

A visionary yet practical guide to building a more sustainable future, by one of the 'great voices' (*Business Week*) of the environmental movement today.

Final Cover

How to Thrive in the Next Economy

Designing Tomorrow's World Today

John Thackara

NEW IN B-FORMAT PAPERBACK

19.8 x 12.9 cm

192pp

ISBN 978 0 500 292945

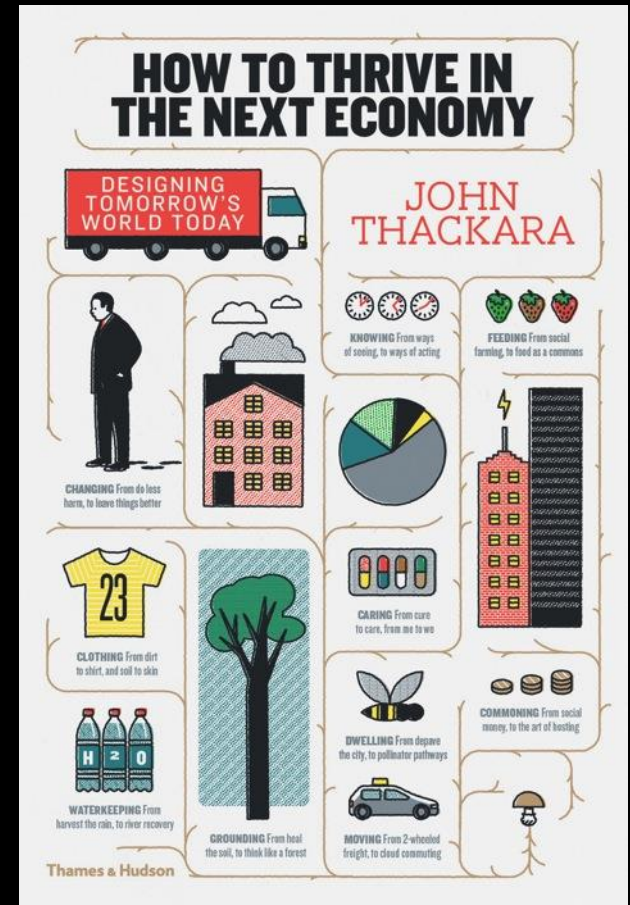
Paperback

£9.99

February 2017

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Book



Key Sales Points

- ‘A thoughtful plan for a better and very different world’ *New Scientist*
- Radical, relevant and accessible – this is a book that promises to reignite mainstream discussions of sustainability in both theory and practice
- The first book on sustainability to prove that, locally, groups of human beings are achieving what governments, official bodies and writers of manifestos are failing to do
- John Thackara is a design visionary and provocateur who was described by Business Week as ‘one of the great voices on sustainability’
- Chapters cover the full gamut of human priorities, and what we mean by ‘economic development’, focusing on practical, workable innovations that are being implemented by grassroots communities across the world

Target Market

- Anyone interested in innovation, sustainability and the environment
- General non-fiction readers of Malcolm Gladwell and Stephen Pinker

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FOR LEX AND ELEANOR THACKARA

First published in the United Kingdom
in 2015 by Thames & Hudson Ltd,
181A High Holborn, London WC1V 7QX

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John Thackara

Book design by Lisa Ifsits

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British Library Cataloguing-in-Publication
Data. A catalogue record for this book is
available from the British Library

ISBN 978-0-500-51808-3

Printed and bound in India by Replika Press

To find out about all our publications,
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**CHANGING:
FROM DO LESS HARM,
TO LEAVE THINGS BETTER**

At a dusty crossing on the long cross-country road from Kanpur to Lucknow, in Uttar Pradesh, India, we come across a huge video screen on the back of a flat-bed truck. Together with a dozen villagers, four people on bicycles, and a cow, we stare in a daze at the screen. On the left side of the screen the landscape on each side of the River Ganges, in whose vast fertile plain we are standing, is made to look hot, dusty, and wretched. On the right of the screen, a better future is portrayed: busy cities, robot assembly lines, and high-speed trains. This before-and-after sequence is followed by a full-screen video in which computer-generated apartment blocks sprout like so many mushrooms from bright green grass along the banks of the River Ganges. 'Welcome to Trans-Ganga HighTech City,' explains the voiceover.

'May the odds be ever in your favour!' mutters my young companion. 'This is pure *Hunger Games*,' she explains, and goes on to describe how, in a film that everyone in the world has seen except me, a young woman called Katniss lives in a dystopian, post-apocalyptic nation. Every year The Capitol, where the rich people live, asserts its power over the poor regions that surround it by staging the *Hunger Games* in which boys and girls, selected by lottery from the poor

areas, compete in a televised battle to the death. 'May the odds be ever in your favour', I learn, is what the creepy ruler guy says when opening the Games – in which all but one competitor will die.

Trans-Ganga HighTech City resembles *The Hunger Games* all too well – a glossy, gated city surrounded by social hardship and degraded landscapes. Trans-Ganga is one of 100 Indian turn-key cities that developers want to build on green land swept clean of its small farmers and biodiversity. Investors are promised that special laws will be passed to ensure that millions of poor Indians are 'excluded from the privileges of such great infrastructure!' These physical and social impacts are disturbing enough – but what really cranks up the anxiety level are the bright and perky voices, on screens everywhere, proclaiming these developments to be for the good of all. Whenever a voice is raised in protest at the negative impacts of these plans, the perky heads blame the losers for their own misfortune: Get a job! Try harder! May the odds be ever in your favour!

The words we choose are important as we try to make sense of these new times. One man's *energy descent* is another woman's *energy transition*. Talk of an *impending crisis* is scary; realizing that the crisis is already underway, less so. The *end of growth* sounds grim – but it is not the *end of life*. The *collapse of civilization* is a terrifying prospect; *the birth of a new one* puts things in a different light. 'What is civilizational collapse, after all,' quips the Italian physicist Ugo Barilo, a self-styled 'stoic scientist', 'other than a period in which things are changing faster than usual?'

The apocalyptic view is couched in the language of danger and collapse. Industrial civilization has started to crash, say the 'doomers'. For them, our best course of action is to head for the hills with a truckload of guns and peanut butter. At the other extreme, optimistic technology buffs are confident that man-made solutions will soon allow us to carry on as usual. And what about the rest of us? Most people I know are anxious about what's happening around them, but silently so; they think less about the collapse of civilizations than with finding work, or feeding their kids. But they – we – feel less and less secure. It doesn't help that the media are filled with fatuous advice

taken without regard for consequences because there haven't been any negative consequences – or rather, none that they have experienced personally. They believe that man is special, and that progress is unstoppable, because no experience has given them reason to think otherwise. These foundation myths of the modern age – reason, progress, mastery over nature – are old-powered narratives. In the 1950s, when Milton Friedman expounded the economic thinking that dominates political discourse to this day, you could buy a barrel of oil for US\$3.50.

MONEY

The timing and severity of peak energy is a contested topic, but a growing number of people are happy to blame bankers for our economic woes. This blame is misdirected. The men and women in suits can be hard to love, it's true, but they are more the prisoners of a dysfunctional system than its masters – in their case, the money one. And the fate of the money system, it turns out, is tied intimately to the fate of the energy one. Money and energy are better thought of as one story.

Before writing this book, I had vaguely assumed that what banks do is collect deposits and savings from one lot of people, and lend those funds out to different people in the form of loans, mortgages, and credit on plastic cards. This is not the case at all. Although bankers describe their core business as 'lending' money, it should really be described as *creating* money. When you or I borrow money from a bank, and the bank tells you it is transferring funds into your account, that money is not taken out of a vault, nor even sent down a wire from somewhere else. It is newly created, there and then. Only a small fraction of the money they create is backed up by assets – such as the deeds to a house, or a bar of gold – lodged safely in their vaults. For the most part, they just make the loan at will. And it gets curiouser. Even though you and I now have new money to spend, these loans are recorded on the banks' balance sheets as assets. The rationale seems to be that the interest on the loan that you and I will pay to the bank represents a steady flow of profit

about what we should do: drive a Tesla? Change a light bulb? Give us a break.

This book is that break. It tells of a third social movement – much bigger than the rifle-packing doomers and the green-tech dreamers – that's emerging as the global crisis unfolds. This movement is below the radar of mainstream media, but it contains a million active groups – and rising. Quietly, for the most part, communities the world over are growing a replacement economy from the ground up. As you will read in the pages that follow, their number includes energy angels, wind wizards, and watershed managers. There are bioregional planners, ecological historians, and citizen foresters. Alongside dam removers, river restorers, and rain harvesters, there are urban farmers, seed bankers, and master comers. You'll meet building dismantlers, office-block refurbishers, and barn raisers. There are natural painters, and green planners. There are trailer-park renovers, and land-share brokers. The movement involves computer recyclers, hardware re-mixers, and textile upcyclers. It extends to local currency designers. There are community doctors. And elder carers. And ecological teachers.

For most of the people I write about in this book, the changes they are making are driven by necessity; they are not a lifestyle choice. Few of them are fighting directly for political power, or standing for election. They cluster, instead, under the umbrella of a social and solidarity economy. Different groups and movements have names like Transition Towns, Shareable, Peer to Peer, Degrowth, or *Buen Vivir*. Their number includes FabLabs, hacker spaces, and the maker movement. Some have taken over neglected buildings – from castles and car parks, to ports, piers, hospitals, and former military sites. There are campaigning organizations, too – for slow food, the rights of nature, and seed saving – not to mention bioregionalism, and commonsing. And our number is growing. Up to 12 per cent of economically active citizens in Sweden, Belgium, France, Holland, and Italy work in some kind of unpaid enterprise – and that's in addition to the vast amounts of unpaid work already being done in the household and caring economy.

...diversely diverse they are all, ...Savater, 'message-bearers of a new ... through this story: a growing re- ... with the plants, animals, air, water, ... opher Joanna Macy describes the app- ... 'Turning' – a profound shift in our perception ... to the fact that we are not separate ... of living systems.' From sub-microscopic networks that support trees, this new story is animated by complex interactions between its atmosphere, and water. Explained in this way – by science, as well as by philosophy – the Earth no longer looks like a repository of resources. On the contrary: healthy soils, living systems, and the we can help them regenerate supply the 'why' of economic activity that's missing from the mainstream story. The one kind of growth that makes sense, in this new story, is the regeneration of life on Earth.

The notion of a living economy is sound poetic, but vague. Where, you may ask, is its manifesto? Who is in charge? These are old-fashioned questions. The account given by Macy – of a quietly unfolding transformation – is consistent with the way scientists, too, explain how complex systems change. By their account, a variety of changes, interventions, and disruptions accumulate across time until the system reaches a tipping point: then, at a moment that cannot be predicted, a small release of energy triggers a much larger release, or phase shift, and the system as a whole transforms. Sustainability, in other words, is not something to be engineered, or demanded from politicians; it's a condition that emerges through incremental as well as abrupt change at many different scales. 'All the great transformations have been unthinkable until they actually came to pass,' confirms the French philosopher Edgar Morin. 'The fact that a belief system is deeply rooted does not mean it cannot change.'

So this is an optimistic book – but not dreamily so. If I'm to convince you that the stories to come are the harbinger of the new

the 15:1 threshold below which the investment never pays for itself. 'You can't have an economy without energy. Energy does the work!' Professor Hall concluded, echoing Tom Murphy's 'poor-quality fuel mean poor-quality growth'. I'll never forget the silence that followed his presentation. Eventually, as a senior Member of Parliament stood up, thanked Professor Hall for his 'most interesting presentation', and added, 'but of course, for an elected politician, reduced affluence is an impossible sell. He then sat down. Professor Hall, the scientist, said he was a numbers guy, not a policy guy – and he sat down, too. Then everybody went home.

Technology optimists believe that renewable energy, conjured into existence by innovation, will allow us to carry on as usual – but they are in for a disappointment. Nearly all plans for a transition to renewable energy suffer from an existential flaw: they take global energy 'needs' as a given, calculate the quantity of renewable energy sources needed to meet them, and then – well, things get vague. Green energy optimists have no answer for a logical inconvenience: it takes astronomical amounts of fossil-fuel energy, and money, to deploy 'green' energy systems – 200 km (125 miles) of copper in one wind turbine, to give just one example. There would be far fewer wind turbines, for example, if they had to be manufactured, installed, and maintained using wind energy. Retrofitting energy systems on a large enough scale to run today's industrial society would require vast investment of materials, money, and organizational effort that, in today's deflationary global crisis, will not be available. Gail Tverberg, an actuary and blogger, puts it bluntly: 'Quite apart from the math, or the thermodynamics, or the simple logic, a lack of cash flow for investment in infrastructure will eventually bring the system down.'

Measured against the laws of mathematics, physics, and common sense, our belief in an energy-intensive economy – one that expands to infinity in a finite world – seems irrational. A better word would be *habitual*. Many smart people believe that growth will go on forever because that is all they have known in their lives. They believe in the inevitability of progress because, in their lives at least, things have always progressed. They believe that bold actions should be

to them. And because many bankers are paid by commissions on new loans issued, there's a built-in incentive to lend as much as possible.

When an economy is growing, this peculiar dynamic does not much matter: as people buy more goods, often using credit from the bank, and as businesses take out loans to increase their production of goods, then interest on existing loans is repaid. But when economic growth stalls – for example, because there is less cheap energy to power growth – new money stops entering the system and a destructive feedback loop kicks in. Interest on existing loans is not paid; defaults multiply; jobs are lost; people spend less money; businesses take out fewer loans; less new money enters the economy – and the crisis of debt intensifies.

This through-the-looking-glass logic of the money system is made harder to grasp by the ineffable numbers used to describe it. At the time of writing, global debt is estimated to be about US\$200 trillion – but what does such a number mean? Well, think of it this way: imagine that a world government, burdened with this debt of \$200 trillion, decided to pay it all back at a rate of \$1 per second.

To pay back \$1 million at such a rate would take 11.5 days; paying back \$1 billion would take 32 years; but to pay back the full \$200 trillion, at a rate of \$1 per second, would take 6.5 million years! Taken together with the energy crunch this is shy, however much we might wish things to carry on as before, they won't. They can't. As explained by Gail Tverberg, 'An infinite economic growth model has created the need to keep the hamster wheel turning faster and faster until the hamster dies.' Blaming bankers for the hamster's imminent demise is therefore to miss the point: it's the money-energy system itself that is spinning the wheel.

GROWTH

If the maniac striving for growth was just about numbers, we could write it off as deluded, but harmless, thinking. But money is not just an abstraction. As professors Murphy and Hall explained above, money gets work done in the real world. When a system must grow in order

to survive, but the work it enables is destructive, the consequences are catastrophic.

I experienced the grim consequence of growth for its own sake at a meeting of 200 sustainability managers at a famous home furnishing giant in Sweden. During twenty years of hard work on sustainability, this company has made thousands of rigorously tested improvements; these are recorded on a 'fat without end'. The range of improvements is startling – even admirable – except for one fact: the one thing this huge company has *not* done is question whether it should grow. On the contrary: it is committed to double in size by 2020. By that date, the number of customers visiting its giant sheds will increase from 650 million a year at the time of writing to 1.5 billion a year. And why? The senior manager who briefed our meeting on this plan put its growth into context: 'Growth is needed', she explained, 'to finance the sustainability improvements we all want to make.'

A fatal flaw with this argument is best explained if I talk about wood. The company, as the third largest user of wood in the world, has promised that by 2017 half of all the wood it uses – up from 17 per cent now – will either be recycled or come from forests that are responsibly managed. Now 50 per cent is a vast improvement on 17, but it also begs the question: what about the *other* half of all that wood? As the company doubles in size, that second pile of wood – the *un*-certified half the unrelably-sourced-at-best half – will soon be twice as big as *all* the wood it uses today. The impact on the world's forests, as this one company's hunger for resources, will be appalling. The committed and gifted people I met in Sweden – along with sustainability teams in hundreds of the world's biggest companies – are confronted by an awful dilemma: however hard they work, however many leaks they plug in production cycles, the net negative impact of their firm's activities on the world's living systems will be greater in the years ahead than it is today. And all because of compound growth. It doesn't matter how many brands proclaim that their products are verified, accredited, or certified as being sustainable: so long as growth remains a company's prime

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