



Making the case to revise the SDGs by creating a truly 'Responsible Living Economy' to resolve global Climate, Species and Inequality crises.

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Abstract. The Sustainable Development Goals (SDGs) must be radically improved and prioritised to reflect the existential challenges to all life on earth. Global feedback and many reports have confirmed that the SDGs need to be better articulated, funded and supported, or they will continue to fail. When the global stakes are so high, can individual countries aim for real sustainability while the world's rich and powerful economies follow selfish agendas? The Paris Agreement overshadowed efforts made by the SDGs to empower global support for the common good. Why was Climate Change not prioritised better? We review more beneficial ideas and options, providing a framework of lenses to develop better strategies to deliver the 5Ps of People, Planet, Prosperity, Peace and Partnership for the long term. While prioritising Goal #13 Climate Action, the United Nations will better meet the world's needs by including the missing Goal #18, 'LifeBEAM RLE, care for all Life in the Biosphere, Earth, Air, and Microbes. When the SDGs are revised using 'Responsible Living Economy' (RLE) principles, they can be better optimised, encouraging environmentally positive shifts in every sector to meet planetary boundaries. Halfway through the UN Agenda 2030 is the perfect time for this revision.

1. Introduction

It is now both the best of times and the most challenging of times. [*Cue the music intro for Mission "Responsible" or similar (<https://youtu.be/7alss3sDjdg>) ©Sony/ATV Melody, Voice over with some sense of urgency*] Will the dominant species make the 2030 timeline to put in place some workable form of a truly 'Responsible Living Economy' or will the current ruling elite continue to cause declines in global health and safety, homeland dispossession, species extinction and runaway Climate Change? We need to revitalise the SDGs by adding accountable common sense thinking to enable the significant evolution required "to align socioeconomic development with environmental sustainability" (Hametner, 2022), and the response needs to be global.

Multiple indicators from the aptly called "Great Acceleration" (Thunberg, 2022, p. 39; Head *et al.*, 2022) show that humanity continues to be capable with technology and culpable in its consequences. We must upgrade our processes to keep the good and lose the bad. Being 'fully

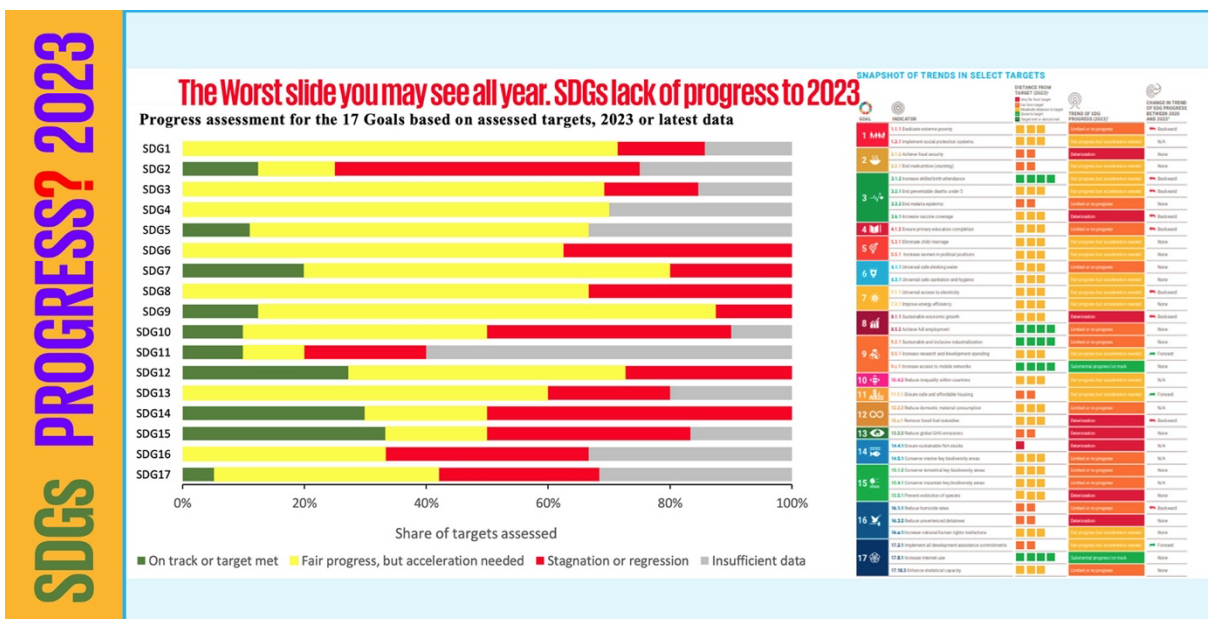


responsible and accountable’ needs to be the new catchphrase to reverse the trends of past practices driven by ‘profit at any cost’. These nature-negative practices need to be curbed by everyone across society (Readfearn, 2023). Through their reach, acceptance and understanding, the SDGs are the perfect framework for implementing these changes, but their priorities and lack of progress are very concerning. Many opportunities exist for radical improvement and a deeper understanding of the options and directions needed to create what is essentially a ‘responsibility revolution’. Much more than just ethics, it means getting right what scientific consensus deems necessary and putting in place measures to ensure it gets done. We have initiated and accessed global input on this movement to accelerate the practice of developing prevention over cure.

The idea of a truly ‘Responsible Living Economy’(RLE) allows a positive and easily understood phrase to adjust directions to allow all life to thrive. By dynamically combining and employing the excellent ideas of Regeneration (Hawken, 2021; Figueres and Rivett-Carnac, 2020), Circular Economy (Friant, Vermeulen and Salomone, 2020; 2021) and Responsible Design thinking (Fridman, Meron and Roberts, 2022), these processes can assist in reversing many current concerning trends. They go beyond the Precautionary Principle to account for ever-increasing industrialisation with the ideas of caring for the environment and species by increasing integrity, accountability, stewardship, long-term thinking and appropriate action. These ideas have been significantly growing trends in business, travel, financing, and design and have made good progress in many avenues since our earlier paper (Campbell and Campbell, 2021; Jonas, 1985). Beyond Apex Design Mode, it is time to be the Apex Predator ‘in reverse’ using our tools, guile, memory, communication and cooperation for good. We need to enhance and grow this direction in all we do to support the RLE, in a perpetual loop, like a Mobius strip, an infinite symbol of positive action, improvement and revision. We aim to launch a new strategic concept to kick-start and further develop this method with related cooperative initiatives and invite others to follow suit.

Table 1. SDGs lack of progress to 2023, graphs from UN reports.

Green is Good, Red = stagnation or regression.





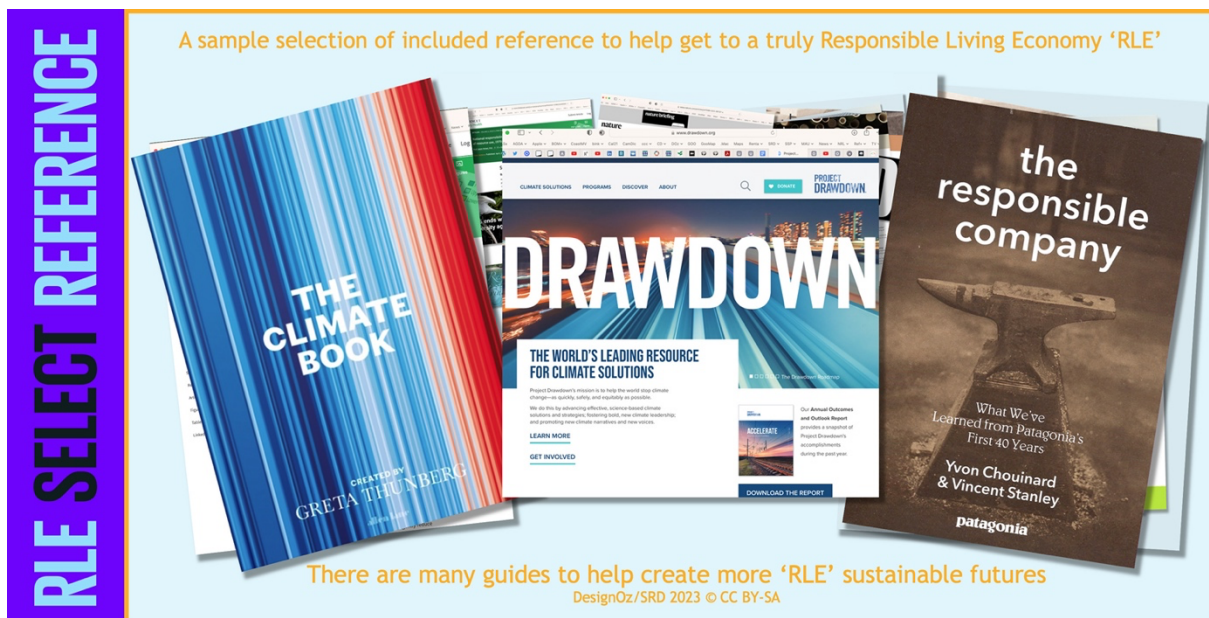
2. Literature Reviews

Early in 2023, the UN Secretary-General released the report "Progress towards the Sustainable Development Goals: Towards a Rescue Plan for People and Planet" (May 2023, final version available in Sept. 2023). It urgently advised that at the mid-way point towards 2030, most SDGs are moderately to severely off-track. It highlighted prime areas for renewed progress, starting with Climate Change, financial and economic systems, followed by numerous other necessary actions.

While frank and broad reaching, we note that the report is limited by several critical factors, mainly the original goals descriptions, areas of focus and their inherent contradictions. We briefly analyse the broader issues covered and compare them with recent papers to show why this has limited their success. The UN report says that going beyond Gross Domestic Product (GDP) is a new direction. We agree; the Doughnut Economics paper (Ross 2020) and *Doughnut Economics Action Lab* (DEAL, 2020) show that increasing GDP will exacerbate current dilemmas, ignoring the 'planetary boundaries'. We add that exchanging SEEA (*System of Environmental-Economic Accounting*, 2012) wherever appropriate is a significant step worthy of expansion.

To show more positive trends, we highlight several areas deserving greater clarity, acceptance, focus and understanding across the community. Authoritative works such as *The Climate Book* (Thunberg, 2022) and *The Responsible Company* (Chouinard and Stanley, 2016) confirm that empty rhetoric needs to be replaced with genuine action that is proven to work (Jones and Fowler, 2022) and a major climate response website (Project Drawdown: Carbon reduction plan) gives clear instructions on what to do for this major issue (Singh *et al.*, 2021; Mauerhofer, 2021; Keitsch and Vermeulen, 2020).

Figure 1. A selection of authoritative reference.



While the SDGs' progress is too slow, working to reverse inequalities holds much promise for enabling more equitable changes and carbon-positive effects with inclusive economic development (Humpenöder et al., 2022; Ashford et al., 2020; Motesharrei, Rivas and Kalnay, 2014) and regeneration (Project Regeneration, 2023). Oxfam has good suggestions on how to pay for these



changes, “How we must tax the super-rich now to fight inequality”, (Christensen et al., 2023) to which we add the suggestion that the proceeds of all gambling and a percentage of military budgets should also be redirected to similar SDG priorities. There is room for additional "outside-the-box" elements to accelerate success in these critical subjects. We explain an outline for the proposed new Goal#18 which includes integrating the RLE concept in practice. Reviews of some more recent trends in energy, AI and greenwashing are shown for comparisons, antidotes and unrealised benefits to the goals.

Issues of ever-increasing populations engaged in massive over-consumption (*Somebody Else's Problem*, Crocker, 2017) and increasing resource extraction (Ahmed *et al.*, 2020; Baloch, Mahmood and Zhang, 2019) place many dangerous tipping points under immediate threat (McKay *et al.*, 2022). This combination requiring increasing extractive processes demands massive and positive change along with reassessing old habits that serve no good future purpose.

Figure 2. A small selection of reference to help form a truly ‘RLE’.



3. Methodology

Over some decades, an emerging theme around how challenging it was to promote Responsible Design thinking and action began to match similar difficulties with lack of traction that the UN SDGs were experiencing. Our earlier papers and feedback confirmed that responsible EcoDesign (*Enabling design for environmental good*, 2022) applied across industry, everyday living and the SDGs, holds the greatest capacity to increase global benefits. Developing these ideas of combining earlier regenerative methods and global ecological best practice with ethical realities should continue. To increase uptake, we cast a wide net, reaching conference attendees, designers and LinkedIn connections around the world with the message to “think global, act local, share your successes widely and repeat”.

We structured open and direct questions to explore in an international survey: Do you think sustainability is an important concept? Is reducing carbon emissions an important issue and who should be responsible for doing this? Could being more targeted in caring for the Biosphere better



explain its key value and importance? What is your awareness of SDGs and what relevance do you think they hold? This ongoing qualitative survey was conducted via digital, telephone and live interviews. Survey participants included 18yrs - 70yrs within a cross-section of varied ethnicity and working sectors in industry, business and community. Research was conducted over 1.5 yrs.

Surveys and interviews were undertaken. Indications from the findings of ongoing global qualitative research confirmed our earlier paper's direction that an advanced assemblage of these ideas and approaches is essential to improve SDGs success levels. Further recent and related peer-reviewed papers suggest two significant points of note: the world may not be getting less morally proactive, *The illusion of moral decline* (Mastroianni and Gilbert, 2023), and the global North (Hickel, Dorninger, *et al.*, 2022; Horner, R. *et al.* 2018) has a lot to answer for after centuries of inequity that must be more accountable and rebalanced. We can succeed much more with the SDGs by working with these considerations.

Our method includes analysing complex and open questions from a series of emails, digital media requests, telephone and live interviews. We received 126 responses after asking 2,367 colleagues, connections and associates to review our earlier paper for reference and respond to this question, "How may we help nurture a genuinely 'Responsible Living Economy'?" We received an insightful variety of thoughtful responses and additions for which we have included a summary and interpretation in our paper and discussion. The common theme of being equitable, accountable and conserving the complete variety of life became clear.

4. Results and Discussion

One significant insight stood out in the survey responses relating to the use of the Hippocratic Oath. An innovation and technical consultant in Switzerland reminded us that doctors have a Hippocratic Oath, where they swear to protect life. Valuable insights (Askitopoulou and Vgontzas, 2018; Oxtoby, 2016) show that in the revised forms, the oath still holds relevance, value and good ethical grounding for physicians. We also agreed that working within a fully functioning RLE, such practices should already be incorporated into the fabric of the whole society. This paper is a 'best possible effort' aimed at covering the significant issues, the better options and getting support in all forms available to progress these essential developments. It is more aspirational than directional.

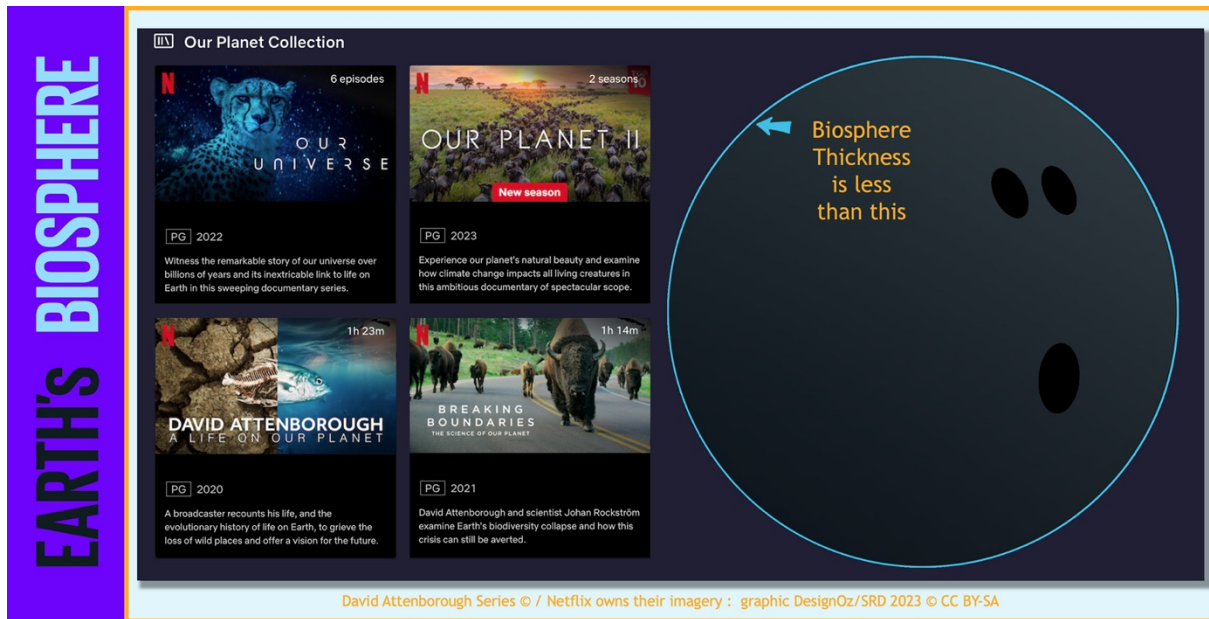
Emerging themes from survey participant discussions confirmed the need for more scope and capacity for the UN to drive countries to achieve identified targets and goals within the SDG categories. This resulted in further consideration of options and actions to manage the accelerating climate change crisis and related existential threats. After time, several ideas became obvious; one specifically resonated that it may be better to think of the earth's biosphere as just one single entity, so that caring for it would become the primary goal of a truly 'Responsible Living Economy'. The supplementary questions are now about how we deal with the entirely too careless and destructively dangerous actions of economies where "more than 50% of excess consumption in rich nations is net appropriated from poorer nations in the Global South" (Hickel *et al.*, 2022). The further discussion is to prioritise climate change reversal with goal #13 while advancing #14, #15, #10 and the newly suggested #18, all to urgently reduce global existential threats.

Our world is filled with life in many forms in amazing and complex symbiotic relationships. Many documentaries show its stunning beauty and diversity. David Attenborough's series (Wikipedia contributors, 2023) exemplifies this genre. A vital component of an RLE is ensuring that our actions will likely benefit all life for the long term and quickly slow or stop all activities and practices that are detrimental to life. Individual responsibility is fundamental but increases for



corporations, countries and the world as a collective. We all share these excellent resources and the dire consequences of not properly looking after them. We shall work to explain the issues, relationships, and possibilities for this process to be well-supported, and we request more significant input and development of this concept.

Figure 3. Life exists in a relatively thin zone encasing our planet, often called the biosphere.



To assist a simple visualisation of the biosphere, if the Earth were the size of a bowling ball, say 22cm dia. (8.6in), the biosphere would be roughly equivalent in thickness to a coat of paint. Within this, nearly all life exists. It is valuable to see it from this perspective as the Earth is massive at around 12,734 km in diameter, whereas the biosphere is only around 20 km thick (12.4 miles). The 'life-zone' is even thinner and varies 3 to 7 km (1.8 to 4.4 miles). We need to refocus global thinking to protect this thin, precious layer of life, not the planet, which is primarily rock in various forms that would likely survive without us again as it has before.

To refocus on life, we add "the missing Goal 18", LifeBEAM for all Life in the Biosphere, Earth, Air and Microbes, to balance and complete the world's priorities. We add the first part of BIOSPHERE with its Targets and Indicators to focus on the main area in dire need of attention. It contains all life; while large, it is also quite fragile.

We add the second part of EARTH, as in ecology and soil, to highlight that two areas here also need more care. The carbon sink in the earth is massive; it breathes, and farmers can systematically increase the carbon content by several means for better returns and more fertile soil. Fungi are nature's master recyclers, and the network of mycelium underground is as vast as it is incredible (Hawkins *et al.*, 2023).

We add the third part for AIR as it covers the globe and unites us as we all share it. Some write songs about it (Muranty, 2020). It holds much of the pollution humans create, causing Climate Change and gives or takes life depending on the pollution levels we allow (Glencross *et al.*, 2020; Pope, 2004).



Figure 4. SDGs “missing Goal” #18 LifeBEAM RLE. For all Life in the Biosphere/Ecology, Earth/soil, Air and Microbes to prioritise the whole Biosphere.



We add the fourth part of MICROBES as they are everywhere and need care too (Haavisto, 2023; *The Microbiota Vault*, 2018). Over half a human's body weight comprises microbes (in the gut, mouth, bowel, skin, blood, and more), so in some ways, we are each more microbes than we are human. This intricate symbiotic relationship bears many similarities with the world. All four of these parts need and deserve our care and protection from harmful chemicals, pesticides and other artificial toxins; otherwise, they will not function or survive. The acronym for this 'omnibus goal' is LifeBEAM; it is a balancing act. Making a goal of these four vital for Life elements embodies the Responsible Living Economy concept and encourages collaborative, responsible thinking to achieve more robust solutions for their care. Together Goal #18 is LifeBEAM RLE to properly care for them all as one. We would welcome the inclusion of other Goals as and where deemed appropriate for the major issues not yet covered and edit Goal #13 logo to add the 'circle' representing the biosphere we need to protect.

An often ignored or undervalued issue is that of perspective. Most people and departments are comfortable when dealing with their standard terms of reference and areas of familiarity. In today's climate, they need to become used to seeing the more comprehensive picture(s). They will often say that it's "someone else's department". This response is one of the traps of "silo thinking", quite common in many areas, from education and academia to industry and party politics. Why this is important can be realised when multiple issues need to be addressed, especially in the global context. Those within their 'silo' may say, "We're already doing all we can", unable to recognise that different processes, connections or interrelations may be necessary to affect needed changes elsewhere. One such primary change is the perspective of the whole set of life on earth. Each silo is only one part, and unlikely to recognise how many essential symbiotic relationships exist from microbes to insects plus all animals, especially humans. Yes, most people realise there are relationships. Still, too few are comfortable with the concept that one event can have much effect elsewhere, such as the fact that soil from a windstorm in Africa or pollution from a wildfire in Canada can travel in the upper



atmosphere across continents. The intention is for individuals to grow the concept of respect and effect for other places, animals, people and life so that we may make more informed decisions now (Cribb, 2023), ensuring that ‘shared responsibilities’ are covered – balancing the BEAM.

Figure 5. SDGs “missing Goal” #18 LifeBEAM RLE Targets & Indicators.

GOAL 18

LIFE BEAM RLE

Goal 18 LifeBEAM RLE All Life in the Biosphere / Ecology, Earth/soil, Air and Microbes

18

LIFE BEAM RLE.

Cooperation across the Biosphere to get the balance in Natures favor

18.1 BIOSPHERE Seeing the web of Life existing in a thin and fragile environment with its stewardship of paramount importance
Target 18.1.1 By 2030, end all forms of biosphere degradation, including achieving, by 2025 the internationally agreed targets on broad-scale pollutants and stopping losses of Life giving capacity
Indicators 18.1.1.1 Regional / Local Governments & / or NGOs + businesses be responsible around the world for the decontamination processes and reversing degradations to life as noted.

18.2 EARTH / soil Recognising the essential basis for nature and web of Life within the soil and underground needs specific care
Target 18.2.1 By 2030, end all forms of Earth and soil degradation, including achieving, by 2025 the internationally agreed targets on improving soil quality, nutrients and stopping erosion.
Indicators 18.2.1.1 Regional / Local Governments & / or NGOs + businesses be responsible around the world for the enriching processes and reversing degradations while increasing embodied soil carbon and nutrients to benefit Life processes..

18.3 AIR / Atmosphere Seeing the connecting and essential basis for all Life above the surface and within biosphere needs reversal of current directions.
Target 18.3.1 By 2030, end detrimental forms of Air pollution, including achieving, by 2025 the internationally agreed targets on improving air quality in cities and urban areas.
Indicators 18.3.1.1 Regional / Local Governments & / or NGOs + businesses be responsible for Increased breathing & health levels of local communities as a percentage of total populaton and reversing pollution trends increasing air quality and reducing or removing greenhouse gases.

18.4 MICROBES / Mycellium Recognising these components of nature across the biosphere needs specific care
Target 18.4.2 By 2030, end all forms of harmful chemical degradation, including achieving, by 2025 the internationally agreed targets on improving soil quality and stopping harmful pollution.
Indicators 18.4.1.1 Regional / Local Governments & / or NGOs + businesses be responsible around the world for the ensuring processes and reversing pollution as noted and ensure better conditions to benefit all these Life processes..

Creating a truly Responsible Living Economy to properly care for them all as one

▶ the discussion ... to review, improve and incorporate to give greater priority

A truly Responsible Living Economy (RLE) would be evident when the world community practises active self-awareness and assesses its actions, processes and directions using prioritised SDGs as a benchmark. It thrives on the cooperation and co-competition efforts of all participants, working across communities and businesses, with a reflective mutual arbitration process built into problem-solving to affect change and innovation, creating ideal solutions through applying responsible Design Thinking lenses (both "traditional Ethical" and "expanded Responsible" Tables 2 and 3). The RLE differs from the SDGs by taking into closer consideration the consensus views of the world on priorities, inequities, targets, funding and directions. We encourage this process at multiple levels with a model option for organisations such as the Wentworth Group of concerned Scientists (2002) appointed by arbitrators or as part of a Board of Review (or similar collectives that are not politically, single-idea or direction entrenched) – independent, non-government, solution-based policy reforms for the broader interest. The intent is to rebuild trust by being more accountable and responsible for every country, corporation and person's actions. The overriding purpose is to aim for a more equitable future for all countries and share more fairly the abundant wealth and significant hardships the world faces. The UN Sustainable Development Solutions Networks (SDSN) is an official example. We see the benefits of a more informal collective that is more representative and inclusive of the greater society. Included would be “A Participatory Downscaling of Global Goals” (Moallemi et al., 2022; 2020) or similar themes to get better understanding and local uptake of the Goals.

Active community participation by its citizens enhances the commitment and sense of belonging within the RLE. Some suggestions would be participation in extracurricular learnings from universities to appropriate international conferences to local councils on a wide variety of subjects.



Evidence of this trend of populations supporting climate action and sustainability-focused initiatives around the world is growing as people seek solutions to resolve major problems that confront us all. A good example is Greta Thunberg (2022) motivating youth and others to action. We now know we need to inspire and to act on positive initiatives worldwide as a matter of urgency, as we witness the UN admit that most goals and targets are stagnating or failing.

The world is already progressing towards this model. We seek to affirm this with a more appropriate name. The proposed model encourages and expands to a wider net of engaging and inspiring our whole community to work/live in a truly Responsible Living Economy. This is a change of mindset, thinking and living towards our future continuation and survival as we would like it. Yes, changes are needed but it is a 'move toward a consciousness of survival' that is the positive goal. Simple actions netting bigger corrections and changes are required to steer life back into the longer-term survival pathway. Local communities are proving the possibilities of change. World-wide examples are continuing; one of the authors was invited to participate in an international round table of designers (*Design for Planet - Design Council, 2022*) to workshop active methods for change in design at multiple levels; this is just one of many similar examples worth progressing.

In Australia, the Society for Responsible Design (*SRD, 2023*), a non-profit group, has recently been approved as a full charity to advance education, culture and innovation. Over time members continue to work to advance changes in local communities toward transitioning to renewables and electrification; distributed energy resources and more efficient housing; participation in world webinars on sustainable initiatives in banking, superannuation and investments; agricultural soil and land management improvements; and in focus groups improving design and education to information events empowering sustainable multi-disciplinary initiatives by the youth of the world. An early, prominent figure of the EcoDesign Foundation (which merged with *SRD* in 2003) suggests in his *Defuturing* book that "we must take responsibility for our world unmaking by placing sustain-ability at the forefront of our conduct, not just personally but through Design" (Fry, 2020).

At our local and national levels, community members are joining events to raise their voices of concern on multiple sustainable issues affecting them. These events ask participants to act on vital issues of concern and motivate together for change. The concept of a RLE is receiving very high positive survey responses from community members, which suggests it is also worthy of being introduced on a broader scale. With the experience of Covid-19 we are all realising what can be done at local, regional, national and international levels to activate solutions and improvements across many areas. Let us not lose this opportunity to advance.

We would like to see RLE with annual independent reviews by humanity of the combined effects of all our actions on global health. At least Goals #10, 13, 14, 15 & 18 need to be mandated in some form. Assisting the greater collective with a wide range of intelligent options to select and practise their own considered actions, assess their responses, and adjust their processes accordingly is our goal. For generations, the world has been subject to indoctrinations from 'populate or perish', never-ending growth, to rampant consumerism and 'natural gas' only to find the reality is anything but long-term viable. To highlight just one, many realise that so-called 'Natural Gas' is *not* natural. Consisting mostly of methane, it has been forcibly pumped from deep underground, processed, scrubbed, filtered, then combined with smelly trace gases to give a slightly safer result. How would you market such a poisonous, climate-harming substance? In Australia, in the 1970s, it was promoted as "the living flame", complete with young women in blue leotards dancing pirouettes in a circle and backed with a huge marketing campaign. Some companies continue to make massive



profits from the results. Traditionally we've relied on time to get the message out to review the facts that more people die in Australia from the unhealthy effects of air pollution than in the road toll of traffic accidents (Morton, 2023; *Mortality rate globally by energy source* / Statista, 2023).

In parallel with the start of the SDGs, the Paris Agreement soon followed to better address Climate Change. Recently *The Kunming-Montreal Global Biodiversity Framework* (2022) has been agreed upon by 188 governments (95% of all 196 Parties). It stands to have a profound impact with an ambitious pathway to achieve the global vision of a world living in harmony with nature by 2050. Key elements of the Framework are 23 targets for 2030 and 4 goals for 2050. These two significant initiatives show that further global cooperation can significantly enhance the SDGs. This process may need to continue for other goals, such as #10 Inequality if we want them to succeed by 2030 and gain the flow-on effects such efforts would bring to the greater population.

On international, national and local scales we have experimented over decades, working to better assist sustainability outcomes in several industries and communities. Notable initiatives include a first national website on Eco-Papers, public environmental information and film evenings, speaking at regional eco events and local Climate Soapbox days, support for related charities and tour visits plus interviews with eco-sites and design firms.

It is noted that Artificial Intelligence (AI) is another technology that has been released for general usage without a complete understanding of its capabilities and possible negative consequences (Hagendorff, 2020; Jobin and Vayena, 2019). While AI benefits are likely, particularly with repetitive work, some of which will benefit environmental efforts with sensor monitoring and data processing, many challenges are apparent for undesired outcomes. It appears "time will tell" on this though we may ask again, Was it worth it? Where are the checks and balances in place globally? (Mittelstadt, 2019). Going beyond the Precautionary Principle should be a base, with intelligent development and technology reviews mandatory. Any new technology should only be used at a significant scale or commercially once it is proven safe.

The consequences of greenwashing and continuing "business as usual" are many and becoming better understood. Some lacking creativity in corporations and advertising devised this form of misinformation and exaggeration. Now there is more impetus for bad examples to be exposed as punitive responses are starting to increase (Maks, 2023), and loss of market share is likely to follow. Closely related are Transparency and Integrity (Kretser et al., 2019), which is translating to the new currency of high-ranking corporates in many new and established guides (Corporate Knights, 2023; S&P Global, 2023) with nascent ecosystems (Schillebeeckx, 2022) and economy templates designed to put these concepts into global practice (*What is ECG*, 2021). These examples will form the language of an RLE and as a means of reviewing to reprioritise the SDGs.

4.1. *Best practice examples:*

Our research and interviews warranted that we should better discuss current options and directions.

Project Drawdown - Global Carbon Reduction

Looking for exemplars to follow, we see the work of Project Drawdown (2023) as a well-researched, logical, scientific and clearly presented example of Global Ecological Best Practice. Its mission: "To help the world stop climate change—as quickly, safely, and equitably as possible." Their methodology: "by advancing effective, science-based climate solutions and strategies;



fostering bold, new climate leadership; and promoting new climate narratives and voices.” The project highlights ten sectors holding solutions and actions for implementation.

We use the “Food, Agriculture, and Land Use” sector as an example with three major points: 1. Shifting diets and addressing food waste can significantly reduce the global demand for food. Eating lower on the food chain and ensuring what is grown gets eaten lowers farming inputs, land clearing, and associated emissions. 2. Deliberately protecting land and ecosystems stops activities that release carbon from vegetation and soil before they start. 3. Better agriculture practices can lower emissions from cropland and pastures, including methane generated by growing rice and raising ruminants, nitrous oxide emitted from manure and overusing fertilisers, and carbon dioxide released by disturbing soils

The nine other sections of their website are equally insightful. They combine these data reviews to reveal the most efficient and cost-effective methods to reduce carbon emissions globally. Greater access to education for girls is one direction with many benefits, from inequality and population to health and opportunity. Their timeline reviews, prioritising protocols and Return on Investment analyses make their work substantive and easy to implement. All indicators and directions from Project Drawdown are worthy of inclusion within an operating RLE.

The Climate Book (Thunberg, 2022)

A book with this depth deserves its own review paper. It covers well the salient issues globally that need addressing. The authors often show the continuing problem of empty political and related promises, missed milestones and renewed rhetoric to placate the public with an all too short memory and a penchant for personality over substance or performance. The book skillfully casts a broad net to show many interrelated issues that individual countries will only solve when collaboration and innovation to succeed are engineered. Too many loopholes exist to explain away missed carbon targets, such as the "Biofuels are renewable fuels" when the result is the burning of forests, including old-growth carbon sinks.

The Great Acceleration in using our earth's limited resources, while increasing toxic chemical loads, is sobering reading itself. When accompanied by statistics identifying species loss, habitat destruction and changing seasons, it is all the more challenging. The list of global experts the authors call upon is a testament to the messages they deliver as an authoritative group concerned with encouraging positive change now. Their wake-up call is missed at our peril. We are reminded that the insects, microbes, and soil need our help. Numerous ideas are raised to assist. A new awakening is required. The original SDGs are barely covered; presumably they think they are doomed to fail?

'the responsible company'

A recent article from Change Inc. (Hidde Middelweerd, 23 May 2023) in the EU leads with, "Patagonia prefers not to talk about sustainability: 'Responsibility makes much more impact'." We recommend referencing the book, *the responsible company* (Chouinard and Stanley, 2016, p. 27-31 - updating late 2023). They give numerous examples of their successful company, writing books about their leading practice and difference. "a responsible company owes a return to their shareholders and stakeholders", and "there are four key stakeholders: employees, customers, communities, and nature", and "As customers learn more about the consequences of ravaging the natural world at our current pace, they will pressure companies to do far more quickly to reduce the damage they cause." The Precautionary Principle they mention as a critical concept to advance. They note consistently giving to small agile charities that others would not touch as regularly as



possible. They saw this as a cost of business, not a tax, but as their gift for being in business. They add, "In the face of Nature's silence, we have to honour the Precautionary Principle, now embedded into law in the European Union and other countries, that in the absence of scientific certainty, the burden of proof that a new product or technology is safe, now falls on business." This reverses the trend in place since the Industrial Revolution to "act now and deal with the consequences later." They encourage extra steps to closely follow supply chains, creating circular economy practices and not using GDP as the only barometer of social health and wealth. These all resonate as worthy principles for a thriving living economy.

The framework for a truly RLE

To better explain the foundations of an RLE, we submit two tables of lenses for use. Table 2 is the more traditionally applied concepts of 'Responsible' which were all that was needed up to around the turn of the 20th Century. Table 3 shows how these are required to be expanded to try to keep pace with the amazing phenomena of our time, the Industrial and Technological revolutions.

Table 2. Ethical Design Lens considerations to create more 'RLE' sustainable futures.

Traditional Ethical aspects, a basis for progressing towards a truly Responsible Living Economy 'RLE'			
Ethical standards	Aspects fairly well covered by most design processes	Really key for developing method & coverage	Examples & ideas
Consider accountability	Understanding all actions have repercussions in what you create	Exploring or developing global ecological best practice (GEBP)	Raise the bar, past ways may be based on old thinking
Consider costs v benefits	Applies brief to all pillars of Society, Economy & Biosphere	Assesses long-term strategies to support all nature, economy & society	Rebalancing priorities & outcomes
Consider Health aspects	Include all known consequences & work to address them all	Utilise current data & best practice devising strategies to resolve	Review & utilise consumer associations and reports
Care for less fortunate	Enhance the access for those with low income or restricted abilities	Assess how you may respond when confronted with similar situations	Find solutions that work for people in other situations
Consider culture	Ensure indigenous knowledge is sought, implemented and respected	Connect with indigenous elders to add insights to current project	Using traditional knowledge such as fire-stick practices
Consider past + future	Find classic examples to compare with recent to looking for real advances	Becoming aware of multiple standards & selecting best fit	Consider exceeding current standards & promoting that
Define need for product or service	Considers current initiatives & service provided	Is your brief adequate or may a rethought version of it achieve better results	Design, iterate, improve, reassess, repeat
Consider other	Check all perspectives are covered	Review trends beyond traditional	Look global and to other cultures & solutions as well

Responsible Ethical Design lens considerations to create more 'RLE' sustainable futures
KEY: Global Ecological Best Practice GEBP; Sustainable Development Goals SDGs; Table 2: DesignOz/SRD 2023 © CC BY-SA

Using an Ethical Lens and a more advanced Responsible Lens

Our updated table for using a responsible lens includes many methods to utilise accountable and responsible thinking that goes way beyond ethics. Many opportunities exist to put these in place though there is a general reluctance to install unproven measures that were not required before. These steps are precisely where honesty, integrity and transparency are essential to advance beyond the past practice of not discussing or intentionally hiding externalities. Obscuring the inevitable still requires you to face up to it at some point. Addressing it now creates better long-term results, satisfaction and comfort in knowing you've done your best. Yes, there are many things to consider, largely as too many bad habits are common, requiring concerted encouragement for positive change.

Our definition of GEBP aligns with this process. This is a continuing process of following the best available references and ongoing improvements that include known environmental factors for



carbon, climate and environment to achieve the best result: Respect embodied energy, advance green walls and roofs, and ensure adequate green spaces; use as many facets of the RLE diagram as possible assists to gain the optimum result.

Table 3. Responsible Lens considerations to create more ‘RLE’ sustainable futures.

RESPONSIBLE LIVING	The more steps included, the faster we get to a genuine Responsible Living Economy ‘RLE’			
	Responsible advances	Aspects not well covered by most design processes	Really key for developing method & difference	Examples & ideas
	Reverse engineer climate & decarbonise	Emissions reduction & indigenous knowledge is built into all thinking	Combines global efforts to decarbonise fuels, materials & production processes	Send carbon back to geology & stop pumping it out
	Holistic support	Equally supports all pillars of Society, Economy & Biosphere	Better addresses long-term strategies supporting all nature, economy & society	Rebalancing current priorities
	Learn, grow & share	Encourages continuous improvement & GEBP knowledge sharing	Experiments include new methods by collating & adding shared data	Inclusive growth mantra
	Nature stewardship	Regenerative focus to increase number of species & habitat	Aware of nature's role in design to increase biodiversity	Create opportunities for life & monitor ‘SEEA principles’
	Failure removal steps	Includes all known consequences & works to address them all	Looking for past negative issues & devising strategies to deal with them	Fault finder reviews
	Backcasting issues process	Addresses & Resolves many future problems & important SDGs	Briefs are SDG value aware & include long-term sensitive design	Green governance thinking
	Kaleidoscopic vision	Considers multiple perspectives to resolve multiple issues	Greater reviews of Macro to Micro reveal new ideas	Pause, rest to reassess
	Forward looking	Combines all for clarity of significance & purpose of actions	Designing and curating for our sustainable future today	Leadership, role sharing & collaboration

★ Responsible Design lens considerations to create more ‘RLE’ sustainable futures
KEY: Global Ecological Best Practice GEBP; Sustainable Development Goals SDGs; SEEA seea.un.org Table 3: DesignOz/SRD 2023 © CC BY-SA

Electrify Everywhere: energy

Easy-to-follow steps are available for homeowners to plan for future energy purchases to be electrical and enjoy significant savings over time. This process has been endorsed by the American and some Australian governments. It’s a great example of responsible thinking and actions combined (Griffith, 2022). We practise this in our local electorate with visions to grow globally (*Electrify Mackellar, 2023; Rewiring Australia, 2023*).

A few leading buildings examples

The Sydney Opera House is well known for its distinctive sail shape, beauty and history, yet few know it is a leading example of designing and employing new technology to air-conditioning and current events as well (Pitt, 2023).

On a similar best practice track, with its innovative, interlocking, bolt-together building system, Buildonix has also fused its ethos with its business model: "To embed responsible and sustainable practices in daily life, engagement, adaptability, and intertwined approaches are necessary. Incentivising responsible behaviour, circular distribution, and community engagement are crucial ... Sustainability should be engaging, adaptable, and enjoyable, fostering broad participation. Incentives should be utilised to encourage responsible approaches to materials and activities, including incentivised programs for circular distribution and community engagement," says their director in response to RLE (*Buildonix, 2023*). Their system and thinking have numerous beneficial components to build upon, that are recyclable and particularly easy to modify as needs change. This suits ever-changing climate, conditions and requirements.



RLE Connex benefits and challenges

RLE is a fusion of awareness, discussion, education, development, adoption, legislation, monitoring and annual reviews. The greater collective needs to rationalise the whole situation, recognise scientific consensus and avoid stranded asset biases to formulate and follow their agendas, to support the common good with truly positive solutions. We know full well that many opinions and challenges exist (Boehnert, Sinclair and Dewberry, 2022; Bradshaw *et al.*, 2021). They may encounter many obstacles, but ensuring your actions have long-term benefits for all life is the easy benchmark for future success. Keep it local, yet share good progress widely.

5. Conclusion

It is reassuring to see that the opportunities to progress outweigh the negatives. Implementation, accountability and monitoring them can then be inspiring. We still need better transparency and integrity in politics and business, which is, thankfully, trending this way. The UN created the SDGs to cover many, but not all, of the inequalities and advances society needs. Literature reviews, research answers, and discussions have informed these conclusions. We have suggested one new omnibus Goal that fully incorporates the Responsible Living Economy and follows global ecological best practices confirming the biosphere's health is our shared wealth.

The Millennium Development Goals (MDGs) suggested governments take responsibility for pressing global issues. They made some progress. The SDGs realised the shortcomings of the MDGs and expanded the responsibility to Governments plus Industry and Business. Yet, there is still the explicit requirement to address major complex topics of runaway consumerism, population and the total costs of wars. If not, all the excellent progress will yield little return. At the halfway point, with the stakes so high, the SDGs will benefit from collaborative input and exigent actions from the entire global community. Positive action reduces climate anxiety.

Focusing on Goal #13 should remain the priority. If we are to create any genuinely liveable future and avoid existential threats, the closely interrelated Goals #10, 14, 15 and 18 deserve similar following, implementation and resolution. As stated, some "prefer not to talk about sustainability: 'Responsibility makes much more impact'." UN chief said, 27th July, 2023, The era of global warming has ended & "the era of global boiling has arrived" <https://news.un.org/en/story/2023/07/1139162>.

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References

1. Ahmed, Z. *et al.* (2020) "Moving towards a sustainable environment: The dynamic linkage between natural resources, human capital, urbanisation, economic growth, and ecological footprint in China," *Resources Policy*, 67, p. 101677. Available at: <https://doi.org/10.1016/j.resourpol.2020.101677>.
2. Ashford, N.A. *et al.* (2020) "Addressing Inequality: The First Step Beyond COVID-19 and Towards Sustainability," *Sustainability*, 12(13), p. 5404. Available at: <https://doi.org/10.3390/su12135404>.



3. Askitopoulou, H. and Vgontzas, A.N. (2018) "The relevance of the Hippocratic Oath to the ethical and moral values of contemporary medicine. Part I: The Hippocratic Oath from antiquity to modern times," *European Spine Journal*, 27(7), pp. 1481–1490. Available at: <https://doi.org/10.1007/s00586-017-5348-4>.
4. Baloch, M.A., Mahmood, N. and Zhang, J. (2019) "Effect of natural resources, renewable energy and economic development on CO2 emissions in BRICS countries," *Science of the Total Environment*, 678, pp. 632–638. Available at: <https://doi.org/10.1016/j.scitotenv.2019.05.028>.
5. Boehnert, J., Sinclair, M. and Dewberry, E. (2022) "Sustainable and Responsible Design Education: Tensions in Transitions," *Sustainability*, 14(11), p. 6397. Available at: <https://doi.org/10.3390/su14116397>.
6. Bradshaw, C.J.A. *et al.* (2021) "Underestimating the Challenges of Avoiding a Ghastly Future," *Frontiers in Conservation Science*, 1. Available at: <https://doi.org/10.3389/fcosc.2020.615419>.
7. *Buildonix* (2023). Available at: <https://buildonix.com.au/about/> (Accessed: June 26, 2023).
8. Campbell, G. and Campbell, C. (2021) "Responsible Design is the Apex Design Mode to create our sustainable future," *Accelerating the Progress Towards the 2030 SDGs in Times of Crisis. Proceedings of the 27th Annual Conference, International Sustainable Development Research Society.*, pp. 513–532. Available at: <https://bit.ly/ResponsibleDesignIsApexDesignMode> <https://isdrs.org/2021-sweden/>.
9. Chouinard, Y. and Stanley, V. (2016) *the responsible company: What We've Learned from Patagonia's First 40 Years*. Patagonia.
10. Christensen, M.-B. et al. (2023) Survival of the Richest: How we must tax the super-rich now to fight inequality. Available at: <https://doi.org/10.21201/2023.621477>.
11. Corporate Knights (2023) "100 most sustainable companies of 2023 still flourishing in tumultuous times," 18 January. Available at: <https://www.corporateknights.com/rankings/global-100-rankings/2023-global-100-rankings/2023-global-100-most-sustainable-companies/> (Accessed: July 9, 2023).
12. Cribb, J. (2023) *How to Fix a Broken Planet*. Cambridge University Press.
13. Crocker, R. (2017) *Somebody Else's Problem: Consumerism, Sustainability and Design*. Routledge.
14. De Lázaro Torres, M.L. and De Miguel González, R. (2023) *Sustainable Development Goals in Europe: A Geographical Approach*. Springer Nature.
15. *Design for Planet - Design Council* (2022). Available at: <https://www.designcouncil.org.uk/our-mission/> (Accessed: June 30, 2023).
16. *Doughnut Economics Action Lab DEAL* (2020). Available at: <https://doughnuteconomics.org/about-doughnut-economics> (Accessed: July 3, 2023).
17. *Electrify Mackellar* (2023). Available at: <https://www.facebook.com/groups/electrifymackellar> (Accessed: July 1, 2023).
18. *Enabling design for environmental good* (2022). Available at: <https://www.dccew.gov.au/environment/protection/publications/enabling-design-for-environmental-good> (Accessed: June 27, 2023).
19. Figueres, C. and Rivett-Carnac, T. (2020) *The Future We Choose: "Everyone should read this book"* MATT HAIG. Bonnier Zaffre Ltd.
20. Friant, M.C., Vermeulen, W.J.V. and Salomone, R. (2020) "A typology of circular economy discourses: Navigating the diverse visions of a contested paradigm," *Resources Conservation and Recycling*, 161, p. 104917. Available at: <https://doi.org/10.1016/j.resconrec.2020.104917>.



21. Friant, M.C., Vermeulen, W.J.V. and Salomone, R. (2021) "Analysing European Union circular economy policies: words versus actions," *Sustainable Production and Consumption*, 27, pp. 337–353. Available at: <https://doi.org/10.1016/j.spc.2020.11.001>.
22. Fridman, I., Meron, Y. and Roberts, J. (2022) "Responsible design thinking: Informing future models of cross-disciplinary design education," *Journal of Design, Business and Society*, 8(2), pp. 145–166. Available at: https://doi.org/10.1386/dbs_00037_1.
23. Fry, T. (2020) *Defuturing: A New Design Philosophy*. Bloomsbury Publishing.
24. Glencross, D.A. et al. (2020) "Air pollution and its effects on the immune system," *Free Radical Biology and Medicine*, 151, pp. 56–68. Available at: <https://doi.org/10.1016/j.freeradbiomed.2020.01.179>.
25. Griffith, S. (2022) *The Big Switch: Australia's Electric Future*. Black Inc.
26. Haavisto, V. (2023) *Conserving Earth's microbial biodiversity before it's too late*. Available at: <https://yoursay.plos.org/2023/06/conserving-earths-microbial-biodiversity-before-its-too-late/> (Accessed: July 3, 2023).
27. Hagendorff, T. (2020) "The Ethics of AI Ethics: An Evaluation of Guidelines," *Minds and Machines*, 30(1), pp. 99–120. Available at: <https://doi.org/10.1007/s11023-020-09517-8>.
28. Hametner, M. (2022) "Economics without ecology: How the SDGs fail to align socioeconomic development with environmental sustainability," *Ecological Economics*, 199, p. 107490. Available at: <https://doi.org/10.1016/j.ecolecon.2022.107490>.
29. Hawken, P. (2021) *Regeneration: Ending the Climate Crisis in One Generation*. Penguin UK.
30. Hawkins, H.-J. et al. (2023) "Mycorrhizal mycelium as a global carbon pool," *Current Biology*, 33(11), pp. R560–R573. Available at: <https://doi.org/10.1016/j.cub.2023.02.027>.
31. Head, M.J. et al. (2022) "The Great Acceleration is real and provides a quantitative basis for the proposed Anthropocene Series/Epoch," *Episodes*, 45(4), pp. 359–376. Available at: <https://doi.org/10.18814/epiiugs/2021/021031>.
32. Hickel, J., Dorninger, C., et al. (2022) "Imperialist appropriation in the world economy: Drain from the global South through unequal exchange, 1990–2015," *Global Environmental Change-human and Policy Dimensions*, 73, p. 102467. Available at: <https://doi.org/10.1016/j.gloenvcha.2022.102467>.
33. Hickel, J. et al. (2022) "National responsibility for ecological breakdown: a fair-shares assessment of resource use, 1970–2017," *The Lancet Planetary Health*, 6(4), pp. e342–e349. Available at: [https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(22\)00044-4/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(22)00044-4/fulltext).
34. Horner, R. et al. (2018) "Globalisation, uneven development and the North–South 'big switch,'" *Cambridge Journal of Regions, Economy and Society*, 11(1), pp. 17–33. Available at: <https://doi.org/10.1093/cjres/rsx026>.
35. Humpenöder, F. et al. (2022) "Overcoming global inequality is critical for land-based mitigation in line with the Paris Agreement," *Nature Communications*, 13(1). Available at: <https://doi.org/10.1038/s41467-022-35114-7>.
36. Jobin, A. and Vayena, E. (2019) "The global landscape of AI ethics guidelines," *Nature Machine Intelligence*, 1(9), pp. 389–399. Available at: <https://doi.org/10.1038/s42256-019-0088-2>.
37. Jonas, H. (1985) *The Imperative of Responsibility: In Search of an Ethics for the Technological Age*. University of Chicago Press.
38. Jones, C.K. and Fowler, L. (2022) "Administration, rhetoric, and climate policy in the Obama presidency," *Review of Policy Research*, 39(4), pp. 512–532. Available at: <https://doi.org/10.1111/ropr.12472>.
39. Keitsch, M.M. and Vermeulen, W.J.V. (2020) *Transdisciplinarity For Sustainability: Aligning Diverse Practices*. Routledge.



40. Kretser, A. *et al.* (2019) "Scientific Integrity Principles and Best Practices: Recommendations from a Scientific Integrity Consortium," *Science and Engineering Ethics*, 25(2), pp. 327–355. Available at: <https://doi.org/10.1007/s11948-019-00094-3>.
41. Maks, S. (2023) "Is het einde van greenwashing in zicht? 'Transparantie is een nieuwe modus waar iedereen aan moet wennen,'" *Change Inc.*, 6 June. Available at: <https://www.change.inc/retail/is-het-einde-van-greenwashing-in-zicht-transparantie-is-een-nieuwe-modus-waar-iedereen-aan-moet-wennen-40033>.
42. Mastroianni, A.M. and Gilbert, D.T. (2023) "The illusion of moral decline," *Nature* [Preprint]. Available at: <https://doi.org/10.1038/s41586-023-06137-x>.
43. Mauerhofer, V. (2021) *The Role of Law in Governing Sustainability*. Routledge.
44. McKay, D.I.A. *et al.* (2022) "Exceeding 1.5°C global warming could trigger multiple climate tipping points," *Science*, 377(6611). Available at: <https://doi.org/10.1126/science.abn7950>.
45. Melles, G., De Vere, I. and Mistic, V. (2011) "Socially responsible design: thinking beyond the triple bottom line to socially responsive and sustainable product design," *CoDesign*, 7(3–4), pp. 143–154. Available at: <https://doi.org/10.1080/15710882.2011.630473>.
46. Middelweerd, H. (2023) "Patagonia spreekt liever niet over duurzaamheid: 'Verantwoordelijkheid maakt veel meer impact,'" *Change Inc.*, 23 May. Available at: <https://www.change.inc/retail/patagonia-spreekt-liever-niet-over-duurzaamheid-verantwoordelijkheid-maakt-veel-meer-impact-39975>.
47. Mittelstadt, B. (2019) "Principles alone cannot guarantee ethical AI," *Nature Machine Intelligence*, 1(11), pp. 501–507. Available at: <https://doi.org/10.1038/s42256-019-0114-4>.
48. Moallemi, E.A. *et al.* (2020) Achieving the Sustainable Development Goals Requires Transdisciplinary Innovation at the Local Scale. Available at: <https://doi.org/10.1016/j.oneear.2020.08.006>.
49. Moallemi, E.A. *et al.* (2022) "Early systems change necessary for catalyzing long-term sustainability in a post-2030 agenda," *One Earth*, 5(7), pp. 792–811. Available at: <https://doi.org/10.1016/j.oneear.2022.06.003>.
50. *Mortality rate globally by energy source* / Statista (2023). Available at: <https://www.statista.com/statistics/494425/death-rate-worldwide-by-energy-source>.
51. Morton, A. (2023) "'No time to waste': getting Australian homes off gas crucial for meeting Net Zero Targets, report says," <https://www.theguardian.com/environment/2023/jun/19/australian-homes-gas-net-zero-targets-report?>, 19 June.
52. Motesharrei, S., Rivas, J. and Kalnay, E. (2014) "Human and nature dynamics (HANDY): Modeling inequality and use of resources in the collapse or sustainability of societies," *Ecological Economics*, 101, pp. 90–102. Available at: <https://doi.org/10.1016/j.ecolecon.2014.02.014>.
53. Muranty, S. (2020) *The Sky Is My Country Too: (feat. J Edna Mae)*. Available at: <https://music.apple.com/au/album/the-sky-is-my-country-too-feat-j-edna-mae-single/1506479072> (Accessed: June 30, 2023).
54. Oxtoby, K. (2016) "Is the Hippocratic oath still relevant to practising doctors today?," *BMJ*, p. i6629. Available at: <https://doi.org/10.1136/bmj.i6629>.
55. Pitt, H. (2023) "How 35 kilometres of pipe helped Opera House win a 6-star green rating," <https://www.smh.com.au>, 17 May. Available at: <https://www.smh.com.au/environment/sustainability/how-35-kilometres-of-pipe-helped-opera-house-win-a-6-star-green-rating-20230503-p5d5b8.html> (Accessed: June 26, 2023).
56. Pope, C. (2004) "Air Pollution and Health — Good News and Bad," *The New England Journal of Medicine*, 351(11), pp. 1132–1134. Available at: <https://doi.org/10.1056/nejme048182>.
57. *Project Drawdown* (2023). Available at: <https://www.drawdown.org/>.



58. Readfearn, G. (2023) “‘Seismic shift’: Younger Australians reject idea humans have right to use nature for own benefit, survey shows,” *The Guardian*, 23 June. Available at: <https://www.theguardian.com/environment/2023/jun/23/seismic-shift-younger-australians-reject-idea-humans-have-right-to-use-nature-for-own-benefit-survey-shows> (Accessed: July 4, 2023).
59. *Reuters* (2023) “Climate nears point of no return as land, sea temperatures break records, experts say,” 30 June. Available at: <https://www.reuters.com/business/environment/climate-nears-point-no-return-land-sea-temperatures-break-records-experts-2023-06-30/> (Accessed: July 3, 2023).
60. *Rewiring Australia* (2023). Available at: <https://www.rewiringaustralia.org/electorate> (Accessed: July 1, 2023).
61. Rockström, J. *et al.* (2023) “Safe and just Earth system boundaries,” *Nature* [Preprint]. Available at: <https://doi.org/10.1038/s41586-023-06083-8>.
62. Roeser, S. (2012) “Emotional Engineers: Toward Morally Responsible Design,” *Science and Engineering Ethics*, 18(1), pp. 103–115. Available at: <https://doi.org/10.1007/s11948-010-9236-0>.
63. Schillebeeckx, S. (2022) *Nature Tech - a nascent ecosystem*. Available at: <https://handprint.tech/v2023/wp-content/uploads/2023/03/Nature-Tech-a-nascent-ecosystem-1.pdf>.
64. Singh, S. *et al.* (2021) *Global Climate Change*. Elsevier.
65. Society for Responsible Design Inc. (2023) *SRD*. Available at: <https://srd.org.au/> (Accessed: June 30, 2023).
66. *Society for Responsible Design Inc / ACNC* (2023). Available at: <https://www.acnc.gov.au/charity/charities/7c36c472-d076-ed11-81ad-00224893bfad/people> (Accessed: July 1, 2023).
67. S&P Global (2023) “The Sustainability Yearbook - 2023 Rankings.” Available at: <https://www.spglobal.com/esg/csa/yearbook/2023/ranking/> (Accessed: July 9, 2023).
68. System of Environmental-Economic Accounting (SEEA) (2012). Available at: <https://seea.un.org> (Accessed: June 30, 2023).
69. *The Kunming-Montreal Global Biodiversity Framework*. (2022). Available at: <https://www.cbd.int/doc/c/e6d3/cd1d/daf663719a03902a9b116c34/cop-15-l-25-en.pdf>.
70. *The Microbiota Vault* (2018). Available at: <https://www.microbiotavault.org> (Accessed: July 3, 2023).
71. Thunberg, G. (2022) *The Climate book*.
72. UN GAE&SC (2023) *Progress towards the Sustainable Development Goals: Towards a Rescue Plan for People and Planet*. Available at: https://sdgs.un.org/sites/default/files/2023-04/SDG_Progress_Report_Special_Edition_2023_ADVANCE_UNEDITED_VERSION.pdf (Accessed: June 20, 2023).
73. United Nations (2022) *UN adopts landmark framework to integrate natural capital in economic reporting / United Nations*. Available at: <https://www.un.org/en/desa/un-adopts-landmark-framework-integrate-natural-capital-economic-reporting>.
74. Van Den Hoven, J. (2013) “Value Sensitive Design and Responsible Innovation,” in *John Wiley & Sons, Ltd eBooks*, pp. 75–83. Available at: <https://doi.org/10.1002/9781118551424.ch4>.
75. *Welcome to Regeneration / Project Regeneration* (2023). Available at: <https://regeneration.org/>.
76. *Wentworth Group of Concerned Scientists* (2002). Available at: <https://wentworthgroup.org> (Accessed: June 30, 2023).
77. What is ECG (2021). Available at: <https://www.ecogood.org/what-is-ecg/> (Accessed: July 9, 2023).
78. Wikipedia contributors (2023) “David Attenborough,” *Wikipedia* [Preprint]. Available at: https://en.wikipedia.org/wiki/David_Attenborough.