



Institute
and Faculty
of Actuaries

How to save the world: Developing a sustainable economic and finance system for the public interest

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by Sandy Trust

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“As we peer into society's future, we – you and I, and our government – must avoid the impulse to live only for today, plundering for our own ease and convenience the precious resources of tomorrow.”¹

How to save the world: Developing a sustainable economic and finance system for the public interest

Introduction – the Anthropocene reality

Although America started measuring atmospheric CO₂ levels at the Mauna Loa observatory on Hawaii 3 years before Eisenhower's farewell speech in 1961, he was more concerned about democracy and society than sustainability when he spoke. Nonetheless, the words resonate powerfully given the challenges we face into today, with some of his fears well founded.

Since 1961 atmospheric CO₂ levels have increased from around 320 ppm to around 420 ppm today, an increase of over 30%. Scientists estimate this level is comparable to the Pliocene period, when sea level may have been 17 metres higher, global temperatures 2°C to 3°C higher and poles ice free. Climate change is happening more quickly than anticipated with the impacts already being felt by millions. These impacts will continue to be felt and will become more severe till well into this century.

Over the same period the global population has soared from around 2.5 billion to nearly 8 billion, with life expectancy rising from 50 to over 70. Total wealth has increased to around \$500 trillion but it is spread incredibly unevenly, with the richest 1% owning more than the poorest 55%.

Humans are now so numerous and so dominant, that for the first time in planetary history, the activities of a single species are driving planetary outcomes, rather than geological and natural processes. Scientists have started to refer to this as the Anthropocene, coining the phrase for a new geological epoch in which the activities of humans have become the dominant force on the planet.

The mass of human produced items is estimated to have exceeded the mass of all the biomass on the planet in 2020. Habitats have been destroyed and approximately 25% of all species now threatened with extinction. We are polluting the biosphere which provides all the food we need to eat, the water we need to drink, the air we need to breath and which is the base of all our economic activity. We are also using up the Earth's resources at a faster rate than they can be replenished, breaching planetary boundaries on multiple dimensions. We would need 1.7 Earths to meet our current rate of consumption on an ongoing, sustainable basis.

We face myriad other problems such as antibiotic resistance, plastics, space junk and obesity. Most of this is financed and facilitated by today's financial and economic system, which continues to allocate capital to activities which exacerbate these issues. A market failure of epic proportions, patently neither sustainable, nor in the public interest.

These problems are well documented and broadly recognised, so why is it so hard to address them?

Examining the current system reveals shortcomings in its design and in our embedded societal beliefs about it, such as our belief that more financial wealth will lead to improved prosperity, that the

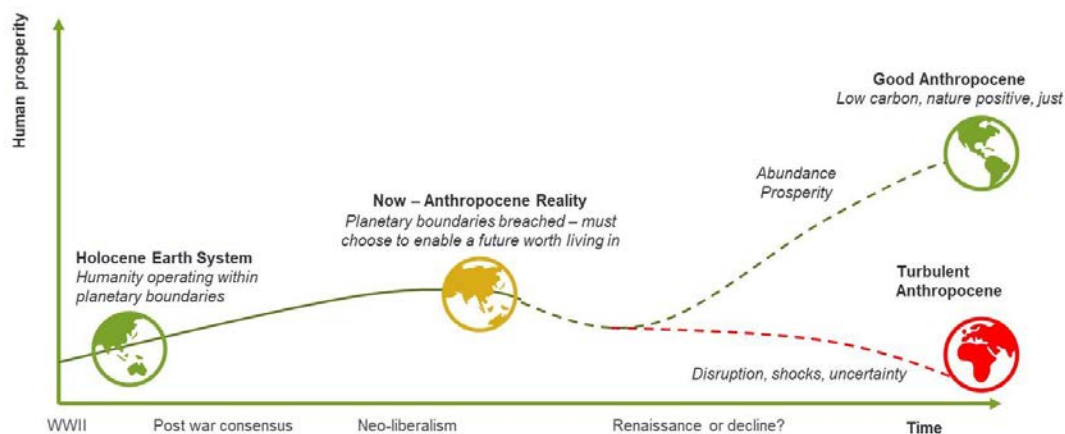
¹ Military-Industrial Complex Speech, Dwight D. Eisenhower, 1961

'invisible hand' of the market is wise or that prices should not capture externalities. Identifying the shortcomings leads to a list of 10 recommendations to address these, design principles for a better future, a future worth living in, a good Anthropocene. A future in which we re-tool the financial and economic system to stabilise the climate and to deliver sustainable and equitable prosperity within the finite bounds of the planet we live on.

This will be a fundamental transformation of humanity's operating system, one that recognises we are part of the Earth system and wholly dependent on its continued functioning. A transformation in which we come to believe in a new story about human prosperity, a story in which humanity is intricately connected to, a steward of, and dependent on nature and the Earth system. A story of abundance, of justice and equality. A story of co-operation in which humankind leverages all its busy endeavour to create a better and sustainable future for all life on Earth, a future worth living in.

This is the Anthropocene reality. Now that we've worked out we are driving the planet, it is in our collective gift to drive it responsibly, rather than recklessly.

Figure 1: The Anthropocene Reality



This will be the most formidable challenge of our time. Success is not a given, nor does history offer much encouragement given how comprehensively we have failed to date on the reduction of greenhouse gas emissions, the protection of nature or the reduction of inequality.

However, there is hope. More people than ever before are aware of the climate crisis. Net zero commitments span hundreds of governments and thousands of companies, cities, states and universities. More people than ever before believe the story of climate change and that we must now take action at unprecedented pace and scale to decarbonise our economy and so limit global warming. Climate change solutions are scaling rapidly and we are beginning to allocate capital towards net zero. It is technically possible to reduce emissions and stabilise the climate. Where climate has led, equity and nature topics must follow.

So there we have it. Our planet, our future, our choice.

My hope in drafting these recommendations is that at least some of these design principles may be helpful in accelerating the shift to sustainability. That we will take these forwards within the Actuarial profession, in financial services and in the wider economy. For now is the time for action, for change, for all of us to use what influence we have to push for a better future with vigour and tenacity.

I write this humbly and with gratitude for all those who have taken the time to talk about or to write down their research and ideas, the platform on which all of this rests. There are many omissions and I apologise if my biases and writing inadvertently offend anyone. Thank you to the many mentors who have guided me on this journey and for the unstinting support of my family, particularly my wife Jo.

Contents

1. Executive Summary – Actions for a future worth living in

A set of 10 recommendations, based on systems change principles, to develop a sustainable finance and economic system in the public interest

2. Is free market capitalism failing?

A short analysis of the prevailing socio-economic worldview, labelled the industrial paradigm, which reveals significant negative societal and environmental impacts and a need to change.

3. The Anthropocene Reality

A summary of the serious challenges we face into on the climate, biosphere and equity fronts. Reasons for hope based on societal beliefs, technology and systems change principles.

4. Design principles for a future worth living in

A set of 10 principles developed to guide a fundamental transformation of the financial and economic system to one that is sustainable and in the public interest.

Definitions

In the public interest

For the purposes of this essay, public interest is defined as the objective of the United Nation's Sustainable Development Goals (SDGs), which have the objective of '*all people enjoying peace and prosperity*'. A further definition of prosperity is provided by the Legatum Institute², which states that '*true prosperity is when all people have the opportunity to thrive*', going on to explain that the 3 pillars of prosperity are Inclusive Societies, Open Economies and Empowered People.

Sustainable

To incorporate sustainability into the equation, we expand this definition of in the public interest as when all people now and in the future have the opportunity to thrive, as per the Bruntland definition of sustainability of "*meeting the needs of the present without compromising the ability of future generations to meet their own needs.*"

Long term value

Long term value is used to describe an enhanced measurement of value that goes beyond current economic value measures to capture the conditions required to support sustainable prosperity.

The Abundance paradigm

A new economic paradigm that delivers long term value to support sustainable prosperity for all in the Anthropocene.

² https://docs.prosperity.com/6516/0586/8116/Defining_Prosperty.pdf

1. Executive Summary – Actions for delivering a future worth living in

Transforming the financial and economic system will not be easy. People don't embrace change. There are significant incentives for some to delay these changes. But people can change and quickly, particularly when they realise that a significant number of other people also want to see the change, or put another way believe in a new story, thus revolutions.

These are rough first drafts of these principles, to be built on and developed further. There is clearly overlap with a wide number of existing recommendations. Broadly the priority order here aligns with systems change principles articulated by Donella Meadows³. Encouragingly there is already progress in several of these areas, sometimes significant.

1. **Develop a new story of shared human prosperity, the Abundance paradigm.**

We urgently need a new shared narrative of a prosperous and sustainable future to unite behind and work towards. This should be built on the familiar ground of increasing human prosperity but evolved to recognise that for us all to prosper we must address societal inequality and live within planetary boundaries. Our objective should be a good Anthropocene - low carbon, nature positive and just – that delivers long term value for all.

2. **Evolve the purpose of the financial and economic system to deliver against this story.**

Purpose animates and is key to success. With a clear sense of purpose, individuals, teams, companies and countries are capable of incredible feats, witness Ukraine. We must evolve national and corporate purpose to deliver long term value against this bigger picture of human prosperity, as well as delivering short term profit.

3. **Re-design societal objectives to include equity**

One of the enablers of human progress is our ability to collaborate in large numbers through our mutual belief of shared stories. If we are to achieve net zero and other goals as a global community, we need to address real or perceived inequities. We need to rebuild trust between the Global North and the Global South, including addressing the challenge of providing capital to developing countries. We need to include vulnerable and forgotten communities. In short, equity and justice must become a central part of the shared story we must all believe in. Without this, it may be impossible to build the trust and faith we need in each other to achieve global collaboration between all countries.

4. **Evolve accounting standards to capture long term value.**

Externalities around climate and nature need to be reported on and eventually priced in. Just as the crisis of the great depression drove the development of financial accounting standards, so the crises we face today must drive the rapid implementation of sustainability accounting. We have to be able to measure and manage the impact of our activities.

5. **Educate and incentivise stakeholders to deliver long term value.**

This is a paradigm shift for many and education is required to ensure leaders and decision makers across the spectrum of human activity understand why these changes are needed. People must be nature and carbon literate. Crucially they must be incentivised to deliver long term value alongside short term profit.

³ Leverage Points: Places to Intervene in a System - The Donella Meadows Project

6. Embed a stable climate as a central tenet of long term value.

A stable climate is a pre-requisite for human prosperity. Net zero and climate stewardship must be central to policy and corporate decisions. We must move from talking about the costs of climate change to the opportunities of the net zero transition, where energy is cheap, abundant and secure. We must then move beyond net zero to stabilise the climate.

7. Embed biosphere restoration as a central tenet of long term value.

We have been drawing down on nature, depleting the biosphere at a rate faster than it can regenerate. We need to become nature positive by recognising the value of nature, the Ecosystem services it provides and our dependence on it. We need to rediscover a sense of reverence and awe for the natural world. We must move to treating nature as an asset and move to a position where our ecological footprint is smaller than the rate of biosphere regeneration, to rebuild our stock of this singular and precious asset.

8. Include long term metrics and track progress against these to monitor long term value

We will continue to need short term metrics to track progress, like GDP and profit metrics. But we need to build out and track longer term metrics, to measure, manage and report on long term value. Crucially we must elevate these metrics to the status of GDP, to intentionally track metrics around climate, nature and equity.

9. Move from reductionist to systems thinking

Simplification and heuristics allow us to compartmentalise and are needed for quick decision making, great for identifying tigers in the jungle. However, we must embrace the complexity of the Earth system, recognising the essential interconnectedness of all things and move to a systems approach. A key component of this recognises that we are embedded in the biosphere, not separate from it – and that our financial and economic system has real world impacts that we need to measure and manage.

10. Change the rules of the game

We must recognise the need for moral sentiments to guide the invisible hand and put in place guardrails for the economy, that align the objectives of the financial and economic system with societal objectives. For example, this could include pricing externalities, reducing subsidies for harmful activities or introducing environmental crimes.

2. Is free market capitalism failing?

Humanity is on a knife edge. Despite remarkable progress in many areas, there is great inequality alongside a high level of existential risk due to the impact of human activity on the Earth⁴ system. Biosphere collapse and climate change beyond our ability to adapt loom on the horizon. Millions are already feeling the impacts through extreme weather events, droughts and consequent social impacts due to involuntary migration.

Would aliens think us mad? Given the only habitable planet that we are aware of in the known universe to live on, we have set about systematically destroying our life support system -

⁴ Earth should really be called Water, 71% of the planet's surface is covered by the oceans. More on that later.

exterminating species, destroying habitats, poisoning the biosphere, destabilising the climate and so on. Why would we do this?

A story of increased human prosperity with money as king

This was all being done under the guise of increasing human prosperity. If we increased GDP, or put another way, did 'profitable things', then human prosperity would improve. More money meant more jobs, better education, better medicine and so on. So the story went and thus broadly speaking the contract between governments and citizens – we the government agree to keep you safe and grow the economy, so you may live long and prosper by working hard!

Let's call this prevailing political-economic worldview the industrial paradigm, increasingly believed worldwide since the industrial revolution but particularly embedded after the Second World War.

By the late 20th century the prevailing industrial paradigm had been further refined by neo-liberalism, a central tenet of which was free market capitalism. The government's role was reduced and the profit motive became dominant. This worldview was justified by a convenient but narrow interpretation of the writings of Milton Friedman in 1970 (the purpose of a company 'will be to make as much money as possible'⁵) and Adam Smith's 'invisible hand' written two centuries prior in his seminal "Wealth of Nations". Various legal judgements and precedents have reinforced and embedded this thinking, as summarised by Mark Carney in Values⁶, ranging from Dodge vs Ford in 1916 (where shareholders in the Ford motor company successfully challenged Henry Ford's plan to reinvest his profits) through to a summary of Delaware law (where most large US corporations are registered) provided by the Chief Justice of the Delaware Supreme Court in 2015, writing that 'directors must make stockholder welfare their sole end'.

In the late 20th and early 21st century financial services increasingly became a ruthless enforcer of corporate profitability. This was the yardstick against which all else was measured and which executives were incentivised to deliver. Alongside this we developed myopia, with holding periods shrinking from an average of 8 years in the late 1950s to 5.5 months by June 2020⁷.

Our short termism meant that almost by definition we missed non-linear, non-cyclical, long-term risks, with anything not captured by linear short term risk analysis labelled as a 'black swan'. So although

much of the capital in the market is invested for the long term, the risk and performance analysis used to manage it is short term in nature – a fundamental disconnect as neatly documented and explored by the 2° Investing Initiative Degree⁸.

Free market capitalism was accelerated and solidified in the 1980s with the elections of Reagan and Thatcher and subsequent globalisation:

*"Explicitly influenced by neoliberal networks, the Republican and Conservative governments of the 1980s gradually introduced policies of deregulation, privatisation, tax reductions and labour market "flexibility", radically changing the political economy of the US and UK, and eventually, by wider transmission, that of most other Western nations."*⁹

⁵ A Friedman Doctrine: The Social Responsibility of Business is to Increase Its Profits"

⁶ Values, Mark Carney, 2021 – How Purposeful Companies Create Value, The firm as a series of contracts versus purpose-driven companies at the heart of an ecosystem

⁷ <https://www.weforum.org/agenda/2021/12/long-term-investing-decline/>

⁸ <https://2degrees-investing.org/resource/all-swans-are-black-in-the-dark/>

⁹ Paradigm Shifts in Economic Theory and Policy", Jacobs et al, 2018

And it seemed to be working because by some measures humans were prospering. In the period from the industrial revolution to the early 21st century there had been dramatic increases in human population, longevity and wealth, alongside incredible technological advances across the span of human endeavour. Capabilities that were firmly in the domain of science fiction in the late 20th century were now commonplace for billions via the smartphone. As summarised by Dasgupta in his “Independent Review on the Economics of Biodiversity”¹⁰:

“Global output of final goods and services in 2011 prices has risen from around 9 trillion international dollars in 1950 to over 120 trillion today – a more than 13-fold increase in just 70 years – while the average person’s annual income has risen from 3,500 dollars in 1950 to 17,000 dollars. Over the same time period, global life expectancy at birth has risen from 49 years to nearly 73 years, and the proportion of the world’s population in absolute poverty (living on less than 1.90 dollars a day) has fallen dramatically, from nearly 60% in 1970 to less than 10% today.”

So there we have it. The primary economic objective of politicians is to grow the economy, supported by companies who provided employment and also made money. Legally a company’s first duty is to shareholder profit and so directors’ incentives should reflect this. And the purpose of finance was to facilitate and monitor this. A model for increasing human prosperity. QED. Goodnight Vienna!

So money makes the world go round?

No, it doesn’t, that’s the laws of physics. However, money, or the financial system does shape the world we live in and plays a significant part in determining what we do as a society. This is because ‘the financial system wields great power, in that it directly influences which activities are financed and insured, the price at which such activities are economically viable, and the extent to which legacy activities are able to continue.’¹¹

If you want to buy or build something, from a car to a fishing boat to a gigafactory you need capital to do so. You need insurance to operate and so on. Thus every financial decision, every pound, dollar, yen or renminbi that is lent, spent or invested, has a real world impact. Simplistically, are you financing a coal mine or a solar farm.

But as a society we have disconnected the financing of activities from any consideration of the impact of those activities. Under the industrial paradigm as long as it is legal and profitable, it should be financed because this would increase GDP, regardless of whether the real world impact is positive or not. We had absolved financial services from any responsibility to wield the great power they have with any intent, allocating capital blindly, with no regard to the consequences.

The real economy (note the distinction and separation from the financial system!) operated on similar principles. As long as the product was profitable there was no need to think about the impacts from either the supply chain, the manufacturing process or the use of the product.

Thus we had neatly separated human economic activity from its environmental and social impact – and the financing of activity from the activity itself.

Questionable societal impacts

Free market capitalism and globalisation had clearly been effective at creating significant financial profit but are there really many examples of negative unintended consequences of this profit driven ‘blind’ capital allocation? A brief examination reveals some questionable social impacts.

¹⁰ The Dasgupta Review – Independent Review on the Economics of Biodiversity – Interim Report; Dasgupta et al 2020

¹¹ Waking up to Nature, EY, Microsoft, Earth Knowledge, 2021

- **Nutrition – changing the diet of an entire country to sell more crisps¹².**

In 1999 Frito-Lay (a subsidiary of PepsiCo) saw an opportunity. Thai people were eating significantly less snacks than Mexicans and Americans – just a kilo per person per year compared with 10 kilos in America. Cue significant marketing spend and before long salty chips became a normal part of the Thai diet. This trend has been repeated in many countries around the world with the result that the consumption of nutrient poor food high in fats and sweeteners is increasing globally, with a related rise in obesity and diet-related diseases such as diabetes. A dietary tipping point on a global scale with clear societal costs.

- **Fishing – over-exploitation of fish stocks.¹³**

Eating all the fish would be a silly thing to do. But it's a lesson we struggle to learn with collapses of fisheries a regular occurrence from the collapse of the Grand Banks Cod Fishery in the 1990s, where scientists estimated that Grand Banks cod levels were less than 1% of what they were in the 1960s, to the Orange Roughy in New Zealand. The Grand Banks fisheries were eventually shut but there was only a partial recovery, which took 2 decades. Scientists suggested severe damage of the marine environment due to bottom trawling a primary factor in this slow recovery. We had pushed the species past a tipping point from which they could no longer recover, exacerbated by the damage of their habitat. As the fisheries collapsed billions of dollars of costs were felt by local communities and governments. Scientists estimate 90% of fisheries today are overfished.

- **Agriculture – land use change and deforestation, methane emissions**

An estimated 23% of global greenhouse gas emissions derive from agriculture, forestry and other land use (AFOLU)¹⁴. In 2021, emissions from deforestation, primarily for agriculture, were estimated to be equivalent to the emissions of India, over 5% of global emissions, at 2.5GtCO₂¹⁵. While it is harder to track exactly where methane comes from, a significant amount is driven by agriculture, particularly emissions from ruminants. In 2021 atmospheric methane hit record levels¹⁶. Both of these trends reduce the chances of stabilising climate change as they increase GHG levels, so effectively reduce carbon budgets, requiring us to decarbonise even more quickly than we would otherwise have to.

- **Energy and tobacco – lobbying to delay meaningful policy action**

It is well recognised now that emissions from fossil fuels are a primary driver of climate change. It is estimated that the fossil fuel industry may have spent \$500m per annum on lobbying to delay significant action on climate change¹⁷, protecting profits in the short term but at a potentially very significant cost to society. Prior to this tobacco companies invested significant sums to protect their profit streams from changes forced on them due to the link between smoking and lung cancer.

¹² Uneven dietary development: linking the policies and processes of globalization with the nutrition transition, obesity and diet-related chronic diseases

¹³ <https://britishseafishing.co.uk/the-collapse-of-the-grand-banks-cod-fishery/>

¹⁴ Summary for Policymakers — Special Report on Climate Change and Land (ipcc.ch)

¹⁵ The Latest Analysis on Global Forests & Tree Cover Loss | Global Forest Review (wri.org)

¹⁶ Climate graphic of the week: record methane level adds to warming fears | Financial Times

¹⁷ <https://influencemap.org/report/Climate-Lobbying-by-the-Fossil-Fuel-Sector>

This list could become very long, with financial services regularly in the dock for various misdemeanours over the years including pension scams and market manipulation, the opioid crisis driven by the healthcare industry, the dizzying rates of executive pay increases observed and so on.

However, even this short list indicates a systemic problem with the industrial paradigm, the profit motive, what is valued and the incentives that drive this behaviour. There is a severe disconnect between the financial value being created and the unaccounted for impacts of the activities that are undertaken to create the short term profit for a specific company or sector, even though subsequent negative impacts (externalities) may exceed the value of the profits. The recurrent theme here is that profit is often a country mile ahead of societal good. The story we have been told to believe is clearly flawed, not fit for purpose in the Anthropocene.

Inequality and social cohesion

Despite all the economic progress there is also great inequality. According to Credit Suisse¹⁸, the world's richest 1% owned 45.8% of the world's wealth, with the bottom 55% owning only 1.3%. This split is both geographic but also reflected in countries as well. For example, the world's richest country, the USA, which accounts for nearly 25% of global GDP, is also one of the world's least equal, with the top 10% owning 75% of the wealth. Patently globalisation and the industrial paradigm were not delivering for all, it is becoming increasingly difficult for many to believe the shared story of human progress.

Other trends were also damaging social cohesion, one of which was social media. What started out as a benign use of technology to allow people to connect with friends and like-minded individuals, became monetised to prioritise attention and hence advertising revenue. Online dialogue became dominated by the extremes and various actors were able to successfully amplify those extreme voices to drive real world outcomes, including influencing public perception and even election results.

Conclusions and the need to evolve

There are a series of fatal flaws in the embedded beliefs that underpin the industrial paradigm. At the heart of this is the way we measure value and incentivise delivery of that value. GDP and profit measure only the output of work and say nothing about whether that work is worthwhile. We are ignoring very serious impacts on our environment and our society.

We have a problem. The great global operating system we have built is systematically destroying the framework in which it operates. We are industriously, fervently and most of all profitably allocating capital today to the certain destruction of capital tomorrow. Without doubt risking future prosperity as well as failing to deliver prosperity for many today. If there was a Galactic sentient species monitor, here's how our report card might read.

Table 1: Report card – Homo Sapiens – planetary management

¹⁸ Credit Suisse Global Wealth Report 2021

Name: <i>Homo Sapiens (HS)</i>	Class: <i>Planetary Management</i>	Planet: <i>Earth</i>	Grade
Nature			D-
<i>HS did well to put in place global goals on biodiversity since my last review and is now starting to recognise that humanity is embedded in the biosphere, not separate from it. Sadly limited delivery against these objectives and business as usual en route to 6th great extinction – must do better.</i>			
Climate			E
<i>As for nature HS identified the problem many years ago and now (finally!) has a global agreement in place, well done. However, 7 years after this almost unprecedented display of global unity HS continues to go backwards – methane and CO2 levels higher than ever, unprecedented deforestation, ongoing financing of new fossil fuel infrastructure etc – getting close to tipping points. Really HS, what are you playing at!?</i>			
Society			C-
<i>Having worked out money and put in place a pretty decent system, HS saw tremendous increases in prosperity for several decades. Recently though HS has rather lost sight of things, forgetting that the market is not moral and leaving far too much up to the system – time for a shake up.</i>			
Overall			D
<i>HS excels at identifying problems and coming up with solutions, tremendous initiative. However, lacks application and focus on putting these solutions in place. Disappointing to see backwards progress across the board on planetary management since my last review – must try harder. I sadly foresee a sticky end for HS and quite a lot of the rest of life on Earth unless changes are made. Galling to see as things seemed to be set fair after the debacle of the Second World War.</i>			

3. The Anthropocene Reality

Welcome to the Anthropocene, a new geological epoch.

In the Anthropocene we are driving the planet recklessly, speeding towards the cliffs of climate change and biosphere collapse, using our planet's finite resources more quickly than they can replenish themselves. Blindly allocating capital to profitable economic activity with no regard for the impact and seemingly unable to channel capital to support the development of those who most need it, with rising levels of inequity.

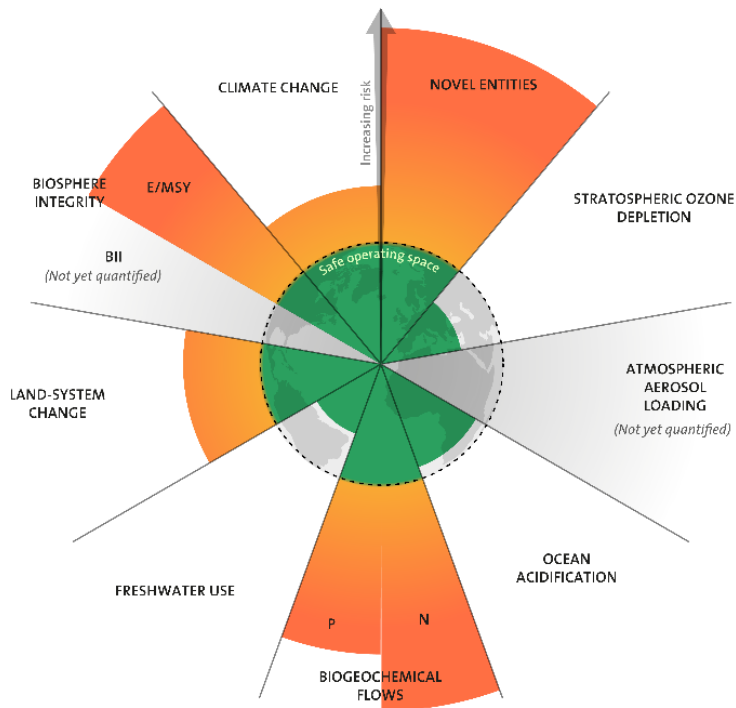
However, we aren't blind to the risks we were facing into. Scientists have developed significant insight into our impacts on the climate, on the biosphere and on ourselves. The concept of planetary boundaries has been established and with it the idea of a safe operating space for humanity.

By 2022, as shown in Figure 2, 5 of the 9 planetary boundaries had been breached, these being climate change, biodiversity loss, shifts in nutrient cycles (nitrogen and phosphorus), land use and novel entities (environmental pollutants including plastic). Spaceship Earth's life support systems, established over billions of years, are being pushed into the red.

There was hope though. Having recognised that we were now driving the planet, so it was in our gift to change course, to drive responsibly, to veer away from these dreadful cliffs and deliver a better future, to have a good Anthropocene. In the early 2020s a dawning realisation swept the globe. That things had to change, that we as homo sapiens had to come together and evolve our great global operating system or die. More people than ever before started to recognise this need to change, to demand action. To demand a new story of human prosperity.

Figure 2: Planetary Boundaries – A safe operating space for humanity¹⁹

¹⁹ J. Lokrantz/Azote based on Steffen et al. 2015.



As well as this mindset shift, hope came from the emergence of new technologies that could help us manage these risks through transformation of the food, energy and transportation sectors. Hope came from the non-linear nature of disruption. From the unprecedented display of global unity in Paris, demonstrating that we could overcome our innate tribalism and work together on a global scale.

We also recognised that “climate and biodiversity are inextricably connected with each other and with human futures”²⁰. This led to the creation of new narratives for equitable human prosperity that were built on the recognition that we are embedded in the biosphere and dependent on it. Put another way, if we wanted to deliver sustainable long term value we would need to stabilise the climate and regenerate the biosphere. Furthermore, these were intrinsically linked – nature could play a huge part in stabilising the climate and a stable climate would reduce the pressure on nature.

A good Anthropocene would have to be nature positive, low carbon and just, played out in humanity’s safe operating space – enabling increased human prosperity for all. By contrast a turbulent Anthropocene would be characterised by shocks as the climate changed, the biosphere collapsed, we breached multiple planetary boundaries and the impacts stretched the ability of our society to adapt.

Dimension	Turbulent Anthropocene	Good Anthropocene
<i>Climate</i>	Fail to reduce emissions, breach tipping points – Hot House Earth	Achieve net zero – stabilise climate
<i>Nature</i>	Multiple ecosystem collapse, 6th great extinction	Nature positive – restore and regenerate species and habitats
<i>Society</i>	Inequality, scarcity, conflict, societal collapse	Abundance, hope, joy, prosperity, cohesion

Table 2: Characteristics of the Anthropocene

²⁰ <https://ipbes.net/events/ipbes-ipcc-co-sponsored-workshop-report-biodiversity-and-climate-change>

Commitments to change

In 2015 the countries of the world adopted the UN's Sustainable Development Goals ('SDGs'), setting objectives around people, planet, prosperity, peace and partnership in 17 different areas²¹. In doing so there was an implicit recognition of the interconnected Earth and human systems. If we could not crack sustainability, then equity and prosperity might also be out of reach. The Paris Agreement²², also agreed in 2015, was explicitly focused on climate change and set out an objective to limit global warming to 2°C and if possible to 1.5°C. Over 190 countries ratified this. Further reports²³ emphasised just how significant that 0.5°C would be, with scientists estimating that limiting global warming to 1.5°C would require us to reduce anthropogenic greenhouse gas emissions to 'net zero' by 2050. Net zero becoming the rallying call for the historic COP26 climate change conference in Glasgow – finally, a simple slogan people could support.

We had also set targets on biodiversity. In 2010 the Convention on Biological Diversity developed the Aichi targets²⁴, setting out targets over 20 areas to support 5 strategic goals relating to conserving and restoring biodiversity. 196 nations signed up to these.

However, despite setting these objectives (as outlined in our planetary management report card), we were not doing well at achieving them.

Climate change – close to losing control?

Our civilisation emerged during a period of unusual climatic stability. In the 10,000 years prior to the industrial revolution global temperatures were relatively stable – within about 0.5°C of the global temperature at the start of the industrial revolution. We have now exceeded this level of warming, with a global temperature rise of 1.2°C.

Over longer periods the Earth's climate has been both significantly hotter than it is today (with ice free poles) and significantly colder than it is today (with ice estimated to be almost to the equator). Although it is hard to be certain about exactly how these temperature fluctuations occurred high (in ice free periods) and low (in icy periods) levels of CO₂ have been observed by scientists²⁵.

We now control the GHG levels in the atmosphere and therefore the ongoing stability of the climate. Our emissions are tipping the planetary carbon cycle out of balance causing GHG levels to increase and temperatures to rise. What is unprecedented, as far as we are aware, is the rate of change of atmospheric GHG levels that we are causing. Without doubt further global warming will occur due to the current levels of GHG in the atmosphere.

If we aren't able to mitigate climate change by reaching net zero and beyond, we run the risk of pushing the Earth system past a point at which we could successfully adapt. We might trigger a series of tipping points which would push the planet into a 'Hothouse Earth'²⁶ state unprecedented in human history, pre-history and beyond, as illustrated in Figure 3.

²¹ <https://www.undp.org/sustainable-development-goals>

²² <https://www.un.org/en/climatechange/paris-agreement>

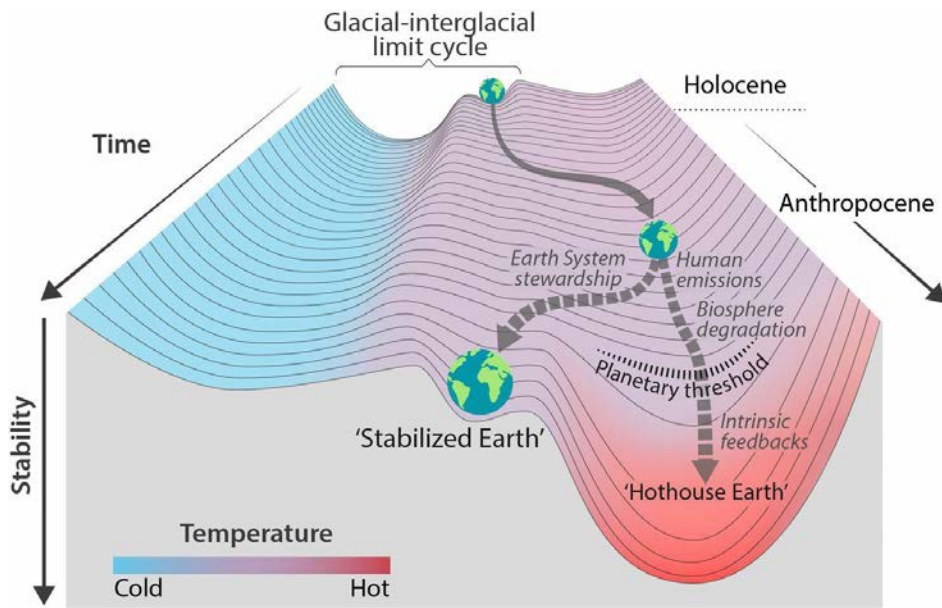
²³ Global Warming of 1.5 °C — (ipcc.ch)

²⁴ Strategic Plan for Biodiversity 2011-2020, including Aichi Biodiversity Targets

²⁵ <https://www.climate.gov/news-features/climate-qa/whats-hottest-earths-ever-been#:~:text=Even%20after%20collisions%20stopped%2C%20and,more%20than%20400%C2%B0%20Fahrenheit>

²⁶ Trajectories of the Earth System in the Anthropocene

Figure 3: Anthropocene climate outcomes²⁷



Climate tipping points can be grouped according to the estimated temperature at which they would be triggered. The risk is that tipping points that are triggered at lower temperatures could then contribute to the triggering of larger, more severe tipping points, particularly when combined with additional factors, setting out a cascade that would push the Earth system into a significantly hotter state. At 1°C of warming we are seeing significant reductions in glaciers worldwide, coral reef bleaching, significant Greenland ice sheet melt and Arctic summer sea-ice reduction.

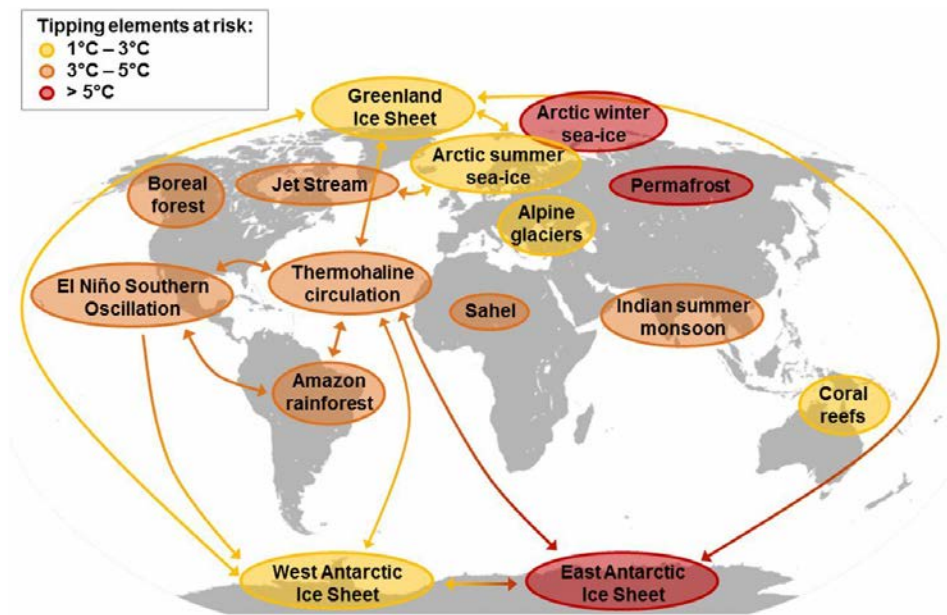


Figure 4: Global map of potential tipping cascades²⁸

Consider the impact of just two of these factors in combination, melting glaciers and heatwaves. In the region of 2 billion people rely on meltwater from the 3rd cryosphere, the Himalayan icecap, for

²⁷ Steffen et al, 2018

²⁸ Steffen et al, 2018

irrigation and drinking water. What would happen to these people if the glaciers melt and the water stops flowing?

Worryingly, scientific estimates of the temperature at which severe climate impacts will occur have consistently reduced over time, as illustrated in Figure 5 below. The analysis in the Burning Embers paper²⁹, shows that events that for some categories events that were considered high impact at 7°C are now considered very high impact at a little over 2°C.

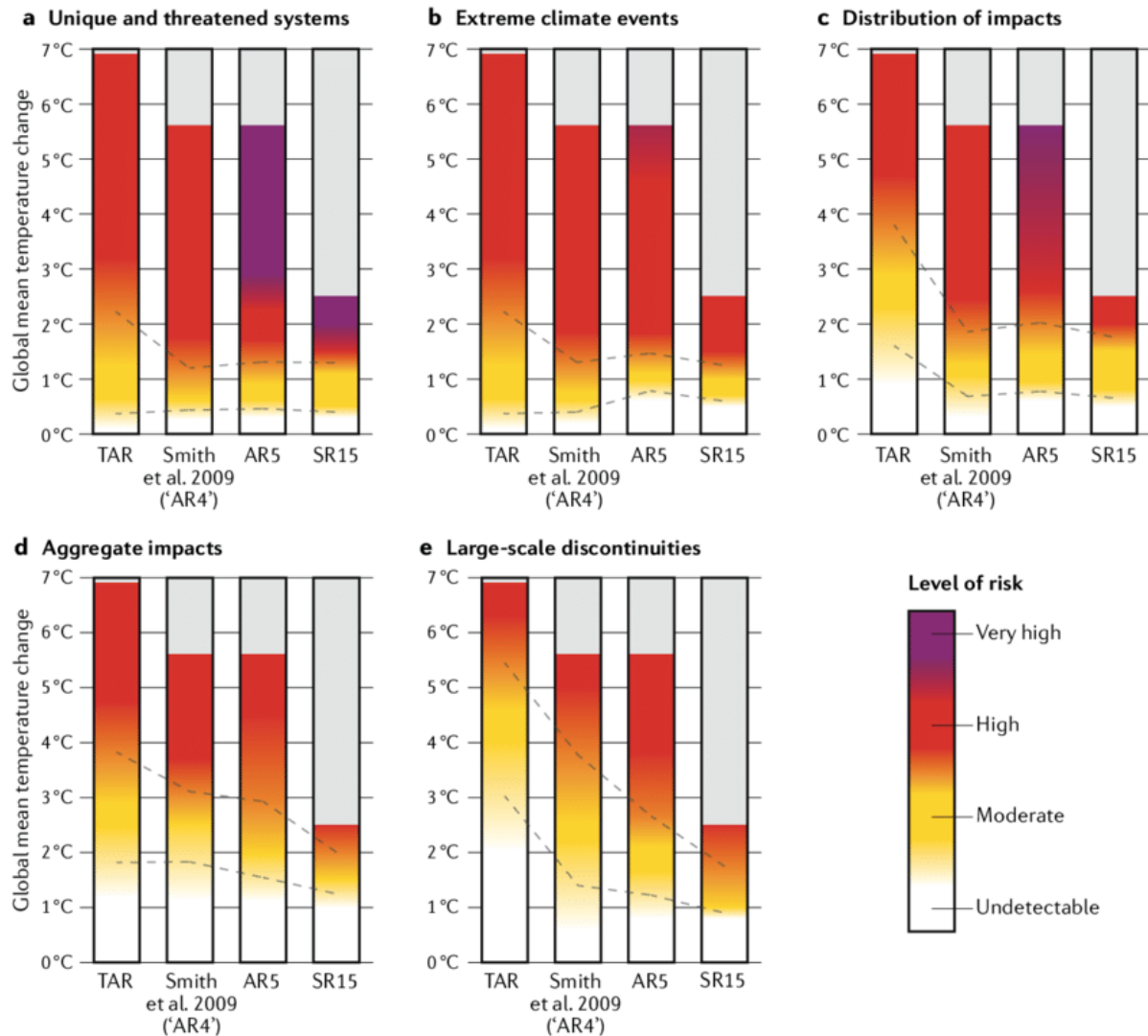


Figure 5: Burning embers – IPCC risk levels at given temperatures over time increasing³⁰

We can add to this distressing little analysis the probabilistic nature of carbon budgets. As detailed in the position paper of the Climate Crisis Advisory Group (CCAG)³¹:

²⁹ Burning embers: towards more transparent and robust climate-change risk assessments | Nature Reviews Earth & Environment

³⁰ Zommers et al 2020

³¹

https://static1.squarespace.com/static/60ccae658553d102459d11ed/t/6253ff0eb27d617aac93cde0/1649671961939/CCAG_PositionPaper_CriticalPathway.pdf

“The latest assessment from the IPCC indicates that around 320 billion tonnes (Gt) of CO₂ can be emitted from the beginning of 2022, to have a 67% chance of staying below 1.5°C, and 420 Gt can be emitted for a 50% chance.”

With current emissions running at 40 Gt per annum we have 8 years of budget left before we blow past 1.5°C levels. This budget gives a 2/3 chance of success, so a 1/3 chance of failure. Poor odds to take for crossing a road, mad odds to use when running a planet.

CCAG go on to summarise the level of uncertainty associated with these carbon budgets and the very real risk that they may be smaller than advertised, even for these relatively low probabilities of success (my emphasis):

“There are a large number of uncertainties that impact upon estimates of the remaining carbon budget. The figures above assume strong action on non-CO₂ emissions, no big shift in the AMOC, and that we do not cross any unexpected tipping points; in other words, no surprises. Further, this would only provide a certain probability of remaining below 1.5°C: there is a possibility that the remaining carbon budget for limiting warming to 1.5°C is already zero.”

But these underlying assumptions do not hold. There has not been strong action on non-CO₂ emissions, methane levels are at an all time high, 1°C tipping points have been partially triggered and deforestation equivalent to adding the annual emissions of India is taking place.

The consequences of this are to effectively either reduce the probability of success for a given carbon budget or to reduce the carbon budget for that probability of success, reinforcing the need to ‘race to zero’ as rapidly as we possibly can.

Biodiversity – multiple ecosystem collapse?

The Earth system has more interactions and feedback loops than just the carbon cycle such as the water cycle, the nitrogen cycle and so on. This includes interaction between physical processes such as the global air and water currents and tectonic plate movements and the living biosphere in all its glorious diversity. All of this comes together to create a place where we and other creatures can live, which provides us with all the air we need to breathe, water we need to drink and food we need to eat. We are totally dependent on the natural world.

Life on Earth has existed for around 3.5 billion years, with humans first emerging as a species around 250,000 years ago. As far as we’re aware there isn’t any other life nearby, although we maintain hope that we might find some one day. We can confidently say that it is unusual and indeed spectacularly lucky to have a habitable planet to live on.

Just how unusual this is, or how lucky we are, is hard to fathom. From factors such as the Earth being not too hot or not too cold (in the Goldilocks zone and with those GHGs to keep us warm), to the handy magnetic field that protects us from solar radiation, to the low orbital eccentricity that means the planet stays at a relatively stable temperature, to the abundant presence of water, humanity would appear to have won the cosmic lottery. In fact, the more you dig, the luckier we are³². If dinosaurs hadn’t been wiped out it may have been difficult or even impossible for large mammals to prosper. Scientists estimate that if the K-Pg asteroid that caused the extinction of the dinosaurs and ¾ of life on Earth had hit 30 mins earlier or later it would have hit the ocean, dinosaurs may have survived and mammals, including us, may never have emerged³³.

³² The Grand Design, Hawking and Mlodinow, 2010, The Apparent Miracle

³³ The Mother of All Accidents - Nautilus | Science Connected

Early humans and indigenous tribes have a reverence and respect for nature. But over the last two centuries we have lost this and damaged the natural world to such an extent that many of the ecosystem services we rely on are close to collapse.

Various horrendous statistics abound. 96% of the mass of all the mammals on the planet is humans and our livestock. Approximately 25% of all species are threatened with extinction. The global biomass of wild mammals has fallen by 82%. Less than a quarter of the Earth's terrestrial area and 13% of the ocean remains free from human impacts. We have lost approximately half of coral reefs and 85% of wetlands.

The ecosystem services nature provides can be split into three categories:

- Regulating services – that regulate environmental conditions such as climate, air, water and oceans.
- Materials services – that provide material goods such as energy, food, medicines and raw materials
- Non-material services – such as opportunities for learning, inspiration, recreation, spirituality.

The 2019 IPBES assessment of biodiversity noted declines in 14 of the 18 Ecosystem services provided to us³⁴. The report contained 4 key messages:

- A. Nature and its vital contributions to people, which together embody biodiversity and ecosystem functions and services, are deteriorating worldwide.
- B. Direct and indirect drivers of change have accelerated during the past 50 years.
- C. Goals for conserving and sustainably using nature and achieving sustainability may only be achieved through transformative changes across economic, social, political and technological factors.
- D. Nature can be conserved, restored and used sustainably while other global societal goals are simultaneously met through urgent and concerted efforts fostering transformative change.

Some estimates³⁵ put around half of global GDP, \$44 trillion, as dependent on ecosystem services and exposed to nature loss. Others more simply state 'the simple truth that 100% of the global economy is 100% dependent on nature.'³⁶

The Dasgupta review on the Economics of Biodiversity³⁷ provided a mechanism for measuring and monitoring the collective impact of our activity on the biosphere, introducing the Impact Inequality as a mechanism for assessing the rate of decline or regeneration of the biosphere.

Underpinning this is the central concept that we need to start managing Nature as an asset. We need to change the way we see things – to stop viewing the Earth as a free cashpoint for the creation of human economic wealth – and to start seeing it and managing it as an asset, a crucial wonderful asset that provides us with all we need for the ongoing functioning of life on Earth.

³⁴ <https://ipbes.net/global-assessment>

³⁵ WEF_New_Nature_Economy_Report_2020.pdf (weforum.org)

³⁶ The Future of Nature Markets | Taskforce on Nature Markets

³⁷ Final Report - The Economics of Biodiversity: The Dasgupta Review - GOV.UK (www.gov.uk)

The Impact Inequality compares humanity's ecological footprint (Ny/α) with the ability of the biosphere to continue to supply the goods and services we consume ($G(S)$), as follows:

$Ny/\alpha > G(S)$, where

$G(S)$: G is the rate at which the biosphere regenerates S is the stock of the biosphere Ny/α : N is the human population y is human economic activity per capita α is the efficiency with which the biosphere's goods and services are converted into GDP and the extent to which the biosphere is transformed by our waste products

Dasgupta estimates that humanity's ecological footprint (Ny/α) is 1.7 today. He further estimates that the value of natural capital is decreasing at 0.3% per annum, with an overall decrease of 40% in the period 1992 to 2014.

His analysis shows that we need to increase α (how efficiently we are using ecosystem services) by 9% per annum (assuming current rates of GDP and population growth) if we are to bring the Impact Inequality to a state of Equality by 2030, in line with SDGs 14 (Life below water) and 15 (Life on Land) which have the objectives of sustainable use of these ecosystems.

Our current rate of increase of α is estimated at 2.5%.

Barring shocks to population or GDP, we therefore have significant work to do to avoid further serious declines in the asset that is Nature.

However, as with climate there is significant activity and commitment here, with for example circular economy commitments increasing, alternatives to plastics being sourced and the rise of alternative protein.

Reasons for hope – non-linearity, technology and societal change

Despite this stark assessment of the risks we face there are reasons for hope, linked to technological innovation, our ability to change our beliefs quickly and the non-linear nature of disruption. This list is by no means comprehensive but is given because it is crucial that we both believe that we can steer our future back onto a safe course and take rapid action to do so.

The non-linear nature of systems change

Systems change is non-linear, the classic S-curve of disruption as outlined by RethinkX using the Seba Technology Disruption framework. In 'Rethinking Climate Change'³⁸ a scenario is put forward whereby humanity chooses to reduce emissions by 90% by 2035 through the disruption of energy, transportation and food systems.

- Energy – disruption of fossil fuels by renewables and battery technology
- Transportation – a move to electrification and transportation as a service
- Nutrition – disruption of animal products by precision fermentation and cellular agriculture

This scenario relies on the disruption of animal farming and 2.7 billion hectares of land being freed up for passive reforestation.

³⁸ <https://www.rethinkx.com/climate-implications>

However, while RethinkX sees these disruptions as inevitable given the decreasing cost curves of the technologies, they caution that ‘it will be up to us to decide whether or not we deploy these technologies worldwide rapidly enough to avoid dangerous climate change’.

While some may view the specifics of the scenarios as somewhat heroic, what is clear is that disruption is highly non-linear and that the societal choices we make have the potential to significantly increase the rate of technology adoption and change in the system. RethinkX go on to comment that *‘by failing to fully appreciate these systems dynamics... analyses have tended to underestimate not only the threat of climate change itself, but also the potential of technology to address it. As a result, we have seen a consistent pattern of corrections over time, where each year the estimated threat of climate change is corrected in the direction of ‘worse than we originally thought’ while the estimated potential of technology to address it is corrected in the direction of ‘better than we originally thought’.*

Geospatial data and biodiversity

Biodiversity impacts have been traditionally hard to monitor with corporate reporting scarce and challenges around the inspection of remote sites to ascertain impacts. As documented by the WWF³⁹, technology has changed that with the advent of satellite imaging combined with machine learning techniques leading to spate of innovative start-ups providing data on matters such as such as marine oil spill detection, wildfire prediction, methane emission detection, carbon emission prediction from the heat profile of factories or exposure to deforestation within supply chains.

This has the potential to provide regulators or investors with real time data on companies, which can be used to monitor corporate activity and highlight any potentially negative impacts. In time this data could be used to influence financing or insurance decisions, driving real change.

Nature and oceans

The oceans have absorbed most of the additional heat energy due to global warming. Oceans are also a significant carbon sink as well as being responsible for the production of around ½ of the oxygen we breath. Oceans are under a variety of pressures ranging from plastic pollution to acidification to dead zones as a results of fertilizer run off.

However, ocean ecosystems have been shown to regenerate quickly and there is momentum around the objective of protecting 30% of the ocean by 2030. There have also been successful collaborations between, for example, NGOs and sovereign nations, with the charity Sea Shepherd collaborating with West African governments to police illegal fishing.

CCAG believes that there is a significant opportunity to both rebuild marine biodiversity and permanently capture tens of GT of CO₂ through Marine Biomass Regeneration⁴⁰. They state that “The aim is to recreate the deep-ocean conditions in which whales used to thrive before the mass eradication of whales by humans. Whales are now understood to be drivers of very healthy marine ecosystems, as well as indicators of biodiversity in their own right. Small scale regeneration of ecosystems to bring whales and other marine species back to areas that are currently marine deserts will increase biodiversity, enhance fishing grounds, and create new CO₂ sinks.”

As with other potential disrupters, it will ultimately be societal choice that governs the extent to which we choose to protect and regenerate the ocean biosphere. We must make a conscious effort to do so.

³⁹ <https://wwf-sight.org/geospatial-esg/>

⁴⁰ https://static1.squarespace.com/static/60ccae658553d102459d11ed/t/6253ff0eb27d617aac93cde0/1649671961939/CCAG_PositionPaper_CriticalPathway.pdf

Population, prosperity and education

As illustrated powerfully by Dasgupta's Impact Inequality, a key driver of all these pressures on the biosphere is the human population. Dasgupta analyses global fertility rates in Chapter 9 of his report. Paraphrasing and summarising, fertility rate reductions have been observed in many countries across the world, as illustrated in Table 3 below, which gives a breakdown of global population by wealth and also shows the Total Fertility Rate.

Countries (by income, dollars PPP)	GDP (2019 prices)	% global GDP	% global population	TFR
High income	62	47	16	1.6
Upper-middle income	48	37	37	1.9
Lower-middle income	19	15	38	2.8
Low income	2	1	9	4.6

Table 3: Income and population shares⁴¹

There are a number of factors that influence TFR but at a high level there are strong links between prosperity and reduced TFR, as women have access to education, contraception and structured family planning advice. So while global population will continue to be a driver of strain on the environment, there is hope and evidence to show that by increasing prosperity for all, we will also help to manage this. Indeed in some richer countries, such as China and Japan TFR is now below the replacement fertility rate, implying a declining population.

Developing markets capital

Significant development is required in developing markets, for example, a number of African countries urgently require capital both for climate change mitigation and adaptation. However, structural barriers prevent Western capital flowing freely. While this will not change overnight it is heartening to see announcements around the intent of Western asset owners to address this, such as this announcement from 12 UK asset owners⁴².

This will be a key topic also at COP27, where the thorny and largely unresolved issue of loss and damages will be prominent. It is critical that recent unmet climate finance pledges by the Global North are addressed, to rebuild trust so that international cooperation can take place.

4. Design Principles for a future worth living in

How to engender the transformative systems change needed to mitigate the risks and accelerate the non-linear scaling of the solutions?

Complex adaptive systems are notoriously hard to change but can also change quickly, particularly when tipping points are reached. Human beliefs can change overnight but humans only change when they want to. They need to believe the story. Without a compelling, shared, global narrative for the future, this will be challenging.

The first recommendation below is therefore the creation of this story and other recommendations broadly follow the systems leverage points proposed by Donella Meadows.

⁴¹ Dasgupta et al, 2021

⁴² 12 leading UK pension funds to collaborate in support of climate transition in emerging markets | The Church of England

1. Develop a new story of shared human prosperity, the Abundance paradigm.

We urgently need a new shared narrative of a prosperous and sustainable future to unite behind and work towards. This should be built on the familiar ground of increasing human prosperity but evolved to recognise that for us all to prosper we must address societal inequality and live within planetary boundaries. Our objective should be a good Anthropocene - low carbon, nature positive and just – that delivers long term value for all.

History doesn't repeat but it often rhymes, and some governments have started to step in to correct some of the flaws that de-regulation had bought. There were significant announcements around a net zero and sustainable financial system, the launch of the International Sustainability Standards Board (ISSB), the beginning of action on nature with the launch of TNFD and Chinese government action on inequality. Influential institutions such as the World Economic Forum drove activity on inclusive or stakeholder capitalism and the Dasgupta report drove new thinking on the economics of biodiversity. Just as a person's life is more than their bank account, so humanity's progress needed to be measured by more than GDP.

A new paradigm was starting to push through in places but this was still really focused around managing risks to GDP from climate and biodiversity. There wasn't yet a coherent and compelling vision of the future to align behind.

The recommended action therefore is to develop this story, the story of the Abundance paradigm, in which human prosperity is supported through stabilisation of the climate, restoration of the biosphere and equity.

2. Evolve the purpose of the financial and economic system to deliver against this story.

Purpose animates and is key to success. With a clear sense of purpose, individuals, teams, companies and countries are capable of incredible feats, witness Ukraine. We must evolve national and corporate purpose to deliver long term value against this bigger picture of human prosperity, as well as delivering short term profit.

So given this new story, the Abundance paradigm, governments, companies, institutions and individuals could all align behind this. This doesn't mean throwing away the framework of capitalism, it means enhancing and evolving it, to continue to deliver profit but within the constraints of the planet and in a way which enriched people, which enhanced prosperity.

By 2022 there was some progress on this, with net zero in particular attracting serious commitments around the globe. This was a seminal shift – the first time our financial and economic system had committed to real world impact en masse.

Further hope was given by initiatives like the B Corps⁴³, which committed to harnessing the power of business to positively impact all stakeholders. By 2022 there were over 5,000 B Corps worldwide, including some large companies like Danone.

However, corporate purpose can be challenging and the profit motive is still strong so the recommendation here is to continue to strongly message the business benefits of purpose and to push businesses to align with B Corps standards.

⁴³ B Lab Global Site (bcorporation.net)

3. Re-design societal objectives to include equity

One of the enablers of human progress is our ability to collaborate in large numbers through our mutual belief of shared stories. If we are to achieve net zero and other goals as a global community, we need to address real or perceived inequities. We need to rebuild trust between the Global North and the Global South, including addressing the challenge of providing capital to developing countries. We need to include vulnerable and forgotten communities. In short, equity and justice must become a central part of the shared story we must all believe in. Without this, it may be impossible to build the trust and faith we need in each other to achieve global collaboration between all countries.

The recommendation here is to support mechanisms to increase the flow of capital to developing countries, which is a significant impediment to global equity. Alongside this, we must consciously address the structural issues in our current system that drive increased inequity.

4. Evolve accounting standards to capture long term value

Externalities around climate and nature need to be reported on and eventually priced in. Just as the crisis of the great depression drove the development of financial accounting standards, so the crises we face today must drive the rapid implementation of sustainability accounting. We have to be able to measure and manage the impact of our activities.

The launch of the ISSB, carbon accounting frameworks, net zero assessments and the work on nature disclosures promises rapid progress in being able to assess progress against long term value.

The recommendation is to support the rapid uptake of reporting of long term value reporting against carbon, nature and equity.

5. Educate and incentivise stakeholders to deliver long term value.

This is a paradigm shift for many and education is required to ensure leaders and decision makers across the spectrum of human activity understand why these changes are needed. People must be nature and carbon literate. Crucially they must be incentivised to deliver long term value alongside short term profit.

The recommendation here is for training for politicians, Boards, leaders and decision makers across the financial and economic spectrum. Professions in particular must be responsible for ensuring their members are appropriately equipped to consider these matters in their professional advice. Incentives drive behaviour and are crucial. Incentive structures must be developed to encourage and reward people for behaviours that contribute to long term value creation.

6. Embed a stable climate as a central tenet of long term value.

A stable climate is a pre-requisite for human prosperity. Net zero and climate stewardship must be central to policy and corporate decisions. We must move from talking about the costs of climate change to the opportunities of the net zero transition, where energy is cheap, abundant and secure. We must then move beyond net zero to stabilise the climate.

By 2022 there were net zero commitments spanning hundreds of governments and thousands of companies, cities, states and universities. But we were still not moving quickly enough.

The recommendation here is to focus on accelerating the climate transition, scaling the technologies we need to decarbonise our economy and protecting and restoring carbon sinks. We must harness the power of nature to help us. The ocean offers significant promise and tying the restoration of marine biomass to the climate agenda could be a significant accelerator of both climate and nature goals.

7. Embed biosphere restoration as a central tenet of long term value.

We have been drawing down on nature, depleting the biosphere at a rate faster than it can regenerate. We need to become nature positive by recognising the value of nature, the Ecosystem services it provides and our dependence on it. We need to rediscover a sense of reverence and awe for the natural world. We must move to treating nature as an asset and move to a position where our ecological footprint is smaller than the rate of biosphere generation, to rebuild our stock of this singular and precious asset.

The recommendation is to incorporate Dasgupta's recommendations into economic policy making. We must address the income inequality and start to restore the biosphere. This must sit alongside nature positive corporate commitments and the execution of pledges to protect terrestrial and marine ecosystems (the 30 by 30 initiative). Critically we must police these protected areas.

8. Include long term metrics and track progress against these to monitor long term value

We will continue to need short term metrics to track progress, like GDP and profit metrics. But we need to build out and track longer term metrics, to measure, manage and report on long term value. Crucially we must elevate these metrics to the status of GDP, to intentionally track metrics around climate, nature and equity.

The recommendation here is to increase our focus on these metrics, many of which already exist. To continue to embed these into corporate and political decision making and to push for higher visibility of these metrics in society generally.

9. Move from reductionist to systems thinking

Simplification and heuristics allow us to compartmentalise and are needed for quick decision making, great for identifying tigers in the jungle. However, we must embrace the complexity of the Earth system, recognising the essential interconnectedness of all things and move to a systems approach. A key component of this recognises that we are embedded in the biosphere, not separate from it – and that our financial and economic system has real world impacts that we need to measure and manage. The recommendation here is incorporate systems thinking in the management of our companies, our economy and hence our planet. We must build a deeper understanding of the connectivity between our actions in the economy and their impacts and with that a deeper sense of responsibility.

10. Change the rules of the game

We must recognise the need for moral sentiments to guide the invisible hand and put in place guardrails for the economy, that align the objectives of the financial and economic system with societal objectives. When Adam Smith talked about the Wealth of Nations his vision was much broader than GDP.

In fact the market is not free today, there are many constraints in place within which it must operate. Politicians need to own their responsibility for addressing market failures and could introduce new requirements, such as, pricing externalities, reducing subsidies for harmful activities or introducing environmental crimes. If this were to happen then existing anti-money laundering and sanction capabilities could then be used to stop the flow of capital to companies carrying out such crimes.

The recommendation is to push for the introduction of appropriate safeguards for our financial and economic system. This can begin with net zero requirements but should push into nature and equity areas too.



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