Win-win in the Time of Net Zero:
A Tale of Two Sustainabilities

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by

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The welcome spread of net zero commitments upends the longstanding win-win narrative of sustainable business. The clash exposes that there have all along been two interpretations of sustainability: 'more sustainable than before' and 'sustainable enough before it is too late'.

The win-win claim has always depended on the environmental win being not much of a win. More plausibly, sustainability is possible, but will cost something. The predicament for the sustainable business community is that their core win-win message, which was initially an inspiring catalyst, is increasingly an obstructive narrative of wishful thinking. The most valuable contribution the ESG community might now make is to develop a more rounded narrative and follow its implications to advocate strongly for science-based policies to bind all companies, not just a willing minority.

Net zero also challenges our complacency around economic growth. Widespread enthusiasm for 'green growth' tacitly licenses all growth, with the result that most growth is not green, at a time when ecological tolerances are diminishing. ESG is missing the physics for the finance. Net zero's recognition of physical limits should prompt the sustainable business community to consider more seriously degrowth and post-growth arguments.

Would the real sustainability please now stand up? All organizations - profit or non-profit - must establish whether they are striving to be 'more sustainable than before' or whether they are committed to making a human society that is 'sustainable enough in time'. Moreover, the clock is ticking. We are fast approaching the time when 'more sustainable than before' is 'not sustainable at all.'

TABLE OF CONTENTS

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1. THE NET ZERO MOMENT

Four decades after sustainability first emerged as a concept, we are witnessing a profoundly important 'net zero moment'. First gradually, and now suddenly, countries and companies are making 'net zero' pledges to reduce carbon emissions in line with the temperature goals of the Paris Agreement. This represents a substantial and welcome upgrade of national and corporate ambitions regarding climate change but poses the obvious challenge. In March, a survey by Standard Chartered found that 64 percent of senior corporate executives do not believe that net zero commitments are commercially viable, contradicting the longstanding ESG narrative that ecological sustainability is a 'win-win' – good for profit and planet.[1]

Two definitions, two worldviews

The contradiction reveals that there have all along been two fundamentally different interpretations of 'sustainability', whose inconsistency is only now finally surfacing because of the severity of our situation. The win-win claim of sustainable business has always tacitly depended on the ecological 'win' being defined as 'more sustainable than before'. In contrast, the net zero imperative emanates from the very different perspective that we need to achieve 'enough sustainability before it is too late'.

I believe much of the ongoing confusion within the sustainability debate arises from individuals and organizations – and even individuals within the same organization – working to conflicting interpretations of sustainability, without fully realizing. Some regard ecological sustainability as a relative concept by which it is sufficient merely to make progress – to 'become more sustainable' – while others view sustainability as an absolute concept that demands we be 'sustainable enough in time'.

In turn, these markedly different perspectives rest upon individuals' generally implicit views on whether the world does or does not contain real thresholds and limits whose breach may have severe, even existential, consequences for humankind. In other words, though rarely discussed explicitly, the fundamental clash is between limits-denying and limits-accepting worldviews. (See Figure 1).

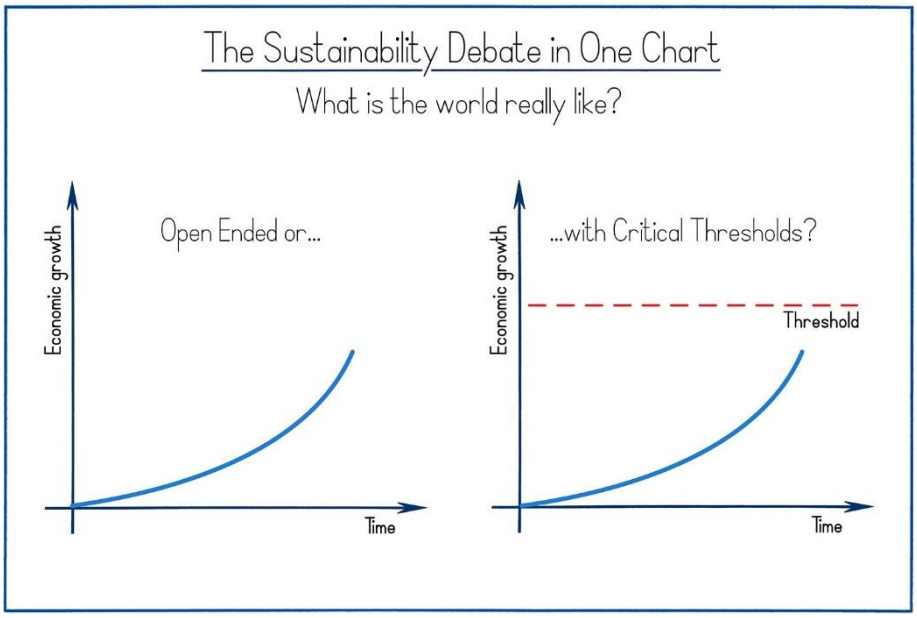


Figure 1: The sustainability debate in one chart

The addition of a simple horizontal line changes everything. Modern society is overwhelmingly organized around an open-ended worldview with its appealing promise of limitless growth. In turn, this informs business and investment norms where success generally consists of reporting growth – of sales or profits or dividends, etc. – versus prior period. Such open-ended progress presumes a deadline- or threshold-free world.

In contrast, a worldview of thresholds – in which climate scientists and ecologists are steeped – accepts that we may periodically encounter limits – or thresholds or finite capacities – that trigger 'race against time' or 'bend the curve' situations. These are adaptive challenges with deadlines. Accordingly, the strategies we adopt in such circumstances must be evaluated not on whether they are delivering ongoing improvement but on whether they are on track to achieve enough change in time. Such is the nature of deadlines.

The real significance of today's net zero moment is that it amounts to shifting our perception of the global economy from a limits-denying to a limits-accepting frame. It is the recontextualization of economic activity within one – of nine! – planetary boundaries that the Stockholm Resilience Centre, Kate Raworth and others have been imploring us to respect.[2] Probably because: 'transgressing one or more planetary boundaries may be deleterious or even catastrophic due to the risk of crossing thresholds that will trigger non-linear, abrupt environmental change within continental-scale to planetary-scale systems.'[3] For all our familiarity with individual or organizational deadlines, the dizzying implication is that the whole global economy is now on deadline.

The net zero moment prompts us to ask ourselves: which picture of the world am I assuming? Which picture of the world have I been led to assume? Figure 1 is effectively the Rorschach test of our times.

Climate change and biodiversity are 'bend the curve' challenges

The pictures of the world climate scientists and ecologists now desperately wish us to see are those with horizontal lines representing critical thresholds. The 'net zero' formulation, for example, derives from scientists' estimates of the emissions reductions required to bend the global temperature curve to stay below 1.5C.[4] (See Figure 2).

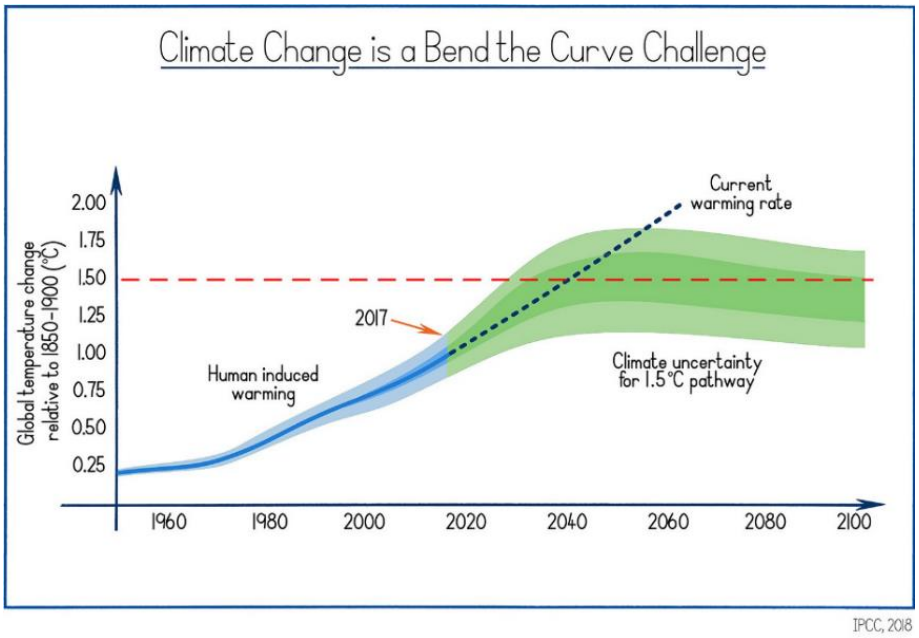


Figure 2: Climate change is a 'bend the curve down' challenge (Based on IPCC, 2018)

Biodiversity is a much more multidimensional issue than climate change, but ecologists view it in a similar way. WWF reports that since 1970, there has been an average 68 percent decline in population sizes of 21,000 tracked species, including a 94 percent decline in the tropical subregions of the Americas.[5] WWF and others depict the biodiversity challenge as being to bend the curve – upwards, in this instance – to prevent species counts from falling below minimum viable population levels, and ecosystems from declining below health levels from which they can naturally regenerate.[6] (See Figure 3).

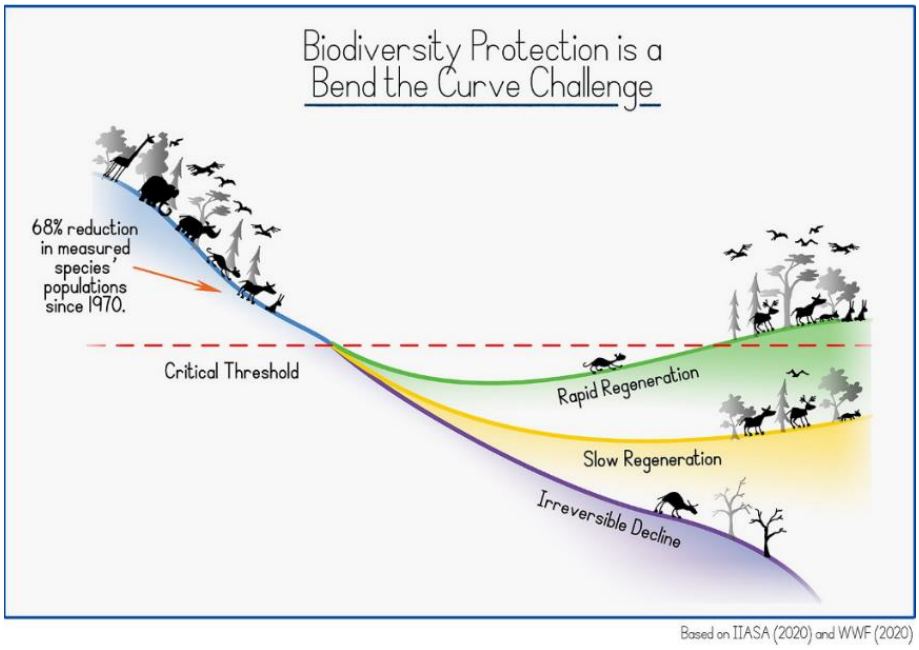


Figure 3: Biodiversity protection is a 'bend the curve up' challenge. (Based on IIASA, 2020 and WWF, 2020)

Not your 1970s limits!

Of course, limits are psychologically challenging, and many may feel we laid such concerns to rest when economists prevailed in the 1970s Limits to Growth debate. Their argument was that history amply demonstrates that human ingenuity overcomes or bypasses limits. Hence, Malthus was wrong, Paul Ehrlich lost his bet, and all that. And, indeed, here we all are, 4 billion more people later, inhabiting a world 5 times 'wealthier' than in 1970.

Yet, today's limits, as epitomized by climate change and biodiversity crises, are a different type of limit to those of concern in the 1970s and before. In coining the Anthropocene, in only 2000, we have recognized we are now 'geological agents' of sufficient number and technological power to alter planetary systems and possibly push them beyond irreversible tipping points. Hence, instead of the age-old concern about running out of *inputs* – food, energy, oil, etc. – the new concern is that our many *outputs* and *impacts* – emissions, waste streams, deforestation, species loss etc. – may exceed natural absorptive and regenerative capacities and destabilize the planetary systems upon which we depend. Bluntly, the limits problem today is less about 'running out', and much more about 'screwing it all up'.

Moreover, the physical nature of environmental challenges distinguishes 'E' from 'S' issues, even though we routinely combine them in our ESG and 'sustainable development' formulations. Social goals can generally be achieved by keeping at them, even if progress stutters. Delay of social goals –

extending rights, reducing inequities, alleviating poverty etc. – may certainly perpetuate harms, but rarely prevents such goals from being achievable eventually. We can always keep trying tomorrow. In contrast, environmental challenges are constituted by biophysical thresholds, capacities, and tipping points where delay may have irreversible consequences. Above 0°C, ice will melt and cannot be persuaded otherwise. Species whose numbers fall below minimum viable population levels will not recover. Hence, many global environmental challenges have physical deadlines that brook no delays.

A long-awaited moment

During the first phase of our response to the ecological crisis over the past few decades, when the goal has been to initiate progress from a standing start, it has been tolerable for different groups to proceed under different interpretations of sustainability. However, today's 'net zero moment' must force a reconciliation of what we mean by ecological sustainability. Climate scientists' insistence that we achieve net zero emissions within short order stems from their interpretation of sustainability as 'enough sustainability before it is too late'. In contrast, many companies now enthusiastically announcing pledges have been encouraged to think of sustainability as a win-win – a formulation that rests upon a weaker interpretation of sustainability as 'more sustainable than before'. The risk is that if the latter perception persists in business circles, the necessary but demanding actions required to fulfil net zero commitments will not transpire, reducing the whole endeavour to empty promises.

In truth, this moment has been long-awaited, because it has been increasingly clear that our predominant response to the sustainability crisis – the voluntary market-based approach of CSR, SRI, ESG, 'impact' etc. – has not been able to bend environmental trajectories as much as hoped. Certainly, those trajectories might be worse still without the considerable spread of voluntary market-based efforts, but the global, systemic nature of sustainability problems now demands we make much more progress much more quickly than we have been.

Win-win and net zero are the two succinct terms that crystallize this definitional clash in corporate boardrooms in a way that cannot now be unseen. Moreover, this inevitable clash of sustainability interpretations forces the ESG community into a difficult, but potentially catalysing, reflection of two key issues: (i) the credibility of its 'win-win' narrative and (ii) the sustainability of 'economic growth'.

2. 'WIN-WIN' IN THE TIME OF NET ZERO

While win-win has been a beneficial narrative in certain respects, the issue is whether it remains so in the current context.

The win-win narrative around sustainability issues emerged in the early 1990s via a new 'sustainable business' literature and the coining of associated terms such as 'eco-efficiency' and the 'triple bottom line'. Its promise was that sustainability problems, both environmental and social, could be resolved by voluntary market-based strategies, not undesirable policy interventions. Of obvious appeal to business, it was also embraced by environmentalists both for its genuine possibilities and out of pragmatic recognition that the political climate of the time, with dimmer comprehension of sustainability than today, prohibited meaningful policy action.

Win-win is so central to the voluntary market-based strategy that it has been articulated in myriad ways: 'doing well by doing good', 'green growth', 'shared value', 'sustainable outperformance', and more. In its various forms, it has helped to stimulate much early action and innovation and to accelerate awareness and understanding of sustainability issues within the business community.

Evaluating win-win

Of course, there has been an eagerness to substantiate the win-win claim empirically. Unfortunately, right from the outset, studies have tended to be more rigorous about the financial 'win' than the sustainability 'win'. Partly, this reflects the predominant initial concern that even modest sustainability actions might compromise financial performance. Partly, it is intrinsic to the problem. The independent variable of 'sustainability' encompasses a wide range of often qualitative factors, compared to the dependent variable of 'financial performance', for which there are a few obvious and easily quantified metrics – profits, returns, share performance etc. Nonetheless, after thousands of studies into the financial implications of corporate sustainable behaviour, the rough working consensus, supported by some recent meta-analyses, is that 'sustainability' is neutral to slightly positive for corporate profits and investment returns.[7]

But what has got lost in this whole exercise is what is being regarded as the sustainable 'win'! Alas, the environmental 'win' of the win-win formulation has overwhelmingly been some form of 'more sustainable than before' not 'enough sustainability in time'. All along, the win-win claim underpinning the voluntary market-based strategy to solve global environmental problems has depended upon a relative interpretation of ecological sustainability not an absolute one.

One does not need to review thousands of studies to confirm the point because it is only from 2016 that the first few companies began to adopt 'science-based' ecological targets, proclaiming them more rigorous than prior practices based on self-selected emissions targets, decoupling measures or similar. This critical paradigm shift was spearheaded by The Science Based Targets initiative (SBTi), founded by the World Resources Institute, WWF, UN Global Compact and CDP in 2015, which has paved the way for conceptually similar net zero commitments.[8]

In contrast to earlier approaches, science-based targets, and ensuing net zero commitments, work back from real-world limits to identify proportionate reduction efforts, such that if everyone did their bit, we might avoid breaching tipping points. In other words, it is only very recently that companies have started to orient their sustainability efforts – at least, their climate efforts – to align with scientists' view of what is required. Before now, this simply was not what companies were doing.

For example, in 2017, Anders Bjorn and colleagues reviewed over 40,000 corporate responsibility reports and found only 5 percent of companies referred to ecological limits, and only 31 of the 12,000 reporting companies – 0.3 percent – used ecological limits to inform their targets.[9] Similarly, Johannes Meuer and colleagues identified 33 prominent definitions of 'corporate sustainability' coined between 1997 and 2016, of which only 5 convey a sense of biophysical limits.[10]

Against this backdrop, what win-win studies have effectively been picking up is that it might be slightly profitable to do 'some sustainability'.

Sustainability 'wins'?

Even a cursory scan of the win-win literature reveals a ragbag of variables constituting ecological sustainability 'wins'. In studies evaluating *corporate* financial outperformance, the sustainability 'win' has stretched from companies adopting environmental management practices or internal policies – for example, 'to reduce emissions, to use environmental criteria in selecting members of its supply chain, or to improve its energy or water efficiency' – to 'positive engagements' with investors, to mere disclosure of CSR information.[11] These may all be directionally beneficial but give no assurance of constituting 'enough sustainability'.

Similarly, claims regarding *investment* outperformance have been premised on sustainability 'wins' encompassing negative screening, positive screening, thematic investing and ESG integration, each with their own variations.[12] Sometimes, better financial performance arises from investing in ESG leaders or 'best in class',[13] while other studies suggest better financial performance comes from investing in 'improvers' or those demonstrating 'ESG momentum'.[14] That is, sometimes the 'win' is just catching up to what the leaders are already doing, regardless of what the leaders are accomplishing in absolute terms.

Moreover, the many investment win-win studies that use ESG ratings as the sustainability variable unavoidably import familiar problems of ratings methodologies. These include the composite nature of ESG rankings (where a high ESG score may conceal a low E metric),[15] the significant discrepancies between ratings systems,[16] and their typical focus on relative performance of a company versus industry peers, not absolute performance.[17] As well, many ratings are premised not on companies acting sufficiently to solve a sustainability problem so much as measuring a company's resilience to the financial risk the environmental problem creates – roughly: 'are we doing enough to protect ourselves?' versus 'are we doing enough to solve a global systemic problem?'[18]

Even with the sensible development to modify ratings to reflect issues most relevant to a company, we learn what might be 'material' for those companies, but not whether they are doing enough on those material issues.[19]

The literature is vast, and I do not claim authority but reflecting on such details, alongside the novelty of 'science-based' targets, which are too new to have yet influenced the literature, suggests that the win-win narrative has been heavily dependent on the environmental 'win' being fairly meagre. Virtually the entire academic sub-discipline that has emerged to evaluate 'win-win' claims has been defining environmental sustainability as some form of 'more sustainable than before' not 'enough sustainability in time'. The whole effort was triggered by the hope, and has proceeded under the assumption, that 'some sustainability' would be 'enough sustainability', but what global environmental trajectories now indicate and what the need for net zero commitments underscores is that this is no longer a tenable hope or assumption.

Win-win has been performative for both good and bad

It was always recognized that the 'win-win' narrative might beneficially become a self-fulfilling prophecy in that it would stimulate businesses to identify profitable opportunities in previously neglected 'green' niches, which might catalyse further profitable innovations, and then combinations of innovations, and so on. Certainly, this positive dynamic seems to have been triggered and will doubtless continue to bear fruit. Some of the advances that have been accelerated, such as in solar technology, have been truly staggering. As such, win-win has been 'performative' – in that it has triggered real-world innovations that have helped it become a true statement.

However, perversely, 'win-win' has also become a self-fulfilling prophecy in an unhelpful way by diluting the meaning of 'sustainability'. To the extent the overall signal from various meta-studies is that 'sustainability' is neutral to slightly positive for financial performance, what we have effectively done is work back from inviolable profit to define 'sustainability' to mean something like 'more sustainable than before without compromising financial performance'. Hence, win-win has also been performative not just by triggering some real-world innovations, but also, and probably to a greater degree, by weakening the meaning of sustainability to not challenge profitability.

The 'win' that the win-win construct has privileged is the financial one of 'not making a loss' not the environmental one of 'not breaching planetary thresholds.' The whole exercise has relied on defining the sustainable 'win' in a sufficiently tepid way that profit is not compromised. But of course! How

could generally efficient financial markets have allowed otherwise? Hence, the overarching trajectory of the last three decades of sustainable investing has been the gradual inversion of intention from an initial 'socially responsible' or ethical stance – ('how can we use finance to make a sustainable world even if it lowers returns?') – to enthusiasm for win-win – ('you know, some of this might be profitable, too') – to today's 'ESG integration' – ('how can we exploit the idea of sustainability to enhance returns?').[20]

The net zero realization

The concept of net zero upends all this. Net zero privileges planetary boundaries over profit expectations. It demands we run the definitional performativity in reverse: the sustainability win must be given precedence and over time we will have to redefine our conception of economic and financial wins to align with the requirements of ecological sustainability.

The adoption of such commitments marks a profound frame shift – whether companies have fully recognized it or not – that we are not in an open-ended world, but in a world of natural thresholds. Science-based targets and net zero pledges introduce into the corporate boardroom new pictures of the world bearing horizontal lines.

Not surprisingly, the conventional win-win narrative is unlikely to withstand this change of perspective because 'enough sustainability' constitutes a massive shift of the goalposts. Hence, the survey finding noted earlier in which 64 percent of 250 recently surveyed senior executives do not believe net zero is commercially viable.[21]

This is the profound meaning of the 'net zero moment'. As corporations adopt commitments based on what needs to be done rather than what constitutes improvement versus prior fiscal year or against a self-selected target, there is a forceful crystallization of the huge gap that still exists between what scientists view as necessary and what businesses feel their conventions permit. The emergency nature of the situation is only now really sinking in around many board tables, possibly to stunned silence. 'Oh. They mean that much sustainability…'

The challenge for sustainable business

How should sustainable business proceed in this new world? The ESG community may now be a critical voice for advancing human sustainability, just not in the way they may think or in the way they have been acting prior to this definitional clash surfacing.

The risk is that as the financial demands of net zero commitments sink in, companies that have made pledges will dilute their commitments, while the vast majority of companies will refrain from making any commitment at all. Already, there are worrying signs of companies pushing back against the demands of the Science-Based Target initiative, which they were recently only too glad to announce they had signed on to.[22] The issue centres on methodological details and has seen a key founder sufficiently worried about the integrity of the initiative to file a formal complaint, but the concern it raises is that companies, after making high-profile pledges, will be inclined to fish for laxer not-so-science-based targets. As they used to have.

Given what is at stake and the non-binding nature of pledges, it is imperative that science-based commitments are quickly shored up with science-based policies covering pledgers and non-pledgers alike. And the greatest support the ESG community can provide to help build the consensus required for such policies is to ease off its longstanding win-win narrative – for what was initially an inspiring catalyst is now becoming an obstructive narrative of wishful thinking and denial.

The issue is not that the win-win narrative has not been hugely beneficial as an early stimulus. Or that there have not been many genuinely win-win projects or innovations with more on the way. Instead, as it sinks in that we are in a race against time that requires net zero commitments for climate, and comparable actions for biodiversity, the learning is that win-win cannot scale to deliver enough change, fast enough. Win-win may be true of piecemeal projects, but it is an increasingly misleading description of the overall sustainability challenge.

A December 2020 report by McKinsey provides a more plausible assessment.[23] Based upon a comprehensive review of the five key emitting sectors in Europe, McKinsey concludes it is 'technically feasible' for Europe to reach net zero by 2050, but that about half the necessary investment will require 'targeted interventions' – coy consultant-speak for 'costly policies'. Bluntly, half of what must be done is *not* an attractive win-win, so much as the mother of all whip-rounds to now pay up for what we have not previously been paying for. This inconvenient half cannot simply be ignored because systemic problems like climate change must be wholly solved, not just half-solved.

The scale of the endeavour demands government 'targeted interventions' of which the best form would be carbon and other prices that would shift the whole market's estimation of profit onto an environment-recognizing footing. In McKinsey's view: 'a carbon price of €50/tCO2e would make three-quarters of the necessary investments profitable, and a price of €100/tCO2e would make 85 percent profitable.' So, there we have it: sustainability is on offer, we just have to pay up for it.

Narratives in tension

All this places the ESG community in an awkward position regarding their core narrative. The growing unintended consequence of sustainable-business-as-usual is that its enthusiastic propagation of the win-win narrative is suppressing the difficult, but necessary, acceptance of the severity of the situation, which might be the critical catalyst for meaningful policies and faster adaptive change.

The tension between win-win and net zero is less at the level of individual projects and investments, where there is evidently some overlap, and more at the influential level of narrative given that they emanate from – and so reinforce – fundamentally different framings of our sustainability problem. Hence, to use McKinsey's numbers for Europe as a rough guide, approximately half of what must be

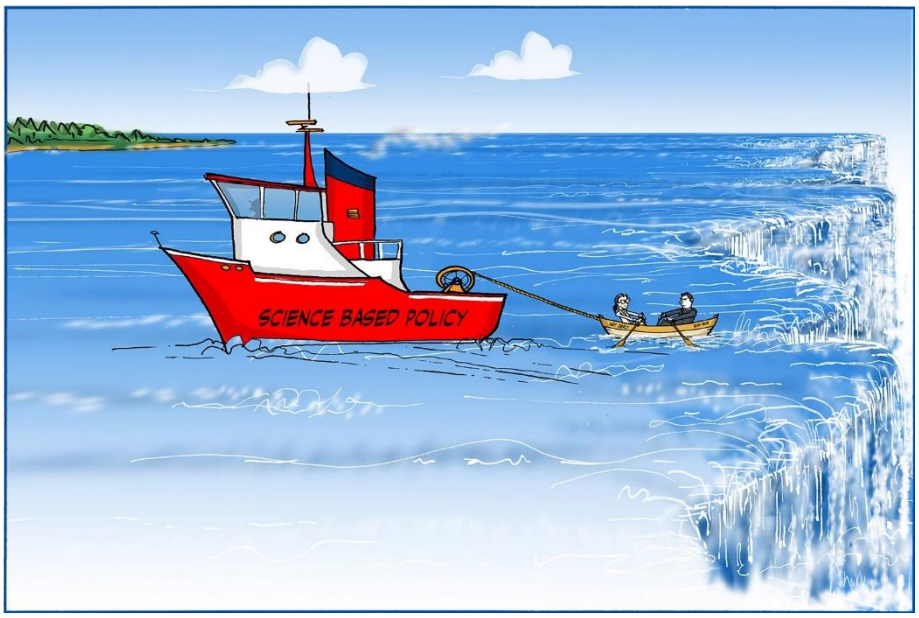
done might be described as ‘win-win’ and so benefits from the capital flows that sustainable investors are trying to mobilize. For this half, win-win and ‘enough sustainability’ work in tandem.

But the real challenge of our race against time situation is drawing attention to – and triggering immediate action for – the half of the problem that is not ‘win-win’. It is for this half of the challenge that the ‘win-win’ narrative becomes obstructive because it does not admit of insufficiency. Partly, this is just the manner of commercial norms – it is a rare business that advertises: ‘buy our product, it’s half a solution’. Partly, of course, win-win is what people want to hear and believe.

But it places the ESG community in the predicament that its core marketing message is now becoming a problematic message to spread. In a market culture already biased against regulations, for the ESG community to persist with a ‘win-win’ message risks perpetuating a complacency we can increasingly ill afford. To spell out the causal links: the more the ‘win-win’ message is promoted, the more reassured people are that ‘markets are the solution’, the greater the reinforcement of underlying market-favouring, anti-regulatory norms, and so the harder it becomes to implement meaningful policies, or, equivalently, the easier it is for policy opponents to mobilize existing anti-regulatory sentiment to block new policy.

We must now break this powerful reinforcing loop and give up the too-good-to-be-true win-win narrative so that we can accelerate changes that may be costly, but which are well within our capabilities. To reframe the challenge as an opportunity, the most decisive contribution the sustainable business community might now make is to advocate strongly for science-based climate and biodiversity policies. Given the anti-regulatory bias of cultural norms, this will take vigorous and sustained effort, not just the occasional press release. It will need to be aggressively lobbied for, with an effort and intensity commensurate with that fact that policy changes are half the solution.

In picking up this challenge, the ESG community might only be joining other constituencies that have long argued for policy-led strategies on sustainability, but they may constitute a disproportionately influential ‘swing voice’ in representing members of the business community who have sought to make voluntary market-based strategies work, only to now recognize the limitations. The fact that this will require a difficult reversal of past messaging – and past client promises and public pronouncements – will only give their voice greater credibility and force. *It could be the change of mind that tips the balance of our whole sustainability discourse.*



3. 'ECONOMIC GROWTH' IN THE TIME OF NET ZERO

The second major consequence of the limits-accepting worldview that net zero ushers in is the light it casts on economic growth, around which there remains much complacency. As a market-based movement, sustainable business tacitly upholds – certainly does not seem to challenge – the notion that economic growth is only beneficial and not detrimental. The default belief is that economic growth is necessary to drive technological development and to provide the funds for costly abatement. *But this is to miss the physics for the finance*. Here again, a simple horizontal line transforms our understanding, by recontextualizing economic thinking.

Growth in a world of horizontal lines

Since the early 1990s, the confident prescription of mainstream economics has been that economic growth is not only not a problem for environmental issues but the solution. A so-called Environmental Kuznets Curve (EKC) postulated an inverted-U-shaped relationship between environmental quality and per capita income (see left-hand side of Figure 4).[24] The hypothesis is that while the early stages of economic growth might damage the environment, as societies became wealthier, they develop the means to remedy the damage. The EKC is the piece of economic theory that rationalizes 'win-win' at the macro-level – its prescription: 'if you are in an ecological crisis, grow your way out'.[25]

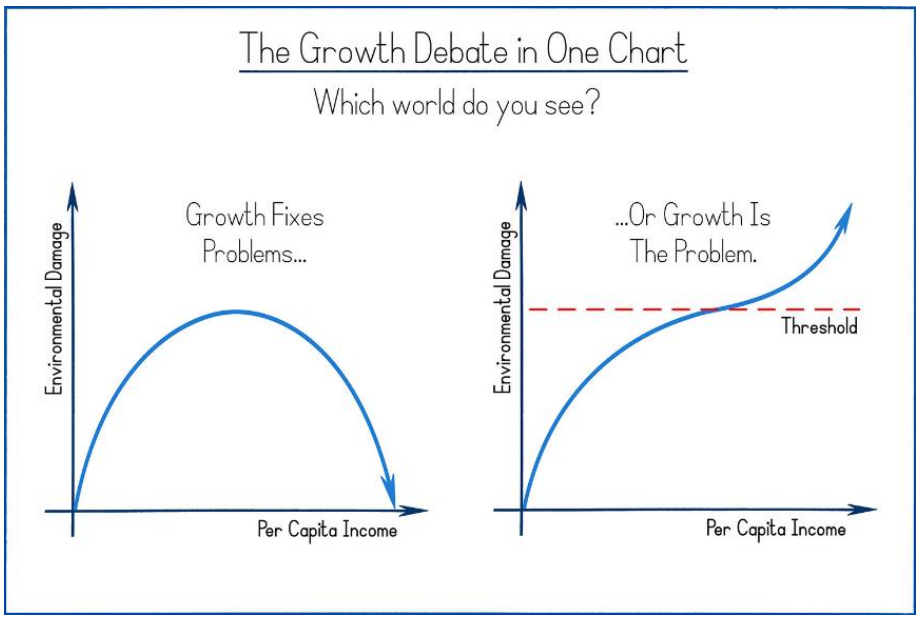


Figure 4: The growth debate in one chart

Important weaknesses in the hypothesis have since been identified. First, it was premised on local air pollution problems not global systemic problems which it may describe less well. Localized pollution is a 'shorter loop' problem because its spatial concentration and the likely high overlap of polluters and pollutees means it is hard not to connect the dots between cause and effect and so be prompted to address the problem.[26] Second, as an empirical exercise, the EKC glossed over causation. Subsequent work suggests it is not that wealth magically leads to environmental improvement, but rather that wealth increases the appetite to introduce binding policies which force the environmental improvement.[27] In other words, you still need the policy.

But by far the biggest weakness of the EKC is that it was formulated within economics' default open-ended worldview that denies the possibility of irreversible biophysical thresholds. While that might be excusable when thinking about local air pollution – which may be unpleasant for a period, but not permanent – it may not be the correct assumption for global, whole-system, problems. And so, Figure 4 is another Rorschach test for our times. Which view do you see? Why?

It's the physics, stupid!

The implications of applying a horizontal line to the EKC formulation are profound. In a world of irreversible biophysical limits, today's wealth generation may trigger global-scale ecological breakdown along the way that renders our hypothetical ability to fix problems subsequently a moot point. Adding a horizontal line coaxes us to look through the economics for the underlying physics of the sustainability challenge.

To emphasize the point, consider that even 'green' solutions have meaningful climate and biodiversity footprints. Given that many green solutions have a profile of generating upfront energy or material use in return for future environmental savings, at some point we will reach – may already have reached? – a time when *even the economic activity required to develop a sustainable economy might lead us to transgress thresholds*!

The environmental profile of the electric vehicle (EV) demonstrates the problem. The expected lower carbon footprint of an EV over its full life cycle conceals their much higher carbon emissions in manufacture. For example, Volvo's life cycle analysis of its Polestar 2 EV reveals it is 63 percent more carbon-intensive to produce than its conventional counterpart.[28] The Polestar 2 'breaks even' in carbon terms after 78,000 kilometres, or about 6 years' driving. Other studies find similar results. VW's E-Golf breaks even against its diesel equivalent after 125,000 kilometres, or 9 years' driving.[29] Technically, the claim that EVs are greener than conventional cars is a 'time-integrated' claim which ignores the temporal profile of the emissions and the fact that EVs might be worse for up to 9 years before they are eventually better. But, in a real-time 'bend the curve' situation, the timing of emissions matters enormously. (And these are just climate-based analyses that do not account for considerable upfront ecological problems of cobalt, lithium and nickel mining).

Multiplied across millions of EVs and many other green solutions that similarly impose upfront environmental impacts, we must be increasingly alert to the near-term footprint associated even with building a green economy. Indeed, 'build back better' writ large sounds like a strategy that might lead to a lower footprint future but only with considerable near-term transformations of matter and energy.

The real danger is not the 'green' transformation, which we must prioritize even with its upfront impacts, but that our enthusiasm for 'green growth' licenses growth in general, which sees mostly non-green growth result – for most of our Earth-transforming economic growth makes no contribution at all to a sustainable future. Determining the green/non-green mix of the whole global economy is a considerable task, but the signal from incremental growth is discouraging: a March 2021 UNEP analysis of COVID-19-related fiscal stimuluses by 50 leading economies identified that only 18 percent of $14.6 trillion planned recovery spending could be considered 'green'.[30] Over three quarters of new stimulus is not 'sustainable'. Against fast-approaching thresholds, most of the growth is not green, most of the building back is not better. If even 'green growth' brings us closer to thresholds before then taking us away, our disregard for the impacts of non-green growth is increasingly hazardous.

The challenge for sustainable business

The challenge for sustainable business is that, as a market-based movement, it tacitly endorses – or makes hardly any challenge of – economic growth. Sustainable business certainly espouses a preference for 'green growth', but that merely reinforces the entrenched preference for growth in general, with the consequence of waving through mostly non-green growth, at a time when environmental tolerances are wearing thin. Effectively, the sustainable business community is acting as if the EKC were true, almost certainly without Boards of Directors having pondered its flaws.

We are missing the physics for the finance. A major root cause of our sustainability problems is that the economic values we steer by are so decontextualized from the underlying natural world that a large part of our sustainability challenge is to see through the blindness that economic and financial conventions induce.

Our ecological problems arise from matter and energy flows not financial flows. Our current situation has arisen because we have transformed the matter and energy of the world at a much faster rate than the natural world can absorb. Given the entropic toll of every such transformation, it is our underexamined urge to keep transforming – even with good intention – that is the core driver of our ecological crisis. But, in what sustainability researcher Pasi Heikkurinen has termed our 'transformation paradox', our instinctive response to problems caused by past excess transformation of the world's matter and energy is to keep transforming![31] Our increasingly urgent ambition to build a green economy masks the deeper point that we remain firmly upon a transformation treadmill. We say 'greener', the Earth just registers 'more'.

Buying time

Though the EKC frames ecological sustainability as a growth problem, the underlying physical reality looks much more like a business liquidity problem – the human future is bright so long as we do not breach natural covenants and fall into the 'valley of death' in getting there. Liquidity problems are always 'races against time' in which one of the most precious commodities is more time. How can we buy time for our sustainability crisis? By consciously slowing down those parts of the economy making no contribution to a greener future economy.

The sustainable business community has generally shied away from notions of degrowth, post-growth and similar. The terms are arresting, albeit they have the considerable merit of getting to the point. No consultant coyness, here! At the very highest level, following 200 years of industrial market-led expansion and the Great Acceleration it has triggered, degrowth articulates the wisdom that 'sometimes you have to slow down to let the wind catch up'. We have outrun Nature's ability to renew and regenerate. It is not just climate scientists and ecologists, but physicists too, who now urge us to see the physical reality beneath the economic facade. As Steven Chu, Nobel Prize winning physicist, told world leaders at the recent climate summit: 'you have to design an economy based on no growth or even shrinking growth.'[32]

Critically, the degrowth or post-growth that advocates have in mind is not the sporadic recessions that upset our prevailing growth mindset, but rather an intentional, radical transformation and re-conception of prosperity, welfare complete with transitional justice. In a sense, from where we find ourselves today, degrowth is the necessary first step to the ultimate end which is really 'balance' – a coming back into balance or homeostasis with the natural systems upon which we depend. As a culture, we seem to have growth down pat – with metrics and incentives galore – but we have a much less developed sense of balance.

A key characteristic of a healthy ecosystem is that the incessant growth of its parts combines to create to an overall holistic balance. Nature balances growth and balance, if you will. Modern Western culture does not know how to do this and our willingness to learn from past and present human cultures that have demonstrated this aptitude is hindered by our inclination to dismiss them as 'indigenous' or 'primitive'.[33] Ironically, for all the keen interest in 'biomimicry' – learning from Nature's strategies – there appears to be less enthusiasm for learning from those human beings whose strategies exemplify a deeper understanding of Nature than our own.

4. WOULD THE REAL 'SUSTAINABILITY' PLEASE NOW STAND UP?

With today's clash between the demands of net zero and the hopes of win-win, we have reached the decisive moment. Contrary to early hopes that a win-win narrative might stimulate sufficient voluntary action to constitute 'enough sustainability', the learning has emphatically been that win-win cannot scale to deliver enough ecological improvement, fast enough. This difficult truth can no longer be ignored.

The challenge for all organizations aspiring to be sustainable – from governments to businesses to non-profits – is to clarify for themselves and their various stakeholders what definition of sustainability they intend to work to. Are they 'more sustainable than before' organizations or are they organizations committed to creating a world that is 'sustainable enough before it is too late'?

The ramifications are enormous. To persist with the former definition, which has been the tacit default for the sustainable business movement, is to propagate an increasingly untenable win-win narrative that suppresses the recognition of the emergency situation we now face. It also perpetuates complacency about economic growth at a time when most growth is not green at all and ecological thresholds are fast approaching. In contrast, to adopt the latter definition is to accept we now must do everything possible to catalyze science-based policies and beahvioural change, and work back from there to new definitions of 'growth' and 'profit'.

Moreover, the situation is not static. In a race against time, every moment of inaction, or even of insufficient action, is effectively a costly delay. We are fast approaching the time when 'more sustainable than before' is 'not sustainable at all'.

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