



CHAPTER 1

Resilience: The 21st - Century Imperative

*We cannot solve our problems with the same thinking
we used when we created them.*

— Albert Einstein

Our job is to make hope more concrete and despair less convincing.

— Anonymous Welsh poet

*Another world is not only possible, she is on her way.
On a quiet day, I can hear her breathing.*

— Arundhati Roy

HUMANS FACE PROFOUND CHALLENGES over the next century — climate change, peak oil, a growth-addicted global financial system, gross inequity. Simply tweaking the way we do things will not be enough to help us muddle through. “Business as usual” is a perilous option bound to drive our species onto the proverbial rocks. We should not expect to survive with any kind of dignity if we continue what we are doing. Rather, we must radically shift the way we see, think, and act in relation to each other and the planet.

It has likely never been so important, or possible, for humans to contemplate the possibility of our own demise. From the individual to the household, from the local to the global, achieving a timely, deep, and fair reduction in the use of fossil fuels is so compellingly important it deserves to be seen as the “great moral cause of our times,” as Al Gore describes it.

“Tinkering with the status quo or embracing false positives will only slow the devastation, not prevent it.” This is the view of the laureates of the Right Livelihood Awards (an alternative to the Nobel Prize designed to recognize individuals and organizations forging concrete and replicable

solutions to vexing human problems). These laureates, like many other people across the globe, are adopting an increasingly urgent tone in their declarations: “We want to awake the world to the fact that now is our last chance to decide: Do we risk collapse through business as usual? Or do we have the wisdom and courage to radically shift our paradigm in favour of a secured common future?”

The answer to these questions may well be known within a generation, two at the most. In the meantime, there is much to do. Our actions, or our failure to act, will draw lines that bend the curve of history. Yesterday’s sketches need not predestine the outcome of the human story on this planet. Our species has proven itself resilient in the past. We can adapt. We can make shifts. The question is whether we can do so on the scale and at the pace required to change the current trajectory.

Navigating the SEE Change: The Pedagogy of Transition

In this book we argue for a transformative re-evolution away from a global growth economy fed by fossil fuels toward more local and resilient economies. We also suggest a route to get there, a four-part methodology we have called SEE Change (SEE = Social, Ecological, Economic).

First, SEE Change requires that we SEE our planet and our place in it differently. We must redefine our field of vision, broaden our understanding of the context and challenges we face, and open our eyes to new ways of meeting our basic needs. The steadfast pursuit of economic growth is seldom questioned in our culture, and gross domestic product (GDP) remains a dominant measure of our well-being, but we question this viewpoint, deeply. Our purpose is to make a modest contribution to advancing what John Stuart Mill, in *Principles of Political Economy*, positively proposed as a future “stationary state economy,” a possibility also contemplated by John Maynard Keynes in his 1930 essay “Economic Possibilities for Our Grandchildren.” Such a venture may seem an apostasy to many. We beg to differ.

Second, we must SEEK strategic pathways through which to bring into balance our relationships with each other and with the earth. This is the “Great Transition” Kenneth Boulding so compellingly set out as a prerequisite to sustainability 50 years ago in *The Meaning of the Twentieth Century*. It is anything but simple. The profound imbalance caused by unfettered economic growth can render us immobile, even if we do begin to SEE the world differently. It all seems so overwhelmingly difficult, so challenging, hopeless even, given the depth of our dependence on fossil fuels and addiction to economic growth. How do we even begin to begin?

Difficult? Yes. Challenging? Unquestionably! But hopeless? Not in our view. The innovations we present in this book — a mere sample of the

creative action being taken across the globe — serve to reduce our timidity. True, they are not solutions in and of themselves. Instead, like trailblazers' marks, they serve to guide and inspire us as we build paths to a future in which our needs for finance, shelter, energy, and food are met on a more local and regional basis. Moreover, when we see how these innovations interconnect, new possibilities emerge for scaling up and spreading innovation.

Third, we must SHARE what we are learning, spreading the knowledge far and wide. Inspiring others with concrete evidence of the possibilities for SEE Change at the local and global levels is a constant task in the pedagogy of transition. Billions of us are hungry for alternatives to spending our lives on an economic treadmill that seems to be running faster and faster, at a steeper angle, as we struggle to stay where we are.

However, those who have a vested interest in the status quo will greet our suggestions with derision, contention, and vigorous resistance, which means we must SECURE the paths we cut through the hubris of our 21st-century predicament. We are at an unprecedented juncture of human history, where past assumptions are being challenged to the core. Many remain powerfully attached to the assumption that self-interested, profit-driven economic growth will produce the greatest public good. Economic and political elites are not inclined to SEE the world any differently than they currently do, though, happily, exceptions are becoming more apparent. Even so, it is absolutely necessary to build local, regional, national, and global strategies to secure the transition road as we travel it.

Unprecedented Volatility: A Sign of the Times

Uncertainty, stress, variation, and diverse challenges have been constants during our 200,000-year stint on our 4-billion-year-old planet. Our interaction with the wondrous multitude of ecosystems from which we evolved has defined us as a species. Our capacity to learn, innovate, and adapt developed within nature's womb, and our diverse cultures took root there. Our lives have been imbued with meaning derived from the place we inhabit on the planet and our imaginings of how we came to be here. This is the heart of the human story, a story that reveals us to be resilient creatures.

That resilience will be sorely tested this century and beyond. The gentle curve of time that shaped our social, economic, and cultural evolution was like a slow-motion film in comparison to the explosive period of volatile change that burst upon us in the 20th century. We were hunter gathers for 95 percent of our existence. Growing food has occupied but 5 percent of our time on the planet, and the industrial revolution is so infinitesimal as to be irrelevant in evolutionary terms. Yet since the mid-19th century, when we began the commercial exploitation of oil, that powerful store of



Fig 1.1: *Volatile road*. Source: © Skypixel | Dreamstime.com

ancient sunlight nature deposited over hundreds of millions of years, we have extended human influence over the planet so completely that both ourselves and the planet have forever been altered. Our ingenious capacity for innovation has unwittingly unleashed changes that put the ecosystems we depend on at risk, and has thus endangered our own and other species.

Consider the merits of the following points, whether they resonate or not.

- ✓ We evolved in a relatively stable planetary climate. Today we have an increasingly volatile climate due to our burning of fossil fuels.
- ✓ We depended on the sun for our energy virtually our entire history. Today we depend on non-renewable fossil fuels, the most powerful and flexible energy source on the planet.
- ✓ Money as we know it is a recent invention. Originally it was a means of exchange. Today its pursuit has become an end in itself. Its acquisition and use is a central preoccupation for billions of us.
- ✓ The consequences flowing from this entangled trinity are erupting all around, thrusting us into an unprecedented era of volatility.

Let's take a look at some of the evidence.

Fossil Fuels and Climate Change

The 2007 reports of the Intergovernmental Panel on Climate Change (IPCC) did not mince words. One thousand scientists from around the world

declared that climate change is real and that the time for avoiding catastrophic consequences is short. Since then, their predictions of the rate of climate change have proven conservative. In early 2009, James Lovelock, in *The Vanishing Face of Gaia*, noted that the single most important indicator of climate change, the rise in sea level, had already outpaced the IPCC 2100 projection of 18 to 59 centimeters by 1.6 times. The latest evidence from the eight-nation Arctic Assessment and Monitoring Program is even more alarming. In 2011 the AAMP projected sea levels could rise by as much as 1.6 meters by the end of this century.

The amount of carbon in the atmosphere is also increasing. Currently, the ratio stands at 390 parts per million (ppm) as measured by the Mauna Loa Observatory, a leading center for atmospheric carbon measurement. James Hansen, head of NASA's Goddard Institute for Space Studies, suggests that if we wish to keep a planet similar to the one on which civilization developed, we should aim to reduce the ratio to 350 ppm. But given the prognosis for economic growth completed by the US Energy Information Administration in May 2009, carbon emissions can be expected to increase from 29 billion metric tons (2006) to 40.4 billion in 2030. In short, we are going in precisely the wrong direction.

The increase in carbon emissions has not been perfectly linear. The 2008 recession was good news in terms of carbon containment. The International Energy Agency projected a 3 percent decline in carbon emissions in 2009 — three-quarters from a slowdown in industrial activity due to the financial crisis, and one-quarter from growth in the use of renewable energy and nuclear power. The actual result was not quite so dramatic; recession drove emissions down 1.9 percent. Depressingly, in May 2011 the same agency reported the carbon results of the global economic recovery underway: carbon emissions increased by 5.9 percent in 2010, the largest annual increase in human history. Three-quarters of that increase came from the emerging economies of China and India.

Carbon emissions have fallen three other times in the last 40 years. The first drop occurred during the oil crises of the early 1970s. At that time, the price of oil more than doubled, forcing many industries to contract or close. Emissions fell again in the early 1990s with the economic collapse of the Soviet Union. Russian industrial output plummeted, coal mines closed, and people could not afford to heat their homes. Carbon emissions fell 0.3 percent in 1998, due in part to greater energy efficiency, but, alas, the main cause was Britain and Germany switching from coal to gas and China reducing its subsidies to the coal industry.

Apart from these anomalies, carbon emissions have increased an average of roughly 3 percent a year since 1950, and our reliance on fossil fuels

is projected to increase 22 percent by 2025, from 85 million to 101 million barrels of oil per day.

Whether we will reach such a level of consumption is questionable. Many politicians, military analysts, investment bankers, geologists, and industry experts have presented detailed and persuasive evidence that while demand for oil may be increasing, oil discovery and oil reserves are in decline. Many assert that oil production has already reached its peak.

On the climate change front, this may seem like good news. Could a fall in the accessibility and affordability of fossil fuels bring carbon emissions under control? Recent research suggests this may be the case. The aforementioned Goddard Institute has examined several scenarios and reports that carbon dioxide in the atmosphere could be kept below 450 ppm — the level scientists view as the tipping point for uncontrollable climate change. We simply must stop burning coal by 2050. They contend there is not enough oil and gas to take us over the 450 ppm mark. While this is still a long way from the target of 350 ppm, it suggests that the consequences of climate change may be somewhat less severe. However, China is opening a new coal-fired power station every week, so it's questionable whether we can achieve the desired reduction in coal use. And as oil costs rise, corporations plan to build more than 200 new coal-fired plants in North America and Europe, increasing the level of use for that resource as well.



Fig. 1.2: *Coal plants must be shut down if we are to avoid reaching an atmospheric carbon-dioxide level of 450 ppm, which scientists view as the point of no return for climate change.*

Source: © Jjayo | Dreamstime.com

Fossil Fuels and Global Finance

Less of a consolation is the rise in the cost of living that we all can expect as the global demand for oil goes steadily upward and its supply goes steadily downward. In its 2008 annual report, the International Energy Agency stated that production from the world's mature oil fields was declining by 6.7 percent annually. More and more wells are drilled every year, yielding smaller and smaller volumes.

To be sure, the trajectory of oil prices is not linear. In July 2008, prices peaked at \$147 per barrel, leading to food riots in Morocco, Yemen, Senegal, Uzbekistan, Indonesia, Mexico, and Mauritania. Prices fell to just \$34 by the end of 2008, then doubled again by March 2009. In the midst of the recent financial crisis, the deepest recession since the 1930s, the demand for oil declined by 3.5 million barrels per day. Still, by March 2012, prices were back up over \$106. Jeff Rubin, former chief economist with world markets at the Canadian Imperial Bank of Commerce, predicted in 2009 a price of \$225 per barrel by 2012.

Rubin's prediction seems doubtful as this book goes to press: the prospects of debt defaults in Europe could propel us into another slide, not unlike that of 2008, as demand declines. Nevertheless, Rubin is not alone in his projection of the general trend. More and more analysts consider the delays that recession has brought to the exploration and development of new oil projects a virtual guarantee of higher prices. There is also a growing consensus that over half the global endowment of oil has already been consumed. Couple that with the exponential increase in China's and India's demand for oil and the inability of oil-exporting countries to increase production, and there are literally barrels of uncertainties. It is almost certain that oil prices, already volatile, will continue their upward rise.

It is important to note that there are serious counterarguments to parts of this analysis. A major one is that rising oil prices will trigger new innovation. Development of new supplies, the reworking of existing wells, and the exploitation of oil shale and oil sands are all well underway. Pricing drives profit margins, which in turn drive investment. True; this is the way things work. Unfortunately, rising oil prices also trigger recession. Five of the last six recessions corresponded with a spike in the price of oil, a crucial connection that receives scant attention outside of a few think tanks that take peak oil seriously.

A big problem in this discussion of the price-innovation relationship is that it does not account for a lot of costs. What are the costs of the pollution and carbon emanating from the Alberta oil sands, or the costs of the huge volume of water required in a province projected to have severe water problems this century. What of the poisoned groundwater created by the

exploding gas shale practices across North America? And who in industry and policy circles is admitting publically the vast amounts of energy it takes to get one unit of energy from such sources?

If these costs are not considered part of the real price, investment decisions are skewed to more of the same — more investment to find fossil fuels farther afield or to develop known sources that have been inaccessible. This drives up carbon emissions when what we need is pricing that reduces fossil fuel use and redirects investment into clean energy. Until we have pricing that reflects the true costs, there is a huge brake on long-term investment flowing into the alternatives. The perceived financial risk is too high because the cost of fossil fuel is artificially low. Thus we are left with wild swings in the price of oil, which feed economic volatility, neutering our capacity for a generative movement toward a steady-state economy.

However, oil prices are not the only source of financial uncertainty. It may well be the mystifying world of money and global finance that is the biggest source of volatility.

Money and Meltdowns

Just how volatile the financial markets have become is dramatically depicted in Table 1.1. Note, only one of the 23 financial crises listed occurred before 1970 — that was the Great Depression of the 1930s. The other 22 took place between 1970 and 1998, a mere 28 years. Twenty of them occurred since 1982, an average of 1.25 every year for 16 years.

The obvious question is why was the period from 1933 to 1970 so financially stable when it was such a volatile period in so many ways? The answer is pretty simple: Interest rates were kept strictly regulated at a low level.

Table 1.1 Selected episodes of financial instability (1933–98)

1933 Great Depression (USA)	1990 CP Crisis (Sweden)
1970 Penn Central (USA)	Banking Crisis (Norway)
1973 Secondary Banks (UK)	1991 Banking Crisis (Finland)
1974 Herstatt (Germany)	Banking Crisis (Sweden)
1982 Debt Crisis (LDC)	1992 Banking Crisis (Japan)
1984 Continental Illinois (USA)	Bond Market Collapse (Europe)
1985 Regional Banks (Canada)	1993 Exit from European Exchange
1986 Market Collapse (France)	Rate Mechanism (UK)
Mid-80s Thrift Crisis (USA)	1994 Bond Market Reversal
1987 Stock Market Crash	Mexican Crisis
1989 Junk Bond Market (USA)	1997 Asian Crisis
Banking Problems (Australia)	1998 Russian Crisis

Note: LDC refers to "lesser-developed countries."

Geoff Tily, a post-Keynesian economist, provides the evidence in his 2010 book *Keynes Betrayed*. What his analysis shows is the relative stability of heavily regulated periods compared to deregulated periods:

- High cost of capital during the 1920s
- Capital cost reduced during the 1930s through the Second World War
- A sustained period of low-cost capital between 1945 and the early 1970s
- A period of negative real interest rates in Britain in the 1970s
- An era of high-cost capital from the 1980s into the late 1990s
- A brief period of low-cost capital from the end of the 1990s into the early 2000s

As the cost of capital increases, so too does debt. The common feature underlying each of these financial crises is debt accumulation.

In 1992, an economist named Hyman Minsky predicted the financial collapse of 2008. So accurate was his forecast that central bankers around the world grudgingly acknowledge what has become known in these rarefied circles as the “Minsky moment.” In his 1992 paper “The Financial Instability Hypothesis,” he compared financial markets to addicted gamblers: they follow their own casino logic and chronically surge out of control. In his view, unless they are strictly regulated, financial markets are intrinsically unstable. Minsky argued that, as economies go into a boom, corporations rake in so much money it exceeds the sums needed to pay off their debt. Flush with cash, the job of corporate investment managers is clear — figure out ways to use money to make more. Unless arrested by government intervention, they invent and employ increasingly risky methods to do so. The inevitable result is a crisis in the financial system and the risk of collapse. This is what happened in the Great Depression. It is also what happened in the subprime mortgage crisis that blew up the global financial system in 2008 (Figure 1.3).

The story of two Bolivian sisters, friends of one of the authors, illustrates well the risks to average folks inherent in a deregulated financial system. The two entered the United States illegally in 2000, settling with their husbands and children near Washington DC. For years they had run their own micro-business in La Paz, working 18 hours a day. Now they found work as cake decorators, rapidly becoming prized employees for their artistry and efficiency, though as illegal aliens they were underpaid. To make ends meet they worked 7 days a week, 16 hours per day. Their “day off” was an 8-hour shift.

Less than a year after their arrival, President Bill Clinton granted an amnesty to illegal immigrants. With a deep sigh of relief, the two families



Fig. 1.3: US mortgage lenders filed a record 3.8 million foreclosures in 2010, up 2 percent from 2009, and an increase of 23 percent from 2008. In 2011 the number of foreclosures declined, but they are poised to rise to a projected 3.5 million in 2012. That is a lot of displaced people who no longer “Occupy” what they once called home. And the banks are selling the houses off for much less than what is owed. Source: © Mike_kiev | Dreamstime.com. (Statistics from the RealtyTrac.com website. Projections for 2012 are from the Future Tense website, www.ftense.com/2012/01/foreclosure-filings-to-surge-in-2012.html).

set out to secure what they believed to be their passport to getting ahead, the coveted green card. It arrived in 2004, along with a hike in wages. Realizing the dream of owning their homes seemed the logical next step. Housing prices continued to rise, and if they did not get in the market now, they would not be able to afford it. Why not pay more now and benefit from the uplift in the market?

Somehow they managed to secure a loan. Their payments were \$3,000 per month, \$1,000 more than the rent they paid previously. It worked for a while...until their husbands' work became more irregular. Then it became impossible to keep up with the bills. One of the sisters started looking at options for refinancing to reduce her monthly payments to \$2,400. She met a mortgage broker who put together a deal that would see her pay \$2,600

per month for six months, after which it would fall to \$2,400. Unfortunately she had neither the time nor the money to pay a lawyer to review the agreement. After two years the payments rose from \$2,400 to \$3,700, and two years after that they rose to \$4,700. These increases became impossible and as missed payments mounted, there was no choice but to walk away.

The common term for such practices is “predatory lending.” It is an apt description. Here is how it works. Once the two women signed the broker’s agreement, he sold the mortgage to Country Wide Mortgages, got his take, and was out of the picture. Country Wide Mortgages then bundled up the two sisters’ mortgages with hundreds of others and sold them as a package to an investment bank. In turn, the bank wired together thousands of these bundles, readying them for sale on the international market as a type of derivative called a mortgage-backed security. The theory is that by pooling so many mortgages, risk is reduced. To prepare them for sale in the global market, the bank paid for insurance from a financial giant like AIG. Last but not least, the bank paid to have a security rating agency like Standard and Poor assess the risk. Triple A ratings were the standard result, the best guarantee available to persuade investors of all kinds that this was a high-yield investment with moderate risk. After all, the derivative consisted of real mortgages backed by a piece of America. It was now ready to peddle across the globe. People saving for their retirement, pension funds, corporations, banks, governments — customers of all kinds unwittingly assumed they were making a prudent but relatively lucrative investment.

The systemic flaws began to show up as the predatory terms of subprime mortgages hit unsuspecting householders. Like the two Bolivian sisters, they were forced to walk away. This exodus became a tsunami when in 2006 the prime rate of interest almost doubled overnight, jumping from 2.5 to 4.5 percent. Hundreds of thousands abandoned their homes. Housing prices plummeted. The security of millions more declined as the market values of houses sank below the value of the mortgage they carried. Credit started crunching and foreclosures started mounting. When investors across the globe smelled the rot, they bailed out, flushing the “value” of derivatives down the toilet as if they were no more than flimsy bathroom tissue. The collapse ricocheted across the world, hurting everyone from two hard-working sisters in Virginia to small and large investors. This is the Minsky moment. The asset inflation stops, prices take a nosedive, and the bubble bursts.

Iconic billionaire investor Warren Buffett was among a very few in his profession to warn shareholders that derivatives were ticking time bombs. In his Berkshire Hathaway annual report of 2002 he wrote: “These instruments will almost certainly multiply in variety and number until some event makes their toxicity clear. Central banks and governments have so far

found no effective way to control or even monitor, the risks posed by these contracts. In my view derivatives are financial weapons of mass destruction, carrying dangers that, while now latent, are potentially lethal.”

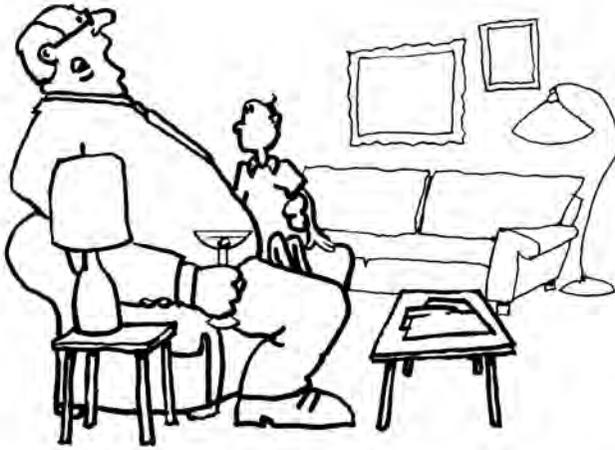
Paul Mason, economics editor at the BBC, adds some perspective and texture to the bursting bubble of the Minsky moment. In the 1990s a series of legislative moves in the United States virtually freed the American financial system from its regulatory tether. The repeal of the Great Depression-era Glass–Steagall Act, which had placed strict regulatory controls on the banks, was most significant. Banks became free to merge with insurance companies and could lend in any US state, and of critical importance to the Wall Street lobby, derivatives were exempted from any regulation whatsoever.

This paved the way for the speculative DotCom boom in 1997, a bubble that burst just after the bombing of the World Trade Center towers. In his book *Meltdown*, Mason describes how economic decline ensued, aided and abetted by the corruption of Enron and others caught either illegally manipulating share prices by hiding debt and losses in offshore companies to protect share value or hiding profits to avoid taxes. The problem became how to jump-start economic growth.

Alan Greenspan, head of the US Federal Reserve slashed the bank prime rates to 1 percent, which created a flood of cheap mortgage credit in the housing market. The stage was set for what became the subprime fever. When this bubble showed signs of bursting, speculative capital started to shift into oil, food, and other commodities. And after Lehman Brothers, one of the leading derivative peddlers, collapsed, the walls came tumbling down.

The problems are far from over. Bank exposure to the fiscal crisis in Ireland, Greece, Spain, Portugal, and Italy — a crisis caused in large part by the recklessness of the banks themselves — is threatening the so-called eurozone, as taxpayers in other countries of Europe are being called on to shore up governments in danger of defaulting on “their” debt. A second-stage financial crisis is upon us as this book is being completed. Mervyn King, governor of the Bank of England, has noted that the heavy exposure of German, French, US, and UK banks to a Greek default could well add another crisis to the list set out in Table 1.1.

When viewed from the vantage point of ordinary people, the impacts of wholesale deregulation are enormous. Mason shows that during the period when banks were strictly regulated, the income of the poorest 20 percent of Americans rose (post 1940) by 116 percent. The income share of the richest 1 percent fell. Their 20 percent capture of all income in 1929 was halved in the matter of a few years. However, once deregulation started in the mid-1970s, it was not many years before once again the level of inequality shot up; the richest 1 percent once again commanded almost 20 percent of the



"Some day, dear child, you will learn that life is full of mysterious cycles. Sometimes, the rich get richer, and the poor, poorer. Sometimes the rich get richer, and the poor remain the same."

national income. Meanwhile, the income of the poorest 20 percent rose infinitesimally; for men, by 2009 their income had actually declined over the previous 30 years. Not surprisingly, personal household debt doubled in the same period.

Edifying, is it not? When interest rates were kept low by government, the poor got richer and the rich got poorer. When government got out of way and the free market was unleashed, once again the rich got richer and the poor got poorer.

All of this becomes even more troubling when one sees how the financial sector has swollen out of all proportion to the real economy. In 1980, the size of the world's financial assets was equivalent to global GDP; in 2008, total financial assets were three times global GDP. In the 1960s, financial organizations accounted for 14 percent of corporate profits; by 2008 that had risen to 39 percent, further evidence that investment in the real economy is being abandoned in favour of speculative investment in the casino economy. In 2007, according to Paul Mason, UK pensioners had 30 percent of their pensions invested in speculative hedge funds, up from 5 percent just six years earlier. (We'll take a closer look at this development in Chapter 11.)

One wonders if this capture of wealth by a tiny fraction of the population is at the heart of Nelson Mandela's condemnatory lament, quoted in the United Nations Development Programme's 2005 *Human Development Report*: "Massive poverty and obscene inequality are such terrible scourges

of our times — times in which the world boasts breathtaking advances in science, technology, industry and wealth accumulation — that they have to rank alongside slavery and apartheid as social ills.”

In a century of volatility whipped up by climate change, peak oil, and a global financial system gone awry, it is little wonder that the way forward appears murky. What seems more certain is that there is a connection between impoverishment of the many, unwarranted enrichment of the few, and a planet groaning under the weight of it all.

Progress and Growth: Navigating through the Rearview Mirror

With this unholy trinity of climate change, peak oil, and the casino economy framing our future options, it is easy to understand why it is so hard to see the world afresh. Especially when it seems so much of the discourse of elites and average citizens alike is embedded in well-honed myths and unexamined assumptions. It is as if we are driving toward the future with our eyes locked on a magical rearview mirror. However we tilt the mirror, and wherever we drive, comforting images of “progress” remain in view, locked in by a century of dazzling technological and economic achievement. Material goods, life spans, and beauty-enhancing refits appear to multiply endlessly into the future.

However, if humans had not learned how to harness oil and manipulate it in various ways, life as we know it today would be unimaginable. Modern transportation would not exist. Plastics would not exist. Pesticides, synthetic fertilizers, and all manner of fuel-driven agricultural and irrigation implements would not exist. Our population would not have exploded to 7 billion, a 600 percent increase in 150 years. The dramatic economic growth we have experienced would not have occurred.

Over most of human history, economic growth has been negligible. For millennia, we depended wholly on direct sunlight for the energy needed to meet our everyday needs. We lived in a steady-state economy.

Yet today, in the face of overwhelming evidence to the contrary, many remain adamant that things will continue to unfold as they have over the last six generations. The aforementioned analysts at the US Energy Information Administration have calmly projected a 22 percent increase in demand for fossil fuel and a 40 percent increase in carbon emissions over the next 15 to 20 years. Would one not expect them to point out the problems inherent in this tidy, linear progression from the past into the future? Might they be fearful of setting off widespread alarm about the disastrous consequences of such developments for the environment and humanity? Or might it be that economic growth is so powerful a paradigm in our culture that challenging it is viewed as dangerous terrain? Might we be so captivated by our material

abundance, ever-expanding consumption choices, and extended life spans that we are anaesthetized to the costs that underlie our addictive attachment to the benefits of “progress” and “prosperity”?

We are enamoured, rightly so in many ways, with the benefits stemming from remarkable discoveries, knowledge, and advancement that have accompanied the last 200 years. Given this remarkable track record, why would we not expect that human ingenuity, scientific knowledge, technological invention, and the ample natural endowment of an entire planet would not deliver the goods well into the future?

So powerful is this vision that even those who reject the happy unfolding of endless progress have difficulty imagining a future without economic growth. Given our entanglement in the global economic system, the idea of staging a strategic retreat to a low carbon, steady-state economy is enormously difficult to grasp.

In part, what impedes our breaking out of the box is the conviction that economic growth and prosperity are synonymous — too many believe that we can’t have one without the other. Tim Jackson and his colleagues on the UK Sustainable Development Commission worked long and hard to disentangle the concepts. In their report “Prosperity without Growth,” they do so by redefining prosperity, the popularly accepted outcome of growth:

Prosperity transcends material concerns. It resides in the quality of our lives and in the health and happiness of our families. It is present in the strength of our relationships and our trust in the community. It is evidenced by our satisfaction at work and our sense of shared meaning and purpose. It hangs on our potential to participate fully in the life of society. Prosperity consists in our ability to flourish as human beings — within the ecological limits of a finite planet.

Jackson and his colleagues also presented a new vision of governance. To refocus the economy and society on that vision of prosperity, government must accomplish three key tasks. It must

- develop “a new macro-economics for sustainability...that does not rely for its stability on relentless growth and expanding material throughput”;
- “provide creative opportunities for people to flourish,” free of the damaging dynamic of consumerism; and
- “establish clear resource and environmental limits on economic activity and develop policies to achieve them.”

Why don't others, inside and outside government, consider these policy options? Jackson's answer to this question is revealing. He pinpoints the fear that makes it so difficult for people to imagine transition. For most, the only alternative to growth is economic collapse: "The modern economy is structurally reliant on economic growth for its stability. When growth falters... politicians panic. Businesses struggle to survive. People lose their jobs and sometimes their homes. A spiral of recession looms. Questioning growth is deemed to be the act of lunatics, idealists and revolutionaries. But question it we must?"

So why not simply decouple economic growth from environmental damage? Rather than stop growth, we could green the economy by consuming less energy per unit of production, with better containment of carbon, etc. "That's certainly the most common answer," replies Jackson,

that we de-couple, that we just continually keep growing the economy but make everything much more efficient in order to reduce its material impact. The evidence in our report is very strong that this just isn't working...globally many of the most important resource trends are going in the wrong direction. Actually, far from decoupling, we're intensifying resource use associated with economic output, so whatever else we say about de-coupling, we have to say, "It ain't working right now?" And it doesn't show any signs of working unless we really confront what's going on within the economic system itself.

Is it possible for the beneficiaries of 150 years of fossil-fuel-fed economic growth to transcend their own culture? Unfettered markets, trade, and capital flow, and the primacy of private property have become powerful motifs. They are promoted as the economic guarantors of individual freedom and security. Is it possible for those who cling to such views to SEE the world differently?

Maybe. There are signs popping up in the most unexpected places. Perhaps the most intriguing example is provided by Alan Greenspan, former chairman of the US Federal Reserve Board and a guru of the free market-ers. The collapse of the global financial system in 2008 shook him to the core, as his testimony that year before a congressional committee reveals. Greenspan's exchange with Congressman Harry Waxman on 23 October 2008, tells the story well.

Congressman Harry Waxman: This is your statement [quoting from Greenspan] — "I do have an ideology. My judgment

is that free, competitive markets are by far the unrivalled way to organize economies. We have tried regulation, none meaningfully worked.” That was your quote. You had the authority to prevent irresponsible lending practices that led to the sub-prime mortgage crisis. You were advised to do so by many others. And now the whole economy is paying the price. Do you feel that your ideology pushed you to make decisions you wish you did not make?

Greenspan: ... What I am saying to you is, yes, I found a flaw. I don’t know how significant or permanent it is, but I have been very distressed by that fact.

Waxman: You found a flaw?

Greenspan: I found a flaw in the model I perceived is the critical functioning structure that defines how the world works, so to speak.

Waxman: In other words, you found that your view of the world, your ideology, was not right, it was not working.

Greenspan: Precisely. That is precisely the reason I was shocked, because I had been going for 40 years or more with very considerable evidence that this was working exceptionally well.



Fig. 1.5: Former US Federal Reserve chairman Alan Greenspan waits to testify before the House Committee on Oversight and Government Reform on the roles and responsibilities of federal regulators in the current financial crisis, 23 October 2008. Source: TIM SLOAN/AFP/Getty Images.

A flaw indeed! Still, one has to wonder. Now that Greenspan's core beliefs have been so rudely unmasked, will he change? Would average citizens change? Or would we be paralyzed by fear and uncertainty? Raj Patel, author of *The Value of Nothing*, holds the latter view. He believes "it would be too big a shock to have the fundamentals of policy in both government and the economy proved wrong, and to have nothing with which to replace them."

Another Way? Five Exit Ramps

To address this dilemma — the desire to change paralyzed by the fear of change — we set out in the balance of the chapter some key concepts and strategies that can help us SEE our world and our place in it afresh: strengthening our resilience, reclaiming the commons, reinventing democracy, constructing a social solidarity economy, and putting a price on the services nature provides to humans so we might awaken to the real costs of our current profligacy. Think of them as "exit ramps" from the crumbling economic ideology of the industrial age that will take us to the more fruitful and effective paths of a steady-state economy. We will refer to them throughout the book as we examine what is possible when we muster the courage and the confidence to face reality head on.

Resilience: Strengthening Our Capacity to Adapt

In science, resilience is defined as "the amount of change a system can undergo (its capacity to absorb disturbance) and essentially retain the same functions, structure and feedbacks." For nearly four decades, scientists have been studying the resilience of ecosystems. The degradation of ecosystems by human-induced stresses became more evident over this time and really took off as a field of study after the publication of *Panarchy*, by Lance Gunderson and Buzz Holling, in 2001. Interest in and research into resilience applications to the social-economic-ecological challenges we face have exploded across the globe since then.

When the first global ecosystem assessment was completed (the Millennium EcoSystem Assessment in 2005), it found that 60 percent of the planet's ecosystems were being degraded or used unsustainably. These findings dramatically illustrate the importance of restoring and maintaining resilience. Degraded ecosystems reach a critical threshold or "tipping point," at which point they may rapidly and dramatically change. Life-giving services are lost in the process — fresh water or air quality, for example, or the natural capacity to sustain fisheries, regulate climate, and control pests.

Our treatment of natural resources as a commodity for profit with little reference to the implications for ecosystem health is responsible for the growing risk that tipping points will be reached. When we maximize yields

at the lowest cost — whether the crop is timber from the forest or soil-damaging monocultures of grains or vegetables; whether we are emptying aquifers by “mining” water or burning coal to produce cheap electricity — our singular interest in production and narrow definition of productivity are out of sync with nature.

The study of resilience in ecosystems has revealed how the activities of human beings are now so dominant across the landscape that ecosystem health cannot be discussed without reference to our species. Resilience scientists talk about social-ecological systems, suggesting that the well-being of both are inextricably linked and interdependent. Resilience principles are also increasingly being used to examine human systems and organizations, the theory being that if we are to restore ecological resilience, we need to align our way of living within the boundaries of nature. These ideas feed a rapidly growing field of scholarship focused on determining how we might do this in communities and regions as well as entire sectors of the economy, such as finance and public services. Given the challenges we face, it seems a timely field of enquiry.

Throughout this book we use seven key resilience principles as a lens through which to examine a wide range of innovations relevant to navigating the transition to a steady-state economy. Living as we do in a context where human vulnerability to multiple stresses is increasing, it is more important than ever to strengthen community resilience. Our capacity to both mitigate and adapt to the disruptive implications of climate change, peak oil, and ecosystem decline ultimately depends on it. As Thomas Homer-Dixon wrote in *The Upside of Down*, “If we want to thrive, we need to move from a growth imperative to a resilience imperative.” Economic growth “must not be at the expense of the overarching principle of resilience, so needed for any coming transformation of human civilization.”

The seven principles of resilience that guide our reflections in this book are set out here and in Figure 1.6.

- *Diversity: A resilient world would promote and sustain diversity in all forms (biological, landscape, social, and economic).* Diversity is a major source of future options and thus of a system’s capacity to respond to change and disturbance in different ways. Resilient systems would celebrate and encourage diversity. They would both offset and complement the current trend toward homogenizing the world. They would encourage multiple uses of land and other resources.
- *Modularity: A resilient world would be made up of components that can operate and be modified independently of the rest.* In resilient systems,

everything is not necessarily connected to everything else. Overly connected systems are susceptible to shocks that are rapidly transmitted throughout the system. The recent global financial crisis is an excellent example. The modularity of a resilient system enables it to mitigate or absorb the repercussions of disaster.

- *Social Capital: A resilient world would promote trust, well-developed social networks, and leadership.* The resilience of social-ecological systems is rooted in the capacity of people to respond effectively to challenges together, not singly. In other words, trust, strong networks, and leadership are critically important.
- *Innovation: A resilient world would place an emphasis on learning, experimentation, locally developed rules, and embracing change.* Resisting change is counterproductive in a resilient system. Instead, by offering help to those who are willing to change, the system fosters innovation. When events begin to erode rigid connections and behaviors, innovation opens up new opportunities and resources for creative adaptation.
- *Overlap: A resilient world would have institutions whose governing structures include “redundancy.” It would also have a mix of overlapping common and private property rights, increasing access to land.* Redundancy in institutions increases the diversity of responses possible in the face of disturbance and crisis. As a result, overall flexibility and the effectiveness of adaptation increase. By contrast, top-down, centralized, “efficient” structures with no redundancy tend to fail when faced with change outside the scope of their mandate. In short, messy is better than streamlined. Similarly, exclusive private property rights are at the heart of many strategies of resource use. Resilience increases when wider access and a mix of common and private property rights compromise this exclusivity.
- *Tight Feedback Loops: A resilient world would possess tight feedback loops (but not too tight).* Feedback loops refer to the communication flow within a system. Information about the impact of a particular process or event is returned to the system to enable it to correct itself next time. Resilience in a social-ecological system is characterized by focused effort to maintain, or tighten, the strength of feedbacks. They allow us to detect thresholds before we cross them.
- *Ecosystem Services: A resilient world would consider and assess all the ecosystem services that the market economy currently disregards.* The market economy does not price services emanating from the earth and its ecosystems (e.g., pollination, water purification, nutrient



Fig. 1.6:
*Seven principles of
resilience.*

cycling, and many others identified in the Millennium Ecosystem Assessment). These ecosystems are therefore not valued within the narrow cost-benefit analysis characteristic of resource development. Such pricing is critical in order to estimate cumulative impacts on different scales and time horizons, and to assess the effect that a development will have on the integrity of ecosystem services.

Reflection on these principles of resilience yields the following four broad strategies we need to take seriously as we SEEK pathways to a low-carbon, steady-state economy.

Reclaiming the Commons

When one looks far back into human history, private property and commercial markets rarely existed. Where they did, they were of marginal importance to the everyday functioning of human beings. Historically, the “commons” were the lands and waters that provided people in their vicinity with the means of living. The rules and norms that have regulated access to and use of the commons, their management, and the sharing of surplus have differed from time to time and place to place across the globe. Indeed, they still differ today in those places where commons continue to exist.

As is revealed in the next chapter, the enclosure of the commons — or, in plain language, the privatization of what was once the domain of

commoners — has been underway for five centuries. The commoners have fought this, and their resistance has been promising and energetic, but more often than not they have been defeated or deflected. In each century the appetite of those doing the enclosing seems to have become more voracious. The capture of the “ownership” and/or exclusive control of land and resources by private individuals or corporations seems to whet the appetite for more and more. In the process, complex local systems for managing resources for everyone’s long-term benefit have been destroyed, and private property and associated rights have become sanctified. Now we must ask whether the enclosure of the commons, wrapped in the sacred status afforded private property, is leading us to the promised land — or could it be placing the social and ecological security of all of us, human and otherwise, at severe risk?

Privatizing the planet’s resources received powerful support from a paper written in 1968 by microbiologist Garret Hardin, “The Tragedy of the Commons.” His central question was simple: What happens when individuals compete for a scarce resource? His simplistic conclusion was that, “when faced with a scarce resource, people will be overrun by their own selfish desires to consume it, even if they know that they’re destroying it in the process.” In short, although he cited no supporting evidence, Hardin claimed that individuals destroy the common good in the pursuit of their selfish desires. (He made no reference to the destruction of much of the world’s commons through transfer to private ownership and control.)

There is a fascinating irony here. Ayn Rand, author of *The Virtue of Selfishness: A Concept of Egoism*, whose acolytes include Alan Greenspan, proposed that an individual’s pursuit of selfish desires is the route to advancing the common good. Is Rand right and Hardin wrong or vice versa? Could both be right — or both wrong?

Consider fisheries, the most cited example of the “tragedy of the commons.” According to Hardin, each fisher is motivated to maximize his catch, regardless of the environment. Eventually the resource collapses. At first glance, the decline in world fisheries would appear to confirm Hardin’s analysis. However, when one digs deeper, things look different. Pakistan’s rich fishery has supported tens of thousands of small-scale fishers and their communities for centuries. Yet in the last ten years, the Pakistani Fisherfolk Forum (PFF) has reported a 70 to 80 percent drop in their harvest — and with that drop, a growing hunger, indebtedness, and poverty in their villages along the Arabian coast. Why is this happening? Is it because the commons is being overrun?

In 2001 the military rulers in Pakistan, eager to increase export earnings, permitted foreign trawlers to fish within 12 miles of the coast instead

of the former limit of 35 miles. The 12-mile zone is reserved for locals, at least in theory. In fact, international joint ventures flout the rules by flying Pakistani flags. Meanwhile, the real locals complain that their interests have been compromised in the interests of government graft. Locals also complain that industrial trawlers working 24 hours a day with nets stretching three kilometres not only destroy the resource but also waste it. In his book *The Value of Nothing*, Raj Patel wrote, “According to the PFF, only 10% of the trawlers’ catch has any value on the international market, and the other 90% is thrown away. It sounds high, but internationally, even factoring in some of the best-regulated global fisheries, by-catch makes up some 40% of all marine catches.”

In this case it seems the commons are being not so much overrun as taken over. The local people’s sustainable use of the resource has been displaced by the marriage of profit-seeking capital and ecologically destructive technology. This is enclosure at work in the modern day.

There are inspiring, if rare, examples of local commoners reclaiming their fisheries. In Chile, industrial trawling was banned in the 1960s due to resource concerns and in order to protect inshore fishers. At first the Chilean government instituted a quota system, allocating a portion of the catch to individual fishers. It did not work. In its place, the government and fishers’ organizations up and down the coast together developed a system of territorial use rights. Describing the process, Patel wrote: “Fishing villages and fishers’ organizations were awarded collective rights over specific traditional fishing grounds that they’d known and fished for generations. Enforcement was devolved to local fisher people’s unions. It worked: The fisheries recovered.”

Elinor Ostrom, winner of the 2009 Nobel Prize in Economics, gave added weight to the wisdom of reclaiming the commons. In its citation, the Nobel Committee observed that her work on common pool resources shows how “forests, fisheries, oil fields or grazing lands can be managed successfully by the people who use them, rather than by governments or private companies.” Ostrom’s research elevates the strategic importance of supporting the development of self-organizing and -governing forms of collective action:

The sheer variety of cultural and biological adaptations to diverse ecological conditions is so great that I am willing to make the following assertion: Any single, comprehensive set of formal laws intended to govern a large expanse of territory containing diverse ecological niches is bound to fail in many of the areas where it is applied. Improving the abilities of those directly engaged in the particulars of their local conditions

to organise themselves in deeply nested enterprises is potentially a more successful strategy for solving resource problems than attempting to implement idealized, theoretically optimal institutional arrangements. There is plenty that national government officials can do to help a self-governing society.

We will revisit the story of the commons, its enclosure, and the commoners' push back in the chapters that follow. Reclaiming the commons is a vital component in strengthening the resilience of the communities and regions in which we live. The silos created by exclusive private property rights must be broken down. And the relevance of an agenda to reclaim the commons is not restricted to land and natural resources. Indeed, given the modern power of the volatile trinity of carbon, oil, and capital, the 21st-century struggle for the commons and the common good cannot but include capital, our workplaces, and the biosphere we all depend on. Our access to and management of the commons must be redesigned through a mix of common and private property rights. In short, we must reunite the "I and the We," and reject the life-damaging ways in which both Hardin and Rand defined the world.

Reinventing Democracy

What makes mass society so difficult to bear is not the number of people involved, but the fact that the world between them has lost its power to gather them together...and to separate them.

— Hannah Arendt, *The Human Condition*

Enclosure of the commons robs people of the means to sustain themselves where they live. In the process, the role of local people in local governance is destroyed. There is no commons for them to manage. Private owners — today primarily corporations — continuously call for the rules of the game to be rewritten in their favour, their rationale being that the benefits will trickle down to the rest of us. Privatization and constant pressure to shape public policy to corporate ends not only redirect the benefits of the commons but are also a profound assault on participatory democracy.

Alexis de Tocqueville developed the theory of associative democracy in the 1830s, based on his in-depth study of the democratic mutual aid spirit he found in America. In *Democracy in America* he argued that government and citizens should be wary of the state replacing "independent associational life" — what today we often refer to as civil society. Tocqueville believed economic freedom fostered greed, which in turn engendered political apathy, excessive individualism, and passive reliance on the state.

It is easy to see the time coming in which men will be less and less able to produce, by each alone, the commonest bare necessities. The tasks of government must therefore perpetually increase, and its efforts to cope with them must spread its net wider. The more government takes the place of associations, the more will individuals lose the idea of forming associations and need the government to come to their help. This is a vicious cycle of cause and effect.

A current civil society argument, one that is gaining force, states that reclaiming the commons is inseparable from reinventing and extending the scope of democratic participation and control. If Ostrom is right, then centralized, distant, and locally unaccountable power cannot accomplish the transition to low-carbon, ecologically sustainable communities. What's more, in the age of climate change and peak oil, resilience requires a quality of social capital — trust, collaboration, cooperation, and leadership — rooted in the places where people live.

Like other aspects of transition, the reinvention of democracy is not simple. To start, we must contend with the assertion that “the economy produces people.” As Sam Bowles and Herbert Gintis wrote in *Democracy and Capitalism* in 1986, “The experience of individuals as economic actors is a major determinant of their personal capacities, attitudes, choices, interpersonal relations, and social philosophies. Individuals develop their needs, powers, capacities, consciousness, and personal attributes partly through the way they go about transforming and appropriating their natural environment. Moreover, individuals and groups regulate their own development in part to the extent that they succeed in controlling their own labour.”

Historically, enclosure has removed most people's capacity to control their own labor. Our choices today involve what to consume and how to capture personal economic benefits from renting out our labor. The more “marketable” we are, and the more competitive we are in the labor market, the more personal consumption we can enjoy. If we can extract sufficient wages to save for a down payment and qualify for a mortgage, we might buy a home to help build our personal wealth.

The narrowing of our economic choices, combined with the concentration of capital and the limited role of most workers in production, have consequences that are, as Bowles and Gintis put it, “intended and unintended,” and “antithetical to the development of democratic culture.”

True, we participate in representative government, where our “individual” vote is sought in order to confer “collective” power and authority.

But does this constitute democratic governance? Is this the limit of the democratic values we aspire to? In the political contest, where the winners mediate their mandate through the powers vested in the state, the choices on our menu are reduced to two: “the conservative reliance on the market and the social democratic disposition toward an enlarged state.” There is a deep historical legacy of resistance to this limited menu for citizens, which will be revealed in Chapter 2.

The concept of associative democracy is a bridge across the increasingly misleading solitudes favouring either the market or the state. Thus, our organizing and institutional challenge is to govern ourselves in such a way that we have the capacity to reweave our economies on a more local basis while building our resilience.

We are at a juncture of unprecedented dependence on a globalized and centralized system of production, communication, and transport. This system is highly vulnerable to disruptions arising from declining oil supplies and increasing climate change. Our world is going to become much smaller as the pressure begins to fray global supply chains. The logical response to the multiple challenges flowing from this forecast is to place authority and financial resources as close to where people live as possible, realizing that there are always different scales related to function to be considered. The European Union has used the Catholic social doctrine of subsidiarity as one means to figure out how to distribute functions between federal, national, and regional levels. Its basic thesis, described by Paul Hirst in *Associative Democracy*, is that any “function should be performed at the lowest level consistent with competent administration.”

However, this is not just a call for devolving power from one level of government to another, though devolution of public powers has a role to play. Rather, we imagine that self-governing associations will evolve into the “primary means of democratic governance of economic and social affairs.” Ceding selected state functions to such associations, and creating public mechanisms to finance them, could remove from centralized bureaucracies those functions beyond their level of competence, while providing the potential for a much greater level of citizen engagement and accountability. Enabling democratic associations to expand the resources and tools available to address the challenges of transition is a key objective. As we will see, this can be achieved by mobilizing local and regional financial tools and shaping markets and production relevant to meeting basic needs (for such items as food and energy) in a more resilient manner.

This is a far cry from the classic liberal democratic assumption that democratic government is based on accountability to the individual citizen. Indeed, the outlines of associative democracy might evoke derision from

some, who charge that it is stripping representative democracy of its right to govern based on the consent of the governed. Such arguments are weak, especially when, as Hirst points out, the “bulk of economic affairs are controlled by large privately-owned corporations, and the great bulk of social affairs are controlled by state bureaucracies.” Increasing the space in which local and regional associations exert significant democratic influence over economic and social functions advances democratic participation and ownership of the responsibilities of citizenship.

Not surprisingly, there is resistance. When citizen-based movements and associations present their interests to government, they often find themselves defined by the powers that be as “interest groups” whose demands and suggestions must be discreetly managed. This denigration of voice beyond a periodic vote makes no sense given the challenges we face. It is a narrow conception of political action that is not only discouraging to people acting meaningfully where they live but is also increasingly unacceptable, as evidenced by the Occupy movement’s impatience with the ways present and future generations are being compromised by unaccountable wealth and power.

Resilience thinking requires us to expand our democratic repertoires and decentralize authority to act more powerfully. We need to multiply the ways and means by which people can experiment, participate, and extend their collective capacity to become more self-reliant.

Why? There are at least three reasons.

- Participation in self-government and self-management is a form of democratic learning. It is a means of increasing social capital. It is also a prerequisite for enlarging the capacity for community and collective action.
- “The isolated individual — as a voter or as a buyer of commodities — is relatively powerless to resist the claims of the state.” As we can see in the example of the Chilean fishers associations, the individual can be greatly empowered by what Bowles and Gintis describe as “the availability of a rich selection of collective forms of democratic social action not beholden to the state.” This is a form of collective liberty that extends democracy and increases community resilience and self-reliance.
- Extending democracy requires “at least a minimal identification of the citizen with public life and some notion of collective interest.” Philosopher Charles Taylor said it well in his study of Hegel: “What modern society needs...is a ground for differentiation, meaningful to the people concerned, but which at the same time does not set

the partial communities against each other, but rather knits them together in a larger whole.”

The political wasteland that now stretches between the individual and the state can disempower and depoliticize us. Decentralized, more autonomous communities are a strategic resource for transition. They are also an end in themselves, no less vital than the recovery of our capacity to value human dignity in our public discourse and in our daily lives. Much in this book testifies to the effectiveness and resilience of democratic decentralism as a key transition strategy.

Constructing a Social Solidarity Economy

Collaboration, cooperation and coordination among citizens and stakeholders inhabiting any social-ecological system is a fundamental pre-requisite to restoring ecosystems in danger of collapse and maintaining ecosystems that are relatively healthy.

— Brian Walker, *Resilience Thinking*

We have already indicated that an ideology based on selfishness, competition, and endless growth is colliding with ecological limits. Further, we have argued that reclaiming the commons and extending democratic values and practices are two strategies that are crucial to the SEE Change. Embedded in all these propositions is the notion of “solidarity,” between each other and with the earth. Neo-conservatives may well jump on this word as evidence of a far-left plot. It is not. Indeed, some of the best of conservative philosophy recognizes the virtue of conservation, thriftiness, and mutual aid rooted in community self-reliance. We choose to elevate solidarity as a multidimensional concept, common to all aspects of resilience and imbued with the qualities and strategies we need to propel us out of the privatized, consumption-oriented world in which so many of us find ourselves.

The “social solidarity economy” is both a concept and an emerging movement. It recasts a set of ideas and several fields of practice whose origins lie in unmet human needs — for example, the cooperative movement, community economic development, economic democracy, community land trusts, community development finance, trade unions, credit unions, fair-trade and non-profit associations, and charities. All can be traced to people, communities, and regions marginalized by ideology, market failure, or the inadequacy of public policy, or by all three.

The organizations and initiatives launched in defense of these people and places also go by several names — civil society, the third sector, or the social economy all describe the terrain they occupy. Central to their activity is the reinsertion of social purpose, mutual aid, and self-help into the

economy. These practices are all expressions of “reciprocity.” In contrast to the likes of Greenspan and other free-market ideologues, social economists argue that reciprocity should be the central economic principle that shapes the management of markets, trade, and capital. From the standpoint of reciprocity, community and societal benefit is a fundamental component of a broader socio-economic calculus. The diversity of the commons is valued over and above the homogeneity of the global market place. John Pearce applied the term “third system” to encompass this arena. Figure 1.7 shows how it includes the voluntary sector, a range of associations, the family economy, and the social economy.

Conceptually and practically, the third system forms only one part of the economy. The first system is private and profit-oriented, what people normally refer to as the “private sector.” It includes everything from micro-businesses to multinational corporations. The second system, which also extends from the local to the global, is concerned with the planned provision and distribution of public goods and services, usually through some kind of government authority. The boundaries between these three systems, while permeable, remain conceptually distinct. They are set apart by their different interests, which are expressed through how they are owned, how they are controlled, and their purpose.

Within the third system, the social economy distinguishes itself by earning all or part of its income from the market and infusing its economic activities with social purpose. Through social and cooperative enterprises of various types, the interests of poor, immigrant, worker, and women’s groups are explicitly recognized and integrated into production settings. The social economy, you might say, is the economic expression of civil society’s social consciousness.

There are different perspectives on the role of the social economy in social change. Reformists generally seek more resources for disempowered constituencies. To make this happen, they also strive to ensure the social economy (the two lower left wedges in Figure 1.7) attains equal standing with the state and the market. A more radical perspective holds the social economy to be a transformative strategy. Pearce described it as a “construction site” upon which to build strategies, tools, and institutions that can challenge the hegemony of free-market values in the first and second systems. Advocates of this perspective see their role as “socializing” the first and second systems with the values of justice, inclusion, balance, diversity, and ecological sustainability; with the principle of reciprocity; and with the practices of self-help, mutual aid, and democracy.

Nevertheless, the private system continues to dominate. It exercises much of its power to improve the prospects for profit. It has major influence

on the second system, continuously striving to make public policy, finance, and personnel recognize how public good is attained through private gain. Within this context, the possibility that the third system alone could disturb the hegemony of free-market values seems slight. It simply lacks the political and cultural influence at this time, although it is growing.

Compare this with the conceptual cloth from which the social solidarity economy is cut. Instead of having relatively distinct boundaries between the three systems, the solidarity economy, as depicted in Figure 1.8, cuts across

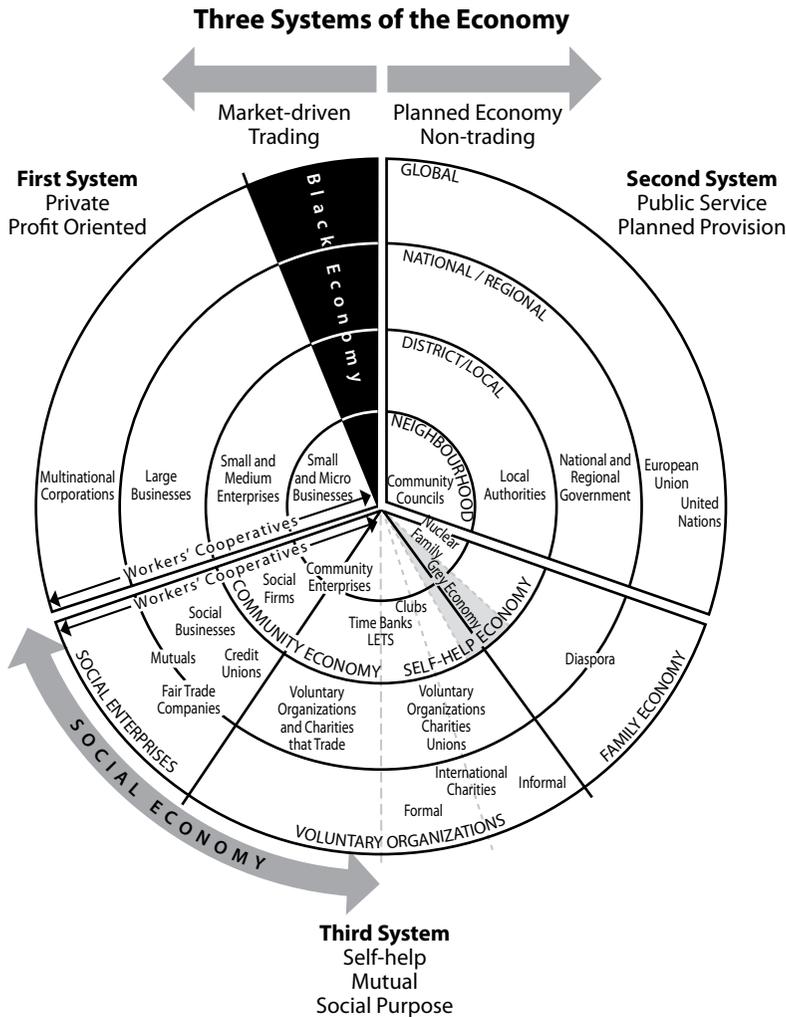


Fig. 1.7: *Three Systems of the Economy*. Source: John Pearce, *Social Enterprise in Anytown*

The Solidarity Economy — An Emerging Movement

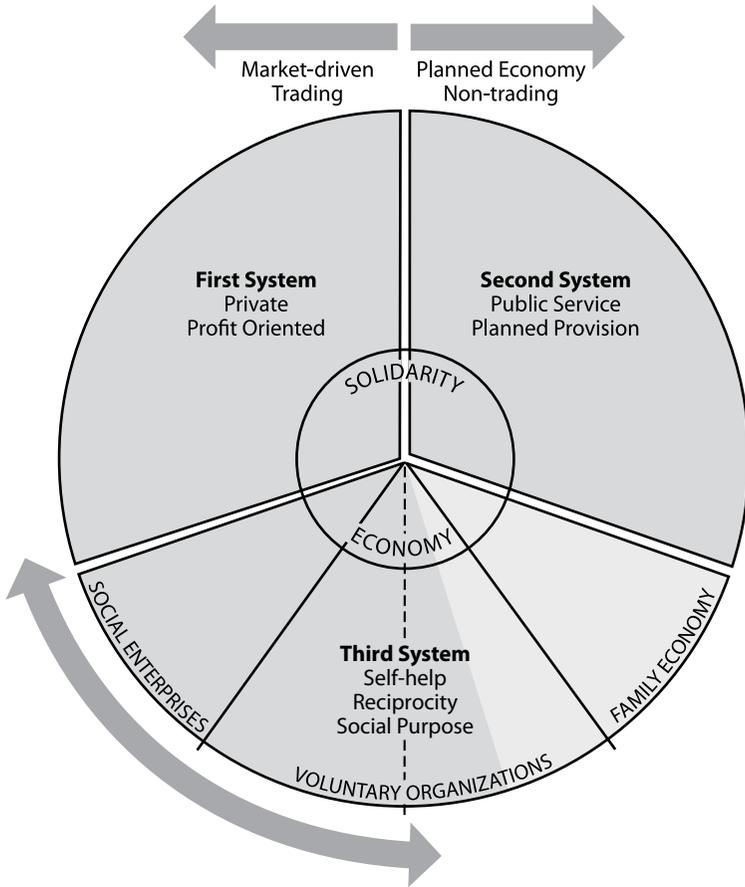


Fig. 1.8: *Solidarity Economy*. Source: John Pearce, *Social Enterprise in Anytown*.

all three systems. While currently the circle at which they intersect may be small, its implications are huge.

The solidarity economy represents a provocative assault on the view that selfishness is imprinted deep in our economic DNA. In all three systems there are people, organizations, businesses, and governments that are beginning to SEE the world differently. Each system, to one degree or another, has creative actors who share the values of social justice, inclusiveness, ecological sustainability, and deeper, democratic forms of participation. They are seeking and developing dynamic ways to manifest these values in practical terms. We call them co-producers in the task of building a “high road” economy.

International examples of this high-road economy are profiled in succeeding chapters. One among many is the Seikatsu Consumer Co-operative in Japan, which has shaped relationships between food consumers and private food producers cemented by ecological farming methods and fair prices. Further, the cooperative has transformed the supply chain in between: processing, packaging, recycling, and distribution involve private and democratically controlled firms in what can authentically be termed a “values”-added chain.

The central tenets of social and ecological economics compel us to seek balance, to respect and learn to live within the ecological limits of our planetary home. The solidarity economy compels us to craft the strategies and alliances that bring about that transformation. Social purpose, mutual aid, and reciprocity — the hallmarks of the social economy — need to flourish in all three systems. The social economy has an important, though not exclusive, role in making this happen. If we believe we must shift the paradigm from profit-driven economic growth to a steady-state economy, it will not do to continue working in system silos. We need to create a new ecology of innovation, alliances, and partnerships from which to build and secure the SEE Change.

Viewed this way, solidarity is much more than a concept. First, it is a framework for designing and implementing strategies that strengthen the resilience of communities, regions, and societies. Second, it elevates the idea of advancing the common good collaboratively rather than remaining pre-occupied with the pursuit of individual interests. Lastly, solidarity is a vital resource, and a renewable one. It is a resource that we need from each other in order to sustain the efforts transition will require.

Pricing As If People and the Planet Mattered

The “cowboy economy”...is symbolic of the illimitable plains and also associated with reckless, exploitative, romantic, and violent behaviour. The closed economy of the future might similarly be called the “spaceman” economy, in which the earth has become a single spaceship, without unlimited reservoirs of anything, either for extraction or for pollution, and in which, therefore, man must find his place in a cyclical ecological system which is capable of continuous reproduction of material form even though it cannot escape having inputs of energy.

— Kenneth Boulding, “The Economics of the Coming Spaceship Earth”

The fact that high-road values are already shaping our discourse and our actions can be traced, at least in part, to the evolution of what is known as “ecological economics,” which starts with a set of assumptions very different

from those that mainstream economists have promoted so successfully over the last 40 years. According to ecological economist Malte Faber, this field is defined “by its focus on nature, justice, and time. Issues of intergenerational equity, irreversibility of environmental change, uncertainty of long term outcomes and sustainable development guide ecological economic analysis and valuation.”

Pioneered in the 1960s by Kenneth Boulding, Fritz Schumacher, and Nicholas Georgescu-Roegen, ecological economics takes sustainability as the focus of its inquiry. It postulates that sustainability rests on three types of systems: the social, the environmental, and the economic (as shown in Figure 1.9). The field’s most popular image is that of “spaceship earth” (a phrase and concept coined by Kenneth Boulding), which captures its basic tenet: we are absolutely dependent on the health of natural systems to sustain human life.

Ecological economists explore a broad terrain, everything from the carrying capacity of the earth or the threat that environmental degradation poses to our food and water, to the relationship of energy, the environment, and climate change, and the critical interdependence of systems. Among its most important contributions is the idea, popularized by Paul Hawken in *The Ecology of Commerce*, that we have evolved a system of commerce that thinks of itself and behaves as if natural systems were but a source of raw



Fig. 1.9: Conventional economists and politicians often argue that the economy must be the first priority — “It’s the economy, stupid” — and without it social justice and environmental cleanup will not be achieved. This is backwards. “It’s the planet, stupid.” A sustainable economy must live within the ecological limits of the planet. Our challenge is to organize economies with equity and ecological realities and goals at the forefront of our attention. Source: Sherman Morrison, “Sustainable U, 001: Sustainability Basics,” accessed 26 January 2012, from shermanmorrison.hubpages.com/hub/Sustainable-U-Sustainability-Basics

materials for human benefit and a sinkhole for human waste. As a result, the systems are out of sync with each other because the market only responds to prices, and these prices fail to incorporate either the value of the services nature provides to our species or the costs of using nature as our collective refuse heap. As a result of this imbalance, we unwittingly have created a way of life that is by definition unsustainable.

Ecological economists argue that if we specified the dollar value of these damages and services, and if we integrated that cost into the price of goods and services, our economic behavior would change: we would become more cautious and deliberative about how we use the bounty of nature. Not to do so would radically increase what we have to pay because we would have to account for what economists call externalities. Ecological economists are developing tools to bring balance to this calculation.

Raj Patel chronicles a few of the countless examples of our failure to account for these externalities in *The Value of Nothing*. From Big Macs to the mining of water in China, from the erosion of soil fertility due to chemical fertilization to our failure to price carbon, the problem is far from fixed. Anaesthetized by a Walmart culture of cheap consumables produced by supply chains in which the lowest price is the only criterion, we are accessories to theft of two kinds — robbing ourselves and robbing each other. As Patel puts it: “When negative externalities are not paid for, the beneficiaries are in effect engaging in theft from those who bear the cost of their behaviour...If humanity had to pay for the consequences of a degraded eco-system the bill could, according to one recent study, run to about \$47 trillion.”

A recent study by the National Academy of Sciences looked at six areas of global environmental degradation in an attempt to determine who is generating the impacts and who is paying for them. It considered ozone-layer depletion, overfishing, deforestation, climate change, mangrove destruction, and intensified agriculture. Middle- and high-income countries are the big polluters, not only fouling their own lands and waters but also exporting pollution to poor countries. The estimated damage is \$5 trillion. Poor countries, in contrast, were estimated to inflict \$0.68 trillion in damages on richer countries. Ironically, the entire foreign debt that poor countries owe to rich countries is \$1.8 trillion. Who owes who what? The math is pretty clear!

Establishing prices that take into account these externalities is of central importance if we are to successfully navigate the Great Transition. Without a clear, adequate, and firm price on carbon, even high-road investors, whether public, private, or social, will have trouble mobilizing the investment necessary to deploy existing technologies and innovate more. Carbon taxes must increase, emission quotas must be firmly set, and heavy penalties must be defined for those who exceed them.

Thomas Friedman, prize-winning journalist from the *New York Times*, pleads for recognition of the central role of proper pricing in his book *Hot, Flat and Crowded*:

Repeat after me: when it comes to energy innovation, “price matters, price matters, price matters.” If you want to bring about a mass movement toward more energy-efficient cars, windows, buildings, power generation systems, lighting and heating, the simplest way is to make sure that the true costs of using any and all hydrocarbon-based fuels is reflected in their price to consumers — the true climate costs, the true environmental costs...Consumers will adjust and demand more energy-efficient homes, more energy-efficient offices and schools, and more energy-efficient transportation. And, as a result, the level of carbon emissions will go down. It is simple economics. It is not rocket science. The cheap plastic junk you buy at big-box stores is cheap only because the externalities have not been priced in — the effects on air quality, the effects on water, the effects on climate. Price those into every product and the market will do the rest.

Well, why doesn't the market reflect the true cost of the things being sold? When it comes to energy, the reason, at least in America, is that government has failed to shape the market with honest prices. It is not a market failure. Markets don't price externalities when they don't have to. It is a leadership failure.

Our persistent resistance, denial, and confusion about this basic tenet of ecological economics is akin to a toddler, who believes you can't see her when she covers her eyes. If you cannot see, touch, or count something, it is as if that thing does not exist. The reality is that it does exist, but we continue to think, and act as if, the planet we inhabit is the limitless domain of the cowboy.

Navigating the Transition to a Steady-State Economy

A major dilemma as we work to reduce economic growth and carbon emissions is determining how we can achieve this while maintaining economic stability. This is known as “the growth dilemma” or “the productivity trap.”

Politicians are obsessed with maintaining economic growth — understandably, because jobs depend on it. Most corporations outside the financial sector concentrate much of their investment in research and development on technological innovation that will protect or increase profit margins.

Historically, this has translated into making more with less labor. The result is measured, at the level of the firm or of the national economy, by calculating if labor productivity is increasing or declining. The conundrum is that if labor productivity increases, employment levels in the sector concerned most often decline, and the way we currently deal with this is to do whatever is necessary to fan the flames of economic growth. Costs related to the environment or communities take a distant second or third place in the political and economic calculus.

As an alternative to this growth imperative, John Stuart Mill and John Maynard Keynes both argued that a steady decline in the workweek must accompany the increase in labor productivity arising from technological innovations that replace labor. To compensate for a loss in wages and salaries that results from such a scheme, Mill argued that reduced income from labor should be compensated for by increasing worker ownership of the capital. In this way, workers access income from two sources: from their labor and from their ownership of productive assets. According to Mill, various forms of cooperative ownership would make this possible — and when coupled with restructured property rights, they could reduce the cost of living, an objective we will demonstrate as achievable in later chapters.

The idea of workers earning their income from both labor and ownership is a core argument for economic democracy. Louis Kelso described it in the 1950s as binary economics. He envisaged a future economy where all citizens would have access to these two sources of income. The shift to more local and regional ownership structures are a key component of such a strategy, as we shall see. This shift is important in and of itself, but in combination with the need to radically reduce our carbon use, dependence on fossil fuels, and entanglement with unaccountable global capital, the argument for strategically recalibrating our efforts takes on a whole new level of significance. Increased local and regional self-reliance is a key component as we move off the growth treadmill and toward the resilience imperative.

Working with the new economics foundation (nef) in the United Kingdom, economists Tim Jackson and Peter Victor are part of a team designing macro-economic models to explore how a steady-state economy might be achieved. In their paper “Productivity: Rethinking Productivity for a Steady-State Economy,” which they presented at nef’s Great Transition summit meeting in October 2010, they showed their initial efforts to solve the conundrum presented by the priority conventional economists give to improving labor productivity.

Jackson and Victor found that between 1980 and 1995, labor productivity in 12 European Union countries increased by 2.7 percent a year. A 3 percent decline in working hours accompanied this increase. This seems like good

news. However, from 1995 to 2005, labor productivity increased less than 1.4 percent a year. An 8 percent increase in working hours accompanied this decrease. Economists call this decline in labor productivity Baumol's disease, and it is characterized in Organisation for Economic Co-operation and Development (OECD) countries by a decline in the manufacturing sector and a growth in the service sector, where employment is more labor intensive.

All these factors inform the economic models Jackson and Victor are working on. As of 2010, they have confined their exploratory modelling to three scenarios aimed at cutting carbon use to 80 percent of 1990 levels by 2050 while maintaining economic stability.

In the first scenario, green infrastructure is expanded by 5 percent a year. This is achieved by investing in renewable energy technologies, instituting a range of low-carbon policies, and developing smart grid systems designed to both transmit electricity more efficiently and allow energy to be conserved more effectively. The projected outcome from the model indicates that economic growth would increase but that the 80 percent carbon reduction target would be missed by a wide mark.

The second scenario involves the same 5 percent yearly expansion of green infrastructure with an additional 1.5 percent annual reduction in working hours. This leads to a decline in economic growth and a fall in GDP, which may disrupt economic stability. As well, carbon reduction targets are not quite achieved in this scenario.

The third scenario includes the 5 percent yearly expansion of green infrastructure, a 1 percent reduction in annual working hours, and a 6 percent expansion in the local green services sector. This sector is described as producing and selling "dematerialized services" rather than "material products": for example, "selling energy services rather than energy supplies. Selling mobility rather than cars. Recycling, re-using, leasing..." Jackson and Victor envision building on already existing and "thriving local or community based social enterprises; community energy projects, local farmers markets, slow food cooperatives" and so on. In the model, growth declines slowly, not sharply; employment is maintained; and the 80 percent reduction in carbon emissions is realized.

This third scenario yields a more balanced outcome. In some ways it is reminiscent of Schumacher's "Small is Beautiful" argument, which called for a decentralized economy using a diverse mix of intermediate technologies, calibrated to make efficient use of local resources and regional markets, in order to transition to a more sustainable economy. In this vision, paid and unpaid "good work" would be equitably recognized.

Although their work is at a very early stage, Jackson and Victor's preliminary results are indicative of the importance of local and regionalized

economic reconstruction. In the chapters that follow, we will share more robust (and scalable) examples that are meeting basic needs at the local and regional levels. By connecting the dots between shelter, food, energy, and different forms of structuring property rights, ownership and finance, people are blazing pathways that can help us transition to a steady-state economy where we live. In this sense, our contribution in this book is more on the micro-economic side of transition. This does not lessen the importance of the macro-economic research, which we touch on throughout, and periodically suggesting possible solutions to some of the key themes introduced in this opening chapter. Both macro- and micro-economics are crucial if we are to succeed in navigating the Great Transition from the growth imperative to the resilience imperative.

Moving on to Chapter 2, we examine the ascendancy of the “free market,” a fascinating story that is a central theme of the last 500 years of human history. The market’s rough-and-tumble evolution has been fraught with opposition to the notion that the economy should trump social relations and nature. Within this story are propositions and experiments that reflect alternative ways of organizing our economic life, almost all of which foreshadow many of the innovations we deal with throughout this book. We discover that we are part of a long history, one that is inspiring, sobering, and instructive.