



Investing in Degrowth

Funding the transition to a new economy

Jennifer Wilkins and Bill Murphy
13 December 2021

Another world is possible.

- Tim Jackson, 2009, Prosperity Without Growth: Foundations for the Economy of Tomorrow

There is no other world.

- Kim Stanley Robinson, 2020, The Ministry for the Future

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1. About

This white paper has been co-authored by Jennifer Wilkins, founder of Heliocene, and Bill Murphy, Executive Director of Purpose Capital.

About Heliocene

Heliocene is a website presenting a deliberately small, continually updated set of articles and original research on the vast, fast-moving topic of business sustainability. The goal is to succinctly explain the progressive sustainability concepts and ideas that are emerging around the world, shaped to Aotearoa New Zealand points of view.

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About Purpose Capital

The Purpose Capital Impact Fund is a collaboration between the New Zealand business, investment and philanthropic sectors. Combining the power of the commercial with the expertise of the philanthropic, Purpose Capital brings new resources and capital to projects and organisations working toward social and environmental solutions.

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2. Foreword

How can we change our economy so that it works better for everyone and limits our impact on the planet? Many of us have posed that question in the last two years and have found answers, or partial answers, in green growth, sustainability, ESG, impact and other forms of purpose-driven investing. We've then rested on our laurels, without necessarily stopping to think about the flaws inherent in our decisions – or about other decisions we could have made instead.

The authors of this white paper set out another pathway – they call it degrowth. It is recognising the planetary boundaries and social foundation of the world we live in and what that means. It is uncomfortable for many of us to read and think about, whether we are investing purely for impact or purely for profit, because it calls into question everything we've been taught in economics and finance and seems to counteract our cultural and structural beliefs. It seems the opposite to traditional teaching about how to achieve, increase and share prosperity.

Degrowth is a consciously provocative and contentious word because its advocates are proposing systemic change of a kind we've never seen before. But if investing in degrowth seems paradoxical, is believing in constant growth – of sales, balance sheets, dividend flows, equity – any more realistic in the world we live in today?

I encourage investors and other readers of this paper to think about how we can live using fewer resources, how we can repurpose and reuse rather than simply dispose, and to think about whether degrowth doesn't actually enhance value in companies that do it well. We are starting to reward emissions reduction, waste reduction and process efficiency; isn't degrowth a logical continuation of that journey?

We have many social and environmental issues to address in our world. We're finally thinking in terms of climate awareness, and now we're thinking as well about natural capital and inequality – we're on an exciting journey as capitalism rediscovers itself, and it goes far beyond just greening the economy. Degrowth (including, for instance, circularity) is a significant part of this journey, and this thought-provoking white paper is a welcome addition to the canon of ideas for our country and our world.

David Woods

*Chair, NZ National Advisory Board for Impact Investing
Leadership Group, Centre for Sustainable Finance
Deputy Chair, NZ Green Investment Finance*

3. Executive Summary

This white paper brings together two exceptional ideas – investing and degrowth – that seem diametrically opposed. How can you invest in things that shrink rather than grow? But surely it is possible and can help us become a more equitable society on a safe, healthy planet. The aim of this paper is to investigate why we should be investing in degrowth and what that might look like.

We, the authors of this report, believe that degrowth could be the key mechanism for humanity's transition this century toward the emerging ideal of a climate positive, nature regenerative, inclusive and fair global economy.

Global transition requires interventions that lever effective change, from quiet local community transformations that fly under the radar to business and political upheavals on an international scale. One intervention must be the diversion of funds from growth projects to degrowth transition projects.

We do not underestimate the magnitude of change that degrowth suggests, after all it is a new political economy to replace the globally entrenched paradigm of capitalism and economic growth that has served developed nations (such as New Zealand) so well.

But nor do we underestimate the devastating climate, nature and social issues that could lie ahead if we continue to run our lives and economy as if there are no limits to how much we produce and consume. Green growth proponents' reliance on speculative decoupling technologies that promise an answer to the climate crisis represents a high risk approach to sustaining humanity.

Whereas the collapse of the growth economy would wreak havoc on society, degrowth represents a feasible option for an orderly transition to a steady, differently calibrated, future economy operating within the limits of a social foundation and an ecological ceiling.

Ultimately, this paper asks those in the investment community to deeply consider the purpose of their investment strategy and whether they are willing to place their capital into projects that provide a more inclusive set of returns in order to bring about an economic revolution that could not only save humanity from a crisis but propel it toward a new ideal.

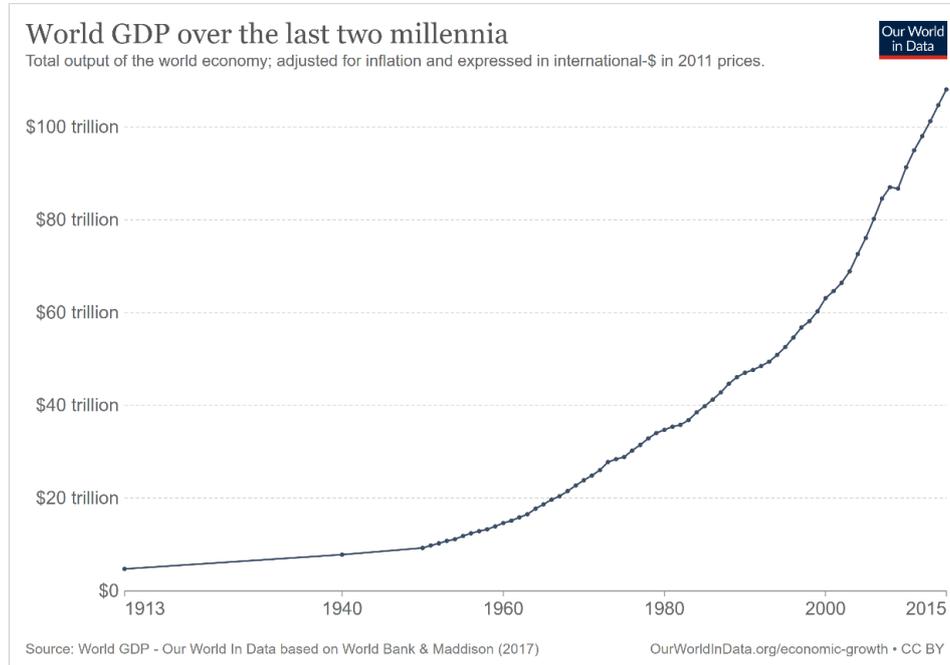
4. We Have An Unsustainable Economy

The current economy is predicated on continuous growth, much of it generated from the extraction of resources, land use change and combustion of fossil fuels for energy, causing ecological overshoot, manifesting as nature loss and climate change. The wealth that past growth has created has been poorly distributed, leading to severe and widening inequality that has resigned billions of people to poverty, while financial resources have been accumulated by a global elite. Wealth is also being extracted from the future. For the first time, young adults are destined to be poorer than their parents.

4.1. GDP Growth Reflects Population and Output Per Capita Growth

An economy is the set of production and consumption activities that exist to fulfil the needs of the people who live and operate within that system. GDP, the market value of goods and services produced, is a measure of the size of the economy. GDP growth has a stabilising effect on society, generating profits for businesses, returns for investors, taxes for governments and wages for workers. Global GDP has been growing exponentially since the mid-20th century (see chart below). Through 1913-2012, the average annual world GDP growth rate was 3%, of which 1.4% was due to population growth and 1.6% was due to per capita output growth.¹

World GDP 1913-2015, Our World in Data



While 3% growth per annum doesn't sound like much, it equates to a doubling of the economy every 25 years or so. Growth occurs in two ways: intensively, using current capitals, such as generating productivity improvements from existing labour or innovation from research; or extensively, by adding more capitals, such as land use change or resource extraction.

4.2. GDP Growth Has Failed To Provide A Social Foundation For All

Skewed wealth and skewed growth in wealth

Countries in the global north, as a result of colonial exploitation and industrialisation, grew their GDP earlier than most other nations and acquired or appropriated assets. They have accumulated immense wealth per capita that is based, not only on productivity gains, but also on assets owned, such as shares and property, whose values reflect expectations of high future returns.

Wealth per capita globally is \$80,000, but this is skewed from \$7,371 per person in Africa to \$486,930 per person in North America. Even in wealthy countries, wealth is skewed toward an elite few. The world's richest 1% of people (including 214,000 New Zealanders and 1,654,000 Australians) hold 46% of global wealth, while the world's poorest 55% of people hold just 1.3% of global wealth. During 2020, COVID-19 slowed the economy causing global GDP to fall by 5.9%,² but global wealth grew by 7.4%, primarily because consumption dropped and savings rose, benefiting the upper wealth echelons more and increasing wealth inequality in many countries.³

Wealth inequality constrains opportunity through community segregation and unequal access to education, entrenching economic immobility, often intergenerationally.⁴ Growth in wealth inequality is the biggest driver of global poverty, a core metric of global human development and number one of 17 global sustainable development goals (SDGs) embedded in the United Nations 2030 Agenda.

4.3. GDP Growth Has Overshot The Ecological Ceiling

Overproduction, overconsumption, waste and pollution

Economic growth is concerned with increasing the total value of goods produced. However, not everything that is produced is needed, so marketing plays a key role in stimulating consumption of excess production, with citizens of wealthier OECD nations consuming growth for growth's sake – fast fashion, processed food, global travel, bigger homes and larger cars – convinced by marketers that these things satisfy real needs. Extraction of resources (including biomass, fossil fuels, metallic ores and non-metallic minerals) has increased fourfold in the last fifty years from 27 billion tonnes in 1970 to 100 billion tonnes in 2020, and is projected to reach 167 billion tonnes in 2060.⁵

Global production is only 8.6% circular, with more than 91% of materials used being ultimately wasted or dumped rather than being recirculated into future production.⁶ As well as driving up extraction, this results in pollution that degrades environments. Marine plastic pollution, for instance, has increased tenfold since 1980.⁷

Industrial methods produce by-products that are released into the air, water and land, leading to ecosystem contamination and human illness and deaths. Globally, 90% of people breathe polluted air, which is leading to 7 million deaths per year.⁸ The worst polluting industries are used lead acid battery recycling, mining and ore processing, tanneries, dumps, industrial estates, smelting, artisanal small-scale gold mining, product manufacturing, chemical manufacturing and the dye industry.⁹

Nature loss

Nature loss is driven by land use change (49%), resource extraction (25%), invasive species (13%), pollution (8%) and climate change (5%), and is affecting the resilience of the environments that we live within and rely upon for foods, medicines, clean water and clean air.¹⁰ Up to 75% of the genetic diversity of food crops is already lost.¹¹ Three quarters of global food crops rely on animal pollination and are threatened by numerous possible abrupt ecosystem collapses that are looming cataclysmically on the horizon.¹²

Nature loss also drives climate change. Marine and terrestrial ecosystems are the sole sinks for anthropogenic carbon emissions, but damaged ecosystems can become carbon sources.¹³ The vast Amazon rainforest, for instance, released 20% more carbon dioxide than it absorbed during the last decade.¹⁴ OECD consumers indirectly drive deforestation equivalent to four mature tropical forest trees per person per year through purchases containing imported commodities, including pulp and paper, beef and leather, timber, soy, palm oil, cocoa and rubber.¹⁵

Climate change

Climate change is caused by global warming due to increases in well-mixed greenhouse gas (GHG) concentrations in Earth's atmosphere. These concentrations have been rising since around 1750, the commencement of the industrial era, and are unequivocally caused by human activities, primarily energy use in industry (24%), buildings (17%) and transport (16%) and direct emissions from agriculture, forestry and land use (18%).¹⁶

Global surface temperature was 1.09C higher in 2011–2020 than 1850–1900. This is affecting weather in every region of the world, exacerbating climate extremes, such as heatwaves, heavy precipitation, droughts and cyclones. Climate projections tell us that the hotter the planet becomes, the more chaotic and disastrous for humanity the climate will be.

Some climate change effects are locked in, such as sea level rise, which is committed to keep rising due to continuing deep ocean warming and ice sheet melt, and could remain elevated for millennia. By 2100 in some areas, coastal flooding that occurred once a century in the recent past could be a yearly event¹⁷ and areas now home to 200 million people could fall permanently below the high tide line.¹⁸

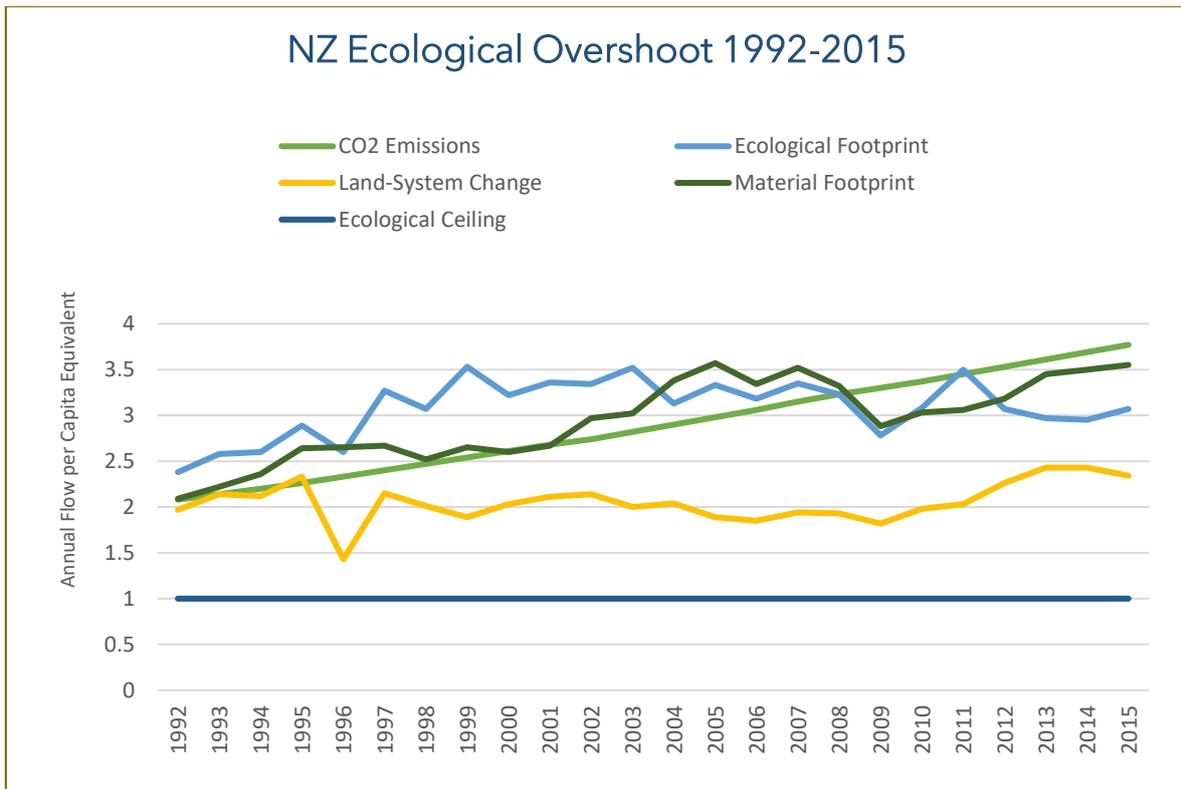
While global CO₂ emissions fell 5.4% in 2020 due to COVID-19 lockdowns, they rebounded in 2021, increasing by 4.9%, with further increases expected in 2022, assuming road transport and aviation return to pre pandemic levels.¹⁹ The residual global carbon budget to remain within 1.5C of global warming is 460 billion tonnes CO₂ from end of 2020. At the current rate of global emissions of 36 billion tonnes per year, the residual carbon budget will be depleted by mid-2032.²⁰

4.4. We've Met A Social Foundation Or Ecological Ceiling, Not Both

Evidence shows that not one nation's economy is fulfilling the needs of its people within ecological boundaries. Wealthy countries are using far more than their fair share of the world's resources to make incremental social gains, while poor countries are living within planetary boundaries but underachieving on key welfare metrics, such as life expectancy and access to energy.

Measured against six key biophysical boundaries and ten key social thresholds, the average number of biophysical boundaries respected per country is less than three and is reducing, while the average number of social thresholds achieved per country is four and is rising. Countries tend to overshoot their fair shares of biophysical boundaries faster than they achieve minimum social thresholds.²¹

New Zealand is typical of richer nations in that it is meeting almost all social thresholds, but has been overshooting biophysical boundaries for decades, by a factor of between 2 and 4. The chart below shows New Zealand data for the period 1992-2015 for four biophysical indicators normalised such that the value 1 represents the suggested biophysical boundary. New Zealand land use change has continually exceeded the boundary by a factor of 2. Our ecological and material footprints, which rose throughout the 1990s, both dropped dramatically during the GFC but have rebounded and are now more than 3 and 3.5 times respectively above their boundaries. Carbon emissions have steadily risen and are in severe overshoot, approaching 4 times the boundary.



4.5. Genuine Progress Is Less Than Half Of GDP Growth

The Genuine Progress Indicator (GPI) provides a measure of national wellbeing by adjusting GDP for social and economic factors.

There is no agreed standard for calculating a nation’s GPI, however a study evaluated New Zealand’s GPI 1970-2006 using the following indicators:

- social factors - income inequality, non-defence public consumption, unemployment, underemployment, overwork, the services from public capital, household and community work, commuting, private defensive expenditure on health and crime
- environmental factors - loss and damage to terrestrial ecosystems, loss of wetlands, soils and air quality, land degradation, climate change, reduced water quality, ozone depletion, loss of renewable resources and noise pollution

It was found that from the early 1990s onwards, whereas GDP doubled, the GPI increased by less than 50%.²²

4.6. GDP Growth Is Slowing

GDP growth is slowing due to deglobalisation, aging populations and climate change

Instability hinders GDP growth and we have entered an era of macro instability that will stretch for decades ahead. Annual real GDP growth for OECD+G20 nations is projected to decline from ~3% pre COVID-19 to ~1.5% in 2060 due to trending deglobalisation and projected aging of populations. This excludes the effects of climate change, which will weaken GDP further to an extent that depends upon the efficacy of global mitigation and adaptation actions.

- Deglobalisation is occurring as a result of, firstly, sovereignty issues arising from a mix of strongman politics that are weakening trade and diplomatic relations and, secondly, pandemic pressures on supply chains that have catalysed national independence measures, such as reshoring manufacturing to domestic companies, diversifying supply chains and restricting foreign direct investment in strategic industries.²³
- OECD nations with aging populations and high debts will strain to invest in the infrastructure needed to maintain public standards (eg health care) and provide benefits (eg public pensions). Structural reform, such as increasing effective retirement ages, is a possible lever that could be applied to increase GDP.

The next generation will be poorer

In 1998, more than half of people in the UK earning 10-50% of the average national wage had a mortgage and it took three years to save a deposit, whereas now only a quarter of people in that wage bracket own their home and it would take 22 years to save an equivalent deposit.

One third of young people find work through online platforms, which is precarious, low paid and lacks guarantees and benefits. Furthermore, young people enter the market with greater student debt than their parents.²⁴

For the first time in the history of capitalism, the next generation will be less well off than their parents and may have to work longer to fund their retirements. The current economy is no longer creating wealth for the future.

5. Creating A Sustainable Economy

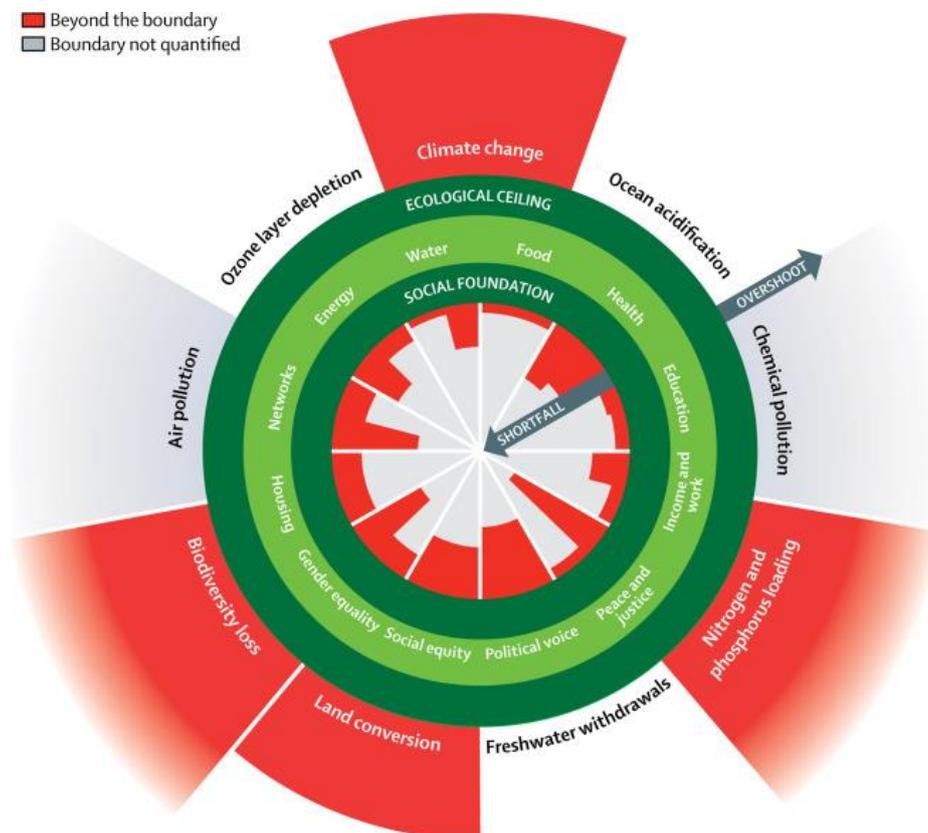
We need a global economy that is sustainable - that delivers a social foundation for the whole present generation within ecological boundaries without limiting the ability of future generations to do the same.

The parameters of a sustainable economy are described by Kate Raworth's Doughnut of Social and Planetary Boundaries (the green rings in the model, below).²⁵ An estimation of the global economy's social shortfall and ecological overshoot are mapped (in red) onto the doughnut. This conveys that the current economy is not working for most people on most social issues and has dangerously overshoot at least four ecological boundaries. To achieve a sustainable economy, we must either adapt our current unsustainable economy so that it becomes sustainable, or we must transition to an alternative economic ideology that is deliberately sustainable.

In the following sections, we show that:

- the adaptation of the current growth economy to green growth is well underway, but the core promise - to decouple growth from material use and GHG emissions - is not being met as it depends on technologies that aren't commercially existent
- a process has already begun for a transformation to a degrowth political economy that is socio-ecologically sustainable by design; and, although many barriers exist, not least a dearth of detail around transition levers, this is happening from the ground up and has growing support

Doughnut of social and planetary boundaries, Raworth, 2017 (based on Rockström et al, 2009)



6. From Growth to Green Growth

Green growth is a strategy for continuing output growth while addressing environmental impacts. The 1.5C global carbon budget will be used up by 2033 at the BAU rate of emissions, so decarbonisation is a key focus but is reliant on speculative technologies. Businesses are using ESG metrics to support green growth and are incrementally changing for the better, which has led to a small but fast growing sustainable investing and finance industry.

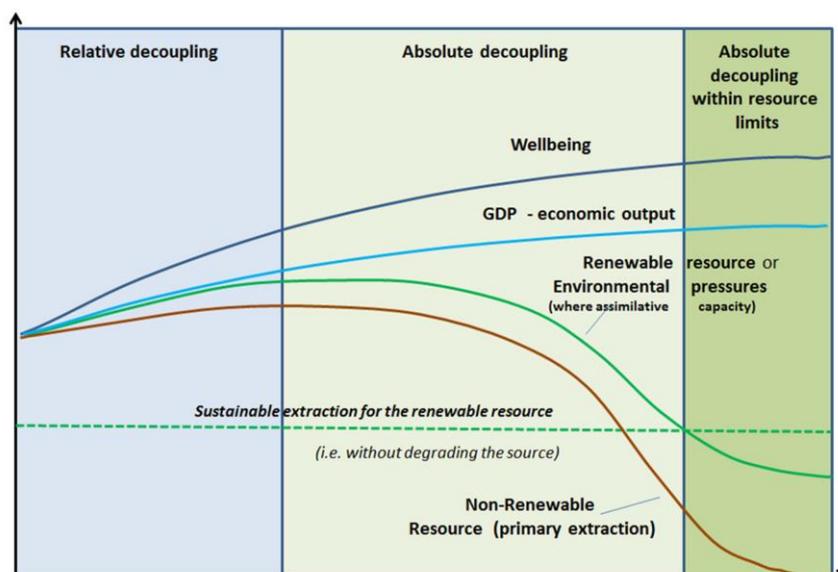
6.1. Green Growth Assumes Absolute Decoupling

The IMF proposes halting fossil fuel subsidies, a global carbon price and deficit-financed green supply policies to raise global GDP by 2% this decade, with carbon pricing revenues used to create 30 million new jobs and fund a just transition to a green economy.²⁶ This is green growth, the idea that GDP growth and social progress can be decoupled from environmental and climate impacts; that is, as economic output and wellbeing grow, negative effects on the planet will grow at a relatively slower rate, or stop growing or even reverse.

Relative decoupling (see blue segment in the chart below) means that as GDP and wellbeing grow, negative environmental impacts grow relatively slower. This is frequently achieved for material use and GHG emissions through resource and energy efficiencies and shifts to renewable energy. It is also occurring at scale. China and Thailand, for instance, have been successful in achieving long term relative decoupling of energy use and industrial output.²⁷ Yet, potential relative decoupling gains are almost always slowed due to a lack of proactive policies to counteract Jevon's Paradox (the rebound effect), whereby resource efficiencies lead to lowering of prices and increased resource demand.²⁸

Absolute decoupling (see green segments in the chart below) means that as GDP and wellbeing grow, negative environmental impacts stop growing (flatline) or reduce (eg through regeneration). Examples of long term absolute decoupling are very rare and are not occurring at scale. Note that absolute decoupling may have to be extensive before impacts would be within ecological limits.²⁹

Decoupling concepts (Fazio et al, 2016)



6.2. Sustainable Development Assumes Absolute Decoupling

Sustainable development is a global agenda for the formulation of policies to advance human development, facilitated by the United Nations. Under the 2015-2030 Agenda, Member States have agreed to 169 non-binding targets, grouped under 17 symbolic global sustainable development goals (SDGs) (see image below).

Absolute decoupling is explicit in the Agenda's three co-equal pillars of social, environmental and economic sustainability, expressed through the indivisibility of the SDGs - which aim for economic growth (SDG 8) alongside the elimination of poverty (SDG 1) and hunger (SDG 2), climate action (SDG 13) and life on land (SDG 15) and below water (SDG 14) - to be met through synergies, not compromises.

UN Sustainable Development Goals, 2015



The economy is failing to maintain sustainable development

By 2019, four years into the UN 2030 Agenda, the world was not on track to meet any of the SDGs by 2030.³⁰ COVID-19 slowed progress further in 2020 across all key development measures and, in some cases, progress reversed.³¹ This, you might say, was only to be expected. However, the public and private sectors had had repeated scientific warnings of a known 'threat of a rapidly moving, highly lethal pandemic of a respiratory pathogen killing 50 to 80 million people and wiping out nearly 5% of the world's economy'³² and had failed to improve global resilience, being focused so much more on economic efficiencies.³³

There are now 750 million people living in extreme poverty (on less than \$1.90 per day),³⁴ 155 million people living with a crisis level of food insecurity and eleven deaths from hunger or malnutrition per minute.³⁵ At the time of writing, 95% of people in low income countries remain unvaccinated.³⁶

6.3. ESG Is Not Transformational

ESG metrics are not driving meaningful business sustainability outcomes

Executives and boards are slowly gaining confidence that social and environmental sustainability initiatives can help meet financial goals and reduce risks associated with sustainability issues, such as legal risks, reputational risks and scarcity of resources. Ethics and governance are also

improving due to stakeholder pressure, including reconsidering the purpose of a corporation to reflect shareholder interests that are non-financial in nature.³⁷ Some businesses are also widening their definition of stakeholders beyond shareholders.

Practices to monitor, measure and manage business effects around environmental, social and governance (ESG) metrics are being widely adopted. ESG disclosures, although still relatively poor in quality, are supplementing the financial data that is shared between the business and financial sectors, with 58% of CEOs experiencing demand from stakeholders for increased reporting and transparency on ESG issues.

Yet only 37% of CEOs believe that their current ESG programs will improve financial performance and they ‘struggle to tell a compelling ESG story’ to investors.³⁸ Consequently, while sustainability goal setting and sustainability reporting are increasing, this is not being integrated into core business strategy. Thus, mainstream business sustainability practices are incremental in nature and effect, with positive results not being widely seen or felt socially and environmentally.

Sustainable investment protects capital but does not drive change

Sustainable investment is an approach that considers ESG factors in portfolio selection and management. The most popular strategies are ESG integration (inclusion of ESG factors in the financial analysis that leads to investment decision making) and negative/ exclusionary screening (exclusion of certain activities that are not considered investable, eg tobacco).³⁹ Goldman Sachs will allocate US\$750 billion to climate transition and inclusive growth through sustainable finance, investing and advisory by 2030. Citigroup will allocate US\$1 trillion by 2030 to the transition to a sustainable, low-carbon economy that balances environmental, social and economic needs.

The financial sector is helping finance the green transition through new sustainable finance instruments, including use-of-proceeds bonds and loans, where proceeds are used to finance environmental or social projects, and general corporate purpose bonds and loans that link finance terms to sustainability targets, such as an ESG score by a specific rater. Sustainable finance products include green, blue, social, sustainability-linked, SDG-linked, climate transition and adaptation bonds and loans. In 2020, the global green bond market, the largest, most mature sustainable finance market, achieved the key milestone of US\$1 trillion in cumulative issuance since 2007.⁴⁰

Global investment assets described as ‘sustainable’ now represent more than one third of total assets under management, an increase of 15% in two years. Yet, green bonds that must meet specific strict principles represent no more than 3% of global fixed-income assets, which indicates that the vast majority of sustainability lending and investing is to business-as-usual activities that exhibit any hint of ESG flavour. There is little evidence that the most common sustainable investing strategies have a relevant impact on sustainable development goals: ‘Sustainable investing helps to diffuse good business practices, but is unlikely to drive a deeper transformation.’⁴¹

Lenders and investors blame a lack of consistency and comparability in ESG reporting for the environmental and social underperformance of sustainability investing; however, global sustainability standards (issued by GRI) have been in existence since 2000 and are used by 73% of the world’s largest 250 firms and 67% of the largest 100 firms in 52 countries to report on their sustainability performance.⁴² The information gap that really matters to investors, and the true source of investor caution, is the perceived lack of integrated ESG and financial data that would be useful for quantifying the financial risks of sustainability issues. Initiatives to address this gap include the Taskforce on Climate-related Financial Disclosure (TCFD), the Taskforce on Nature-related Financial Disclosures (TNFD), the Taskforce on Inequality-related Financial Disclosures (TIFD) and the new board established by the IFRS to oversee the issue of reporting standards that focus specifically on sustainability risks to enterprise value. The XRB is currently developing a

reporting standard to support new mandatory reporting on climate risks in New Zealand, aligned with TCFD recommendations.

In summary, sustainable investing and finance are less to do with driving change and more about protecting capital; however, ‘protecting an investment portfolio from the disastrous effects of climate change is not the same thing as preventing those disastrous effects from occurring in the first place’.⁴³

6.4. Growth Is Not Absolutely Decoupling From Climate Impacts

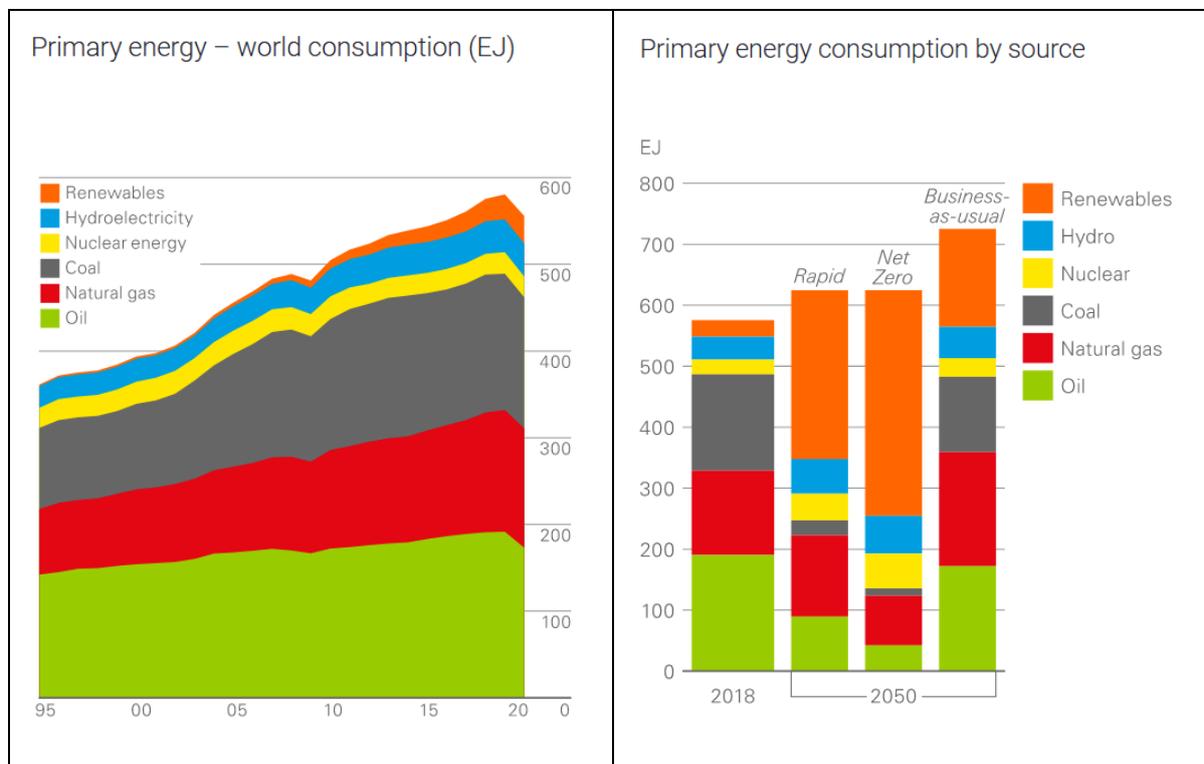
Relative decoupling is commonly being achieved, however impacts are increasing

Global energy intensity declined by one third between 1990 and 2015, and has the potential to fall by a further one third through structural and technological change.⁴⁴ However, overall energy demand is projected to grow from less than 600 EJ in 2018 to more than 700 EJ by 2050. Global materials intensity is projected to decline at a rate of 1.3% per year on average, although total materials use will double from 70Gt in 2011 to 167Gt in 2060.⁴⁵

Renewable energy rate of change is not aligned with Net Zero projections

Global primary energy consumption fell 4.5% in 2020 due to COVID-19, the first decline since 2009 and the largest decline since 1945 (see graph below, left). This is just a blip. BP predicts that energy demand will grow by 0.7% pa in a BAU scenario or by only 0.3% pa in a Rapid Transition or a Net Zero scenario (see graph below, right), assuming carbon prices rise to \$100/tCO₂e by 2030, \$200/tCO₂e by 2040 and \$250/tCO₂e by 2050.⁴⁶

World primary energy mix historic data and 2050 scenarios, BP, 2020



Future demand will be met through an evolving energy mix. Under the Rapid and Net Zero scenarios, BP projects that renewables (wind and solar PV) would be by far the dominant energy source in 2050.

However, we are not on that track. While growth in renewable energy capacity will be 50% more in 2021-2026 than in 2015-2020, it would need to be 100% more to be aligned with a Net Zero scenario and levels of investment in clean energy would need to triple from 2020 levels by 2030.⁴⁷

Lithium, cobalt and nickel are essential to generating renewable energy. The average amount of minerals needed for an additional unit of power generation capacity has increased by 50% since 2010, with the world on track to double its mineral requirements by 2040, but needing six times more minerals by 2050 to meet a Net Zero scenario. Projected demand for critical minerals outstrips projected supply and investment, which could impact the rate of clean energy transition.⁴⁸

Technological innovations are not yet feasible

It is estimated that 75% of industrial technologies that are suggested as necessary for absolute decoupling are not yet commercially mature or feasible.⁴⁹ These include low-emissions, carbon capture and storage and carbon negative technologies. Mitigation levers that are available can be costly in the short to medium term, placing adopters at an economic disadvantage.⁵⁰ In fact, some available options are not being taken up as they would incur a net cost per tCO₂e reduced.⁵¹

Additional bio-sequestration opportunities are limited

The safe planetary boundary for atmospheric concentrations of CO₂ is 350ppm, but the current level is much higher and rising rapidly, increasing from 400ppm in 2015 to 413ppm in 2020.⁵² Additional biophysical sinks, such as regenerated soils and afforestation, and halting the destruction of existing sinks due to land use change, are vital to removing existing atmospheric CO₂. However, opportunities are limited, with the maximum feasible reforestation and afforestation activities over the next 50 years able to reduce CO₂ concentration by only 15–30 ppm by the end of the century.⁵³

Market-led carbon trading is being misused

With very limited additional bio-sequestration opportunities and few carbon drawdown technologies available, businesses should be focused on rapid emissions reductions, with offsetting reserved as a measure of last resort for very hard to abate, essential outputs.

Few businesses can claim their output to be essential or to have exhausted all options for abatement, yet more and more businesses are purchasing carbon credits, mainly from forestry projects, to offset business-as-usual emissions as these provide an economical option to theoretically achieve a net zero climate impact. Voluntary carbon trading increased 81% in Q1 2021, compared with Q1 2020.⁵⁴

Companies that purchase carbon credits tend to make more emissions cuts compared with companies that do not,⁵⁵ and supporters of offsets argue that many projects generate valuable biodiversity and social outcomes and would struggle to find funding from other sources.⁵⁶

On the other hand, while there are reputable criteria for bio-sequestration projects, including permanence, additionality, immediacy and robust accounting, third party audits have shown that even on verified projects these criteria are not always being met.⁵⁷ Other criticisms include the false carbon, temporal and geographical equivalences of fossil fuel emissions traded for biological carbon stores⁵⁸, the moral hazards of transferring obligations to reduce emissions to others elsewhere in the world and into the future,⁵⁹ and the impact on climate policy of mixing targets for emissions reduction and carbon drawdown.⁶⁰

6.5. Adaptation Is Becoming The New Climate Action

Climate change risk is the key investor concern

Climate change represents a high risk to enterprise value. Risk management approaches aligned with TCFD recommendations comprise both mitigation (ameliorating climate change through decarbonisation of business operations and the supply chain) and adaptation (building the capacity to adapt to emerging climate-related physical and socioeconomic risks through testing business strategy against a range of plausible future scenarios). Generally, businesses are more advanced on mitigation than on adaptation. Yet, emissions slowed only slightly due to COVID-19 lockdowns and are rebounding. Should the rate of global emissions remain constant, the residual global carbon budget to remain within 1.5C global warming will be used by 2033.

The large advisory firms have observed that mitigation is not happening at a sufficient scale or pace to make a difference to global warming, so are placing rising emphasis on adaptation, positioning climate risk assessment and resilience as core climate strategies.⁶¹ The extent and effect of climate change will depend upon the efficacy of all mitigation and adaptation actions taken. Adaptation strategies, while crucial to protecting people and assets, should not displace mitigation.

6.6. Unmitigated Climate Change Could Cause Economic Depression

The IPCC advises that a pathway to achieve the Paris Agreement of limiting warming to 1.5C by 2100 would be to halve global emissions by 2030, reach global net zero emissions by 2050 and sustain net negative emissions through the latter half of the century.⁶² Failure to mitigate would result in crop failures, causing food price inflation; mass migration, causing land price increases; rising energy demand, causing energy price inflation; increased damages, causing higher insurance premiums; and curtailment of insurance cover, requiring governments to underwrite risks. Global warming of 4C by 2100 would reduce global real GDP per capita by 7%, whereas limiting warming to no more than 2C would reduce it by 1%.⁶³

Nearly two thirds of countries and one fifth of the world's largest companies have a net zero commitment.⁶⁴ Nevertheless, climate pledges from 166 of 193 Parties to the Paris Agreement would cause global emissions, not to halve, but to rise 13.7% by 2030,⁶⁵ reflecting plans to produce more than twice the amount of fossil fuels in 2030 than would be consistent with limiting warming to 1.5C.⁶⁶

6.7. Conclusion

Green growth theory is a hopeful solution to the climate crisis because the dream of a thorough switch to renewables-based electrification and the availability of affordable negative emissions technologies at scale would enable the business and finance sectors to largely carry on with business as usual. However, nature loss and socio-cultural issues are poorly understood as interconnected factors, renewable energy infrastructure may not grow fast enough to meet the needs of an economy that doubles in size every 25 years and decarbonisation and decoupling technologies are highly speculative.

IPCC projections show that a slowly decarbonising economy would very likely cause global warming to reach 2C or more by 2050. This could tip the planet into new biophysical cycles we do not understand that could, for instance, severely interrupt global food supply. This could lead to recession, conflict and migration, placing immense stress on the social foundations that exist today in wealthy nations and that are being built in developing nations.

Green growth represents a high risk option for social, environmental and economic sustainability. Exploring another economic option is a rational response.

7. From Green Growth to Degrowth

Degrowth is an emerging idea of a new political economy that is socially and ecologically sustainable by design through a focus on delivering universal wellbeing above a social foundation and maintaining a resource and energy footprint within an ecological ceiling. Degrowth applies only to wealthy economies that have overshoot their fair share of the planetary boundaries.

7.1. What Is Degrowth?

A hypothesis for a new political economy

Degrowth is a hypothesis that it is possible to transition and live well under a different political economy that has a radically smaller resource throughput.⁶⁷ It specifically applies to high income/consumption/ impact per capita (OECD) nations - it does not apply to developing nations, which must continue to grow their economies to reach a social foundation.⁶⁸

Degrowth may result in a smaller GDP but it is not an induced recession. Recession is a decline in economic activity due to reduced consumption and unemployment, such as occurred following the Global Financial Crisis and has occurred as a result of COVID-19.

Degrowth policies, by contrast, would manage reduction in material throughput through:

- discriminately reducing economic activities that are ecologically and socially destructive
- increasing economic activities that are environmentally regenerative and socially supportive
- achieving a rapid transition to renewable energy
- improving employment and providing a universal income
- redistributing wealth over time

Degrowth scholarship

Degrowth was preceded by the idea of limits to growth. A seminal report of that name, written in 1972 by members of the Club of Rome, describes the impossibility of an infinitely growing economic system on a finite planet.⁶⁹ This was followed in the 1990s by steady state economics and the idea that above a certain threshold, the cost of growth exceeds benefits.⁷⁰ Degrowth emerged in the early 2000s from the campaign work of anti-consumerism activists in France.

Degrowth was introduced to a wider public with the publication in 2009 of the report Prosperity without Growth by Tim Jackson for the UK's Sustainable Development Commission. Over the last decade, degrowth has been taken up as a subject of research in economics, social sciences, political science, ecological economics and technological studies, bringing together many previously disjointed ideas (and rejecting others) to form a fuller, more cohesive vision of an alternative economy. There is no unifying political theory, as yet, and the term degrowth remains undefined. The movement is embryonic and 'theoretically wanting, yet creative in practice'.⁷¹

Key academics whose work and writing have made degrowth ideas more accessible include Dr Jason Hickel (economic anthropologist) and Professor Tim Jackson (ecological economist) in the UK, Dr Giorgos Kallis (ecological economist and political ecologist) in Europe, and Professor Brendan Gleeson (urban policy) and Dr Samuel Alexander (sustainable economy and consumption) in Australia.

Potential structural elements of a degrowth economy

The table below lists some of the ideas that degrowth scholars suggest may be an integral part of a successful degrowth economy. Some of these ideas are already being trialled in some jurisdictions.

For instance, Finland has completed a nationwide randomized control trial of a universal basic income program, providing 2,000 randomly selected people a guaranteed monthly payment of €560, which led to a ‘small increase in employment, significantly boosted multiple measures of the recipients’ wellbeing and reinforced positive individual and societal feedback loops’.⁷²

Income	Work
<ul style="list-style-type: none"> › Universal basic income (sharing national wealth) › Living wage › Minimum income, maximum income 	<ul style="list-style-type: none"> › Public sector job guarantee (supporting the common good) › Decent work › Reduced working hours
Services	Money
<ul style="list-style-type: none"> › Universal public services 	<ul style="list-style-type: none"> › Monetary diversity - alternative currencies › Sovereign banking - sovereign money › Slow finance - limits on financial transactions
Ownership	Stewardship of nature
<ul style="list-style-type: none"> › Cooperative ownership of business 	<ul style="list-style-type: none"> › Resource caps based on a fair share of use within ecological thresholds
Policies	Wealth
<ul style="list-style-type: none"> › Carbon and green tax › Carbon caps › Taxes on resource intensive goods 	<ul style="list-style-type: none"> › Maximum wealth

7.2. A Feasible Strategy To Keep Within 1.5C Global Warming

SSP1-1.9 is the only one of five illustrative emissions pathways in the IPCC AR6 report that is more likely than not to lead to a global temperature below 1.5C by the end of the 21st century, with a temporary overshoot of no more than 0.1°C above 1.5C during the century.⁷³

Almost all scenarios that fit within the SSP1-1.9 pathway depend on speculative technological solutions, such as high energy demand-GDP decoupling, large-scale carbon capture and storage and a large-scale, high-speed renewable energy transformation.

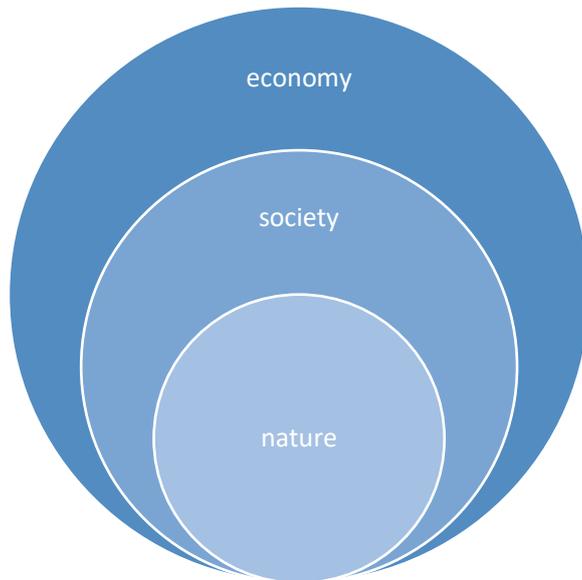
The Low Energy Demand (LED) scenario is the first scenario that is immediately feasible for pursuing an emissions pathway to 1.5C because it does not depend on unproven technologies.⁷⁴

LED describes how developed nations can slow down their material production and consumption: ‘Transformations in the way we move around, heat and cool our homes, and buy and use devices and appliances can help raise living standards in the Global South to meet, or even exceed, the UN Sustainable Development Goals, while also remaining within the 1.5C target set by the 2015 Paris Agreement.’ It assumes a rapid energy system transformation, phasing out fossil fuels, with renewables meeting reduced global energy consumption of 40% below 2020 levels by 2050 due to material outputs decreasing 20% overall, 42% in the Global North and 12% in the Global South.⁷⁵

7.3. An Alternative Pathway to Sustainable Value

Degrowth is a planned reduction of energy and resource use designed to bring the economy back into balance with the living world in a way that reduces inequality and improves human wellbeing.⁷⁶ It is an alternative to green growth for the creation of sustainable value.

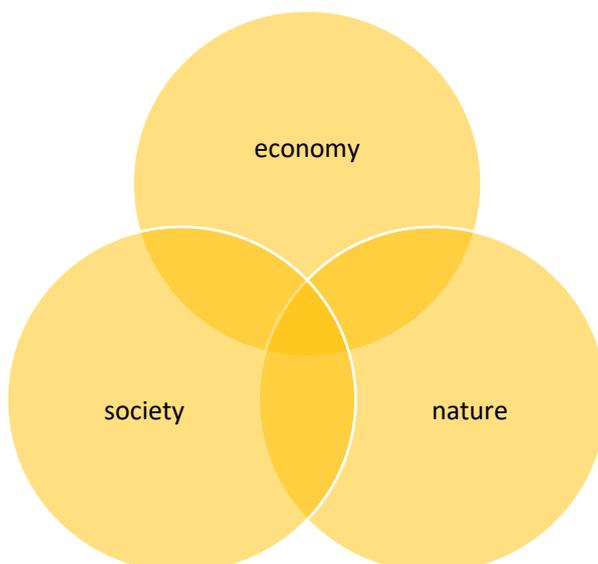
Growth value creation



The conflicts between economic growth and environmental degradation (including climate change) are not technical problems to be solved through science and engineering, they are political problems.

Economic growth (which provides social stability) is politically more valued than social progress or environmental protection.

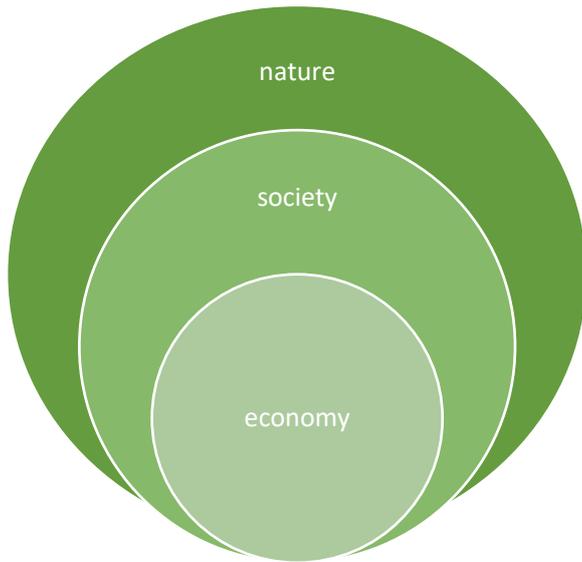
Green growth value creation – sustainable development



Earlier attempts to politicise environmentalism were hobbled when the global environmental movement that started to form in the late 1960s was subsumed into a three-pillared concept of sustainability, comprising economic growth, environmental protection and social progress, known as sustainable development.

It is well established that these three missions of sustainable development are incompatible in practice, but are compatible in theory through absolute decoupling.

Degrowth value creation – strong sustainability

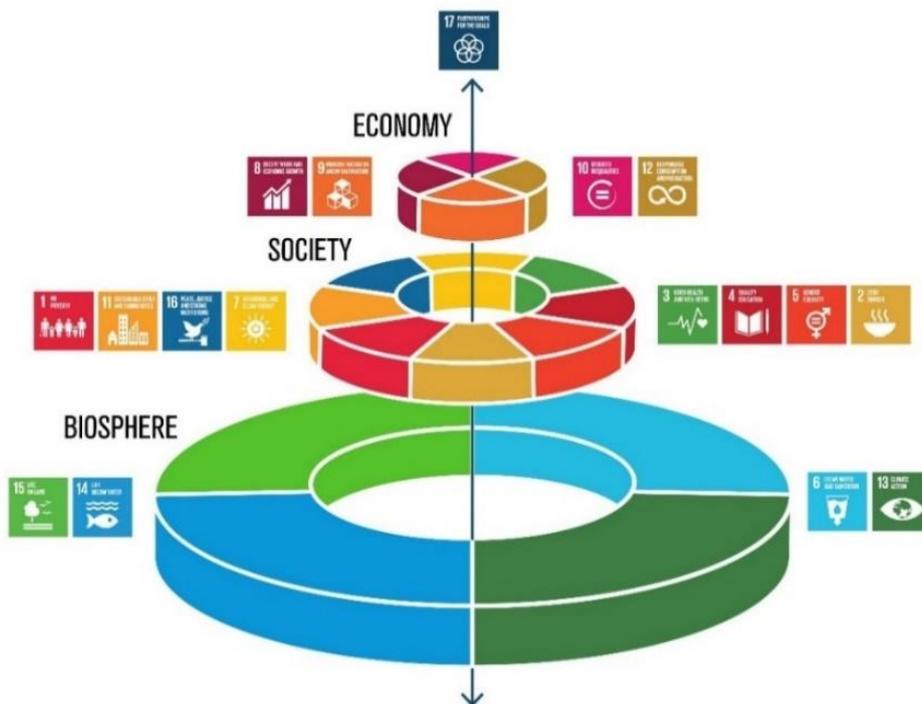


Degrowth re-politicises environmentalism by prioritising social and ecological outcomes, positioning the economy as a servant to these, requiring a radical change to the way in which society is organised.⁷⁷

To serve the biosphere and society, the economy needs to biophysically self-limit to avoid producing excessive surplus and socially expand to include work that contributes to society but is currently unpaid, such as caring for people.

Sustainable development is commonly represented by the SDGs. A re-prioritisation of the SDGs through a degrowth lens is shown in the wedding cake model (below), which ‘changes our paradigm for development, moving away from the current sectorial approach where social, economic, and ecological development are seen as separate parts. Now, we must transition toward a world logic where the economy serves society so that it evolves within the safe operating space of the planet’.⁷⁸

Wedding Cake Model of the SDGs, Azote for Stockholm Resilience Centre, Stockholm University, 2016



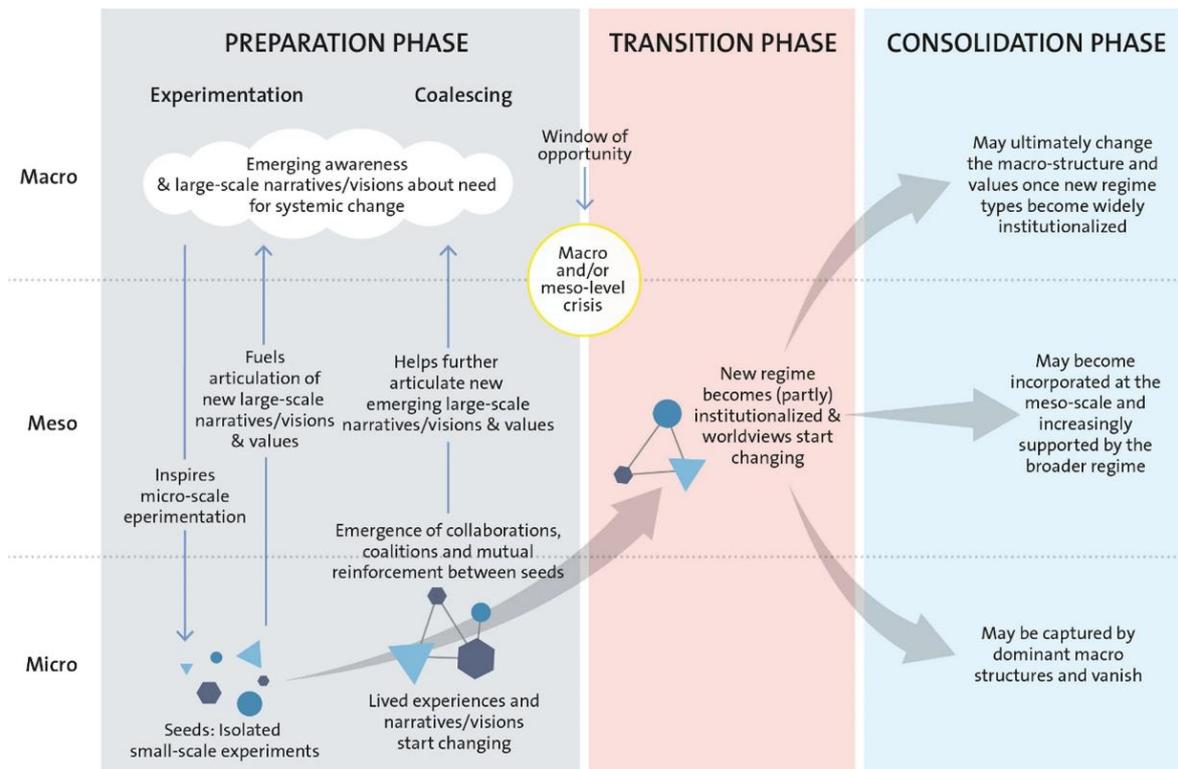
Graphics by Terke Johannesen/Asote

7.4. The Degrowth Transformation Process

Supporters of degrowth are building a preparatory base for transformation

A degrowth transformation process is occurring on the ground and seems poised to move within the preparation phase (see diagram below) from small, isolated experiments to larger scale adoption. This phase is important for building the capacity to implement change that does not slip back to the status quo, and to begin to transition politics, laws and cultural beliefs.⁷⁹

The transformation process, Folke et al, 2021, adapted from Pereira et al. 2018b).



Seeds, small scale experiments and lived experiences

Our economy already includes many activities – sharing, repairing and caring – that are part of degrowth thinking. Much of this work falls outside the growth economy in that it is non-commodified, unpaid or underpaid, but it is done by necessity. Other people are experimenting with degrowth ideas as lifestyle options due to either their disaffection with the current economy (eg they are going off grid as a means of escape) or through their curiosity about living in ways that reflect shifting values (eg they are making more ethical choices or lowering their carbon footprint).

Many individuals adopting similar choices has the potential to mushroom into communities of interest that can set up supporting structures, such as new business models. Geographically localised groups can build structural momentum, such as making changes to local bylaws to support their new life choices and business models.

Examples of small-scale degrowth economies exist in Spain (Mondragón, Can Masdeu, Cooperativa Integral Catalana), India (Kerala) and Denmark (Freetown of Christiania), so it is clear that degrowth works at a community level. Cuba has even implemented degrowth ideas at national level.

Degrowth experiments include:

Lifestyle Choices	Business Models	Design and Technology
Planetary diet	Repair economy	15-minute cities
Locavore diet	Sharing economy (car share services, shared workspaces, fashion rentals)	Regenerative design
Collective ownership of private and shared living spaces	Flexible consumption (as-a-service business models)	Design global, make local
Community gardening	Regionalisation	Open source software
Communal kitchens	Collectives	Creative commons licences
Tiny House movement	Cooperatives	3D printing
Housing construction collectives	Credit unions	
Walking and cycling		
Zero waste		
Sufficiency		

Emergence of collaborations, coalitions and mutual reinforcement

Defragmentation and scaling up of local communities of interest will occur as those people involved in multiple communities find intersections and overlaps and act across their communities to gather critical mass to force larger changes to social licence, politics and laws in order to, for instance, expand the commons or provide a universal basic income.

Overcoming obstacles and generating reform would be boosted by a ‘movement of movements’, if the labour movement and unions, the green and environmental justice movements, the anti-racist movement and the feminist movement were to find areas of common ground among degrowth ideas and build a socio-environmentalist cohort.⁸⁰

Proponents of the circular economy are key potential collaborators in the development of a degrowth economy. Circular economy is often understood in its technocentric sense, as an approach to eco-economic decoupling through material value retention options: R0 = Refuse, R1 = Reduce, R2 = Resell, Reuse R3 = Repair, R4 = Refurbish, R5 = Remanufacture, R6 = Re-purpose, R7 = Recycle materials, R8 = Recover energy and R9 = Re-mine. Degrowth is a form of transformational circular society, extending technocentric circular economy thinking in two ways. First, it integrates social, ecological and political considerations. Second, it challenges the capacity of technology and innovation to overcome major ecological challenges.⁸¹

Emerging awareness is encouraging the political feasibility of degrowth

Degrowth has a long way to go before it can successfully challenge deeply embedded socio-economic belief systems, but the political feasibility of degrowth is opening up through the expansion of discourse in the mainstream. The Guardian and The New Yorker are increasingly presenting ideas from the degrowth movement, indicating a shift in the zeitgeist. Major NGOs, such as WWF, that have long been involved in sustainable development are now adopting degrowth talking points. Europe’s more radical Green parties support degrowth ideas, either explicitly or less obviously by simply avoiding mentioning growth,⁸² and now even tenured statesmen, ever careful to read society, are seizing the moment and using their platforms to ignite the imaginary, from the President of Bolivia to the President of Ireland.

‘But there is no such thing as green growth. Growth is wiping the green from the Earth. We have no hope of emerging from this full-spectrum crisis unless we dramatically reduce economic activity. Wealth must be distributed – a constrained world cannot afford the rich – but it must also be reduced. Sustaining our life-support systems means doing less of almost everything.’

George Monbiot, The Guardian, 2021

‘After a century in which GDP per person has gone up more than sixfold in the United States, a vigorous debate has arisen about the feasibility and wisdom of creating and consuming ever more stuff, year after year... Rethinking economic growth may well require loosening the grip on modern life exercised by competitive consumption, which undergirds the incessant demand for expansion.’

John Cassidy, The New Yorker, 2020

‘WWF calls on states that are party to the Convention on Biodiversity to adopt a post-2020 global biodiversity framework that includes: a milestone to halve the footprint of production and consumption by 2030; and action-oriented targets for 2030 that identify key productive sectors and the financial sector, and the actions needed for their nature-positive transition.’

WWF International, 2021

‘The sorts of policies on offer from degrowth advocates — like universal basic services and shorter working hours — could help address some of the long-standing ills now afflicting a wide range of economies... Rather than chasing an increasingly far-off goal by trying to coax forth elusive corporate investment with giveaways, governments could start planning for what a fairer lower growth, lower carbon future might look like.’

Kate Aronoff, The New Republic, 2021

‘A post-capitalist, eco-social future that I, and others ...advocate, will entail difficult choices and pursuing policies of, potentially, de-globalisation, de-commodification, even de-growth, should the required resource decoupling not be achieved, if we are serious about achieving the carbon mitigation that is required for a sustainable, equitable life on the planet.’

Michael D Higgins President of Ireland, speaking at the Engineers Ireland annual conference, 2020

‘The solution to the climate crisis will not be achieved with more green capitalism or more global carbon markets. The solution is civilizational change, to move towards an alternative model to capitalism.’

Luis Arce, President of Bolivia, speaking at COP26, Glasgow, 2021

Finding windows of opportunity to transition to degrowth through policy change

It has been observed that degrowth ideas have not yet had any discernible impact on policy setting and individuals who are interested in degrowth tend to ‘adjust their arguments to the mainstream sustainability discourse and turn to arenas beyond the formal municipal organization when discussing transformative ideas about development, progress and quality of life’.⁸³ To develop degrowth ideas into policy-applicable forms, degrowth discourse needs to be normalised in our policy-setting environments and institutions.

Policy levers to instigate and support an orderly mass transition to degrowth that would avoid a destabilising economic crash are unclear. An urgent requirement, therefore, is the development of scenarios examining how planned retrenchment from the growth economy could manifest and how a degrowth economy could function at scale.⁸⁴

Degrowth of material throughput would likely involve contraction of GDP, which would need to be supported by radical transformations of cultural institutions, such as healthcare, education, welfare and the justice system, in order to positively impact wellbeing. However, evidence suggests that people’s needs (rather than their material wants) for meaningful work, relationships, identity and democratic participation can be achieved at low levels of resource throughput.⁸⁵

While degrowth calls for relocalisation of production and consumption, this can only be possible to an extent because even a degrowth economy operating within ecological limits will still require the distribution of resources between geographical locations, demanding trade agreements and movements of capital. A degrowth economy therefore requires local, regional, national and international layers of governance.

Mastini, Hickel and Kallis (2021) argue for synthesizing Green New Deal and degrowth-minded approaches into a ‘Green New Deal without growth’.⁸⁶ Degrowth-minded approaches include banning planned obsolescence, introducing the right to repair, banning waste from landfills, banning single use plastics, introducing a red meat tax and banning advertising from public spaces – with the aim of reducing consumption per capita per year from 28 tonnes to 8 tonnes by 2050.⁸⁷

Yet, governments are unlikely to drive degrowth since economic size is a matter of national security.⁸⁸ Degrowth supporters should not wait for the right structural conditions to occur, but must assume responsibility for creating the conditions that will make structural reform inevitable.

8. Degrowth-Compatible Businesses

There are no universally agreed attributes of degrowth-compatible enterprises; however, useful schematics are emerging that describe aspects of start-ups and transitioning enterprises, both non-profit and for-profit.

8.1. Sustainable Degrowth Business Model

Ten themes for a for-profit sustainable business model aligned with degrowth are listed below, including indications of how they might bring benefits to customers (value offering), build channels to the right customers (value delivery), secure key resources and partners (value creation) and reach triple bottom line financial, social and environmental outcomes (value capture).⁸⁹

Sustainable Degrowth Characteristics	Value Offering	Value Delivery	Value Creation	Value Capture
Focus on voluntary long-term mutual value creation. Collaborating with all stakeholders, even competitors. Establishing value networks. Willing to share resources.			✓	
Valuing and cherishing the natural environment and enhancing social wellbeing of people. Promoting good quality of life and decent working conditions.	✓		✓	
Doing 'the right thing'. Being ethical. Conscious sales and marketing techniques. Promoting sufficient consumption in terms of life-style, level of affluence, consumption habits, consumer engagement (CVC, prosumer). Satisfying needs, not wants. Offering functionality and service rather than ownership.	✓	✓	✓	
Having shareholders emphasising non-financial objectives. Profits are a means to gain future sustainability goals. Economic growth not being the primary goal. Keeping the capital local and (re)investing locally.				✓
Promoting efficient production processes and use of products and technology innovations. Manufacturing long-lasting products and avoiding build in obsolescence. Repairing, reducing, reusing, recycling.			✓	
Furthering consistent ecological production by establishment of a pro-sustainability taxation and regulation systems as well as incentives to sustainability innovations. Internalising negative externalities by monetising them.			✓	✓
Business model experiments and innovation.			✓	
Leaders being natural-born sustainability agents.			✓	
Educating all stakeholders on sustainability issues.	✓	✓	✓	
Reporting system integrating and indicating all three sustainability goals.			✓	✓

Based on Puhakka, 2018

8.2. Degrowth Operating Criteria

Seven criteria for operationalising degrowth in a for-profit business are given in the table below.^{90 91} Note that start-ups that do not have growth as a primary objective may still have to grow to reach a ‘necessary’ size to survive, such as to achieve economies of scale.

Criterion	Operationalisation
Growth in sales is not a goal of the company	<ul style="list-style-type: none"> › Growth in profits is solely pursued with the goal to enlarge positive impact › Growth in sales is constant and limited, close to zero › Aspire to grow only to substitute bad products, never to contribute to industry growth › Promote sufficiency
Adopt a role as ambassador of the environment	<ul style="list-style-type: none"> › Exist with the reason to implement solutions to environmental issues › Make extra efforts aside from business activity to engage in environmental movements and grassroots efforts › Strive to be a role model and a source of inspiration › Adopt a stewardship role
Reduction of environmental impacts at all stages of the lifecycle	<ul style="list-style-type: none"> › Priority given to tackling most important environmental impacts first › Apply the circular economy model › Continuously reduce material input, energy use, waste and emission › Use recycled and/or renewable materials in the production processes › Use renewable energy › Reduce hazardous waste and aim for total net positive or zero impact › Tackle suppliers and retailers to follow the same strategy › Metrics to estimate total impact of the products/services (LCA, ecological footprint)
Make products that last and are repairable	<ul style="list-style-type: none"> › Implement longevity in design process › Provide and promote option to reuse › Implement repairability in design process › Provide and promote repair services
Shift to additional value adding through service	<ul style="list-style-type: none"> › Implement product-service systems as core part of the business model (rent, lease) › Promote shift from ownership to functionality › Provide supporting services in addition to product
Collaborative value creation	<ul style="list-style-type: none"> › Be open and transparent › Work in collaboration with network and competitors to achieve higher common value › Use tools to enhance consumers (innovation toolkits⁶, mass customization, crowdsourcing, open innovation, crowdfunding)
Potential to flourish in the organization	<ul style="list-style-type: none"> › Implement income caps through the entire company › Provide additional perks to increase employee wellbeing › Give employees more leisure time and provide more flexibility › Shift to a more horizontal organization structure and democratic governance › Motivate employees to believe in the company values › Exist with the reason to implement solutions to social issues › Make extra efforts aside from business activity to engage in social movements and grassroots efforts

Based on Vandevoort, 2018

8.3. Degrowth-Compatible Enterprise Model Dimensions

Five degrowth-compatible enterprise model dimensions are listed in the table below.⁹² Enterprises that exhibit attributes across four or five dimensions could be considered to be degrowth compatible.

Business Dimension	Degrowth-Compatible Business Attributes
Relationship-to-profit	Social benefit purpose, non-distributive constraint
Incorporation structure	Cooperative, non-profit corporation, foundation, state-owned enterprise, provident society
Governance structure	Participative collaboration, worker self-management
Strategy	Ethical sourcing, third party certification, sustainability accounting, inclusivity, collaboration, shared value creation, circular economy, lifecycle analysis, renewable resources, outputs based on use-value, as-a service outputs, repairable products, open access technology, social justice, sufficiency, meaningful work, reduced hours, developing human potential
Size and geographical scope	Small, local, SMEs, localised production

Based on Hinton, 2021

8.4. Degrowth-Compatible Business Case Studies

Rainbow Supermarket

Rainbow supermarket in San Francisco is a non-profit, worker-owned cooperative, established in 1975. Since then it has grown to 250 worker-owners and moved premises, but still comprises a single store in a downtown neighbourhood. Its goals include providing affordable vegetarian food products that have a minimal impact ecologically and socially, buying from local businesses and providing workers with a liveable wage.⁹³ Financial surpluses are used to increase wages and worker benefits. The City of San Francisco lent funds and guaranteed a bank loan for Rainbow's purchase of larger premises, since the enterprise would be creating jobs and was moving into an Enterprise Zone designated for economic development funding.

Conclusion: Rainbow is a degrowth-compatible non-profit enterprise.

Patagonia

Global outdoor clothing company Patagonia's core values include making products based on function, reparability and durability that last for generations or can be recycled so the materials in them remain in use. The firm has experimented unsuccessfully with zero-growth strategies, and is, in fact, growing. The firm is a strong ambassador for the environment, in particular, through documentary making. It pays close attention to its supply chain, from organic cotton to biodiesel cars, yet does not pay as close attention to the downstream distribution footprint of its products, and global customers do not have access to the firm's small US-based product repair business. The firm is a B Corps, and is innovative on employee benefits.⁹⁴

Conclusion: Patagonia is a for-profit business that is experimenting with degrowth ideas but is not yet degrowth-compatible. Degrowth is a political economy, so it would be difficult for a large, international business to effectively operate a degrowth model unless most of the local economies where it operates (and where it sources supplies and distributes goods) are structurally supportive.

9. Investing In Degrowth

The global economy may have begun to transition between economic paradigms, from growth through nascent green growth to degrowth. Some investors may be interested in using their capital to catalyse an orderly structural transition and to support degrowth-compatible enterprises.

9.1. Differentiating Impact Investing And Degrowth Investing

Using the concept of a spectrum of investor intentionality, ranging from conventional investing through to impact investing (excluding philanthropy), we propose to position degrowth investing as a step further than impact investing because it requires investors to contribute to social and environmental solutions that measurably bring the economy within a social foundation and ecological ceiling. Proceeding through the GIIIN Core Characteristics of Impact Investing, we further propose to distinguish between impact and degrowth investing approaches on the basis of returns on capital and commitments to measuring and disclosing non-financial performance. Finally, since a degrowth economy rejects growth for growth's sake, but still requires socially and environmentally impactful growth in some areas, we propose that impact and degrowth investing approaches both have a role in a degrowth economy.

	Global growth economy			Global degrowth economy	
	Mainstream investing where growth is desired			Impact investing where growth is required	Degrowth investing where degrowth is required
	Conventional investor	Responsible investor	Sustainable investor	Impact investor	Degrowth investor
Intentionality	Only financial returns considered	Negative screening of ESG risks	ESG outcomes considered	Contribute to social and environmental solutions	Contribute to an economy that operates within a social foundation and ecological ceiling
Return on capital	Market rate return	Market rate return	Market rate return	Ranging from below market rate to risk-adjusted market rate return	Lower market rate return reinvested locally, plus social and environmental outcomes that benefit or are valued by the investor
Commitment to measuring and disclosing non-financial performance	None	None	Varies	Social and environmental impacts	Surpluses and deficits against social and environmental contextual targets

9.2. Investing In Degrowth Is Rational

Many investors will be resistant to the idea of degrowth; if not struggling to see how it represents a viable global economic solution, then certainly struggling to see how degrowth ventures can offer them a required return. The response to these valid concerns is that even though the attributes of degrowth investing are still unclear, it will be a rational choice soon enough.

The public is going to experience a mix of fear and hope as the 2020s proceed. A milestone for the success of green growth would be a clear demonstration by 2025, and certainly by 2030, that businesses and governments are acting in line with limiting global warming to 1.5C this century and have the requisite technology in their commercial grasp. Nature-affecting business sectors must also demonstrate global systemic changes that are slowing and reversing nature loss.

If green growth's promises fail to materialise, businesses associated with high resource extraction and high energy use would rapidly lose social licence as the public would seek to effect the changes they desire through purchasing, employment, voting and investment actions.

This will play out within the decade, so it is quite possible that we will begin to see an evolving hybrid of green growth and degrowth economic mechanisms.

Investment in degrowth projects is therefore a pragmatic choice, providing diversification, optionality and resilience to a potential cultural shift toward a new set of economic criteria. Investors who recognise these shifts early and grasp the risks may also reap the new rewards.

There's a time and a place for growth and a time and a place for maturity, for balance, for scale. Our goals need to fundamentally shift now toward repair, toward security, toward protection. The overarching goal must be to keep the human game going.

Bill McKibben, Falter, 2019

Another world is possible. There is no other world.

10. What Next?

We hope this paper answers some questions and provokes many more.

We believe the next steps are to expand the dialogue within the sustainable investing community to build upon the ideas presented here and to show how these ideas are even now being brought to life through degrowth-compatible companies and initiatives.

Your feedback and responses to this white paper can contribute to that discourse and we encourage you to get in touch. We intend to write a follow up paper in 2022.

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