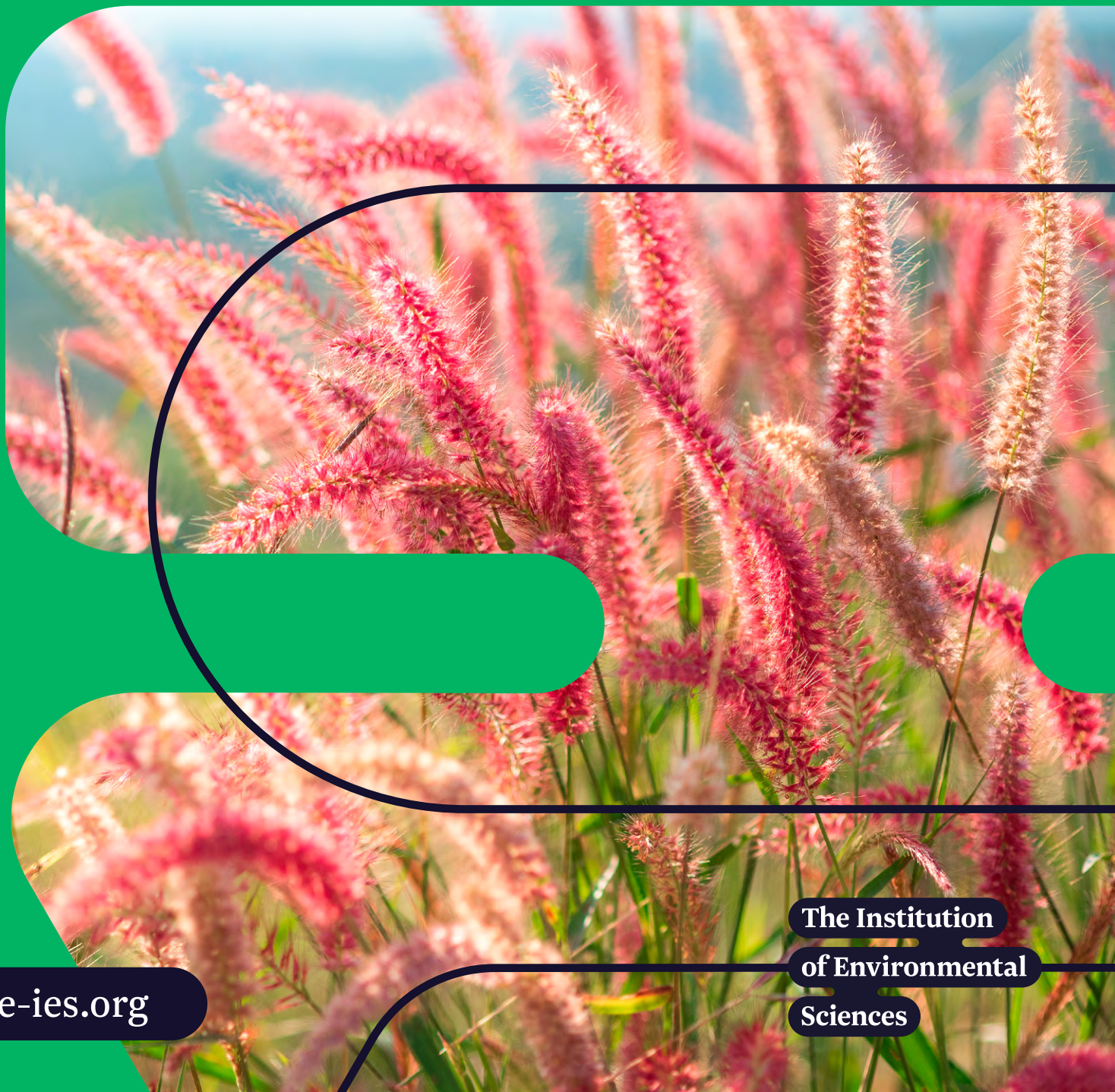


Sustainability and regression:

Workshop discussion paper: “A war of the worlds?”

June 2025



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The Institution
of Environmental
Sciences

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Acknowledgements

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About the Institution of Environmental Sciences

The Institution of Environmental Sciences (the IES) is at the forefront of uniting the environmental sciences around a shared goal: to work with speed, vision and expertise to solve the world's most pressing environmental challenges, together.

As the global professional membership body for environmental scientists, we support a diverse network of professionals all over the world – and at every stage of their education and careers – to connect, develop, progress and inspire.

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Introduction

Are we in the midst of a modern ‘war of the worlds’?

Professor Mark Everard argues that we are, but it’s between different world **views**, not different planets. On one side, sustainability, and on the other, monetarism at the expense of a long-agreed consensus.

Around the world, politics and populism have begun challenging that consensus, posing the threat of environmental regression in policy and regulation.

These changes pose an ethical question for the environmental sciences: is the role of professionals just to carry out the actions that the system requires, even if that system operates against the ideals at the core of sustainability?

To help environmental professionals make sense of these new conflicts, the IES is holding an online workshop, as a platform for members and stakeholders to discuss these developments and what action should be taken in the face of what could be a ‘war of the worlds’.

- [Sign up for the free workshop](#) on the IES website

This briefing sets out five opinion pieces as a provocation for discussion:

- 1. War of the worlds:** In this first piece, Mark Everard sets out the history of sustainability and monetarism, the modern resurgence of the latter, and what it means today. Mark argues that environmental scientists have a role in the face of these concerning trends, to provide evidence as part of a values-led mission to create a more sustainable world.
- 2. Sustainability is not a political debate:** This response to Mark’s article argues that too much has been conceded to worldviews that are against action towards sustainability, even though the public do not support them, so even if there are questions about how it is achieved, sustainability itself should not be up for debate.
- 3. A war of evidence:** Following from his first article, Mark Everard elaborates on the role of evidence in shaping ideas, as well as the ways that different ideologies respond to evidence. He argues in favour of ‘open ideologies’ which embrace the ways that evidence can challenge them, rather than ‘closed ideologies’ that

dismiss any evidence that does not support them.

4. **The false dichotomy between environmentalism and wealth:** In another response to Mark's essays, this opinion piece argues that environmentalism need not be at the expense of wealth. Instead, it suggests deregulated capitalism actually creates inequality. The essay argues that scientists should speak up more to challenge this false dichotomy.
5. **Constraints as opportunities:** Mark's final essay explores the false premise that sustainability is about 'what we do not do', arguing that constraints are inevitable but that sustainability offers a way to find opportunities in an otherwise restricted world, rather than imposing constraints on people who would otherwise be free.

What are the key messages?

Across five opinion pieces and three authors, several key messages emerged:

- The environment and human success are mutually dependent, not in conflict
- Recent events have made the threat of regression on environmental progress an increasing risk
- The way that people make decisions is shaped by how they view the world, so evidence from science is part of - but not all of - the solution
- Environmental scientists can and should speak out to challenge regression, and champion sustainability

Questions for the discussion

During the discussion workshop, there will be two breakout sessions.

The first will consider the challenges and threats currently facing progress towards sustainability. The second will consider how environmental professionals and the environmental sciences should respond.

These questions, and the opinion pieces in this briefing paper, may offer a point of reflection to help participants consider the issues around this topic, ahead of the workshop.

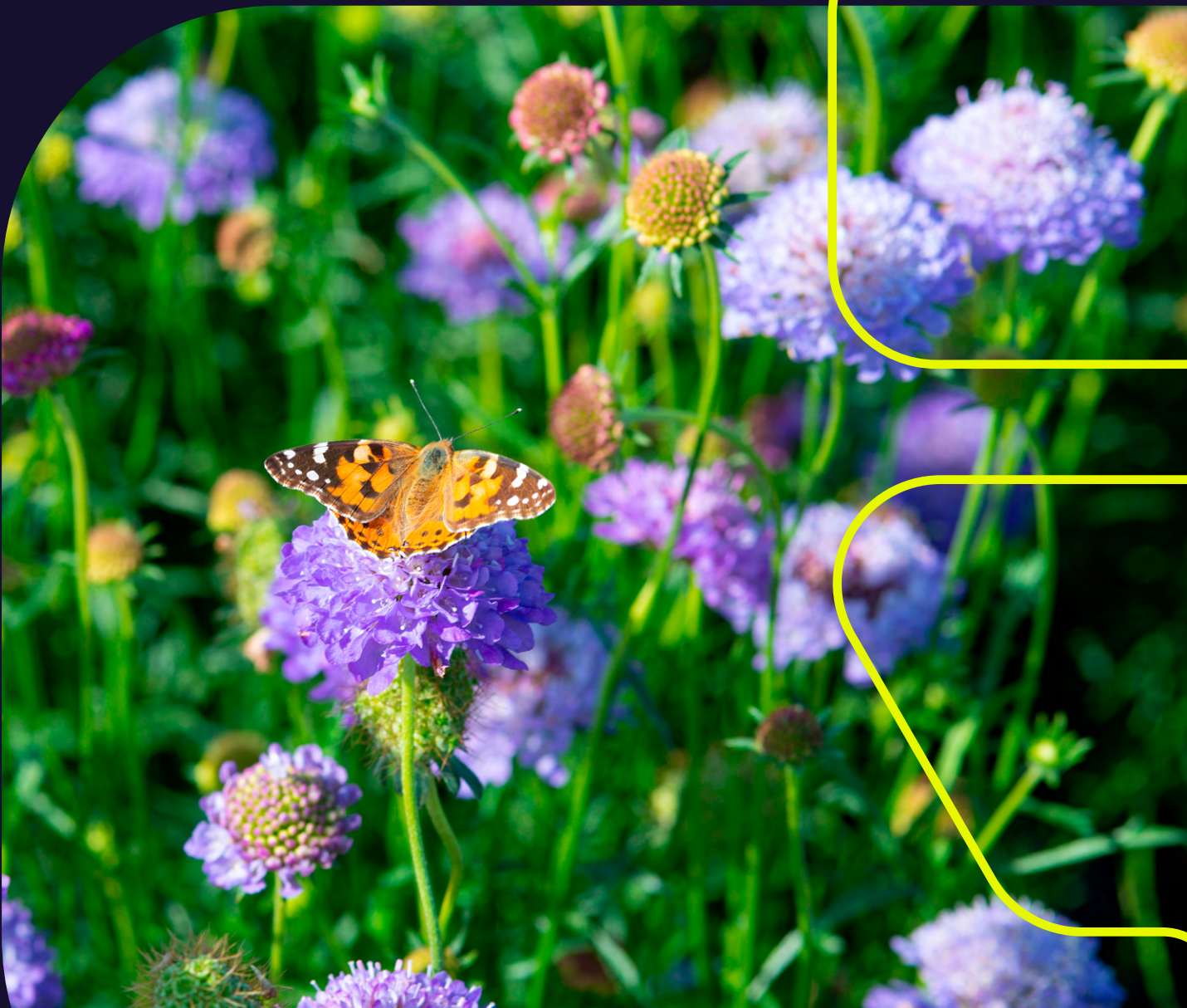
1. Do you agree with the opinion pieces in the provocation paper?
2. Are we facing increased environmental regression?
3. Can we still achieve 'win-wins' for people, the economy, and the environment?
4. What role should environmental scientists play in these discussions?
5. How can we champion sustainability in the face of increasingly stark political conditions?

As a membership organisation, we provide a convening space where members can share their views and engage in healthy debate.

The goal of the series of articles has been to stimulate thought and discussion amongst environmental professionals. They are the views of their authors, and do not represent the perspective of the Institution of Environmental Sciences.

“Sustainability simply means the capacity to continue. We owe it to ourselves and on behalf of future generations to stand up to champion and defend this ideal ... in the face of this contemporary ‘War of the Worlds’.”

– Professor Mark Everard



A war of the worlds: Championing sustainable development in contested times

Professor Mark Everard, March 2025

Two major but conflicting conceptual influences emerged into the policy arena and wider public understanding during the 1980s, the influence and pervasion of both spreading globally in the following decade.

The first of these influences was monetarism. Business models and underlying assumptions about resource flows took root and accelerated from the dawn of the European Industrial Revolution.

At this time, the global population stood at around 77 million (less than one-hundredth of the current human population of 8.3 billion), and local depletion of energy-dense fuels and other minerals as well as resources such as forest products could be compensated by appropriation from a wider world perceived as boundless in an era of geographical prospecting and empire-building. Manifestation of some of the more gross environmental, nuisance and health impacts arising from wealth-generating industrial activities led to the enactment of successive legislation from the time of the UK's Alkali Act 1863: the world's first industrially focused regulation.

In the 1970s, a trend towards progressive

commercial liberalisation under a free-market capitalism model was substantially accelerated by the work of US economist Milton Friedman, 'liberating' profit-making from government intervention through deregulation and wider fiscal and other policies rejecting state control.

Collectively termed 'monetarism', this approach won Friedman a Nobel Prize in 1976 and had significant influence on US policy under the presidency of Ronald Reagan, in the UK during Margaret Thatcher's tenure as Prime Minister, and reshaped modern capitalism at a pan-global scale significantly through the expanding influence of multinational corporations.

Neoliberalisation was to change our understanding of money, reframing its primary purpose as investment to make more money in a deregulated state in which environmental and social concerns were largely reconceptualised as net costs and constraints.

The systemic entrenchment of monetarism is evidenced in such everyday experiences as money deposited in a bank account from which interest payments are insulated from the costs of any collateral environmental

“

Often, attempts to express these wider values in monetary terms have failed to reflect that they are inherently incommensurable with money.

and societal damage incurred in the generation of profit from investments.

The second major conceptual influence emerging throughout the 1980s was that of sustainable development. It had been recognised in the preceding decade, for example with formation of the Ramsar Convention, that ecosystems were also socio-economic systems.

The Ramsar Convention, signed in 1971, explicitly recognised that the sustainability of the world's wetlands depended on 'wise use' by those inhabiting them, as a prior 'fortress conservation' model of incarcerating them behind barbed wire was manifestly failing.

This conceptual approach to interdependence of ecological, economic and social development fed through to the 1981 World Conservation Strategy and onwards, with the 'triple bottom line' model achieving wider societal and political awareness following publication of 'Our Common Future' (the 'Brundtland Report') by the World Commission on Environment and Development in 1987.

Ironically, the entrenchment and pervasion of monetarism occurred in an era of heightening statements of commitment to sustainable development. A great deal of rhetoric flowed in the following decades about a systemic commitment to sustainable development, all the while the

wrecking ball of monetarism prising apart short-term profit-taking from environmental and social considerations whilst headline metrics such as GDP (gross domestic product) were concerned only with financial throughput as if that were a proxy for lasting societal wellbeing, security and opportunity.

Attention has more latterly been paid to environmental economics and also ecosystem services, terms and ways of thinking emerging also from the 1970s and gaining traction since the 1980s, seeking to recognise the wider non-financial values of natural, human and social capitals.

Often, attempts to express these wider values in monetary terms have failed to reflect that they are inherently incommensurable with money, constituting primary capitals underpinning the generation of financial capital but also of intrinsic value.

Nonetheless, despite its many imperfections, the capitalist model has permeated much of the world setting down deep political roots, so representation of value in an increasingly viable form remains significant in terms of resolving conflicts between money-based policies and proclamations of a commitment to reorient society onto a sustainable pathway of development.

The resurgence of neoclassical markets

In the light of this uneasy co-existence and fractional resolution of policies founded respectively on monetarism and sustainable development principles, contemporary political shifts either side of the Atlantic give major cause for concern.

These are not entirely divorced from wider geopolitical shifts, though these are not the focus of this discussion.

The withdrawal of the US from the World Health Organisation, its intent to pull out of the Paris Agreement on climate change, cancellation of international aid programmes and withdrawal of support from security agreements in Europe are part of a wider and still unfolding package of measures unilaterally rejecting consensus about a need to tackle environmental and social threats on a global stage.

Box 1 lists a subset of withdrawals by the US from globally relevant and national social and environmental programmes in the first four weeks of Trump's second presidential term.

Within the US itself, stated intentions to ramp up extraction of oil and other primary industries display at best ignorance, and at worse cavalier disregard, about the adverse implications for environmental stability and the health and equity impacts that will ensue.

The refocus on maximisation of short-term return on profit without regard for collateral environmental and social consequences is also evident in cancellation of policies and initiatives seeking greater social equity

betraying a cavalier disregard to future generations and global cooperation around daunting challenges.

Monetarism rules supreme once again, with the withdrawal or undermining of programmes not generating short-term profit, with many companies following suit.

Box 1. Withdrawals from social and environmental commitments by the Trump presidency

- As just one example, a speech by President Donald Trump at Mar-A-Lago on 18th February 2025 listed a range of US-funded development initiatives that would be axed under an Executive Order disbanding the USAid programme including, as just one example, “\$25million to promote biodiversity conservation and protect licit livelihoods to promote socially responsible behaviours in the country of Colombia... for something that nobody ever heard of”.¹
- Though just one of many cited examples of slashes for former USAid investments, many of them with bigger price tags, is particularly worrying given the final clause “...for something that nobody ever heard of”. Does this mean that the President and his team has ever heard of biodiversity conservation, licit livelihoods, socially responsible behaviours? And where is the challenge from within the political leadership and wider media to this manifest ignorance and narrow-mindedness?
- The US has also in 2025 withdrawn by presidential decree on 20th January 2025 from the World Health Organization (WHO).²
- A presidential decree ‘rejects and denounces’ the UN Sustainable Development Goals (SDGs).³
- Another presidential decree announces withdrawal from the Paris Climate Change agreement.⁴
- A further decree abandons all DEI (diversity, equality and inclusivity) programmes⁵ in the US, amongst other retractions from multinational agreements and domestic environmental and social protections in pursuit of a narrow model of ‘growth’.
- The US has also avowed ‘reindustrialisation’, largely resurrecting old industries including polluting activities such as fossil fuel extraction under the president’s repeated mantra of “drill, baby, drill” that targets not just US production but global development of coal extraction, the dirtiest of all fossil fuels, supported by climate-sceptic US energy secretary Chris Wright.⁶

The UK is no model of robust commitment to sustainable development with a ‘growth, growth, growth’ agenda including relaxations in prior net zero and other environmental commitments as well as social constraints including limiting objections to planning proposals, all with worryingly naive neoclassical resonance.

The building of a third runway at Heathrow Airport had formerly been opposed on the basis of incompatibility with the Paris Agreement, yet approval appears to have now been steamrollered through for narrow financial reasons. A similar heavy-handed approach to approval of proposals for a second operational runway at Gatwick Airport and expansion of Luton Airport seems to be following suit.

Commitments to achieving ‘net zero’ climate-active emissions also appear to be under threat, ignoring the costs inherent in potentially existential climate instability and the lost opportunities of stimulating ‘clean technology’ investment.

The Government has suggested that hard-won progress resulting in a legally mandated requirement for biodiversity net gain (BNG) may be abandoned as a constraint on built development.

We have also seen relaxation of long-held limitations of development in green belts, conveniently and ambiguously reframed as ‘grey belt’ in a revision to the National Planning Policy Framework to release formerly protected land perceived as a constraint “...to deliver the Government’s commitments to achieve economic growth and build 1.5 million new homes”.⁷

Whilst there may be a case that some appeals against development proposals are

based on the ‘Nimby’ (not in my back yard) effect, a statement that all objections need to be limited so as not to constrain the holy cow of the ‘growth’ agenda ignores the fact that some have very real environmental and/or social cases to answer.

Meanwhile, controls on the adverse environmental consequences of farming activities appear to be under review, and water service company bills have risen by a record percentage as a reward for manifest historic failures to invest in infrastructure whilst water service companies have taken money out of the businesses in the form of substantial, often tax-free dividends much of which flows overseas to foreign owners.

The need to invest more in defence consequent from US withdrawal of support for Europe is not inherently contentious, but raiding the UK’s already much-depleted international development budget to make up a great deal of the shortfall is a signal of growing unilateralism this side of the Atlantic as well as naivety that failure to support international development needs can deepen instabilities in turn increasing the need for defence expenditure.

Sadly, this is not new as, in 2013, the then UK Prime Minister David Cameron was reported via sources in his own Conservative political party to have ordered aides to “...get rid of all the green crap” from energy bills in a drive to bring down costs, abandoning a hollow promise to run the greenest government ever.⁸

Powerful multinational businesses, such as BP, rowing back on investment in renewable energy generation to chase the dollar through a refocus on searching for and extracting fossil fuels, spread this message of short-termism and self-interest around

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The growth agenda and sustainable development may be misrepresented as in opposition ... but the reality is that they are close bedfellows.

the globe, much as such institutions did in the 1980s, spreading the mantra of monetarism.

The influence of narrow monetarist thinking still runs deep in the minds of many political elites, and is embedded deeply in many business assumptions and norms as well as shareholder expectations.

Sustainable growth

In short, we are facing a resurgent era of unconstrained neoliberalism, rolling back environmental and social protections hard-won over a half-century.

Let us be absolutely clear that this cannot lead to the shiny outcome of ‘growth’ it claims to serve. The growth agenda and sustainable development may be misrepresented as in opposition by those who are ignorant or wilfully self-regarding with respect to short-term profit-taking, but the reality is that they are close bedfellows.

At its core, sustainability simply means the capacity to continue. If development practises undermine the social and environmental capital upon which they depend, there is no way that this self-extinguishing trajectory could be genuinely construed as growth.

The roots of trees and grass, and the base of food webs, are essential foundations for

stable ecosystems. They are also the nourishing foundations of secure and continuing flows of natural resources located in stable regimes in value chains are vital for sustainable growth.

Wider dimensions of sustainable development are not merely germane but vital to securing a trajectory of growth that does not ultimately exhaust itself. Dissociating ‘growth’ from foundational sustainable development principles is, ultimately, an oxymoron.

The contemporary world is far removed from the massively lower population levels and perception of resource limitations at the outset of the Industrial Revolution, from which many assumptions still underpinning industrial and agricultural policies and associated markets are still substantially unreconstructed.

There is though now unprecedented awareness and scrutiny of the environmental and social consequences of resource use. We also live with accepted or mandatory standards, such as ISO14001 or the EU Corporate Social Responsibility Directive, designed to enhance value chain sustainability.

Interestingly, compliance with these standards by business practices may now inherently conflict with sourcing from not only currently known pariah regimes but those withdrawing social and environmental protections.

It is possible that leadership from multinational businesses, whether defensively or as a matter of values-led commitment with foresight about how future markets will be shaped by changing environmental norms, could play a significant role in resolving the potential growth/sustainable development dichotomy in terms of determining with whom they decide to procure and trade.

In a world facing climate, biodiversity, pollution, equitable and other grave challenges at truly global scale, for which solutions necessarily requiring global collaboration, sustainable development is the ultimate democratic goal, potentially uniting us as an antidote to self-regarding unilateralism trends.

The role of the environmental sciences

Science is concerned with a quest for understanding and the application of best consensual knowledge to guide wise decision-making.

The environmental sciences address a broad sphere of interests in processes and consequences in all environmental media and natural resources as well as for human health and broader dimensions of wellbeing.

The environmental sciences are therefore foundational to understanding and policy formulation for sustainable development, including thereby inherently for durable growth. They represent the knowledge, and quest for improved knowledge, of the things that bind us as a collective human society.

Science also holds a mirror up to assumptions that narrow, financially

blinkered models of 'growth' are automatically societally desirable or sustainable.

It is essential that scientific realities underpinning the value generated by protection or regeneration of natural resources and other ecosystem processes, as well as societal infrastructure and understanding, are brought to bear upon decisions relating to whether something represents growth or, alternatively, the longer-term creation of disbenefits and liabilities and the unravelling of future security and opportunity.

The championing of robust environmental science is an antidote to, and the basis for calling out, 'fake news' and the 'post-truth agenda' raised as justifications for the world's retrograde steps.

Standing up for the importance of environmental science as a robust evidence base for policy formulation and delivery to meet human needs ethically, responsibly, safely and efficiently at this contested time is vital.

It is entirely relevant to a wisely conceived model of growth, also informing the basis of good business as sustainability pressures will increasingly impinge on former freedoms whilst also presenting new profitable opportunities in a much-changed world.

Promotion of scientific evidence is increasingly vital in the 'post-truth' world in which we find ourselves, wherein ideological diktat determines what leaders elect or choose to believe, dismissing inconvenient realities as 'fake news' whilst unfounded assertions go unchallenged by an increasingly sycophantic media and with

fact-checking abandoned by social media platforms currying favour with new political elites.

Manipulation of accepted societal norms is warping reality, including a resurgence of neoclassical ideas that misrepresent ethical and environmental protections as anti-growth.

Whilst social media has positive roles to play in democratising knowledge and making it readily accessible and communicable, it has also enabled a tsunami of untruthfulness, frequently now unchallenged or else uncritically accepted with the filters now removed from many social media platforms, promulgating misinformation (content that is incorrect), disinformation (content that is wilfully incorrect) and conspiracies.

And, with people increasingly reliant on social media as a principal information source – 56% of internet users in 16 countries frequently use social media as their primary source of news despite 68% indicating that disinformation was widespread on these platforms⁹ - unchallenged media can become pipelines for pervasion of unchecked opinions masquerading as ‘facts’ that further train internet search algorithms and artificial intelligence on an increasingly unreliable stock of what is and what is not verifiably true.

The more pervasive the misinformation and disinformation, the greater they will be promulgated digitally, tainting opinion and acceptance of self-interested deceptions.

The underpinnings of environmental and other forms of science have never been more necessary as a robust foundation for

society to draw together to address the many linked and daunting sustainability-related crises it now faces.

Championing progress towards a sustainable future

Let us not understate the reality: the resurgence of monetarism and dilution of societal and environmental protections is a war of two world views that have been in uneasy coexistence and partial accommodation over the past five decades.

Ultimately, environmentalism and a wider commitment to advancing sustainable development never was a mere ‘job’, but a values-led mission. A great deal of the progress we have achieved over the past half-century has been because public disquiet was focused, often by NGOs, to challenge and reshape mainstream norms.

Don’t expect to get paid to rock the establishment, but a trace of progress – bans on damaging pesticides and chemical weapons, child labour in supply chains, conflict minerals, non-recyclable single-use plastics, and many more besides – often had their roots in civil outrage.

Now is the time to make voices heard; to stand up as a champion for the environment and its vital supportive capacities.

It is essential that a concerted voice is raised to bring pressure to bear on policymakers from local to national and intergovernmental scales to champion the foundational importance of the environment and the needs of the diverse people who depend upon it now and into the future, such that growth is framed as optimally and

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We owe it to ourselves and on behalf of future generations to stand up to champion and defend this ideal and its underpinning scientific realities.

sustainably beneficial and not just favouring a privileged few with short-term profit disregarding net societal costs and consequences.

The evolving concept of sustainable development, most simply appreciated as a pathway of development that does not ultimately extinguish itself through ecological collapse and societal breakdown, is a vital agreement that has been accepted and enshrined in rhetoric around the world, if not put into proportionate action.

Though not initiated by it, understanding of sustainable development was most prominently framed and brought to global awareness by the ‘Brundtland Commission’ report ‘Our Common Future’ produced by the World Commission on Environment and Development in 1987,¹⁰ later endorsed at the

1992 ‘World Summit’ in Rio de Janeiro.

The framing of the ‘Brundtland definition’ of sustainable development, “...development that meets the needs of the present without compromising the ability of future generations to meet their own needs”, contains a deep and explicit commitment to intergenerational equity. This is a potent antidote to short-termism and is also neutral with respect to geographical range.

We owe it to ourselves and on behalf of future generations to stand up to champion and defend this ideal and its underpinning scientific realities in the face of this contemporary ‘war of the worlds’.



Sustainability is an existential concern; not a political debate

William Calendar, March 2025

The environment and sustainability are increasingly becoming politicised as parties in the US, the UK, and across Europe seek to build coalitions of support by deriding environmental action or challenging the necessity of responding to climate change.

This is a problem: sustainability is an existential concern, not a political debate. If we do not act, we all lose, regardless of the colour of our ties or how many favourable reactions we won on social media along the way.

Worldviews

Debate exposes us to other worldviews and values, allowing us to challenge and develop our own beliefs, better understand what others believe, and reach a consensus, compromising on the things that don't matter so we can achieve the things that do.

We value compromise between legitimate worldviews because it fulfils the ideal that we can connect and progress as a society, reconciling our beliefs so that all people benefit.

Yet there are some worldviews which we recognise are not legitimate. They are not legitimate because they demand that the rights of other people are lesser, or because conceding to them would cause irrevocable harm and go against our ideal that the world can be a better place.

With these worldviews, we do not compromise, because doing so divides people more than it unites them. These are values without value: they would pollute any unity derived from them with selfishness or hate.

Linear thinking has convinced us that short-term economic growth is a fair and desirable pursuit, with the potential to benefit all people. The truth is increasingly stark: growth today means recession for future generations. The more we consume now, the **less will be available in the future.**¹

Regardless of good intentions, decisions to preference raw economics over human lives or long-term sustainability and resilience are rooted in an ideology that says lives in the future matter less than lives lived today: 'we got here first, so we can take what we want and anyone who arrives later will have to make do with less'.

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The truth is increasingly stark: growth today means recession for future generations. The more we consume now, the less will be available in the future.

The economics of sustainability

Proponents argue that these beliefs have always been a part of human success. They haven't. While economics, trade, and capitalism are long-lasting, radical deregulation in pursuit of single-metric GDP growth is still young as a concept.

In the form of a Friedman-esque approach to total market deregulation, it's existed for less than fifty years, and those decades have been characterised by stagnating wages relative to the cost of living and repeated periods of economic crisis.²

Where these approaches are most prevalent, they are broadly unfair. The USA has seen rising wealth inequality since the 1970s when growth increasingly began to enrich the wealthy at the expense of the majority.³ The UK saw the same trend between 1980 and 2000. Even as wealth inequality has stabilised, the [attainability of wealth](#) remains unachievable.⁴

Internationally, inequality has dropped as countries develop, but developed countries fall into two stark camps: those that have retained relatively high equality and those that rebound into inequality, like the UK and the USA.⁵ Different countries face different fortunes, so we know that the choices we

make, and the emphasis we place on deregulation and growth, have real consequences for whether or not economics serves all of humanity.

Scientists know all too well the pain of a metric that no longer captures what it was meant to measure. Great efforts are expended in pursuit of indicators for biodiversity and water quality that have not led to meaningful gains for environmental quality.⁶

GDP finds itself in the same position: in the 2020s, it is often a better measure of the successes of the wealthiest, rather than of society as a whole.⁷

Even when growth does trickle down, any short-term successes are built atop a slag heap of environmental degradation, set to collapse and bury future generations if we do not act.

The impulsive pursuit of growth has no capacity to create a resilient society in the face of the interlinked environmental and social challenges facing our world.⁸

What we measure matters. If we continue to measure our success through a narrow, short-term economic lens, we will never take the opportunities to seize successes for society and our environment, either now or in the future.

Trade-offs

We live in a complex world, full of complex systems. There are sparingly few truly short-term or long-term decisions, just decisions with consequences both now and in the future.

Often, there are trade-offs between them: when we prioritise deregulation for rapid housebuilding now, we place additional strains on the people who will live in those houses in the future. We put them at risk of flood damage, limited access to water or power, or poisoning through the ground they live on and the air they breathe.^{9,10}

When we make decisions, we need to have these trade-offs in mind. Sometimes, money matters. Sometimes it is the most important thing that matters, but it isn't always.

We need to have a better collective understanding of the things that **bring value to our lives**, so we can keep them secure and make the decisions that safeguard them.¹¹

No matter how pressing needs are now, we cannot cater to them at the expense of future generations. We must accommodate both, for the simple reason that we were born into an abundant world and have a shared duty to afford the same privilege to future generations.

If we are going to meet that responsibility and cater to the needs of people living now and in the future, we urgently need to put plans in place.

Losing the middle ground

This is the frustrating truth: there is a very important debate to be had about how we deliver sustainable development in practice, but it gets lost when we focus on whether or not we should do anything at all.

Framing this as a debate confers legitimacy and importance. The idea that there is 'no smoke without fire' implies that there is equal validity to the views on either side, imagining the consensus lies somewhere between action and inaction.

In doing so, we over-privilege a tiny minority in these conversations. Just after the UK general election in July 2024, public support for reaching net zero by 2050 was 74%, with only 16% opposed.

Yet in the months that have followed the election, policy and media have given half the debate to less than a fifth of the population.¹² Rather than advancing public discussions on how we reach net zero in the next 25 years, which will have serious implications and require complex interventions, we have pandered to a minority and claimed it was necessary to reach a consensus.

Framing the debate in this way has real consequences. Many legitimate worldviews and values are now completely lost from the debate, as it becomes reordered around extreme positions.

Nature-friendly farming, which will be essential to a sustainable and fair land use transition, is often hidden behind positions which espouse either an entirely economic

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The natural world does not respond with rebuttal or political arguments, it responds through cause-and-effect ... The challenge of transitioning to a sustainable society is an existential threat for us, not for the planet.

approach to farming or the withering of food security for supposedly environmental ends.¹³ Rather than discussing how we can succeed together, the focus shifts to who will win at the expense of the other. As it does, the political pressure for funding nature-friendly farming decreases.

In the [IPCC's Sixth Assessment Report](#), an entire working group was devoted to the physical science basis of human-caused climate change, which is largely uncontroversial.¹⁴

This was valuable science and has produced important outcomes, but it absorbed a substantial amount of resources, all to reiterate what we already know: that climate change is happening, has been caused by human activity, and has immediate and pressing consequences. Nonetheless, few to none of those who disagreed with those conclusions had their minds changed by this monumental effort of collective science.

So what?

Proponents of economic growth at the expense of sustainable development may think that they can win the debate, reaping dividends while they stall collective action.

Yet this is not really a debate with other people; it is a debate against nature. The

natural world does not respond with rebuttal or political arguments, it responds through cause-and-effect. Environmental systems adapt, so if we don't move on, the world will.

The challenge of transitioning to a sustainable society is an existential threat for us, not for the planet. All too often, we isolate ourselves from the natural environment, not recognising that we are embedded within it, and reliant upon functioning ecosystems.

Natural degradation begets natural disaster, so those seeking profit will quite literally reap the whirlwind: natural disasters are not disasters for nature, they are disasters of nature, and all the disastrous consequences will be ours to bear.

Any perceived economic gains will be tribute to decreasing resilience and the overwhelming social and economic costs of a failure to deliver sustainable development.

We don't have to live in this bad future, but optimism has to be earned through action.¹⁵ Pessimism is a self-fulfilling punishment for idleness or ignorance.

We can still look after people without chasing growth at the expense of all other measures of human well-being. How we bring together different social, economic, and environmental goals is critical.

Yet we should remember, sustainable development is the outcome of those debates, not one side in them.

The SDGs are an internationally agreed upon approach to creating a world where people are healthy, fairly treated, economically prosperous, and living as part of a thriving environment.¹⁶ Their mere existence should be enough to convince us that there is a better way forward.

When we are burdened by failing systems, they are like chains around our necks. We can decline with them, sinking into the strangled depths, or we can let them drop away.

It is easy to believe that, because it was metal that once held the ship together, we should cling to it when we start to sink. Yet there is no buoyancy in chains, so we cannot blindly rely on them to keep us afloat.

This economic philosophy will not exist in 200 years. We still have a choice on whether or not humanity joins it: whether we overcome existential concerns, or whether we too sink into history.

A war of evidence

Professor Mark Everard, April 2025

In March 2025, I published an opinion piece, ‘[War of the worlds](#)’,¹ pointing to the diametric and increasing divergence of world views in 2025 geopolitics.

On the one hand is the progress we have made with sustainable development over the past half-century seeking, however imperfectly, to reorient society to live within the already diminished carrying capacity of global ecosystems. The countervailing trend is the re-emergence and political reinforcement of a narrow monetarist agenda in which short-term financial profit-taking rules supreme, disregarding the rights of different societal sectors and the capacities of ecosystems to sustain the inevitable pressures we will place upon them through wilful blindness about consequences.

This article delves deeper into the belief systems behind this divergence and the importance of evidence in determining which approach offers humanity a future, contrasting with other directions that undermine our continuing potential to achieve secure and fulfilled lives.

We are *Homo sapiens* – the ‘wise hominid’ – with evolved mental capacities to guide ourselves wisely with evidence and foresight. And, in our armoury, we have science to better guide us to reap the benefits of different ideologies without falling into the trap of fundamentalism or for closed ideologies and mindsets to blind us to the unforeseen consequences of the choices we make.

Conflicting ideologies

The term ‘ideology’ was coined and developed in 1796 by Antoine Destutt de Tracy (1754-1836), a French Enlightenment aristocrat and philosopher. The term was most strongly articulated in his five-volume *Éléments d’idéologie* published between 1817 and 1818.

Though today often associated with political science, wherein it refers to political belief systems, de Tracy’s definition of ideology embraces a broader and deeper articulation relating to a set of beliefs or values affiliated to individuals or collectives. Karl Marx and Friedrich Engels applied the term principally in a condemnatory manner in relation to the mindsets of ruling elites.

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An open ideology is receptive to learning, even if that learning is uncomfortable, as it provides direction for improvement. ... A closed ideology rejects inconvenient truths by overlooking or burying them.

This condemnation though was spoken from a contrasting ideology, known now as Marxism-Leninism and which was to become the communist doctrine established after the Russian Revolution. Whilst, for some, the condemnatory sense remains, the neologism of the word itself conveys a value-neutral ‘study of ideas’ by combining ‘ideas’ and ‘-ology’.

Ideologies appear everywhere. They associate not only with governments and political parties as well as factions within them, but also within companies, the basis for decision-making about allocation or rejection of research and development funding, and the steerage of ‘spin’ in communications through media of all types.

Brand identity is another manifestation of ideology, with different brands marketing the idea that certain products associate consumers with lifestyle choices that can range from a statement of status to one of ethically and/or environmentally conscious consumption.

Sustainable development is itself an ideology, founded on an idea of socio-economic development that can succeed in the long term without undermining its social and environmental dependencies.

As also described in ‘[War of the worlds](#)’, so too is a narrow monetarist set of ideas that promote material wealth generation, with a perception that wider ethical and ecological

considerations are constraints on a narrow financial model of ‘growth’.

The concept of ideology may be value-neutral, but differing foundational ideologies, and the actualisation of underpinning beliefs and world views into material and societal forms, may be founded in facts and/or beliefs, social and environmental considerations, or else wholly divorced from such groundings.

Open and constraining ideologies

Some ideologies are open, whilst others as constraining.

An open ideology is receptive to learning, even if that learning is uncomfortable, as it provides direction for improvement. Famously, former US Vice-President Al Gore challenged the global status quo with his 2006 book *[‘An Inconvenient Truth: The Planetary Emergency of Global Warming and What We Can Do About It’](#)*,² documenting a suite of linked ‘inconvenient truths’ revealed by temporal trends across a variety of environmental and social parameters all of which conform to an accelerating ‘hockey stick’ trend over time and particularly since the Second World War.

This, and the film that was developed from the book, is one of many examples of ‘wake

up calls' escalating awareness of the need (if not yet matched by proportionate action) for a change in societal habits if we are to continue to enjoy continuing security and opportunity.

So too were the revelations and influence of the 2005 Millennium Ecosystem Assessment³ and periodic reports by authoritative science-based bodies such as the UN Framework Convention on Climate Change (UNFCCC)⁴ and the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES),⁵ not to mention a wealth of regional and local studies demonstrating trends and informing wise responses to live within the carrying capacity of planetary systems.

Sustainable development, still most elegantly defined by the consensual 1987 **Brundtland Commission** as "...development that meets the needs of the present without compromising the ability of future generations to meet their own needs",⁶ is an inherently open ideology.

What are the needs of humanity, both now and those that may arise in the future that may not be currently known but for which it is vital to provide a platform of security and opportunity? And how are needs met in a world in which people are intimately interconnected with planetary processes and resources?

What is the status of, and trends within, the supportive ecosystem, and how might that inform strategic decision-making that sustains security and opportunity whilst also guiding modification of enterprises to profitably provide the means for people to meet needs ranging from basic biophysical requirements to higher tiers of need now and tomorrow?

Environmental, social and other sciences along with societal discourse have a vital role in shining a light on these open questions.

By diametric contrast, other ideologies are closed. A closed ideology rejects inconvenient truths by overlooking or burying them, or else branding them as revolutionary or, in the modern era, as 'fake news'. It ignores such factors as market and environmental indicators, public health and opinion, distribution equity and other metrics that conflict with the ideology.

Some ideologies throughout history and into the present are aggressively repressive, rejecting or actively suppressing all conflicting alternatives.

Sadly, history abounds with examples of blinkered ideologies, and with their unfortunate consequences. Chairman Mao Zedong's 'Great Leap Forwards' of 1958–1962 imposed inflexible ideas of collectivised agricultural and manufacturing models, rejecting ages-old proven systems and contributing to the starvation of tens of millions of Chinese people, leading on to perception of intellectuals as the greatest enemy to the state under the Great Cultural Revolution (1966 and 1976) cumulatively resulting in the deaths of an estimated 65 million Chinese people through execution, imprisonment or forced famine.⁷

The Soviet famine of 1930–1933 was driven by the similarly inflexible imposition of collectivised agriculture allied with massive investment in heavy industry depleting the agricultural workforce, with the brutal silencing of dissent under Joseph Stalin's 'Great Purge' (1936 and 1938) sequentially suppressing opposition in the political arena, military high command, and

extending onwards to intelligentsia and other professionals and ultimately selected ethnic minorities.

These examples are reiterated in repressive regimes founded on closed ideologies driving the Inquisitions of medieval Europe, Adolf Hitler's 'Third Reich', South Africa's apartheid era and the Taliban in Afghanistan.

Intellectual, gender and other rights, faiths and other ideas contrary to a narrow ideology have been brutally suppressed under these and many other regimes driven by closed, authoritarian ideologies.

The millions who lost their lives under Joseph Stalin, Mao Zedong, Hitler, and others bearing a grim warning to humanity of the dangers of a closed ideology blind to facts and consequences.

Contrary to these repressive examples, initiatives such as the [1948 UN Declaration on Human Rights](#),⁸ the [2015 UN Sustainable Development Goals \(SDGs\)](#)⁹ and a wide range of intergovernmental conventions on wetland conservation, transboundary pollution, trade in endangered species, persistent pollutants, action on climate change and more have formulated consensual multinational frameworks around open-minded ideologies in response to emerging threats of a global nature.

In many nations, we have seen statutory erection of protections of rights relating to gender, disability, faith, sexual orientation, age, freedom of speech and of association and other factors that have become cemented in law as 'protected characteristics'.

Ideology and opportunity

This is not to say that ideologies are bad things. As we have seen, [sustainable development](#) is an ideology framed by desirable progression to a world in which security and opportunity for all is enabled through working in greater synergy with the supportive capacities of planetary ecosystems. The defining issue though is one of fundamentalism.

Though the term 'fundamentalism' may often be most closely associated with religious beliefs, it is also another concept with wider application and ramifications relating to inflexible interpretation of dogmas or ideologies.

Religious intolerance as well as many instances of 'ethnic cleansing', in which the champions of powerful ideologies execute pogroms against perceived outsiders or opponents, have a bloody history. Perceived infallibility is not the sole province of religions; it is seen in fundamentalist politics too.

At a lower level, rejection of good ideas held by opposing left-wing or right-wing political parties means that resolutions and the rule of good common sense is lost in public policy.

It is, in fact, the absence of thought that is the enemy. Monetarism has its virtues in terms of the efficient working of markets, but only if bounded by awareness of the interdependence of markets and values chains on supporting ecosystems and the rights and choices of those affected by them. Religious ideology can carry moral weight into personal lives and public decision-making if not blinded by

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Science has a distinctive role to play in keeping the windows of perception open as an antidote to fundamentalist blindness. For those with open minds, the disruptive power of new knowledge may be challenging but is welcome as a matter of ‘course correction’.

narrowness and hatred for what contradicts a restrictive dogma.

Even those perceiving themselves as ‘on the side of the angels’ can fall foul of fundamentalism blinding them to sustainable outcomes, such as eco-extremists closed to alternative world views and willing to inflict harm on people in the misinterpreted name of environmental and social justice.

It is also true that the mission of environmental protection or enhancement can get lost in translation though the corporatisation of some environmental work, as seen for example in the critique of some consultancies as well as some NGOs focused on profitability or continuing funding as an over-riding priority beyond driving optimal environmental outcomes.

The role of science

Science has a distinctive role to play in keeping the windows of perception open as an antidote to fundamentalist blindness. For those with open minds, the disruptive power of new knowledge may be challenging but is welcome as a matter of ‘course correction’.

For those with closed minds, knowledge threatens constructed or preferred ‘realities’.

This is why intellectuals were in the firing line in Mao Zedong’s China and Joseph Stalin’s Russia, not to mention the widespread de-funding and cancellation of working visas and academic tenure in contemporary America, as knowledge challenges fixed dogmas.

Rejection of the threat posed by climate change, ignoring or dismissing both the weight of consensual global science on the matter as well as those who address it in political, media and scientific discourse, is one of many features in post-2025 American politics blinkered to unreconstructed monetarist policies that disregard their wider consequences for future wellbeing.

The setting back of carbon reduction targets along with other environmental protections in the UK and other nations in the name of a ‘growth, growth, growth’ agenda is also a disservice to future generations if clear evidence about the magnitude of threat and the need for timely actions evident from scientific studies are taken seriously.

The same principle applies to turning a blind eye to the robust and consistent evidence of precipitous declines in [biodiversity and associated ecosystem services](#), as well as the accumulation of pollutants.

We are not talking here about a ‘pick and

mix' approach to science, clothing preferred ideologies with selective mobilisation of 'factoids' such as a focus on uncertainties around detail or areas of disagreement within an otherwise broad and consistent consensus as observed, for example, in the cascading sequence of UNFCCC reports.

Rather, there is a need for a balanced and critical approach to all evidence, both supportive and conflicting, to derive a consensual view along the lines of the 'systematic review' approach embedded in medicine and increasingly infiltrating other areas of science.

Where the evidence is compelling, it is only the blind and self-serving that choose to disregard or deny it.

What future do we want?

Are contemporary political decisions that reject multinationalism and intergovernmental conventions addressing the raft of **grave and potentially existential threats** at this axial point in human history—climate change, biodiversity loss, human rights abuses and pollution – consistent with responsible governance?

Is naïve but ideologically driven rejection of hard-won protections responding to robust environmental facts in the name of releasing short-term financial profitability likely, ultimately, to build a world of security and opportunity for all? And can rejection of measures to counter racial, sexual and other forms of discrimination ultimately lead us to a safer and more stable world?

Let's be clear that we all want a future that is 'Great again'. But 'great' for whom, and who are the potential losers that surely

deserve consideration alongside the beneficiaries? If 'again', when exactly was it rosy for all in society? And if referring to the future, what are the factors that need to be considered to underpin continuing 'greatness'?


Surely, practices that marginalise communities and degrade supporting ecosystems undermining the needs of future generations and the processes vital for supporting their needs into the future cannot be part of any sane vision of 'greatness'?

If we want to build a future that is secure with continuing opportunity for all, we cannot be idle in the face of powerful forces at play today that threaten to dismantle progress made in reforming society over the past half-century.

At this juncture in history, this is a time for those who stand for the rights of humanity and the values of the ecosystems that support us to join with a concerted and science-based voice to be strident in championing the now-embattled cause of sustainable development.

As, if we have learned any lessons from throughout history, it is that it is not only what we positively influence but also what we passively sanction through lack of action that defines the future.

“We must consider how we as environmental scientists can inform the development of a society that is in harmony rather than conflict with our natural world.”

The background features several abstract, overlapping shapes in shades of yellow and orange. A large, rounded yellow shape is at the top left. Below it, a white shape with rounded ends is partially visible. Further down, a yellow shape with a pointed right side is outlined in orange. A horizontal orange line spans the width of the page, with a rounded orange shape extending downwards from its right end. At the bottom, another yellow shape with rounded corners is outlined in orange, and a horizontal orange line is visible at the very bottom right.

The false dichotomy of environmentalism vs wealth

Mary Davis, May 2025

Environmental action is often framed as coming at a cost to society. This is despite **overwhelming evidence of the costs** that are likely to arise from inaction on environmental challenges and represents a disconnect from the importance of healthy ecosystems and the ecosystem services they provide for human wellbeing and wealth.¹ This is without mentioning the inherent value of the natural world.

Proponents of deregulated capitalism would have you believe that environmental action will make you poorer. That investment in green energy, green infrastructure and nature-based solutions comes at the expense of societal and individual financial growth. Whilst discouraging environmental action through a focus on short-term financial gain, deregulated capitalism encourages overconsumption, deepens financial inequality, and causes untold environmental damage.

2024 was the first year that global temperatures exceeded 1.5 degrees above pre-industrial levels.² At the same time, **wealth inequality within countries is growing**³ - in the UK the wealth gap has

increased by nearly 50% in the last 8 years,⁴ and global poverty rates are once more on the rise.⁵

Deregulated capitalism at its core drives environmental damage. The environment under this system is either commodified, and therefore overconsumed, or is seen as something to be used as an endless resource or as a dumping ground to drive profit and efficiency.

Many of these issues stem from the narrow way that we define wealth in western society, driven by our financial system. Shareholder profit and growth are the ways we measure wealth, but what if we reimagined what wealth actually was? This would support us in developing a new economic model that properly recognised the value of the natural world and the tangible and intangible benefits it brings.

Creating a new vision for wealth that is more holistic and recognises the importance of wellbeing, access to clean air and water, community cohesion, health and security would support us to make decisions that support long-term wellbeing and resilience for all communities, not just the richest.

It would help us to recognise that we exist as part of a wider ecosystem, which we are dependent on for survival, and therefore that environmental action is not a cost to be borne, but the key to unlocking greater wealth for all.

Inequality and division

The narrow definition of wealth used by deregulated capitalism means that the impact it has on society and the environment are not properly recognised and attributed. As long as shareholder value increases, all is rosy.

The focus on profit maximisation leads to an exploitation of people and the environment and is a contributing factor to [wealth inequality in advanced economies](#),⁶ which in turn drives social division.

The system also goes one step further. In a so-called meritocracy, it tells you that you can achieve what the richest achieve, as long as you work hard enough for it. This is important, as it shifts the narrative away from holding corporations culpable for their negative impacts and instead shifts the blame to one of personal achievement or failure.

This embeds further the focus on individuality and individual action within a capitalist system. By shifting the focus from societal wellbeing to individual wellbeing, it places the onus on the individual to build wealth and support societal improvement.

It also helps to sow division, as it leads to the idea that society is competitive rather than collaborative. We are seeing this play out on the global political stage with rising political polarisation and populism, often

with harmful rhetoric blaming societal issues on marginalised communities or other groups, shifting the focus from corporations and governments.

Inequality, and the negative outcomes of inequality, are therefore often weaponised by governments and corporations as a reason for not taking environmental action, with environmentalism being framed as too costly given other societal challenges.

This focus on individuality is often reflected in environmental action too. We need to take responsibility for recycling, we should buy the sustainable options, and make sure we don't take too many flights.

Although individual action is important and a key part of the solution, it will not be enough to drive the transformational change that we need. Social cohesion and collaboration are essential to tackling the wicked problems facing society and supporting a just transition.

No, reusable coffee cups are not the answer

As public awareness and interest in the environment and sustainability grows, we have seen the rise of a new type of consumerism – eco-consumerism.

When purchasing products, making more sustainable choices should be encouraged. To do so we need robust information on the environmental credentials of a product, in terms of where it was made, what materials were used, and its ability to be part of a circular economy. In the absence of proper certification for “eco friendly” products, people must trust organisational labelling of products, which can be misleading.

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Deregulated capitalism, even when centred on more sustainable products, is premised on the need for encouraging more consumption and more spending.

For example, sustainable fashion choices have been criticised, with a recent screening of sustainability claims in the textile, garment and shoe sector suggesting that 39% could be **false or deceptive**.⁷

This also doesn't get to the root of the issue, which is that we are all just consuming too much. Deregulated capitalism, even when centred on more sustainable products, is premised on the need for encouraging more consumption and more spending.

This way of living is not aligned with sustainable principles and there needs to be a cultural shift to change our consumer patterns that aligns with a sustainable future, one that is predicated on the circular economy and encourages a reduction in overall purchasing.

This again underlines the importance of social change, not just individual change. Consumer pressure cannot alone push forward the transition to a sustainable society – fundamental changes to our social and economic systems, supported by government regulation, are needed for this.

The power of social movements

The 20th century has seen many examples of transformational social change. Be it women's enfranchisement, the civil rights

movement, or the work to secure LGBTQIA+ rights, social movements have often been at the helm of changing social norms and subsequently achieving legislative change.

Social movements related to the environment are notoriously difficult, as they are often wide-ranging with less clear goals and milestones. Nevertheless, social movements and their role in shifting social norms have an extraordinary power for catalysing change, if they are used effectively.

This is where environmental scientists come in.

Social movements are dependent on effective coalitions – you need the right mix of expertise to drive change effectively.

Firstly, the public needs to be equipped with access to evidence and knowledge so that they can make informed decisions and build evidence-informed plans/strategies for achieving their goals. They then need to be empowered to drive change through their actions, which are supported by trusted information and trusted individuals to build credibility and momentum and allow for adaptation in response to changing evidence.

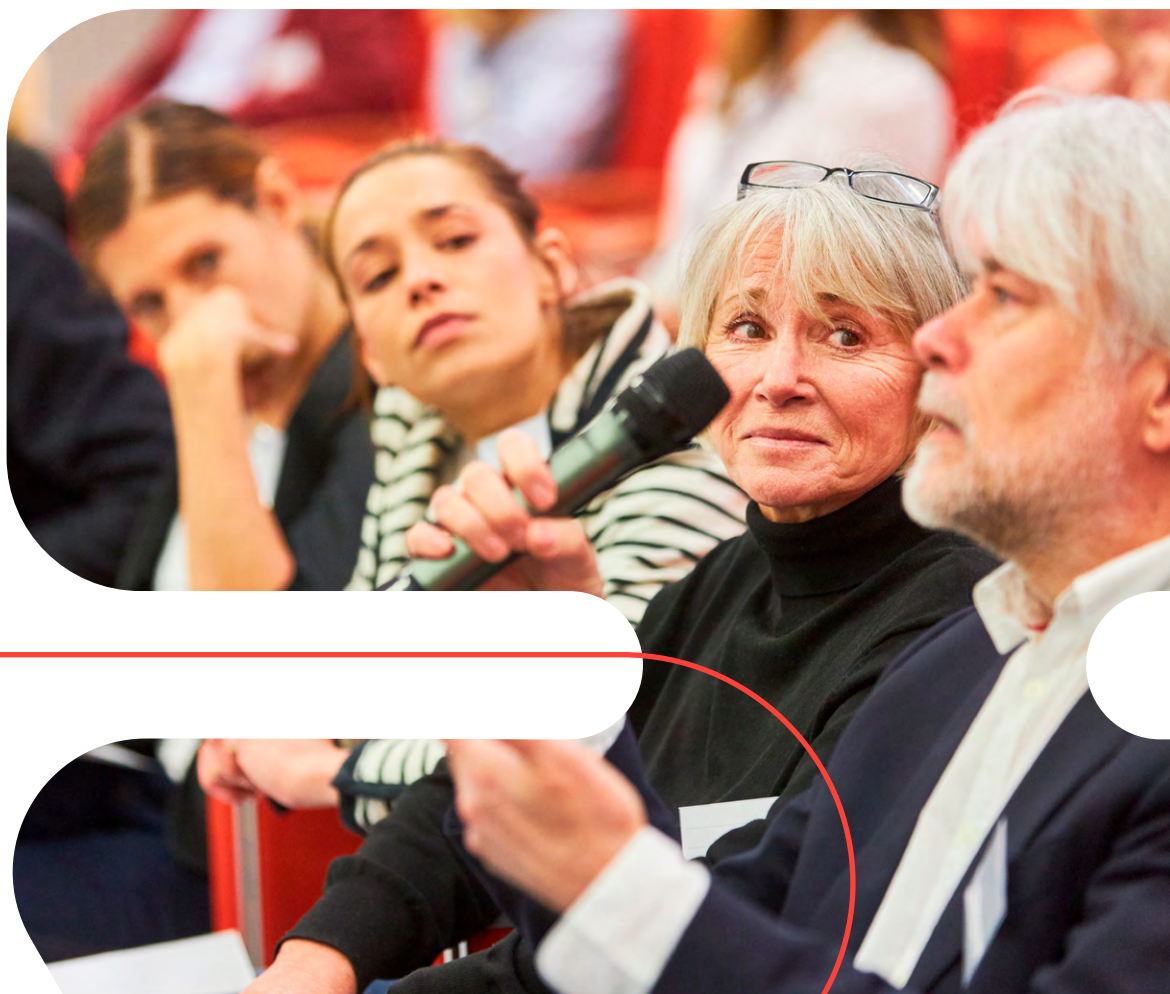
Environmental science and those working in the field can not only provide the evidence needed to inform decision-making but can also support others in thinking critically in

an age of disinformation and by translating this evidence into tangible actions.

Building connections across other disciplines to drive change will be key. Environmental scientists should seek to engage with social scientists and NGOs, those who have expertise in working with communities and stakeholders, so that environmental action and campaigns can be supported by robust data and evidence.

Environmental scientists should also seek to work with economists and policymakers to outline the evidence that can support the development of feasible pathways to achieve a sustainable society.

As the debate continues on whether we should be pursuing green growth or a degrowth agenda, it is critical that environmental scientists are involved in these conversations and champion a science-led approach.



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“The great movements of the past century have won by taking issues that were unpopular and **changing the boundaries of the politically acceptable**, so that advances which previously seemed impossible were made inevitable.”

Engler and Engler

This is an uprising, 2016⁸

What key actions can environmental scientists take to support change?

- **Fill the evidence gaps** where they are needed – consider how your work can fill a knowledge gap and who you should be engaging with to use this evidence.
- **Engage across disciplines and sectors** – get involved in inter- and cross-disciplinary networks to support the mobilisation of key stakeholders and drive meaningful, evidence-informed change.
- **Upskill in communication and influencing** – consider how you can drive change in your own sphere of influence as an important step towards effective knowledge exchange.
- **Step out of your silo** – Understand the wider context in which your work sits. You cannot create an ecosystem for change if you only focus on one part of the system.
- **Be part of a unified voice** in the scientific community to tackle disinformation and maintain a solutions

focus – environmental expertise must be at the forefront of the transition to a sustainable future, take part and have your say in fora and discussions.

As we experience a rollback on environmental protection, rampant inequality and increasing political polarisation, we must consider how we as environmental scientists can support social change and inform the development of a society that is in harmony rather than conflict with our natural world.

Effectively communicating environmental science and using scientific evidence to inform environmental action can help change stakeholder perceptions, identify the correct levers for change, and support the development of a social movement that is grounded in science and evidence, rather than political acceptability, leading to better outcomes for all.

Constraints as opportunities

Professor Mark Everard, June 2025

My March 2025 opinion piece, ‘[War of the worlds](#)’,¹ drew attention to geopolitical trends rejecting or deferring a range of commitments relating to sustainable development in favour of ‘old school’ unreconstructed monetarism, opting for an anachronistic model of blinkered, financially framed growth overlooking the inevitable generation of adverse social and environmental consequences.

The ideological drivers of this war of world views were expanded in my follow-up May 2025 opinion piece ‘[A war of evidence](#)’,² highlighting the importance of existing and new scientific knowledge as an antidote to wilful or unintended blind dogma descending into fundamentalism.

Since that time, we have seen more protectionism driven by a narrowly competitive economic rationale that is totally divorced from inevitable environmental and social consequences that will, in the longer term, not only constrain continued profitable enterprise but also blight future generations at this pivotal time in human history.

A dogmatic monetarist paradigm rejects state or other interventions intended to internalise the diverse ramifications of profit-generative ventures upon the socio-ecological system from which it is indivisible.

This comes with an implicit, though often more recently explicit, assumption that such environmental and social consequences are inconsequential ‘red tape’ constraining societal progress measured in narrowly financial terms.

Gross Domestic Product (GDP), as an example of a widely used metric around the world, purely quantifies economic throughput without accounting for distributional benefits and disbenefits or longer-term ramifications. The beneficiaries of profit generated in the short term are insulated by current market systems from the blood and lasting devastation entailed in their production.

Whilst such myopia may serve the interests of western oligarchs, this form of short-term monetarist profit-taking is subsidised by the myriad non-beneficiaries of the widely discredited ‘trickle-down effect’ particularly including the least powerful in society and especially future generations

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There is a flawed view that environmental and social responsibility is all about what we do not do, portrayed as modern-day ‘sackcloth and ashes’. Nothing could be further from the truth.

reliant on dwindling supportive environmental capacities.

Informed by awareness of the widely evidenced declining trends in natural resources of all kinds – mined, biological, fresh water, productive soils, the dispersive capacities of all media – there is a pressing need to modify assumptions and practices not merely to recognise and then lighten burdens on supportive ecosystems but, urgently, to progress further to regenerate their capacities enabling them to continue to sustain societal needs into the future.

There is a flawed view that environmental and social responsibility is all about what we do not do, portrayed as modern-day ‘sackcloth and ashes’. Nothing could be further from the truth as human needs will always require fulfilment.

The trace of human history reveals how encountering and addressing limitations to meeting a range of needs has generated cascades of revolutions in the use and innovation of materials, novel agricultural and industrial processes, medical advances and international trading, information storage and communication, and diverse other means.

Recognition of inevitable constraints consequent from the declining supportive boundaries of the natural world are therefore powerful stimulants of new

thinking as well as innovation of novel products, technologies and use practices to meet humanity’s continuing needs in the shifting future operating environment.

Far from ‘sackcloth and ashes’, welcoming what science clearly indicates about inevitable changes in that operating environment shapes new opportunities for meeting needs, both commercial and societal, and hence profitable means to address them in a future in which the ‘rules of the game’ may be as dissimilar as today’s norms are from those of medieval times.

Natural constraints

The narrow monetary-bound model would work just fine if we didn’t live on a planet.

However, the unavoidable biophysical reality is that all of us live within the beneficence of finite planetary cycles that generate the multiple services supporting our biophysical needs: clean air and water, safe and adequate food, ambient climate and many more dimensions besides.

There are **finite boundaries** to the capacities of ecosystems to supply resources, particularly those such as oil, phosphorus, soil fertility and more that are deposited or generated by slow processes over geological timescales. These finite limits also apply to the capacity of natural systems to yield

harvests such as from intensive capture fisheries or farming practices.

There are also finite boundaries to nature's capacities to assimilate and reintegrate waste products without detriment to climate, aquatic ecosystems, landscapes and biodiversity.

The old analogy of 'travelling first class on the Titanic' is appropriate to our situation. Whilst elites may be cosseted from the consequences of breaching nature's limits through their greater economic and political power, breakdown in the socio-ecological system will ultimately affect everyone through collapses of resource flows, shifting societal expectations and tolerance, associated economic performance, public health dependent on a healthy environment, and the potential for insurrections or other civil rebellions in the face of punitive inequities.

Some societal practices already acknowledge and respond to natural constraints. Catchment management practices, for example, are founded on acknowledgement of water as a geographically bound, limited resource.

Best-practice forestry and fishery management accept and adopt the concept of 'maximum sustainable yield', reflecting natural limitations to productivity beyond which degradation or collapse of these otherwise renewable resources can be anticipated.

Controls on the pollution of urban air and water bodies reflect feedback loops to public health and utility. At biospheric scale, awareness of the potentially existential threat of runaway climate change has also slowly been focusing global

attention on the importance of decarbonisation though, in this case, proportionate reform of policy and practice are yet to follow and denial by selfish interests is blighting the future for all.

Rejection of consensual scientific realities, either by dismissing them as 'fake news' as they do not fit a closed ideology or through the less honest setting back of prior commitments to control climate-active emissions as constraints upon 'growth', risks instabilities in the 'common to humanity' atmosphere with inevitable ramifications that vary geographically and with differential effects across societal sectors.

This careless and uneven approach to controls on gaseous discharges destabilising the global common of the climate over longer time horizons – including its implications for flood and drought, food security, the spread of diseases, biodiversity collapse and other consequences – would not be so readily tolerated were feedback to be more directly felt locally and in the immediate term through nationally or regionally bounded systems.

Despite variable awareness of natural limits, historic and unreconstructed legacy natural resource use practices founded on prior ignorance of the finite bounds of supportive planetary systems continue today to degrade or deplete productive soils and capture fisheries, to mine and generate emissions from limited phosphorus, oil and other resources, and to perturb the climate system with feedback into greater incidence of storm, flood, drought and other severe weather damage.

These factors all highlight that the time is long overdue to respond strategically to lessons about natural limits to consumption and disposal as, for example, exposed to the wider world well over five decades ago by the Club of Rome's seminal [The Limits to Growth report](#) of 1972.³

Rejection of the very concept of finite limits to growth though continues to operate today in pariah political regimes, as also by legacy industries established in a less aware era during which a historically uneven model of development was the norm and when consequences for wider constituencies including future generations were largely overlooked.

The act of denying these finite bounds though also has a finite trajectory, ultimately culminating in a metaphorical tax on over-exploitative activities through, for example, their contributions to increasingly frequent and intense instances flood, storm and fire damage.

Regrettably though, it is all of us, now and tomorrow, who pay the tax levied from the actions of today's myopic profit-generators.

Historic advantages reaped by early adopters of industrialisation still enable some countries to evade the worst excesses of breaching finite biospheric limits, at least for a time. Measures enabling these early industrialising nations to become richer by taking a greater share of global resources were initially entrenched by empire-building or other forms of resource appropriation at favourable rates.

In the modern globalised economy, imperialism is alive and well enacted through economic means, for example by exertion of political and economic might to

procure resources on favourable terms and the outsourcing of production to less advantaged global regions where lower labour costs and, not infrequently, laxer environmental and social protection policies are in place.

Some political regimes still choose wilfully to dismiss or ignore these finite boundaries, trading on their uneven economic might and castigating the notion of natural limits and protective regulations and conventions as mere inventions to derail competitive financial progress.

The wealth of contemporary science though makes it very clear that planetary, catchment and other scales of ecosystems are undeniably finite.

Today, the linked crises of climate change, biodiversity and pollution are gaining awareness and featuring at least sporadically in political rhetoric.

The evidence is abundantly clear that unavoidable feedback from breaching the natural limits of supporting ecosystems, including primary resources and waste assimilation amongst other factors, requires humanity to radically revise established norms.

Growth

Inherently, growth is no bad thing. It is in fact vital to address the needs of a growing global population with rising mean per capita consumption met from a natural resource base that, the evidence clearly demonstrates, is already substantially degraded and in continuing decline.

It is, however, the model of growth that determines whether it can endure or if it

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will ultimately butt up against and be arrested by finite limits of resource availability and societal acceptability.

This applies as a global reality, but also a commercial one as over-dependence on dwindling resources and overlooking downstream consequences can only drive costs upwards and generate unintended externalities with associated liabilities.

Viewing the dwindling base of natural resources and other aspects of supporting ecosystems purely as annoying constraints brings with it significant risks.

Unreconstructed resource use patterns and operational norms will lead to companies scrabbling around competitively for scarce and increasingly expensive primary resources to perpetuate 'business as usual'. It will also blind them to shifts in the acceptability of inevitable negative impacts on ecosystems and people by downstream value chains, consumers, markets and regulation.

Take, for example, the literal and metaphorical sea change in attitude to single use plastic items contributing to the accumulation of offensive marine litter that, regardless of crass rejection of phasing out the use of disposable straws in the US in 2025, has and will in the longer term continue to fundamentally shift consumer behaviours.

Pursuit of blinkered growth can, regardless of how it may put money into the pockets of a privileged stratum of society in the short term, only resolve in longer-term decline in the face of shifting market norms.

Wiser, then, to embrace the functions and finite limits of planetary systems as opportunities.

How can they help us reframe thinking about wise use and stewardship of declining resources, guiding the innovation of benign, regenerative circular practises and durable, efficient products delivering upon human needs over long service lives and without encountering obstacles at the end-of-life phase? How will operating in growing symbiosis with supporting ecosystems and those inhabiting them help us innovate the different but profitable products and services required to meet continuing human needs in an inevitably different future?

This is a different conception of growth and commercial development: the basis of sustainable development and a more foresighted approach recognising natural constraints as commercial opportunities to service human needs in novel ways that evade the hazards of a world that, the evidence of environmental limitations tells us unambiguously, cannot be the same as yesterday or today.

A fork in the road

A war of world views is being played out in real time across the current geopolitical landscape, each faction heading in a radically different direction.

One path assumes that natural limits do not exist, and that distributional equity is unimportant, seeking to maximise short-term wealth generation at least for those nations, individuals and societal sectors with the assets so to do. We are seeing both overt but also more stealthy abandonment of such perceived constraints as social and environmental protections wrought through many decades.

The evidence is clear though that this is not so much a path as a cul-de-sac, founded as it is on an inevitably self-extinguishing model.

Scientific evidence documenting and modelling limits to resource availability, accumulation of waste and other pollutants, accelerating degradation of ecosystems and natural productive and supportive processes highlight that this myopic pursuit can only result in a blight on the security and opportunities handed on to succeeding generations.

Some, the privileged subset of people, may ride first class, but the ship is sinking. I have seen corruption in much of my work across the developing world, most overtly how the great promise of post-apartheid South Africa, where I worked as a government advisor on visionary water reforms, was buried, perhaps irretrievably, by an incoming political regime intent only on self-benefit.

The anger I feel about that destruction of a rainbow promise to all the people of that rainbow nation is not so different from what I feel now about the disenfranchisement of the powerless, including in particular future generations, in the contemporary world.

We owe them better, and judgement from future generations of the imposition of wilfully selfish short-termism today will not undo the damage being done already. We custodians of the present must not allow it to further poison humanity's future prospects.

The alternative path heeds the evidence that perpetuation of inherited norms and assumptions, if unreconstructed in the light of knowledge of nature's supportive capacities, are generating, and will increasingly generate, major and potentially permanent degradation of productive systems and consequent opportunities for the security and health for future generations.

On this open-minded pathway, knowledge of these limits shines a guiding light for innovations – dematerialised approaches, renewable and circular resource uses, ecologically sympathetic soil and water management practices, awareness and valuation of the myriad supportive functions of nature – as human needs will surely still require servicing in a future that is inevitably different from what we have known to date.

To wiser, foresighted innovators will come the rewards of preparing proactively to serve those novel markets safely and efficiently, averting the costs of having to react to changes as they impose themselves.

Continuing profitability will stem from recognising that humanity's needs have to be serviced differently as environmental and societal megatrends reshape the operating environment.

As certainly, 'dinosaurs' in denial of a changing operating environment – both companies 'too big to fail' but inflexible to new realities as well as nations abandoning global social and environmental protocols that may see them excluded as acceptable trading partners under ISO certifications – will go the way of the non-avian dinosaurs when asteroid impact profoundly changed the planetary environment approximately 66 million years ago.

Standing up for sustainable development

The corporate sector is often targeted by NGOs and the media as principally to blame for pressures on the environment.

Ironically, people tweet and otherwise communicate their ire on smartphones, computers and associated networks, print media and other products provided by business. In reality, business is merely the device that capitalist society has accepted as its model for the alchemy of turning base resources into useful products to service societal needs.

All of us, across all sectors of society, are complicit in the flows of materials and energy across entire product life cycles. All of us benefit from being part of life cycles flowing from raw material extraction through manufacture, distribution, use and maintenance, to end-of-life use recovery or disposal.

All sectors of society – public, private, voluntary and knowledge-providing – therefore have roles to play and agency to influence across product life cycles.

The potential to engender change is most powerful when energies can be joined up across sectors to reject ultimately destructive norms and the will of those who benefit from promulgating them, and instead to inform and drive innovative shifts towards foresighted and optimally consensual goals required in an inevitably changing world.⁴

For the ignorant and/or the wilfully blind, knowledge about the nature of likely change informed by tested evidence is a threat to a fixed ideology and is therefore something to be denounced or ignored. For the wise, it is a guide on how to service humanity's continuing needs in a more efficient, safe and profitable way as pressures from an overexploited world come to bear from scientifically informed sources.

This is a time for all who stand for sustainable development – all who recognise the importance of meeting the needs of the present whilst supporting others to meet their needs in future – to stand up and speak out strongly with all the influence they can muster as this is not only an equitable strategy, but one that is vital for continuing wellbeing.

Within the tangled nexus of societal sectors, the wisdom and foresight enabled by the judicious use of science offers strategic guidance to corporates to continue to better and profitably serve our various needs into a challenging future.

Championing a sustainable pathway of development is far from a role just for

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This is time for us all to stand boldly for the sustainable pathway, rejecting hollow rhetoric ... The shape of the future is a choice. It is a choice about which all of us have agency, and about which all of us are also informed and empowered through the use of science.

sustainability campaigners and environmental scientists alone; any business with an eye to the future should be concerned about inadvertently placing its investments into a blind alley, or of committing themselves unintentionally to a legacy of potential toxicity, liability and customer disaffection.

It is clearly economic folly to invest in tomorrow's potential problems through lack of awareness, or naked arrogance, as it is clearly foreseeable that sustainability pressures will impinge on future freedoms and societal acceptance.

And surely, governments and their regulators should be minded to make and influence wiser and better-informed choices for the wellbeing of the citizens they are elected and paid to represent.

This is time for us all to stand boldly for the sustainable pathway, rejecting hollow rhetoric and disinvesting in trading partnerships with corporates and governments that set out their stalls to focus solely on selfish, short-term and unsustainable profiteering. If we do not, we share in their guilts and liabilities as part of their value chains.

The shape of the future is a choice. It is a choice about which all of us have agency, and about which all of us are also informed and empowered through the use of science.

To do and say nothing at this conflicted point in history is to passively accede to the imposition of the rise of narrowly monetarist agendas and the degenerative cycles into which they will accelerate the supportive capacities of the world we inhabit and, along with them, decent prospects for humanity. To choose instead to champion an as-yet unrealised future in which limitations in the natural resources and processes that support us are recognised, and applied to better inform our journey forwards, requires active voices and practical actions.

Recognition of the constraints of nature's finite and diminishing boundaries is, in fact, a guide to emerging opportunities, for business as for all of us, as human needs will continue to need to be fulfilled in novel ways in an inevitably different future.

This view is a remedy for the flawed 'sackcloth and ashes' portrayal of environmental and social responsibilities as negative pressures, and a resolution of the 'growth agenda' with informed engagement with sustainable development.

Human needs will need to be fulfilled for as long as there are humans, and our history tells us that recognition of limitations in the past has been a spur for innovation.

The declining supportive boundaries of the natural world, of which we are aware and

scientifically informed today, offers clear guidance regarding inevitable changes in the operating environment, pointing the pathway towards commercial and other forms of opportunity for how needs are most safely and efficiently met as a basis for a sustainable form of growth of benefit to all.



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