"Can we Reverse Climate Change by 2030?"

editor, Greg Campbell, Director, DesignOz P/L and Chairman of the Australian charity, Society for Responsible Design.

Our perspectives for this chapter are informed by experience with many design disciplines well covered in our recent papers looking at the big issues and promising solutions, such as shifting to a truly 'Responsible Living Economy'. This brief intro features bullet points for brevity to address the multiple complex issues needing urgent solutions. Focusing on the main global existential threat the discussion flows down from there keeping carbon emissions as the central theme.

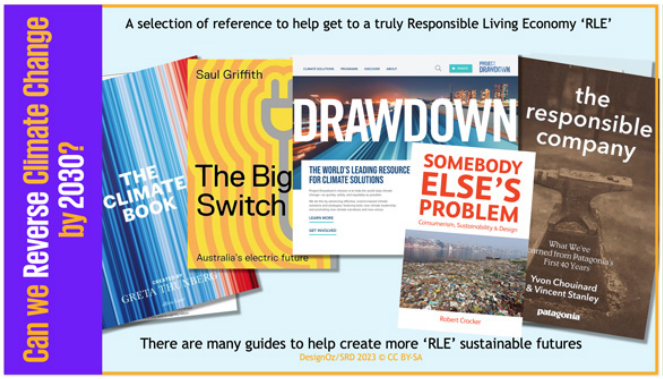
The Question:

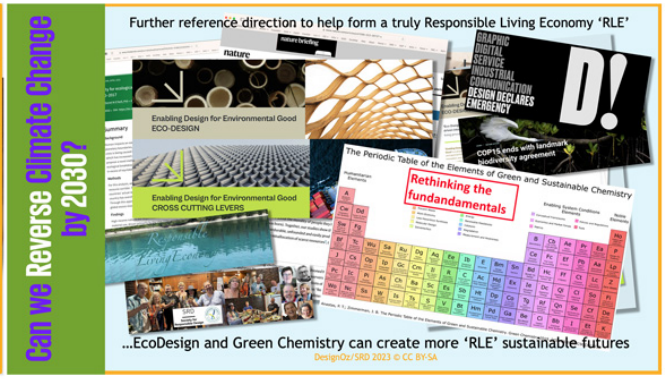
Can we Reverse Climate Change by 2030? *(provocative by intent, to ask the obvious next questions; "If Not, by when?", and, "Does anybody know by when?", and more importantly, "How may we best resolve these related issues, especially as time may likely be running out?", plus "Where is the simple list to use as a starting template?")*

Focus on the Goal. UN SDG #13 Climate Action. The scientific and broader community sees Climate Change as the most significant ongoing threat to humanity and species. With concerted and sustained effort, it will be capable of being reversed but by when? There needs to be a broad understanding of issues to ensure this reversal is developed and enacted. We review salient points in multiple sectors to see where everyone may contribute to the most success. Academic, business and government sectors need to work effectively with the community to allow this. Such advances will require reprioritisation of the SDGs, matched with transparent assessment of Global Ecological Best Practices (GEBP), to identify workable concepts and processes with the capacity to generate sustainable resolutions for stand-alone and systemic problems. "We need to revitalise the SDGs by adding accountable common sense thinking to enable the significant evolution required "to align socio-economic development with environmental sustainability" (Hametner, 2022).

It was insightful for the UN to create the SDGs, yet the reverse for not giving them a suitable mechanism to revise, update and improve their progress. The need for eight billion individuals to have some cohesive plan for their care and stewardship of nature is a clear imperative. Our reviews, conversations and research confirm that a significantly changed prioritisation of the SDGs is required to have any chance of the success they demand. Central to this is assessing the significant & growing global threats to Life on Earth. The global primary goal of society should be to reverse the trends that cause these issues. Wicked problems can work both ways. Resolving one major issue can give great help to another.

Slide1 & Slide 2 A wide selection of recent and authoritative reference have informed this discussion.





In our view: Consumerism was beneficial to a point that passed last century (c.1970?).
* Waste and other manufacturing goods must be redesigned to become other resources. * Incentives through taxes, rebates and research to attain the ultimate sustainability values.

Contributions already received & reviews of recent data show some significant insights:
Somebody Else's Problem author **Robert Crocker** says,
"Recent studies suggest household consumption is responsible for between 60% and 70% of global emissions, and over 50% of fresh water and arable land use (Dubois et al 2019). Created as a solution to the economic problems of the 1930s (Lipsitz 1998), today's growth economy results in a systemic overconsumption of energy and resources and a global waste and pollution crisis (Hoornweg, Bhada-Tata & Kennedy 2015). In response, today's Green Growth policies promote efficiency gains in individual products, but mistakenly assume these will lead to global reductions in impact. Instead, these tend to lower the costs of use, which leads to more, and more repeat, consumption (Santarius 2012). Increasing the transparency of product and supply chain impacts, embedding the costs of these in prices, and implementing various 'circular' product life-extension strategies, could help reduce the impact of this consumption problem. For example, if smartphones were more responsibly designed they could remain in use for 8 years, (nearly) four times today's global average retention rate (Crocker 2012). Saving resources and energy, now required to manufacture four times more of these products. While this would require policy interventions and new business models, the result could dramatically reduce material and resource consumption and impacts." *This closely relates to Food consumption with its wastage & production another big carbon emitter. Potential savings are being progressed systematically.

Saul Griffith's work says, "Electrify Everything".
The process to 'Electrify America' made great bounds since the Inflation Reduction Act of 2022 (IRA), cutting growth in emissions and providing a valid structure to transition to renewables across the USA. Similar to some changes in Australia, while this is applaudable

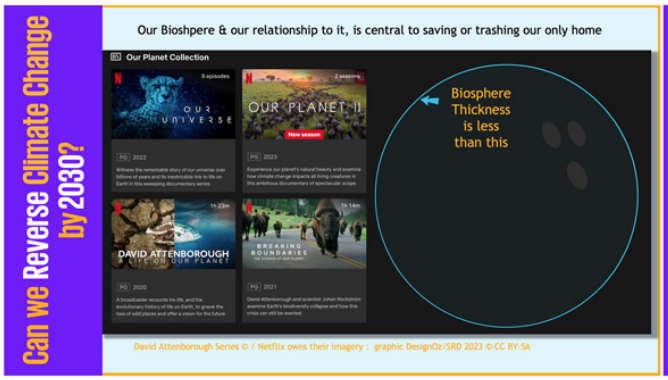
progress, it lacks speed and does not address the increasing development and reliance on fossil fuel based "natural gas", particularly in (LNG) form.
"Electrify" changes include: * Heat Pumps in various forms with big savings per household.
* Transitioning away from fossil fuel heating. Health, cost and GHG benefits.
* Global Liquid Natural Gas (LNG) usage and exportation is still Increasing.
* Recent report covers 'smoke and mirrors' in Papua New Guinea with French-supported conservation project being more than offset, with a significant expansion of new LNG contracts.
* Further promotion to uptake electric vehicles and increasing electrical and battery use in community and manufacturing processes.
* Review Al Gore's TED talk on working to Stop untrustworthy Fossil Fuel companies (add Link & quote) Noting "Electrify" will not resolve much for natural habitat & species loss. * Add Verge23 Climate video brief.

Nigel Howard says "Built Environment Codes need Net Zero Now" (Graphics above- starting reference ie the Fifth Estate Electric Ideas list add Bamboo & other new building ideas)
* Successful promotion of building rating tools uptake, ecolabelling and environmental product declarations, have not been matched by scientific and technical developments of environmental assessment and rating schemes. High profile Green projects don't deliver enough real environmental benefits, to merit current awards activity and expenditure.
* The National Construction Code in Australia and regulations internationally need to mandate net zero emissions for all buildings from new.
* Housing in Australia, would then accelerate emissions reductions from houses 4-fold, significantly contribute uptake of solar photovoltaics on housing roofs (government target 82% by 2030 – a long way to go) AND make all new houses more affordable day 1, because the energy costs savings are up to 8 times larger than the additional mortgage payments for the required solar panels.
* Net Zero is easier for house-builders to achieve than further energy efficiency requirements, and easier to verify compliance without any gaming, with new owners' energy bills at 12mths revealing if net zero has been achieved. Add House-builders opportunity to value add, sell additional solar and solar charging points for electric vehicles. Net zero for multi-residential, commercial, industrial and Retail buildings is more challenging with landlord/tenant problem, inability to sell excess solar to other users at correct market rates, greater storage needs on grid to obviate curtailment at peak generation times.

The building standard HAS to be Net Zero now, we've run out of time for anything less and it can be economically beneficial in housing and many other sectors. It's over-optimistic to talk about reversing climate change. If we have triggered compounding feedback loops, as described in "Hothouse Earth" research, we are headed to 4-6Deg C warming unstoppably.
The last 12 months saw climate records absolutely smashed for temperatures, flooding, Arctic sea ice loss etc. and suggests we have indeed crossed thresholds for "Hothouse Earth" earlier than expected (at 2Deg C of warming by about 2030). Even if this were not so and we stopped all emissions today, adopting every mechanism for carbon drawdown in nature (reafforestation, mangrove, peat bog, prairie, sea grass restoration) and in agriculture would only reduce atmospheric CO2 by ~30ppm per century – we're still adding this much CO2 every decade, so the damage we are doing now will only be reversed back to stable climate levels VERY slowly – centuries perhaps millennia! It's disturbing in the extreme, how complacent and in denial most are to this science!! (Clarity Environment, Howard, 2023).

In our view: * We need to resolve how to apply these higher standards to Renovations and Retrofits along with stricter standards in the first place focusing on energy use, appliances and GHG emissions.
Other points * Getting off all Fossil Fuel gas * Building with bamboo, Hempcrete and other advanced materials. * Green roofs, Light coloured roofs, integrating nature and good implementation.

Slide3 & Slide 4 a common sense revision of not "Saving the Planet" but a refocus on being "Pro Biosphere", to redirect all the goals.



To accelerate positive change, a prime new direction needs to be awareness and protection of the Biosphere which sustains all life. Some examples, Agriculture can sequester Carbon and increase production. (e.g. Regenerate Australia; Farmers against Climate Change; Rachel's Farm; Group in Mildura re multi-cropping, Dr Elaine's Soil-Food-Web School)
* There are Multiple means to increase the soil carbon content, increasing health, depth, moisture and yields.
* Mixed variety and multiple-season cropping with a focus on keeping the ground covered while increasing natural water cycles.
* Methods are fast acting, significantly save chemical usage, culturally appropriate and locally productive.
* De-carbonising Fertiliser by making green Hydrogen, to make ammonia, adding Nitrogen to get green fertiliser is one direction, however closer scrutiny suggests the better soil yields preferable results (Crossland, 2022)

Prioritising the SDGs to Develop globally a truly 'Responsible Living Economy' (RLE) allows more transparency in dealing with reality. One significant aspect introduced in our last paper deserves greater expansion and development. The critical factor of involving the greater public to make conscious shifts in their common but relatively recent bad habits has largely been overlooked.

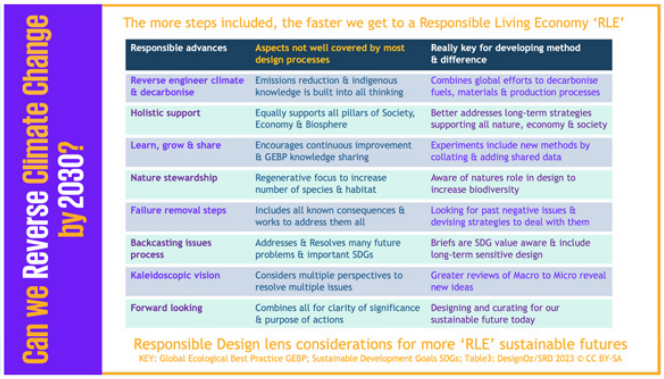
* Being more aware of the consequences, both positive and negative.
* Making accountability and stewardship positive achievements for everyone to participate.
* Owning the positive and encouraging 'virtue signalling' for the common good as a desirable choice and position.
* Developing and encouraging a genuine RLE as a working structure for achieving many more goals and targets. We welcome greater cooperation and coopetition to achieve this with a new focused independent Journal, updated annually, just for this purpose. We'd be delighted to assist the wider network with creating this.

Another significant aspect for Industry and Design is Global Ecological Best Practice (GEBP) How is this form of best practice shared globally? (Graphics include: FSC; RMIT et al Eco-Design books)
* How this (GEBP) can be a positive sharing focus, for worldwide design and manufacturing standards, incorporating full Life Cycle Analysis (LCA) and ensuring minimised energy and pollutants in production, usage and product end-of-life.
* Review the destructive environmental consequences on the lands of less wealthy countries of the global South. Contamination, deforestation and invasive production practices by more affluent countries have resulted in the inequitable scenario of the Global North getting wealthy as the ravaged landscapes of Global South countries become poorer and more severely impacted. Consequences include land degeneration, sea inundation and ruined natural food resources on land and seas.
* Current processes are mostly just Profit-focused and would benefit from National, State and Government-based incentives to foster GEBP.

Green Chemistry has many elements to contribute
* Making things "Benign by Design", keeping new products safer by creating them to be so.
(Reference in Slide 2 is a periodic table of the elements of green and sustainable chemistry (Anastas and Zimmerman, 2019)
* Two recent examples of GEBP. Ultrasound and microwave irradiation: contributions of alternative physicochemical activation methods to Green Chemistry (Châtel and Varma, 2019)

In Competition, aim to grow Cooperation and Coopetition (by GC) with
* references to X-Prize, (HRH) The Earthshot Prize, and other ideas like.
* Gamification to "Save the Planet" by an environmental engineer / software designer with 20 year's experience in environmental change is ready now. * Compilation UNSW Industrial Design Ideas list of last 20 yrs and a selection of SRD Change National 8 year series.

Slide 5 & Slide 6 Prioritising the SDGs to Develop globally a truly 'Responsible Living Economy' (RLE)



Similar to Consumerism, Fashion also has an emissions footprint much larger than it shows. (Future Graphics will include: Aust. Sus. Fashion week, others, Zero Waste Design ZWD international)
* Significant interest, awareness of the industry's consequences, and the desire to rectify are growing.
* Many Materials are made from fossil fuels and their Carbon emission consequences are becoming more publicised.
* Multiple toxic, pollution and species consequences make fixing this sector much more urgent.
* Microfibre pollution is affecting the food supply and significantly changing the balance of nature.
* Used fashion is often shipped to third-world countries, which act as waste dumps.
* Changing production with more sustainable fabrics, organic dyes and multi-purpose styles for reuse, upscaling and repurposing.
Wherever possible, recycling and adopting designed 'results management options' should be included in the initial design phase to reduce the final waste output.

(Closing) Other goals and Targets priorities are in the Project Drawdown Top 10 and will be in this Chapter. Replacing Refrigerant gases, land based wind turbines, better targeted education for girls, etc.

Nationally we're growing the SRD Charity, the website now features a Give Now / Membership page
What you can do? Read our papers, visit SRD website, grow SRD Pro, join our Mighty network. Do everything humanly possible to encourage reversal of climate change over mere mitigation.

If we don't know an answer to Reversing Climate Change by 2030, to protect everyone's future, we still need to know and explore exactly how it may be possible in the shortest possible time.
Thank you. (END) c.2175 words Final to be 7,000 words. This is our draft plan.

Completes with one paragraph Biography for each contributing author
This is not a career or money focused venture but aims to be an instrument to enable and encourage positive change and action.