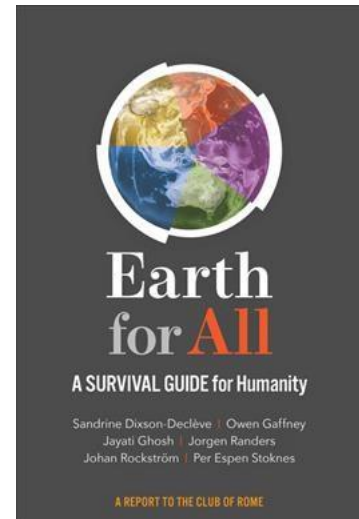


“A Welcome Follow on to Limits-to-Growth”

a review from Dick Burkhart of

“Earth for All: A Survival Guide for Humanity”

By The Club of Rome (2022)



The system dynamics of the amazing Limits-to-Growth scenarios of the 1970s have been updated, using the new software “Earth4All” to include many more variables, enabling a far wider range of scenarios. You can find an excel spreadsheet of 856 verbal equations and parameters at the earth4all website, with an open-source version of the model promised. As a mathematician / engineer and algorithm developer who has wanted access to such a model for decades, I might try it out when it becomes available

The only problem is that this book is no longer focused on limits-to-growth, in part due to a wildly optimistic assessment of renewable energy. The recent experience of Germany is a flashing red light (only 6% of energy from wind and solar despite immense investment, plus high variability and a shrinking base load for backup).

The authors cite dramatic drops in the price of wind and solar over the last several years, failing to note that as production rises the prices will include, either directly or indirectly, the high costs of grid expansion, storage of electricity (batteries, pumped hydro, etc), and the need for a base load (usually natural gas or nuclear). In addition, the electricity to produce things like cement and steel will be phenomenal. Of course, new technologies for this production are being investigated but until they have been scaled globally and economically, skepticism is in order.

One article I just read cited the prevalence of “demoware” which ends up as “vaporware” when the engineering comes to naught. For example, big electrical airplanes are pie-in-the-sky. So the “electrify everything” mantra simply won’t work, especially when only about 20% of current energy usage is electrical. Strangely, not mentioned is a very realistic scenario in some countries - the building of electrified rail networks to replace both short air travel and long-haul trucking, promoted as “solutionary rail” in the US and already the norm in many areas globally.

Another neglected topic is “peak oil”, despite how it is leading the global economy from growth toward stagnation (the production of convention oil plateaued in 2006, and the production of global crude oil is now down 5% from its peak in Nov, 2018). A closely related forecast is that as cheap energy recedes, then the spread of large-scale automated enterprises will slow and the power of labor will grow. Technological advances will focus more on efficiencies instead of expanded consumption driven by the Jevons Paradox.

In fact overall consumption will have to decrease to bring humanity back into balance with what the earth provides. The authors state that “the energy transformation alone will drive economics growth” (p 146). True, but, in my judgment, it is just wishful thinking to suppose that the growth rate will be positive rather than negative.

But the meat of this book consists of 5 key challenges that, if solved, could lead to a “Great Leap” forward scenario but if neglected would leave the world with a “Too Little – Too Late” business-as-usual scenario. The 5 challenges are “Poverty”, “Inequality”, “Gender Equity”, “Food”, and “Clean Energy”. Of course, these 5 could have been reduced to 3 since limited food is the most prominent aspect of poverty and gender equity is one of many kinds of inequality that contribute to social injustice and resentment.

Not addressed was an even more critical challenge - “Democratic Global Governance” – to create the social and political will to implement global

solutions to global problems. Strangely, the book does point to the key problem here – the lack of trust, which creates “social tensions”, measured by a Social Tension index, leading to conflict, political breakdown, even war. The book identifies inequality, correctly, as a such tension, but neglects the huge obstacle of traditional big power politics and other forms of tribalism and empire-building.

Welcome features of this book include its simple and specific goals, such as limiting the total income of the top 10% to no more than that of the bottom 40%. This goal is well grounded from studies on inequality. Another is increasing the GDP of poor countries until GDP is \$15,000 per person per year in current dollars. Another is to halve global emissions every decade toward net-zero by 2050. Then the realism of these goals how to achieve them may at least be debated.

A further welcome feature is the proposal for a “Citizens Fund”, which would provide a universal basic income from “fees on wealth extraction and use of shared commons” (p 155). This would be the opposite of the infamous US tax break known as the “oil depletion allowance”. The Alaska Permanent Fund, based on oil revenue, is a good prototype. Another version of this, not cited, would grant all citizens a basic share of ownership of large corporations, yielding actual dividends, or of large transnational corporations in the case of the global citizenry.

At other times, this book correctly targets a problem, such as “the steady rise of a parasitic rentier economy in the name of free markets” (p 149), citing Michael Hudson, but is less specific about proposed solutions or targets, other than generalities like “progressive income and wealth taxation”. Other issues, such as gender equity, apply mostly to poorer societies aspiring to become more middle class. In the US the equity gap has actually reversed in some respects, with a 15% excess of female over male college graduates and with large numbers of working-class marriages falling apart, most often because the men are unable to fulfill their expected economic roles.

Another complex issue is the global food supply, which is now highly dependent on industrial agriculture to feed almost 8 billion people. So, yes, regenerative agriculture will become necessary but the costs can be expected to rise substantially as cheap energy is replaced by more labor. This will lead, one way or another, to a smaller world population, especially if the goal is to raise the global standard of living to at least the basics as found in Europe, requiring a large expansion of other resources and infrastructure as well.

So, even though this book has multiple authors and contributors, this is hardly reflected in the actual exposition, which covers some issues in far more insight and depth than others which are of equal or greater importance. Let's hope that follow up books are better balanced and skeptical of technological hype, in the spirit of Vaclav Smil's book on "How the World Really Works".