — NPCC4, Annals of the New York Academy of Sciences (2024), official city risk projections. Amsterdam — Dutch Delta Programme (official, continuously updated), deltaprogram.nl. Bangkok — Research Square preprint (2025), inundation modelling under SSP scenarios. Mumbai — Scientific Reports (2025), sea-level rise and coastal flooding in Indian cities. Miami — Southeast Florida Climate Compact, Unified Sea Level Rise Projection. Tokyo — Environment, Development and Sustainability (2023), adaptation effectiveness on Japanese coasts. Buenos Aires — Earth.Org, sea-level-rise projection map to 2100 (Kopp et al. scenarios). Jakarta — Business Insider, May 2024: reporting that rising sea levels have made Jakarta the world's fastest-sinking megacity, prompting Indonesia's decision to relocate its capital to Nusantara. ↩

8. The 35°C wet-bulb survivability threshold, and the finding that real physiological limits run lower (especially for older adults), are confirmed against current peer-reviewed literature (e.g. Vecellio et al.; Nature Communications 2023 physiological survivability study). Indus/Ganges and Persian Gulf projections are consistent with published MIT/Nature Climate Change modelling (Im et al. 2017; Raymond et al. 2020). ↩

9. John Redhead et al., UK Centre for Ecology & Hydrology, with Rachel Warren (Tyndall Centre, University of East Anglia), Climate Resilience and Sustainability (Wiley, 27 January 2025), DOI: 10.1002/cli2.70007; findings summarized by Tom Lancaster (Energy and Climate Intelligence Unit) on BBC Radio 4's The Briefing Room, "How will climate change affect our farms?" (15 October 2026). ↩

10. The ~35 km/decade (temperate) and ~16 km/decade (boreal) poleward shift figures, and the ~175 km/°C shift in the North American maize belt, are consistent with published literature (Köppen-classification shift studies; Newman 1980 and successors on maize belt shift). Country-level numbers, King et al. 2018, Scientific Reports (peer-reviewed, widely cited). ↩

11. Carney's 2015 "tragedy of the horizon" speech is a public record. ↩

12. Carney ended Canada's consumer carbon price on his first day in office (14 March 2025), retaining the industrial price on large emitters. Source: CBC News, "Carney kills consumer carbon tax in first move as prime minister," 14 March 2025. ↩

13. "Labour's last chance? The people shaping Andy Burnham's grand plans for Britain," reporting (Guardian-sourced), Sept 2026: Burnham became PM "with no leadership contest or general election manifesto," and has already "watered down" his council-housing pledge and softened "public ownership" to "public control" language. ↩

14. Left Foot Forward, "Andy Burnham urged to keep promise to campaigner over donations cap," Aug 2026; Byline Times, "Andy Burnham Faces Backlash Over Apparent Retreat From Donations Cap Pledge," Sept 2026. ↩

15. Ben Delo and Christopher Harborne each pledged £36 million to Reform UK on consecutive days in September 2026, £72 million combined — confirmed independently across Wikipedia, KuCoin, CryptoDaily, Memeburn and other outlets. ↩

16. The UK/Australia/Canada/EU donation-cap landscape and the Council of Europe/UN Convention against Corruption recommendations are consistent with known campaign-finance law, though note the UK specifically does not cap donations from permissible donors, which is precisely why the Burnham episode is significant. ↩

17. Buckley v. Valeo, 424 U.S. 1 (1976), and Citizens United v. Federal Election Commission, 558 U.S. 310 (2010). Buckley upheld limits on direct contributions to candidates but struck down limits on independent political expenditure as a First Amendment violation; Citizens United extended that expenditure right to corporations and unions. The US does cap direct contributions — it is spending independent of a campaign that the Court treats as protected speech. ↩

18. The Victorian Supreme/High Court quashed donation-cap exemptions carved out for "nominated entities" in Victoria's Electoral Act, mid-April 2026, finding them an unconstitutional breach of the implied freedom of political communication — not a cap struck down outright. The state election followed in November 2026. ↩

19. Denmark wealth-tax election framing and the 80%-of-Americans inequality-concern figure are both plausible and consistent with known polling trends (Pew, Gallup) but not independently re-confirmed. ↩

20. Of roughly a dozen European countries with a wealth tax in 1990, all but three had eliminated it by 2019; among the three that retained one (Norway, Spain, Switzerland), 2017–19 revenue as a share of total tax revenue was 1.1%, 0.55%, and 3.6% respectively. France's ISF ran 1989–2017, with revenue rising from €2.5bn (2002) to €3.6bn (2006) before its 2017 replacement by a narrower real-estate-only levy under Macron. Source: Wikipedia "Wealth tax" (citing Business Insider 2019 compilation of OECD-adjacent data) ↩

21. World Inequality Report 2026 (Chancel, Gómez-Carrera, Moshrif, Piketty, eds.; World Inequality Lab, Dec 2025), Executive Summary and "Exorbitant Privilege" chapter: the 1%-of-GDP/3x-development-aid reverse flow, the 75% top-10% wealth share (bottom 50% holds 2%), the 77%/3% emissions split, and the ~8%/yr billionaire wealth growth rate "nearly twice" the bottom half's. wir2026.wid.world. ↩ ↩

22. Bezos's "civilization of stasis" and "Earth zoned residential and light industrial" are repeated public statements — CNBC (2018), Axios (2019), and Fast Company. ↩

23. Peter Thiel, "The Education of a Libertarian," Cato Unbound, 13 April 2009: "I have focused my efforts on new technologies that may create a new space for freedom. Let me briefly speak to three such technological frontiers: (1) Cyberspace… (2) outer space… (3) Seasteading." cato-unbound.org/2009/04/13/peter-thiel/education-libertarian. ↩

24. Sam Altman, "The Merge," personal blog, 2017. blog.samaltman.com/the-merge. ↩

25. William Shatner, Boldly Go: Reflections on a Life of Awe and Wonder (Atria Books, 2022), excerpted in Variety, 9 Oct 2022; further reporting and interview, NPR, 23 Oct 2022. The "Overview effect" originates with Frank White's 1987 study of astronaut accounts ↩

26. The idea of the Commons Protocol as a distributed, technological approximation of the overview effect is developed at length in "Wiring the Organism" (substack.com/wiring-the-organism) ↩

27. Naomi Klein & Astra Taylor, "An unholy alliance is working toward an apocalyptic future from which only a chosen few will emerge unscathed," The Guardian, 13 September 2026, adapted from End Times Fascism — And the Fight for the Living World (Farrar, Straus and Giroux, 2026). ↩

28. Bezos Earth Fund: $10bn pledge (2020), ~$2.4bn disbursed as of October 2026, per Fortune, Newsweek, and the Fund's own published figures (bezosearthfund.org). Amazon's 2025 emissions (80.85 million metric tons CO2e) per Newsweek reporting. Net worth figures for all three (Bezos ~$255–296bn, Thiel ~$12–24bn, Altman ~$3.3–4bn personal, no OpenAI equity) confirmed across Bloomberg, Forbes, and company disclosures as of 2026. Green Climate Fund cumulative pledges: Initial Resource Mobilization, $9.3bn (2014); First Replenishment, $10bn (2019); Second Replenishment, $10.6bn (2023) — $29.9bn total across all three rounds, per NRDC's Green Climate Fund Pledge Tracker. Coal-fired power plant equivalency: EPA Greenhouse Gas Equivalencies Calculator, ~3.79 million metric tons CO2/plant/year (2022 data, 197 coal-dependent facilities). ↩

29. Olufunke Baruwa, "What 2026 Is Already Revealing About Our World," Medium, 7 January 2026. medium.com/@funkebaruwa. ↩

30. The World Economic Forum's Global Risks Report 2026 ("An Age of Competition," 21st edition, January 2026) is real and current, and its underlying risk content — geoeconomic confrontation, resource nationalism, technological competition, across three timeframes to 2036 — is the basis for this section. The named sub-scenarios ("Resource Control," "Resource Collaboration," "Tech-Based Survival," "Geotech Spheres," "Fortress Economics") are this essay's own synthesis labels, not verbatim WEF terminology; the report itself does not name scenarios this way. weforum.org/publications/global-risks-report-2026. On resource-linked conflict specifically: UNEP, From Conflict to Peacebuilding: The Role of Natural Resources and the Environment (2009) is the confirmed source for the ~40%-of-intrastate-conflicts-since-the-1950s figure. wedocs.unep.org. The World Bank's 50-conflicts, 2001–2009 figure is repeated by EBSCO's research-starter summary ("According to the World Bank, fifty of the armed conflicts arising between 2001 and 2009 could be linked to natural resources"), but that page itself cites no underlying World Bank publication — it's a secondary source, not the primary one. ebsco.com. The figure is consistent with the World Bank's broader natural-resources-and-conflict research (e.g. Natural Resources and Violent Conflict: Options and Actions, 2003, and its later "Defueling Conflict" work), but the original World Bank report carrying this exact count has not been located. ↩ ↩ ↩ ↩ ↩ ↩ ↩ ↩

31. Pierre-Olivier Gourinchas, "War Darkens Global Economic Outlook and Reshapes Policy Priorities," IMF Blog, 14 April 2026. imf.org/en/blogs/articles/2026/04/14. ↩

32. IEA, The Role of Critical Minerals in Clean Energy Transitions (2021). On price-spike risk specifically: GCSP (Zhiyenbayev, A.), "Securing the New Resource Frontier: Critical Minerals in an Era of Great-Power Rivalry," Strategic Security Analysis 2025/43, Geneva Centre for Security Policy, September 2025: "Export bans, accidents or conflict at any dominant node could trigger price

spikes of 500–1,000%, derail the energy transition and disrupt defence supply chains." An Uppsala University analysis (October 2025) found gallium, germanium and antimony prices in Europe rising 365–437% following China's export controls — within the range GCSP projected. ↩ ↩

33. "Traumatic decarbonization" originates with Aditya Sarkar and Alex de Waal (World Peace Foundation), published via Sage Journals' Environment and Security special issue (2024), with further coverage and case studies (Ecuador, Iraq, Nigeria, South Sudan, Sudan, Venezuela) via the World Peace Foundation and USIP. worldpeacefoundation.org/project/traumatic-decarbonization. ↩ ↩

34. World Bank, Shock Waves: Managing the Impacts of Climate Change on Poverty (2015), with updated estimates (~130–132 million) cited in subsequent World Bank Group communications through 2021. ↩ ↩

35. UN University Institute for Water, Environment and Health, "Global Water Bankruptcy" report (July 2026): "almost three-quarters of the world's population live in countries classified as water insecure or critically water insecure" — stated as a current condition, not a 2050 projection. ↩ ↩

36. Chivvis, Fravel & Heginbotham, "U.S.-China Relations for the 2030s: Toward a Realistic Scenario for Coexistence," Carnegie Endowment for International Peace, October 2024. carnegieendowment.org. ↩

37. IOM, "A New Framework for U.S. Leadership on Climate Migration" (CSIS, 2025): climate migrants fall outside current refugee frameworks. The 2018 UN Global Compact for Safe, Orderly and Regular Migration confirmed as the primary existing instrument, non-binding. UNHCR's "planned relocation" guidance and the UNFCCC Task Force on Displacement confirmed as existing but non-binding mechanisms. ↩

38. Verisk Maplecroft is a risk-intelligence firm (founded 2001, Bath, UK, a subsidiary of Verisk, Nasdaq: VRSK). "Geopolitical Risk & Global Business by 2030" outlook (December 2025). Source: Verisk Maplecroft, "Beyond the Storm: How Geopolitics Could Reshape Insurance by 2030" / "Geopolitical Risk & Global Business by 2030" (Dec 2025). ↩

39. Andre, Boneva, Chopra & Falk, "Globally representative evidence on the actual and perceived support for climate action," Nature Climate Change, 9 February 2024. All figures (130,000 respondents, 125 countries, 69%/89%/86%/43%) match the published study. nature.com/articles/s41558-024-01925-3. ↩

40. Cass R. Sunstein, "Of Montreal and Kyoto: A Tale of Two Protocols," Harvard Environmental Law Review 31 (2007). Scott Barrett (Johns Hopkins) makes an independent, similar comparison of incentive driven reforms. Benedick (2009) argues the treaty itself drove substitute innovation; CEPR (2023) presents patent-data evidence supporting this; others argue substitutes were largely already available. ↩

41. Centola et al., "Experimental evidence for tipping points in social convention," Science, 2018 ↩

42. Agnotology as a field — the study of culturally produced ignorance — is well-established: Proctor, R. & Schiebinger, L. (eds.), Agnotology: The Making and Unmaking of Ignorance (Stanford University Press, 2008). ↩

43. Ogilvy & Mather, "Beyond Petroleum" campaign for BP, 2004 (~$200m), via DeSmog and multiple corroborating sources. 278,000 calculator users in the first year (BP's own reported figure). John Kenney's 2006 New York Times op-ed confirming the strategic intent, confirmed via secondary reporting (Fuel Our Democracy) ↩

44. Wikipedia, "Shell Answer Man" — campaign developed by Ogilvy & Mather for Royal Dutch Shell in the late 1960s; agency relationship continued for nearly four decades until Ogilvy closed its Houston office (largely dedicated to the Shell account) in November 1999. Sourced there to PR Newswire, 8 March 1990, and Houston Chronicle, 17 November 1999. ↩

45. Timur Kuran, Private Truths, Public Lies: The Social Consequences of Preference Falsification (1995) ↩ ↩

46. IMF, World Economic Outlook, April 2026: global growth projected at 3.1% (2026) and 3.2% (2027) under the reference forecast, described as "below recent outcomes and well under prepandemic averages." Close but not an exact match to a single flat "3.2%" figure — the IMF's own framing is a two-year range, not one number. ↩

47. Armstrong McKay, D. I. et al., "Exceeding 1.5°C global warming could trigger multiple climate tipping points," Science 377, eabn7950 (2022). This is the standard, most-cited source for climate tipping-point thresholds generally. ↩

48. White House FY2027 budget request, $1.5 trillion total (approx. $1.15tn discretionary + $350bn reconciliation), a 44% increase over FY2026; confirmed via CSIS analysis and multiple April–July 2026 reporting. Not yet enacted — House defense bill as of July 2026 was at $1.07 trillion; full $1.5tn figure's passage is uncertain. ↩

49. Ditlevsen, P. & Ditlevsen, S., “Warning of a forthcoming collapse of the Atlantic meridional overturning circulation,” Nature Communications (2023) — mid-century central estimate, 2025–2095 95% CI, ~59% probability of collapse before 2050. This is a statistics-on-proxy-data approach and has drawn substantial criticism; standard CMIP/IPCC model-based projections instead suggest a marked weakening but not full collapse within the century. The disagreement between these two approaches is itself part of what the Carbon Brief “flying blind” quote [50] is describing. ↩

50. Carbon Brief, “Q&A: Climate tipping points have put Earth on ‘disastrous trajectory’, says new report,” 17 July 2026. The piece is Carbon Brief’s coverage of the Global Tipping Points Report 2025 (Lenton, Armstrong McKay, et al., published 1 December 2025). ↩

51. The RCP4.5 2020 study modelling US violent crime under climate change (still current, non-retired) is 2.3 million. Source: study published in Environmental Research Letters (IOPscience), extending the methodology of Ranson, M., “Crime, Weather, and Climate Change,” Journal of Environmental Economics and Management 67 (2014). ↩

52. Minniti, F., “The Darkest Shade of Green: Strategic Weaponisation of Environmental Governance by Violent Extremist Organisations,” GNET, 22 April 2026. Confirms the term and its coinage; JNIM in the Sahel given as the clearest example. ↩

53. Edelman Trust Barometer 2026 (26th annual; ~34,000 respondents, 28 countries; fieldwork Oct–Nov 2025; launched Davos, Jan 2026). ↩

54. The Global Commons Protocol, a protocol I’m developing, is an architecture for an independent global infrastructure, surfacing incorruptible opinion across communities and cultures, bypassing institution and the signal to noise problem that otherwise persists. https://github.com/ns9t/commons-protocol/ ↩

55. Wangari Maathai, Unbowed: A Memoir (Knopf, 2006); The Green Belt Movement, greenbeltmovement.org; 2004 Nobel Peace Prize citation. ↩

56. Rebecca Solnit, A Paradise Built in Hell: The Extraordinary Communities That Arise in Disaster (Viking, 2009), synthesizing disaster-sociology research including Charles E. Fritz’s foundational studies and Kathleen Tierney’s, Caron Chess’s, and Lee Clarke’s work on “elite panic.” ↩

57. Joseph Tainter, The Collapse of Complex Societies (1988) ↩ ↩

58. Roy Scranton, Learning to Die in the Anthropocene (City Lights, 2015) and Impasse: Climate Change and the Limits of Progress (Stanford University Press, 2025) ↩ ↩

59. C.S. Holling, “The Resilience of Terrestrial Ecosystems: Local Surprise and Global Change,” in Sustainable Development of the Biosphere (1986); Lance H. Gunderson & C.S. Holling (eds.), Panarchy: Understanding Transformations in Human and Natural Systems (Island Press, 2002). The originators describe panarchy as a heuristic/metaphor rather than a predictive law, and caution against over-applying it universally. ↩

60. Argentina’s empresas recuperadas (worker-recovered enterprise) movement, emerging from the 2001–02 collapse, with approximately 200 factories still operating under worker control more than a decade later (Ruggeri, Martínez & Trinchero; Redalyc, “Revisiting Argentina’s Recuperated Factories”). (grassroots economic organizing literature, “Self-management in Argentina 20 Years After 2001”). ↩

61. The 8,000+ urban farms by 1998 and the ~20 lb average weight loss are from AS/COA, “Six Anomalies of Cuban Agriculture”; the 35,000 hectares converted in Havana and food security under control by 2001 are from the Yale Tropical Resources Institute case studies; state land leasing and training from IIED, “Farming the future: Cuba’s food transformation.” Sources conflict on how much of Cuba’s or Havana’s produce urban farms supply (roughly 50% nationally to 80–90% for Havana), so no single share is used above. The 1989–94 production fall (~54%) comes from Wikipedia ↩

62. Bollier, “Brave New Alps: New Forms of Rural Resurgence Through Commoning and Care,” bollier.org; Frontiers of Commoning (episode 75, 1 June 2026); Brave New Alps (founded 2005; registered 2012; part of La Foresta since 2021); Alpine Community Economies Laboratory publications. Peer-reviewed: Elzenbaumer, Mammana, Gonzalez Miranda and Manfrini, “Co-Creating a Festival with and for Rural Commoning Initiatives,” Ecology and Society 30(3): art8 (2025). ↩

63. US Bureau of Labor Statistics, “Empirical evidence for the ‘Great Resignation’,” Monthly Labor Review (2022): quit rates not only recovered post-pandemic-shock but exceeded the pre-pandemic historical trend; 11.5 million US workers quit between April–June 2021 alone (US Department of Labor). Confirmed as a lasting shift, not a temporary spike, by subsequent labor-market data through 2024. ↩

64. Alloy, L. B. & Abramson, L. Y., “Judgment of contingency in depressed and nondepressed students: Sadder but wiser?” Journal of Experimental Psychology: General 108 (1979): 441–485. The effect is contested: see Allan, Siegel & Hannah, “The Sad Truth About Depressive Realism,” Quarterly Journal of Experimental Psychology 60 (2007), and a 2019 replication study finding the effect is not robust (Collabra: Psychology 5(1)). ↩

65. Upajjhatthana Sutta (AN 5.57), “Subjects for Contemplation,” Pali Canon ↩

66. Ashmolean Museum, “Late Roman Oxfordshire” (citing Ward-Perkins, The Fall of Rome and the End of Civilization, OUP 2005, p. 93); Lyne, M., “The End of Roman Pottery Production in Southern Britain,” Internet Archaeology 41 (2016); Gerrard, J., “Romano-British Pottery in the Fifth Century,” Internet Archaeology 41 (2016); “The Perils of Periodization: Roman Ceramics in Britain after 400 CE” (2017); Fleming, R., The Material Fall of Roman Britain, 300–525 CE (2021). A “transformation” school disputes the collapse reading, and outcomes varied by region. ↩

67. Heritage Crafts Association, Red List of Endangered Crafts, 2025 edition. heritagecrafts.org.uk. ↩

68. Eric Klinenberg, Heat Wave: A Social Autopsy of Disaster in Chicago (2002), based on the July 1995 Chicago heat wave that killed over 700 people. ↩

69. Paul Hawken, Blessed Unrest: How the Largest Movement in the World Came into Being and Why No One Saw It Coming (Viking, 2007) — The original tracking platform, WiserEarth, is now defunct; current live resources from the same body of work are Project Drawdown (founded 2014, projectdrawdown.org) and Regeneration.org / Nexus (Hawken’s current project, actively maintained). ↩

70. Foster, G. & Rahmstorf, S., “Global Warming has Accelerated Significantly,” Geophysical Research Letters (AGU), 9 March 2026, DOI: 10.1029/2025GL118804. Confirms warming accelerated from a fairly steady ~0.2°C/decade since the 1970s to ~0.35°C/decade since around 2015, once natural variability (El Niño, volcanic, solar) is filtered out — a near-doubling the authors call statistically significant. Carbon Brief’s own fact-check frames this acceleration as consistent with what climate models already projected for this decade, not an anomalous departure from expectations, and some researchers (e.g., Zeke Hausfather, Robert Lund) have raised methodological questions about isolating the trend from natural variability over a relatively short window. ↩

71. The Grand Bargain (2016), a commitment by major donors and aid agencies at the World Humanitarian Summit to shift more funding directly to local and national responders and reduce intermediary overhead. interagencystandingcommittee.org. The Trust-Based Philanthropy Project (founded 2020) promotes funder practices — multi-year, unrestricted grants, simplified reporting, decision-making power shared with grantees — consistent with the “resource the unresourced” model described here. trustbasedphilanthropy.org. ↩

72. Törbel: Ostrom, Governing the Commons (1990), drawing on Netting, Balancing on an Alp (1981); Valencia: University of Valencia Horta chair, and UNESCO Intangible Heritage 2009. Bali: University of Hawaii Water Resources Research Center, “The Subak Traditional Irrigation System as a UNESCO World Heritage Site.” Tikopia: Sustainability 13(15), 8567 (2021), doi:10.3390/su13158567, and the Resilience Alliance database (chiefs now cap residents at 1,115; a 1952 famine followed population growth to 1,753). Population methods included contraception, but also infanticide and sending many young men on dangerous voyages, per Firth, We, the Tikopia (1936), ch. XI, as summarised in Diamond, Collapse (2005). ↩

73. Lindo, J. et al., “Picuris Pueblo oral history and genomics reveal continuity in US Southwest,” Nature (2025), doi:10.1038/s41586-025-08791-9; Smithsonian Magazine, “DNA Links Modern Picuris Pueblo Tribe to Ancestors Who Lived in Chaco Canyon”; NPS, Chaco Culture National Historical Park overview. More than two dozen Pueblo tribes consider the Chaco people ancestors; genetic confirmation so far specific to Picuris Pueblo, with oral tradition extending the claim more broadly. ↩

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