

ROBERT COSTANZA

An aerial photograph of a dense urban skyline, likely Hong Kong, with numerous high-rise buildings. A bird is captured in flight in the middle ground, flying towards the right. The overall tone is hazy and atmospheric.

ADDICTED TO GROWTH

**Societal Therapy for a Sustainable
Wellbeing Future**

**ROUTLEDGE EXPLORATIONS IN
ENVIRONMENTAL STUDIES**

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Addicted to Growth

This book takes a compelling approach to describing what is needed to create the kind of future that most people on Earth really want. Our global society is hopelessly addicted to a particular vision of the world and a future that has become both unsustainable and undesirable.

Addicted to Growth frames our current predicament as a societal addiction to a 'growth at all costs' economic paradigm. While economic growth has produced many benefits, its side effects are now producing existential problems that are rapidly getting worse. Robert Costanza considers lessons from what works at the individual level to overcome addictions and applies them to a societal scale. Costanza recognises that the first step to recovery is recognising the addiction and that it is leading to disaster; however, simply pointing out the dire consequences of our societal addiction is only the first step and can be counterproductive by itself in motivating change. The key next step is creating a truly shared vision of the kind of world we all want, and the book explores creative ways to implement this societal therapy. The final step is using that shared vision to motivate the changes needed to achieve it, including adaptive transformations of our economic systems, property rights regimes, and governance institutions.

An exciting contribution from a key thinker in the field, this book will be a valuable resource to students and scholars of public policy and sustainability studies, and anyone interested in understanding and overcoming our societal addiction to growth.

Robert Costanza, PhD, FASSA, FRSA, is Professor of Ecological Economics at the Institute for Global Prosperity, University College London. He is a prolific and highly cited author of over 600 scientific articles and 28 books. His transdisciplinary research integrates the study of humans and the rest of nature towards creating a sustainable wellbeing future.

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Addicted to Growth

Societal Therapy for a Sustainable
Wellbeing Future

Robert Costanza

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**In memory of Howard T. Odum, Elinore Ostrom, Ann-Mari
and Bengt-Owe Jansson, and
my parents, Adela and Anthony Costanza, and
KCI**



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Foreword

The year 2022 marks the 50th anniversary of the Club of Rome's landmark and visionary report, 'The Limits to Growth' written by Donella Meadows, her husband Dennis Meadows, and a group of visionary MIT scientists (Meadows et al. 1972). This seminal report was the first to model our planet's interconnected systems and point out that if 'growth' trends in population, industrialisation, resource use, and pollution continued unchanged, we would reach and then overshoot the carrying capacity of the Earth at some point in the next one hundred years.

Today the planetary emergency is the greatest existential threat to humanity. The overshoot scenarios and tipping points predicted by these esteemed scientists are today's reality, and we have limited time to shift age old societal patterns and adopt a new paradigm focusing on human wellbeing within planetary boundaries. On this anniversary year, it is therefore our responsibility to look back, and forward, at the trends 'The Limits to Growth' examined and explore ever more deeply with leading multi-disciplinary thought leaders and actors this obsession humanity has with economic 'growth' at the expense of human and planetary health.

Dr. Robert Costanza's deep dive into social traps and addictions is a fundamental source of insight for changing societal behaviour and enabling a swifter adoption of the paradigm shift from growth towards greater wellbeing. As one of the pioneers of 'Ecological Economics' he builds beautifully on the trans-disciplinary effort to link the natural and social sciences more broadly and in particular unpack the notion that "the fundamental problem of environment-economy is not necessarily in market failures, but in humans' inadequate understanding of their role, impacts, and responsibilities within the larger ecological system" (Costanza et al. 2014). This book is an incredibly helpful guide for understanding how we, as human beings, can indeed assume our role both in society and in the larger ecological system by weaning ourselves off our addiction to growth and making sure we collectively succeed in doing so.

Costanza uses his own mother's personal grief over the loss of her first child due to industrial pollution as a poignant entry point and reminder of the deep impact environmental destruction has on the lives and livelihoods of so many families across the globe. A grief I have felt myself when working on a contaminated chemical site in Europe and miscarrying due to extreme soil contamination and the inhalation of high levels of toxic emissions.

We all conveniently compartmentalise industrial production and causal effects from our own addiction to consumption. This is why we must tap into these personal stories and understand addictive behaviours to fully grasp how we can shift our habits and build an economy that truly services people, planet, and prosperity at the same time.

We live in an age where technological fixes are making the headlines and books abound on visions of the future solved by sectoral shifts due to new low carbon technologies and nature-based solutions. But most of our literature and our discussions avoid the elephant in the room: our economic system is dysfunctional. How can you ensure the proper uptake of new technologies and new industrial processes if the signals coming from the economy are that short-term profit making on the back of social and green values is acceptable?

The Club of Rome's recently produced Earth4All wellbeing index, like several other such indices, clearly reflects the growing malaise across Western society from capitalism and extractive production. While wealth has steadily increased since the 1950s, and continues to grow for a few, wellbeing has increasingly dropped for the many. The Earth4All wellbeing index reflects not only the deep inequity in monetary distribution but also that our societies are getting sicker as their addiction to growth and the ownership of 'things' has made them increasingly unwell.

This book doesn't state the obvious or bring in another quick technological fix but rather addresses the real reason we have not made the necessary progress to solve our environmental or social problems. The book finally addresses why we have not solved these problems, while personal suffering, societal complacency, and denial continue to dominate. By bringing in the deep learning from addiction therapy, Dr Costanza gives us the necessary tools to tap into human consciousness in a very different way and enable behavioural change to embrace a fight vs flight mentality.

It is absolutely essential that we confront our collective failure to move decision makers, business leaders and citizens across the globe away from consumption and continued short-term growth cycles towards a vision of wellbeing. Understanding the type of therapy needed to ensure this essential societal change is fundamental. This book could not be more fitting for this time. Read it and pass it on to your friends and colleagues to help begin the great recovery.

Sandrine Dixon-Declève
Co-President, The Club of Rome

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Preface

I was born and spent the first eight years of my life in Donora, Pennsylvania, a small steel mill town on the Monongahela River 39 km southeast of Pittsburgh. Two years before I was born, Donora was the site of the first case of fatal air pollution in the US. From October 27 to 31, 1948 a rare temperature inversion trapped the hydrogen fluoride and sulphur dioxide emissions from U.S. Steel's zinc and wire works in the valley. This created an acrid smog that lasted four days and was so thick that it looked like midnight at noon (Figure P.1).

The incident led to 20 immediate deaths, another 50 within the following month, and continuing respiratory problems for a large fraction of the population. My mother was six months pregnant at the time. She contracted pleurisy and pneumonia as a result of the incident and had a miscarriage (Costanza 2016).

The results of this incident were far-reaching. Lawsuits were filed against U.S. Steel. The event, along with others in Los Angeles and London, triggered the clean air movement in the US, which ultimately led to the Clean Air Act



Figure P.1 Donora, PA at noon during the 1948 smog incident (NOAA Oceanservice Education)

of 1970 and the establishment of the Environmental Protection Agency (EPA). Devra Davis' book *When smoke ran like water*, details the events leading up to the Donora smog and its local and global repercussions (Davis 2004).

Growing up in Donora, the event was little talked about. My mother had four married sisters who all lived in Donora so I was surrounded by loving aunts, uncles, and cousins, in addition to my three siblings. But the incident led to the eventual closing of the steel mill where my father (and a large percentage of the town) worked, so we moved to South Florida when I was eight.

The incident certainly made a lasting impression. It was the dawn of the 'Great Acceleration' after WWII and the beginning of the Anthropocene epoch (see Chapter 1). Rapid economic growth in the US would continue for decades, but the Donora smog and many other incidents clearly showed some of the negative side effects of this headlong expansion. The creation of the EPA and other regulatory bodies in the US and around the world were intended to curb these side effects. However, the single-minded focus on Gross Domestic Product (GDP) growth and wealth accumulation in the hands of a few, which began in the post-WWII years, continued and the environmental and social side effects have only gotten worse and more global.

In this book, I talk about how we need to shift our societal goals to sustainable wellbeing to finally resolve these issues. To do this we need to overcome our current societal addiction to mindless GDP growth and create the kind of world we all want to leave to coming generations – a world that is smog-free, prosperous, fair, and sustainable.

Fossil fuels have powered the industrial revolution and created enormous benefits. But we've had plenty of time to shift to renewable energy sources and create a sustainable steady state economy and society based on the fundamental goal of wellbeing rather than mindless growth.

Neoliberal economic thinking that ignores social wellbeing has led to massive inequality and decreasing quality of life for many, even in high income countries. It also ignores the non-human environment and the benefits of the ecosystem services that underly all economies and societies. We badly need a broader approach to understanding and managing the world to address these issues.

To get at some of these limitations of the conventional economic worldview, along with several colleagues including Herman Daly, I helped to develop the transdisciplinary field of 'ecological economics'. The idea was to build a broader, whole systems approach to understanding and managing our complex, interdependent planet. From this perspective, it has been clear for decades that our current development path is both unsustainable and undesirable. Economies have been growing in terms of GDP and material standard of living, but overall quality of life has been stagnant or decreasing, as the side effects of this growth are damaging our very life support systems and societies.

We have known about these problems since the beginning of the Anthropocene – and we have also known about many of the solutions. The main question I want to address in this book is: given all this, why have we not made better progress? Why are we stuck in an obviously counterproductive

way of thinking about these issues? The lens I use to understand this dilemma is the idea of a social trap, dilemma, or addiction. I explore what solutions we have available and what a societal therapy might look like.

In 1982, when I was a young assistant professor at Louisiana State University, I was fortunate to be selected for a Kellogg National Fellowship. This was an amazing three-year ‘leadership’ programme that brought together a cohort of 30 individuals from diverse backgrounds. I made some lifelong friends and experienced the power of informal conversations (often over drinks) to stimulate new ideas. And it’s the discussions we had in this group that have stayed with me. We talked about the world’s problems, and more importantly, about how to fix them. The programme funded a meeting of this cohort twice a year at various locations around the United States and the world. These meetings were focused on various topics, ranging from energy to governance, to health care, to environmental protection and more. The programme also funded a research project for each fellow. My research project was centred around ‘social traps’ as a way of understanding the nuclear arms race. It led to a continuing fascination with why we fail to solve problems when the solutions are obvious. I concluded that our inability to resolve many of our current problems is due to these kinds of social traps or societal addictions (Costanza 1987).

In particular, I became interested in ‘investment traps’, where individuals, or whole societies, invest so much in a situation that they feel they have to continue in order to justify their past investments. It’s a version of the ‘sunk costs’ dilemma and underlies gambling addictions and many other investment traps. The ‘dollar auction game’ is a fascinating example of this behaviour that I discuss in Chapter 2. This line of thinking has continued and expanded to look at how addictions work at multiple scales and what can be done to overcome them. A lot has been done at the individual level to understand addictions, but not much at the level of whole societies. If we think of our current situation as a kind of investment trap, or an addiction to growth, to fossil fuels, to social inequity – then what can we do to overcome it? What is the therapy? What can we learn from therapies that we know work at the individual or small group level?

Like any investment trap or addiction, the therapies are not simple or easy. Part of the reason that these situations persist is that simply understanding the problem, or knowing the solution, is often not only insufficient, but it can also actually be counterproductive. And yet, when it comes to our societal addictions, we continue to work ever harder to describe the growing problem in ever more elaborate detail, convinced that once the message is clearly understood, the solutions will quickly be enacted. If we can instil enough fear about the dire consequences of continuing the current course, then surely behaviour will change. However, ongoing work on overcoming individual addictions clearly shows how ineffective this approach can be. We absolutely need to know the dire consequences of our behaviour, but we must also understand that this is an addiction and that it requires a different frame for discussion to achieve the behaviour change we seek. This book looks at both understanding the system

and where it is headed, and devising therapies that might help to change direction before it is too late.

This is not to say that positive change is not already happening. There are a huge number of steps being taken, happening over a range of time and space scales. But there are also signs that these may not be enough or fast enough, and we need to bolster our strategies and hasten our actions to achieve the transition to a sustainable wellbeing future.

A primary lesson from addiction therapy, and behaviour change in general, is that having a clear, shared vision of the desired goal is a key first step. That is what much of this book is about. How do we build that shared vision and how do we use it to motivate and facilitate positive change? It is a key element in the societal therapy that can lead to the great recovery we so desperately need.

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Summary

Our modern society is severely addicted to a vision of the world and its future that has become both unsustainable and undesirable. The facts about our predicament – climate and environmental disruption, biodiversity loss, growing inequality, financial instability, eroding democracy – have been known for decades. However, the solutions have also been known for just as long. So why have we not made faster progress? What is holding us back?

The premise of this book is that a key reason for this slow progress is our ongoing societal addiction to the current “growth at all costs” economic paradigm and its many subtle (and not so subtle) manifestations. While economic growth has produced many benefits, its side effects are now producing existential problems that are rapidly getting worse. As with individual addicts, simply pointing out the problems with the current system is not only ineffective, but it can also be downright counterproductive. It can lead to denial of the problems and thwarting any movement towards solutions. Sound familiar?

So, what can we do? Perhaps we can learn from what works at the individual level to overcome addictions and apply that to the societal scale. We can also learn from historical examples of societal changes that have overcome (or at least treated) past societal addictions like slavery and tobacco use. We can design a ‘societal therapy’ that can help us overcome the increasingly pernicious addiction to ‘growth at all costs’ and build a more sustainable and desirable future for ourselves, our children and grandchildren, and the planet that sustains us all.

This societal therapy has the following steps.

- 1 **Understanding the addiction** – its history, causes, and modes of operation
- 2 **Acknowledging the addiction** – recognising its harmful effects and motivating action to overcome it.
- 3 **Active therapy** – taking steps that have some chance of helping to break the addiction
- 4 **Constant adaptive vigilance and support** – to prevent relapses and continue progress towards the goal.

The first of these steps benefits from a wealth of accumulated knowledge about how the current economic system functions, how it came to function this way,

and the problems with continuing the current system. While this information is well known, it is not as widely shared as it should be and is not usually presented in an integrated way. The first chapter focus on synthesising and summarising this understanding to set the stage for the therapy to come. It is the clinician's diagnosis of the problem.

The second step is about broad recognition of the problems with the current state of society. Recognition of the magnitude of our societal problems is rapidly growing but is still not universally shared or acknowledged. In individual addicts this recognition often requires a crisis – an event so bad that it drives the addict to rock bottom and forces recognition of the problem. That may also be the case for our society. What will it take? The COVID pandemic? The growing climate emergency and increasingly wild weather? Russia's invasion of Ukraine? Another, more severe financial collapse? Civil society revolt? Are the ongoing threats to democracy around the world exemplified by the Trump administration enough of a crisis to force recognition of the problem? Can we now make the transition more smoothly or will it take a bigger crisis or combinations of crises? The second chapter explores these ideas and looks at a few examples from the history of societal collapses and successful transformations as a guide to how the coming transition might (or might not) happen.

The third step is the focus of the book. Building on analogies with 'Motivational Interviewing' – a very effective therapy at the individual scale – a societal therapy based on first building a shared vision of a positive future is elaborated. In fact, this step can also help immensely with the second step. Knowing that there is a better way can often encourage recognition that there is, in fact, a problem. Chapters 3, 4, and 5 flesh out the therapy, both the process and the possible outcomes. The therapy is based on creating a shared vision of how the world works, how we would like the future to be, and how to get from here to there. How do we accelerate cultural evolution in the direction of a more sustainable and desirable future (Costanza 2014)?

The final step is vigilance, support, and ongoing creative adaptation. The last chapter is a description of a world where the therapy has worked, but there is constant possibility for relapse. How do we guard against falling into the same traps and ensure that progress is sustained by maintaining a creative, adaptive approach?

This book is aimed at everyone on Earth. That is not just pretentious hype. It is an expression of the need for everyone to actively participate in creating the new shared vision of a sustainable wellbeing future as a necessary step in the therapy to overcome our shared addiction to growth and get to the future we all want. I hope that this book can help expand the discussion of what that future can look like to include a good fraction of the people on Earth. Then we can create that vision together in an ongoing, adaptive way and work together to achieve it. But, as history (and this book) show, it will not be easy, and we must create and implement a new kind of societal therapy to accomplish it. If we do, we can recover from this addiction and create the world we all want and need.

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1 Understanding the Addiction

Where Are We and How Did We Get Here?

Economics has been incurably growth-oriented and addicted to everybody growing richer, even at the cost of exhaustion of resources and pollution of the environment.

Kenneth E. Boulding (1985)

The first step in dealing with addictions at either the individual or societal scale is understanding how they function and why they have such powerful grips on behaviour. Humanity is in the grips of an ongoing societal addiction to a ‘growth at all costs’ economic paradigm and its many subtle (and not so subtle) manifestations and long-term threats.

This first chapter is a clinical diagnosis of the problem. It synthesises information about how our current global economic system functions, how it came to function this way, and the problems with continuing with the current system. While this information is well known in the scientific and policy communities, it is not as widely shared as it should be with the wider public and generally not presented in an integrated way which can set the stage for the necessary course correction to come. The chapter further describes how we have entered the ‘Anthropocene’ epoch where human activity and the growth at all costs paradigm is changing the climate, altering land use and ecosystems, modifying global water and nutrient cycles, and having many other influences that are far larger than ever before and are leading to looming existential financial, physical, and social crises. It traces the start of the Anthropocene to the beginning of the ‘great acceleration’ around 1950, and the start of the post-WWII economic boom fuelled by cheap oil and the misused goalpost of GDP growth. It explores how GDP growth came to dominate the policy goals of most countries and why the misuse of GDP and consumerism is now best understood as a societal addiction, rather than the path to a better world.

1.1 The Anthropocene and the Great Acceleration

The world has changed dramatically. We no longer live in a world relatively empty of humans and their artifacts and impacts and now live in the ‘Anthropocene’

2 Understanding the Addiction

epoch (Crutzen and Stoermer 2000), in a ‘full world’ where humans are dramatically altering the ecological life-support system (Daly 2005). Our traditional economic concepts and models were developed in a relatively empty world, but if we are to create sustainable prosperity and if we seek “improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities” (UNEP 2011), we need a new vision of the economy and its relationship to the rest of the world that is better adapted to the new conditions we face. We are going to need an economics that respects planetary boundaries (Rockstrom et al. 2009; Steffen et al. 2011), recognises the dependence of human wellbeing on social relations and fairness, and also recognises that the ultimate goal is real, sustainable human wellbeing, not merely growth of material production and consumption. This new economics recognises that the economy is embedded in a society and culture that are themselves embedded in an ecological life-support system (Costanza 1991; Daly and Farley 2010; Costanza et al. 2013), and that a material economy cannot grow forever on this finite planet.

While we are making progress towards this new vision and new economics, that progress has been slow and the world has remained, for the most part, mired in an empty world vision and economics. We are addicted to this system for the same reasons that drug addicts are addicted; the short-term benefits are huge, long-term costs are far off and uncertain, and the effort required to change is intensive and potentially very disruptive.

We can and must change, but it is going to take more than simply pointing out the problems. It is going to take *therapy* at the scale of the whole society. But before getting into the therapy, we must first understand the addiction. How did we get to this point, why is it so dangerous, and what is keeping us from changing?

The term ‘Anthropocene’ was coined by Crutzen and Stoermer (2000) to describe our current Earth system as one highly influenced by human activity. Human activity is changing the climate, altering land use and ecosystems, modifying global water and nutrient cycles, and having many other influences that are far larger than ever before (Rockstrom et al. 2009; Zalasiewicz et al. 2019).

The Anthropocene Working Group (AWG) of the International Commission on Stratigraphy voted on two important questions in May of 2019: “Should the Anthropocene be treated as a formal chrono-stratigraphic unit?” and “Should the primary guide for the base of the Anthropocene be one of the stratigraphic signals around the mid-twentieth century of the Common Era?” They voted yes in both cases with an 88% majority.¹ They place the start of the Anthropocene at around 1950, just after the end of WWII. This point in the evolution of civilisation has also been termed the start of the ‘Great Acceleration’ (Steffen et al. 2015a) – a time of very rapid growth of global population, GDP, CO₂ emissions, and other human impacts at rates significantly faster than at any time in human history (Costanza et al. 2007).

Some have suggested that the Anthropocene should start with the Industrial Revolution in the 18th century, or even with the beginning of agriculture.

But human influence on the functioning of the global Earth system was barely noticeable in terms of major impacts until the start of the great acceleration, and we are now rapidly approaching climate and other potential tipping points as a result of human activity.

Either way, we must ask: What kicked off this great acceleration and can it continue? Do we want it to continue? What are the side effects and costs? The answers go to the state of the world just prior to and during WWII and its immediate aftermath, and the economic ideology and policies that emerged.

1.2 The Great Acceleration and the Economic Growth Paradigm

For over a half century, since just prior to the Anthropocene's official start in 1950, the most widely accepted measure of a country's economic condition (and the great acceleration's most reliable indicator) has been Gross Domestic Product (GDP).² GDP is an estimate of market throughput, adding together all final goods and services that are produced and traded for money within a given year within a country's borders. It is typically measured by adding together a nation's personal consumption expenditures (payments by households for goods and services), government expenditures (public spending on the provision of goods and services, infrastructure, debt payments, etc.), net exports (the value of a country's exports minus the value of imports), and net capital formation (the increase in value of a nation's total stock of monetised capital goods). Since its creation in the 1930s and 1940s, economists who are familiar with GDP have emphasised that GDP is a measure of marketed economic activity only, not economic or social wellbeing. Because GDP measures only monetary transactions related to the production of a limited set of goods and services, it is inherently an incomplete picture of the system within which the human economy operates.

For example, in 1934, Simon Kuznets, the chief architect of the United States national accounting system and GDP, cautioned against equating GDP or its growth with economic or social wellbeing. Kuznets (1934) said: "The welfare of a nation can scarcely be inferred from a measurement of national income as defined by GDP. . . . Goals for 'more' growth should specify of what and for what."

The US Bureau of Economic Analysis's description of GDP states that the purpose of measuring GDP is to answer questions such as 'how fast is the market economy growing', 'what is the pattern of spending on goods and services', 'what percent of the increase in production is due to inflation', and 'how much of the income produced is being used for consumption as opposed to investment or savings'.

To understand how GDP continues to be misused as a scorecard for national wellbeing, it is important to consider history and how the current national accounting system has evolved. When GDP was initially developed in the US³ in the 1930s and 1940s, the world was in the midst of major social and

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economic upheaval from the Great Depression and World War II (WWII). President Roosevelt's government used the statistics to justify policies and budgets aimed at bringing the US out of the depression. As it became more likely that the US would become involved in WWII, there was a concern about whether this would jeopardise the standard of living of US citizens who were just beginning to recover from the depression. GDP estimates were used to show that the economy could provide sufficient supplies for fighting WWII while maintaining adequate production of consumer goods and services (Marcus and Kane 2007). The use of GDP as a measure of economic progress was further strengthened, resulting from an international conference held at the Bretton Woods Resort in New Hampshire in 1944 (Figure 1.1).

A key factor in the outbreak of WWII was economic instability in several countries caused by unstable currency exchange rates and discriminatory trade practices that discouraged international trade. In 1944, to avoid a recurrence, leaders of the 44 allied nations gathered at Bretton Woods, New Hampshire to create a process for international cooperation on trade and currency exchange. The intent of the meeting was to speed economic progress, aid political stability, and foster peace (Pollard 1985).



Figure 1.1 Bretton Woods conference in 1944.

Source: Photo: Associated Press; Photographer: Abe Fox.

The Bretton Woods vision was that international trade would create jobs in all countries. Those jobs would provide income, allowing people everywhere to obtain adequate food, housing, medical care, and other amenities. Improving economic wellbeing was thus seen as key to creating lasting world peace. Growing the market economy was seen as the path to economic (and social) wellbeing.

The key outcomes of the meeting were the establishment of the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (IBRD – now part of the World Bank). The IMF was created as a forum for collaborative management of international monetary exchange and for stabilisation of the exchange rates of countries' currencies. The World Bank was established to provide investment funds for infrastructure reconstruction and development in war-torn areas and less developed nations. In theory, the governing structures of these institutions were supposed to provide an equal voice to all member countries. In practice, because of its political and economic strength following WWII, the US dominated both institutions for the first quarter century. As a result, the US dollar, economy, and economic policies became the de facto standards against which other countries were compared. In addition, the work done by the US and UK Treasuries developing GDP methodologies for analysing economic activity informed much of the discussion at the Bretton Woods meeting. As a result, GDP came to be used by the IMF and the World Bank as the primary measure of economic progress in the ensuing 60 years.

With the restructuring of these institutions in the 1970s, the US has a less dominant position within the World Bank and the IMF. However, GDP remains the most widely cited measure of economic progress. As noted, economists have warned since its introduction that GDP is a specialised tool and treating it as an indicator of general wellbeing is both inaccurate and dangerous. Nevertheless, over the last 70 years, economic growth as measured by GDP has become equated with both economic progress and societal wellbeing. Per capita GDP is frequently used to compare quality of life in different countries. Governments often use changes in GDP as an indicator of the success of economic and fiscal policies. In the US, GDP is “one of the most comprehensive and closely watched economic statistics: it is used by the White House and Congress to prepare the Federal budget, by the Federal Reserve to formulate monetary policy, by Wall Street as an indicator of economic activity, and by the business community to prepare forecasts of economic performance that provide the basis for production, investment, and employment planning” (McCulla and Smith 2007, p. 1). The situation is much the same in most other countries. Internationally, the IMF and the World Bank both use the changes in a country's GDP to guide policies and determine how and which projects are funded around the world.

Today, GDP in particular, and economic growth in general, is regularly referred to by leading economists, politicians, top-level decision-makers, and the media as though it represents overall progress. For example, a report released by the World Bank contended that only long-term high rates of GDP growth

(specifically a doubling of GDP each decade) can solve the world's poverty problem (Deblock and Haji 2008). Essentially, this is like measuring a building's energy use and saying that the more electricity used, the better the quality of life of the building's inhabitants. Electricity use may be essential to having a high-quality building, but beyond a certain point, more is not necessarily better and, in fact, the lower the energy use required to achieve good building performance, the better. Likewise, GDP is a means to the end of societal wellbeing, but true efficiency would be achieving that end with as little GDP as possible.

In presenting GDP to Congress in 1934, Simon Kuznets discussed its uses and limits. After presenting an itemised list of the things measured by the GDP, Kuznets (1934) noted:

The boundaries of a "nation" in "national" income are still to be defined; and a number of other services, in addition to those listed above, might also be considered a proper part of the national economy's end-product.

He went on to list "services of housewives and other members of the family", "relief and charity", "services of owned durable goods", "earnings from odd jobs", and "earnings from illegal pursuits" among others (Kuznets 1934). His stated reasons for excluding these things from the GDP largely boil down to his intent that GDP be a precise, and above all, a specialised tool, designed to measure only a narrow segment of society's activity. This is reflected in his fear that the simplicity of the GDP makes it prone to misuse:

The valuable capacity of the human mind to simplify a complex situation in a compact characterization becomes dangerous when not controlled in terms of definitely stated criteria. With quantitative measurements especially, the definiteness of the result suggests, often misleadingly, a precision and simplicity in the outlines of the object measured. Measurements of national income are subject to this type of illusion and resulting abuse, especially since they deal with matters that are the centre of conflict of opposing social groups where the effectiveness of an argument is often contingent upon oversimplification.

(Kuznets 1934, pp. 5–6)

As noted earlier, GDP measures only monetary transactions related to the production of a limited set of goods and services and is inherently an incomplete picture of the system within which the human economy operates. As a result, GDP not only fails to measure key aspects of quality of life; in many ways, it encourages activities that are counter to long-term individual, community, national, and global wellbeing. Of particular concern is that GDP measurement encourages the depletion of natural resources faster than they can renew themselves, does not include volunteer or household work, and pays no attention to how income is distributed among the population. It also counts many activities as positive simply because money is spent on them. For example, if

there is more air pollution we spend money on increased health care, air filters, etc. and GDP counts those expenditures as positive. But wellbeing would be improved if there were no air pollution and we didn't have to spend money on those 'defensive expenditures', even though GDP would suffer.

Another concern is that current economic activity is degrading ecosystems thereby reducing the services that, until now, have been provided to humans virtually for free. One example is that in GDP terms, clear-cutting a forest for lumber is valued more than the ecosystem services that the forest provides if left uncut. These services – including biodiversity, recreation, habitat, reducing flooding from severe storms, filtration to improve water quality, and the sequestration of carbon dioxide and manufacture of oxygen – are not part of the market economy and as a result are not counted in GDP. As Herman Daly, formerly a senior economist at the World Bank, once commented, “the current national accounting system treats the Earth as a business in liquidation” (Cobb et al. 1995, p. 66). For example, I led a group that estimated (conservatively) that in 1997 the world's ecosystems provided non-marketed benefits valued at an average of US\$33 trillion per year. This was nearly double the total global GDP at the time (Costanza et al. 1997).

Another concern about GDP as a measure of progress is what is known as the 'threshold effect'. As GDP increases, overall quality of life increases, but only up to a point. Beyond this point, increases in GDP often result in no further increases or even decreases in societal wellbeing due to increasing inequality and environmental damage. For example, Kubiszewski et al. (2013) estimated that beyond about \$6,000/capita/yr. the global Genuine Progress Indicator (GPI) reached this threshold (see Chapter 3 for more on this). This is due to the fact that the benefits provided by the increase in expenditures are offset by the costs associated with income inequality, loss of leisure time, and natural capital depletion (Kubiszewski et al. 2013). In fact, an increasingly large and robust body of research confirms that, beyond a certain threshold, further increases in material wellbeing are poor substitutes for community cohesion, healthy relationships, knowledge, wisdom, a sense of purpose, connection with nature and other dimensions of human happiness and wellbeing. A strikingly consistent global trend suggests that as material affluence increases, these critical components of psychic income often decline amidst rising rates of alcoholism, suicide, depression, poor health, crime, divorce, and other social pathologies (McKibben 2007; Wilkinson and Pickett 2010).

In addition, because it averages across populations, GDP also conceals a growing disparity between the haves and have-nots. Income disparity has been linked to a broad range of social problems, including poorer overall health in a country, decreased worker productivity, increased anxiety, and increased social unrest (Wilkinson and Pickett 2010).

A highly unequal distribution of income can be detrimental to economic welfare by increasing crime, reducing worker productivity, and reducing investment. Moreover, when growth is concentrated in the wealthiest

income brackets it counts less towards improving overall economic welfare because the social benefits of increases in conspicuous consumption by the wealthy are less beneficial than increases in spending by those least well off. (Talberth et al. 2007, p. 8)

At the time it was conceived, GDP was a useful tool to help get out of a global depression and for the Allies to win WWII. One could argue that because WWII was a ‘total war’, the Allies could not have won without the ability to mobilise the wartime production that GDP facilitated. After the war GDP became a signpost on the path to a better world: a path where increased marketed economic activity provided jobs, income, and basic amenities to reduce worldwide social conflict and prevent a third world war. But that very economic activity has created a world very different from the one faced by the world leaders who convened at Bretton Woods in 1944. We are now living in a full world overflowing with people and built capital, where the continuing misplaced emphasis on growing GDP and economic activity is leading the world towards increasing social and environmental degradation.

The bottom line is that the massive GDP we can now produce is increasingly going to a select few and is not providing the inclusive wellbeing originally promised. What it is also producing is extensive unintended and under-acknowledged damages to our ecological life support system and our social capital. Yet this vision of the economy as an ever-expanding producer of marketed goods and services, with little consideration of the negative side effects, is still the primary policy goal of almost all countries today. There are a few notable recent exceptions, including the ‘Wellbeing Economy Governments’ (Scotland, Iceland, New Zealand, Finland, and Wales), and Bhutan with its focus on ‘Gross National Happiness’. These will be explored further in Chapters 4 and 5.

It is certainly not because the problems with GDP as a policy goal are unknown – they were known from the very beginning as noted earlier and have received growing attention in recent years (Stiglitz et al. 2010; Fioramonti 2013; Costanza et al. 2014; Philipsen 2015). More on these issues and alternatives to GDP in Chapter 3.

The problem is that GDP and the economic paradigm behind it provide massive positive reinforcement to the current special interests in control, but the benefits are not equitably shared and the unintended damages to the environment and social capital are rapidly mounting and cancelling out the benefits. To change that is going to take more than pointing out the increasingly massive problems on the rapidly approaching horizon. But before getting into the therapy, we must take a closer look at what those problems are and how the current ‘growth at all costs’ economic paradigm is fuelling them.

1.3 Planetary Boundaries and the Looming Climate/ Extinction/Financial Crises

With advances in environmental and Earth system sciences, global remote sensing, and other monitoring systems, a more comprehensive assessment of

local and global environmental deterioration has become possible. Evidence has been accumulating for decades about the accelerating loss of vital rain forests, species extinctions, depletion of ocean fisheries, shortages of freshwater in some areas and increased flooding in others, soil erosion, depletion and pollution of underground aquifers, decreases in quantity and quality of irrigation and drinking water, and growing global pollution of the atmosphere and oceans (even in the polar regions), including global climate disruption by carbon dioxide enrichment and other greenhouse gases. Additionally, the growth of human populations, recently surpassing 7.9 billion, is rapidly crowding out other species before we have begun to understand fully our dependence on species diversity.

Even more fundamentally, our planet's ability to provide an accommodating environment for humanity itself is being challenged by our own activities. The environment – our life-support system – is changing rapidly from the stable Holocene state of the last 12,000 years, during which we developed agriculture, villages, cities, and contemporary civilisations, to an unknown future state in the Anthropocene of significantly different conditions (Costanza et al. 2007).

Since the Industrial Revolution, the human enterprise as measured by GDP has expanded so rapidly that we are now overwhelming the capacity of the Earth system to absorb our wastes and to sustainably provide the ecosystem services we require. As previously discussed, in the period since WWII, the 'great acceleration' of economic development is fundamentally changing the Earth's physical climate, overwhelming its capacity to provide ecosystem services, homogenising its biological diversity, and substantially modifying the global cycles of key elements like nitrogen, carbon, and phosphorus.

One way to address this challenge is to determine 'safe boundaries' based on fundamental characteristics of our planet and to operate within them. 'Boundaries' here mean specific points related to a global-scale environmental process beyond which humanity should not go. Identifying our planet's intrinsic, non-negotiable limits is not easy, but scientists have identified nine areas that are most in need of well-defined planetary boundaries (Rockstrom et al. 2009; Steffen et al. 2011; Steffen et al. 2015b). These nine areas are (1) climate change, (2) biodiversity loss, (3) excess nitrogen and phosphorus production, (4) stratospheric ozone depletion, (5) ocean acidification, (6) global consumption of freshwater, (7) changes in land use, (8) atmospheric aerosol loading, and (9) novel entities (Figure 1.2). Rockström and colleagues estimate that humanity has already transgressed four of these boundaries: climate change, biodiversity loss, land use change, and biogeochemical flows, with several others rapidly approaching the safe boundary. Indeed, the boundary for novel entities was defined in January 2022 and we have also exceeded that (Persson et al. 2022).

The most well-known and broadly discussed of these boundaries is climate change. The dangers associated with allowing global temperature increases to continue are well-known and well-documented (Zhai et al. 2018). I'll not repeat or summarise those dangers here, but only note that they are one unintended by-product of fossil-fuelled economic activity. Like the unintended consequences of drug use, they are in the future and tend to be ignored because of

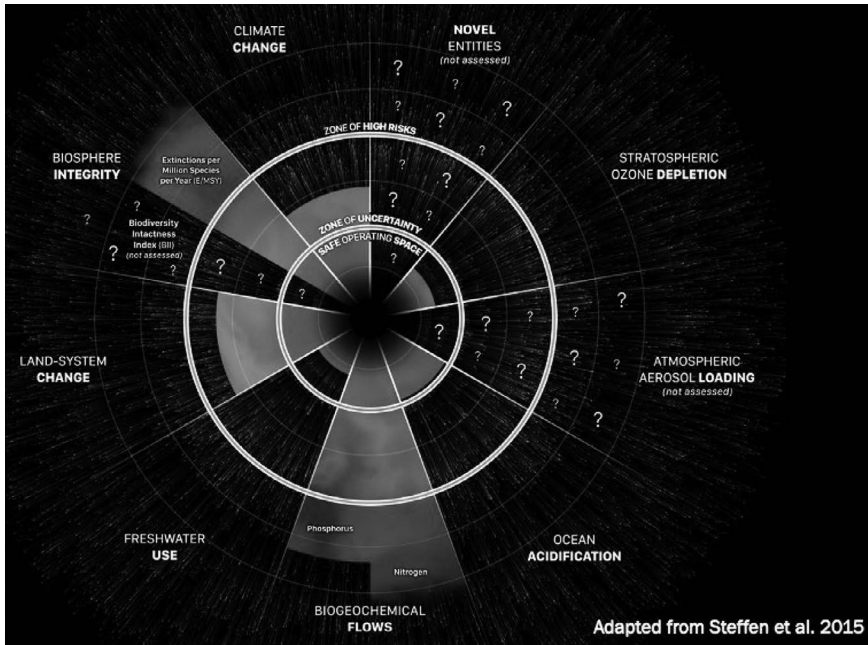


Figure 1.2 Nine global scale boundaries and the 'safe operating space'.

Source: Steffen et al. 2015b.

the short-term benefits of continuing use. The consequences of these climate disruptions are becoming increasingly obvious. Massive heat waves, flooding, droughts, wildfires, and tropical cyclones are happening more frequently and at larger scales in recent years. Like an individual addict that is beginning to appreciate the negative effects of their addiction, this is the first step in recognising the negative effects of our societal addiction to fossil-fuelled economic growth. But, like an individual addict, adequately recognising these negative effects is only the first step. Seeking appropriate therapy is often required to change behaviour.

Some of the other unintended consequences of our current focus on GDP growth at all costs include global biodiversity loss (Ruckelshaus et al. 2020), increasing inequality and community breakdown, and economic and financial instability.

These threats came more into focus when the COVID pandemic hit in 2020. Often, acknowledging an addiction requires a crisis. The COVID pandemic shut down the global economy temporary and provided the opportunity to reassess the growth at all costs economic model considering its limitations and dangers. Can we use this crisis to build back better in a way that truly overcomes our addiction, or will we continue in the old and comfortable, but ultimately destructive, ways?

Experience with overcoming individual addictions shows that the time is now for therapy and the first step in that therapy is building a compelling vision of the kind of future we want as a society.

Notes

- 1 <http://quaternary.stratigraphy.org/working-groups/anthropocene/>.
- 2 The Gross National Product (GNP) is another frequently mentioned measure of economic progress. The difference between GDP and GNP is the production boundaries used. GDP measures all goods and services produced in the country whether by domestic or foreign companies. It excludes goods and services produced in other countries. GNP measures all production by domestic companies regardless of where in the world that production takes place. Because its boundaries coincide with the boundaries used to measure a country's population and employment, GDP is more useful for setting domestic policies and evaluating programmes. To simplify the discussion in this document, the term GDP will be used throughout to refer to the measure of economic activity, although at times in the past, the actual measure used was GNP.
- 3 Work by the US and UK Treasuries in the 1930s and 1940s was the foundation of GDP methodologies. Since then, the work has been expanded on by many nations and has been formalised in the System of National Accounts (SNA) 1993 documentation available at <http://unstats.un.org/unsd/nationalaccount/>.

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2 Acknowledging the Addiction

We Know the Problems – Why Haven't We Solved Them?

Like individuals, societies can get trapped in patterns of behaviour called social traps, or societal addictions, that provide short-term rewards but are detrimental and unsustainable in the long run. Current examples include our societal addiction to fossil fuels, and the 'growth at all costs' economic model. Despite the increasingly obvious warning signs like the increasing impacts of climate change and increasing income inequality, society still has not taken appropriate action. This chapter explores what we can learn from addiction therapy at the individual level to help overcome our current societal addictions before it is too late. It is well known in addiction therapy that it is rarely effective to directly confront addicts concerning the damage they are causing to themselves and to others. Rather than motivating change, such interventions often result in denial. Yet, such a confrontational approach is typical of the strategies used to try to effect change at the societal level, and simply pointing out the dire long-term consequences may make change more difficult. From a psychological perspective, the lack of progress is to be expected if the issues continue to be approached in a confrontational way. At the individual level, a technique known as Motivational Interviewing (MI) has been shown to be very effective. It engages addicts in a non-judgemental way to help them develop a positive vision of a better life that can motivate change. This chapter discusses a societal therapy based on analogies with MI that aims to fully engage our larger society in discussing and sharing alternative futures, and in building consensus on preferred futures to motivate change. It also discusses historical examples of how this approach has successfully catalysed change.

2.1 Lock in, Social Traps, and Societal Addictions

The need for human society to rapidly deal with climate change, limit population and material consumption growth, transition to a renewable energy path, distribute wealth more equitably, and deal with a host of other interrelated problems is widely accepted in the scientific community and increasingly in the policy community (Rockstrom et al. 2009a; Costanza et al. 2014; Steffen et al. 2015). However, as discussed in Chapter 1, movement in this direction has been slow. To many, this lack of movement is hard to understand. Given the

increasingly obvious warning signs, why has society still not taken appropriate action and changed its behaviour accordingly? Much of society seems to still be in denial about the magnitude and urgency of these issues and need for rapid change. There are obvious special interests who most benefit from the current system remaining unchanged, and who are most responsible for this denial. These special interest groups can use their resources to manipulate public opinion, spread false information, discredit science, and maintain the *status quo*.

In this chapter, I draw the analogy between defensive denial at the society level and defensive denial from tobacco, drug, or alcohol addicts when warned about the long-run implications of their behaviour. It is well known in addiction therapy that it is rarely effective to directly confront addicts concerning the damage they are causing to themselves and others. Rather than motivating addicts to change, such interventions often result in a reactive denial on the part of the addict and lack of progress towards overcoming the addiction. Yet, such a confrontational approach is typical of the strategies used to try to effect change at the societal level regarding climate change, overconsumption, overpopulation, inequality, and many other issues. From a psychological perspective, the lack of progress in addressing these issues is to be expected if these topics continue to be approached in a mainly confrontational way. Like with individual addictions, taking a less confrontational approach does not deny the reality of the dire consequences. It merely recognises that knowledge and communication of those dire consequences is often not enough to motivate change and can even have the effect of prolonging the destructive behaviour. Would more progress be made with a different way of framing and discussing the issues that is more analogous with the practices that help people overcome individual addictions?

I first define addiction at the individual level and then explore how entire societies might also be thought of as addicted to specific modes of behaviour, and then consider some characteristics of therapeutic approaches that have been successful for treating addictions at the individual level. I concentrate on one approach (Motivational Interviewing or MI) since this approach seems especially successful at the individual level and may be amenable to scaling up to the societal level. However, a range of approaches may be brought to bear on this problem. Finally, I propose an approach to societal therapy for the problems facing contemporary society and conclude with suggestions for how this approach might be facilitated.

2.2 What Is Addiction and the Individual Scale?

Addiction is typically understood as encompassing several features (Sussman and Sussman 2011; American Psychiatric Association 2013). For example, the most recent edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-V)* (American Psychiatric Association 2013) specifies that people suffering from substance-use disorders often experience a lack of control (manifest in cravings and in failed attempts to quit or regulate intake of the substance),

negative consequences (such as problems in work and relationships), and a failure to quit using the substance despite negative consequences (like physical and psychological problems). Addiction to drugs occurs because short-term rewards provided by the ingestion of the substance have become so powerful and enticing that an addict's life and behaviour becomes increasingly oriented around the substance. Other healthier behaviours then occur less often, and substance use persists even in the face of often dire negative consequences. But this kind of addiction can also occur in groups of individuals or whole societies, not to drugs, but to other kinds of positive short-term rewards that have negative long-term consequences.

2.3 How Can a Society Be Thought of as 'Addicted'?

Unfortunately, many 21st-century social institutions and incentive structures parallel those found in addicted individuals. They do this because the short-term rewards are sometimes so powerful that other, more adaptive actions are diminished or ignored completely. Damaging activities can therefore continue despite overwhelming evidence of longer-term negative consequences. Individuals (or firms, communities, or countries) pursuing their own narrow self-interests in the absence of mechanisms that account for community and global interests frequently run afoul of these more adaptive long-term goals and can often drive themselves and the communities of which they are a part, to far less desirable outcomes.

The inconsistencies of these short-term rewarding goals for individuals and incentives with long-term adaptation for the community have been described many times before. Perhaps the most often cited is Hardin's (1968) classic paper on 'the tragedy of the commons'. Hardin's tragedy is more accurately defined as the tragedy of *open-access* to common resources. As Elinore Ostrom and others have shown, the commons can be managed sustainably and without tragedy if the appropriate social norms, rules, and institutions are put in place (Ostrom 1990; Dietz et al. 2003; Wilson et al. 2013). More on this later.

However, in the absence of these norms, rules, and institutions, 'social traps' or addictions can occur (Beddoe et al. 2009; Carpenter and Brock 2008; Costanza 1987; Cross and Guyer 1980; Platt 1973). Social traps or addictions occur when local or individual incentives that guide short-term behaviour are inconsistent with the overall, longer-term goals of the society or system. Cigarette and drug addiction are examples at the individual level. As has been noted, addicts often know full well the harmful effects of their substance abuse, but they continue due to the positive short-term rewards.

Examples at the societal level include overuse of pesticides, fetishisation of economic growth, over-consumption, privatisation of information, fossil fuel consumption leading to climate change, and overfishing. For example, in an open-access fishery, following the short-run economic incentives leads fishers to exploit the resource to the point of collapse – the cod fishing of the Grand Banks is a notable example (Harris 2013).

It is important to note that not all stable, self-reinforcing states or behaviours of a system are traps or addictions – only those that continue in the face of known long-term problems. For example, at the individual scale eating healthy food is not an addiction but living on a diet high in junk food is, since it is well-known that such a diet leads to obesity and other health problems. Likewise, societies using fossil fuels is not an addiction until it becomes clear that continuing to do so threatens the wellbeing of the society itself.

Social traps, or addictions, are also amenable to experimental research on how individuals behave in trap-like situations and how to avoid and escape these traps (Brockner and Rubin 1985; Costanza and Shrum 1988; Edney and Harper 1978; Rothstein and Uslaner 2005). For example, we looked at how early information and taxes could moderate behaviour in an experimental ‘dollar auction game’ – a well-known social trap discussed further on (Costanza and Shrum 1988). The bottom line is that, in cases where social traps or addictions exist, the system is not inherently sustainable and special steps must be taken to harmonise goals and incentives between local, national, and global scales, and between individual and community scales. In economic jargon, private costs and benefits must reflect social costs and benefits. Local and short-term goals must be made incumbent on and consistent with global and long-term goals and incentives.

There are many ways to do this, but it is worth pointing out that most of this research has been about how *individuals* respond to entrapping rules, incentives, and positive short-term reinforcements. In essence, to remove the trap, one must change the rules and incentives that set the trap in the first place. At the societal level, the problem is how to change the entrapping rules and incentives using the appropriate norms, rules, and institutions, rather than trying to change individual behaviours despite the entrapping rules and incentives.

Rothstein (2005) is one of the few scholars that have attempted a systematic analysis of social traps at the societal level, including their fundamental causes and ways to escape. He defines social traps as conditions when “individuals, groups or organisations are unable to cooperate owing to mutual distrust and lack of social capital, even where cooperation would benefit all” (p. i). The fundamental solution is then to rebuild trust in others and in societal rules, norms, and institutions – in other words, ‘social capital’ (see Chapter 3). It is well known that many societies suffer from low social capital and distrust in others and institutions. For example, Figure 2.1 shows the share of people agreeing with the statement “most people can be trusted” across countries in 2014. Norway leads the list with 74% of people agreeing with this statement, while the US is at 38%, Russia is 27% and Brazil is 7%.

In addition, trust in government has been declining in most countries. For example, Figure 2.2 is a plot of the share of people who trust the US government “always or most of the time” from 1958 to 2015. This peaked in 1964 at 77% and by 2015 it was down to 19%.

Rothstein gives the example of Russia, where a small fraction of the population pays taxes. Why? Because no one trusts that the taxes will be well used by the government, and no one trusts that others will pay their taxes. Not paying taxes

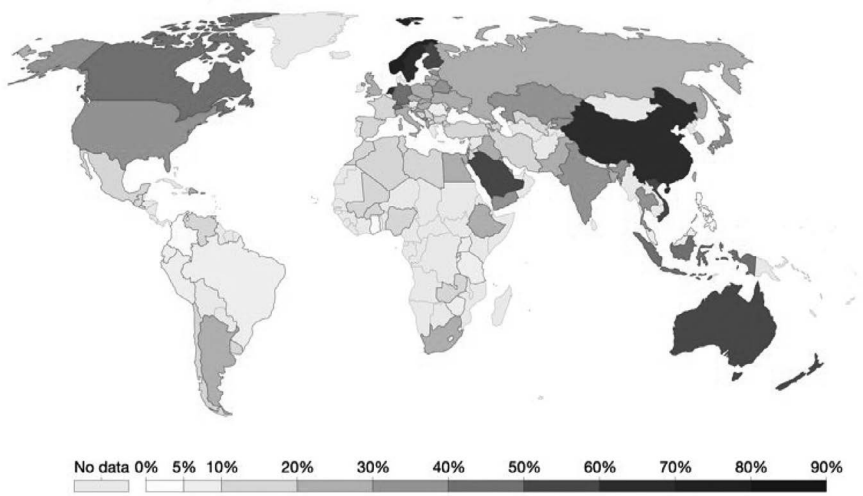


Figure 2.1 Share of people agreeing with the statement “most people can be trusted” in 2014. The survey question was “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?” Possible answers were “Most people can be trusted”, “Don’t know”, and “Can’t be too careful”.



Figure 2.2 Public trust in government in the United States, 1958 to 2015. Share who trust the United States government always or most of the time.



Figure 2.3 The Grand Hotel in Saltsjöbaden, Sweden,¹ where the accords were debated and signed.

Source: <https://grandsaltsjobaden.se/en/>.

and taking bribes is all too common in many countries. But it is a very difficult situation to change. How does one rebuild trust and social capital once it has been depleted? Once a society is in a social trap or addiction, how does it escape?

Rothstein spends quite some time pondering this fundamental question. He gives the example of the Swedish labour market – one of the few historical cases where this rebuilding has been undertaken. But how did it happen? From 1890 until the mid-1930s the Swedish labour market was in a social trap. Labour-management conflicts were intense, ongoing, and often violent. There were ongoing strikes, blockades, boycotts, and lockouts, all of which were costly to both sides. There would be temporary agreements but then the cycle would begin again. After several of these cycles, leadership from both sides realised that: “Given that neither party could expect to eliminate the other as an actor and thereafter unilaterally dictate working and pay conditions, the inevitable result was eventual compromise” (Rothstein 2005, p. 170). Both sides began to wonder whether it might be possible to come to this eventual agreement sooner and forgo the significant costs of conflicts.

The breakthrough came at a meeting in Saltsjöbaden in 1938 between the Swedish trade union confederation (LO) and the Swedish employer’s association

(SAF). The Saltsjöbaden Accords, as they became known, launched an era of consensus and cooperation that has lasted, on and off, until the current time. This consensus was based on a shared vision of how the system could function and how both parties could benefit. It overcame the social trap by co-producing trustworthy rules and norms that both sides could see would be to their long-term benefit.

It is also true that it is not easy to predict individual behaviour in response to different societal incentive structures from simple ‘rational’ models of human behaviour prevalent in conventional economic thinking. The experimental facts indicate the need to develop more realistic models of human behaviour under uncertainty, acknowledging the complexity of real-world decisions and our species’ limited information processing capabilities (Heiner 1983; Kahneman 2011). There is growing academic and government interest in behavioural and experimental economics approaches that seek to understand how people actually behave, rather than how an idealised ‘rational’ individual with access to full information about both the present and the future should behave (Ariely 2009; Pete 2014; Courtney et al. 2014).

2.3.1 Investment Traps

One of the main reasons for the inability to change behaviour even after it has been shown to be counterproductive is what is known as an investment trap. Individuals or companies or governments think they must continue on a course of action because they need to justify the investments they have already made. In fact, these ‘sunk costs’ should often be ignored once it has become clear that continuing the course of action is unwise or even destructive. Do you continue a relationship that is obviously failing because you have invested so much? Do countries continue arms races because they have already made huge investments?

One simple but enlightening model for the study of the escalation process is known as the ‘dollar auction game’. This game is a social trap that was designed specifically to simulate conflict escalation and investment traps (Shubik 1971).

The dollar auction is just like a normal auction except that both the highest and the second highest bidder must pay the auctioneer their bids at the end of the auction, but only the highest bidder gets the prize.

The fact that the second highest bidder has an investment in the process, that will be lost if they drop out of the bidding, leads to quite interesting and unexpected behaviour. It turns out that people will bid well over the obvious value of the prize once they get caught up in the auction. This is a totally irrational long-term result that is the product of rational short-term decisions. How does this happen?

Suppose I offer to auction off \$10 with the following rules

- 1 Both the highest and the second highest bidder must pay me their bids at the end of the auction, but only the highest bidder gets the \$10 prize
- 2 The minimum bid and raise amount is \$1, just to keep things moving

The auction starts off mildly enough with person A bidding \$1. If no one else bids, A would net \$9 – pretty good. But person B raises to \$2. Person C raises to \$3. Then A to \$4. Then C to \$5. Then A to \$6. Now A and C are caught in the trap.

Note that at this point the auctioneer is getting \$11 and only having to pay \$10 to A. Thus, A is still making a net of \$4 on their \$6 bid if they win. But C is losing \$5 and getting nothing. C reasons that if they raise to \$7 they will net \$3 if they win, which is far better than a \$5 loss so they raise to \$7. Of course, A now sees it as totally rational to raise to \$8 to avoid losing their \$6 investment. C raises to \$9, and A raises to \$10. Now A is just breaking even if they win. C can either raise to \$11 and lose \$1 if they win or drop out and lose their current bid of \$9.

C reasons that it is better to lose \$1 than \$9 so they raise to \$11. Now the auctioneer is collecting \$21 (the sum of A's \$10 bid and C's \$11 bid) for a \$10 prize so they are netting \$11. Of course, now A reasons that if they drop out now, they will lose their \$10 investment and if they raise to \$12 they will only lose \$2 if they win. And so it continues to really amazing heights.

Individuals have been known to bid the equivalent of hundreds of dollars on a \$10 prize (Teger 1980). This is obviously irrational, but each step in the bidding is a rational step. The problem is that once someone starts bidding, they are trapped in the game's logic and it is very hard to escape (Costanza and Shrum 1988).

What has not been adequately addressed in the social trap or behavioural economics literature is the question of how to escape these traps once they are set. 'Traps' are obviously best avoided, and strategies that help avoid traps and prevent addictions are preferred. But little has been done to design effective escapes or 'therapies' once a societal trap or addiction has been entered. The Saltsjöbaden Accords, discussed earlier, were one of the rare cases where escape occurred, but formalising the conditions and therapies that made this possible is only now evolving. Fortunately, much *has* been done to help individuals escape their own traps or addictions. Before discussing how to apply these results at the societal level, let's look at one of the most effective therapies at the individual level.

2.4 Motivational Interviewing

One of the most successful treatments for individual addictions is Motivational Interviewing (MI; Miller and Rollnick 2012). Unlike many other forms of therapy, MI is rated by Division 12 (The Society for Clinical Psychology) of the American Psychological Association as having strong research support for mixed addictions.² MI is a therapeutic approach designed as a collaborative conversation aimed at strengthening the client's motivation for change. I focus on MI here because it is explicitly designed to increase motivation for change in situations where people are ambivalent about changing. A comprehensive definition of MI offered by Miller and Rollnick (2012, p. 25) is:

Motivational interviewing is a collaborative, goal-oriented style of communication with particular attention to the language of change. It is designed

to strengthen personal motivation for and commitment to a specific goal by eliciting and exploring the person's own reasons for change within an atmosphere of acceptance and compassion.

MI is a technique that helps clients to explore and resolve sources of ambivalence regarding change and to build intrinsic motivation to change. MI draws from a client-centered tradition (Rogers 1951, 1961), meaning that it is based on principles of warmth, empathy, and an egalitarian relationship between therapist and client that involves reflective listening and questioning. That said, MI is also somewhat directive in that the therapist contributes to identifying workable goals for treatment and to suggesting effective techniques for behavioural change.

MI was first developed in response to Miller's findings in some of his studies that the best predictor of positive therapeutic outcomes was not the form of treatment per se, but the degree of empathy of the therapist. This finding has now been replicated many times and demonstrates that a key element of effective therapy is the 'therapeutic alliance' between the therapist and the client.

Miller and Rollnick (2012) propose four key processes underpinning Motivational Interviewing. As you read through this list, think about how these might relate to therapy for societal addictions.

- 1 *Engaging* is about creating a working alliance between the therapist and client. It necessarily involves building trust and reciprocity. Engaging is the process of establishing a helpful connection and working relationship.
- 2 *Focusing* is about setting an agenda for the engagement. While for some clients, it may be premature to plan specific goals (see later sections), the focusing phase is about helping clients identify their own broad agenda for change in the context of the therapist's expertise. For example, if the therapist thinks that a particular goal is either inappropriate or excessively ambitious, the therapist might express that view. Client and therapist may bring different agendas, but if MI is to work, it is essential that clients are given the freedom to speak about the need for change in their own words and on their own timeframe.
- 3 *Evoking* is the core of Motivational Interviewing – it is where the therapist works with clients to help elicit their own motivation for change. The goal in this process is to watch for and support statements by the client suggesting a desire to change. Evocation refers to an implicit assumption in MI that working with a client's strengths and resources will be more useful than diagnosing deficits: clients already have much of what they need to change, and the task of the therapist is to evoke those change processes. This is a very different approach from a therapist who assumes a knowledge deficit in the client and seeks to fill that knowledge gap.
- 4 *Planning* is about both increasing clients' level of commitment to change and the development of a specific, concrete plan of action for making actual changes.

Some key elements of MI relevant to the current discussion include:

- 1 **MI targets and reinforces ‘change talk’**, where clients spontaneously offer up change-oriented statements, such as reasons or strategies for change. At the societal level, the media in all forms is an obviously critical component of facilitating this change talk. This includes how news is reported, movies, art, social media, etc.
- 2 **MI supports the client’s own autonomy and choice.** While MI therapists can contribute their own perspectives, ultimately clients must be supported in coming to a place where they themselves wish to change behaviour. Like many other therapies, MI relies upon the principle that engaging in a dialogue, not ‘telling’, is essential to evoke change. Practically, MI enacts this principle and supports clients’ autonomy via five key communication skills: *asking open questions, affirming, reflecting, summarising, and providing information and advice with permission.*
- 3 **The essential spirit of MI is partnership.** Ambivalence is a normal part of preparing for change, but it is also a position where a person can remain stuck for some time. When therapists use a directing style rather than a partnership style, and when they argue for change with a person who is ambivalent about changing, the typical result is that the ambivalent person will deny the need to change and argue against changing. *People are more likely to be persuaded by what they hear themselves say than by what their friends, loved ones, or therapists argue for.* MI recognises this and therefore tries to encourage the client to make change statements in the context of a dialogue between equals.
- 4 **MI is strengths and values focused.** Ultimately MI aims to appeal to people’s deepest needs. MI is about setting goals to increase the likelihood of something positive happening rather than to decrease the likelihood of something negative occurring. This is crucial for addictions, since a good deal of addictive behaviour is motivated by seeking to avoid unpleasant experience. For example, a person may drink to diminish the pain of conflict with a loved one or feelings of inadequacy. MI seeks to help people feel able (or self-efficacious) to engage in approach-oriented behaviour. It does this, in part, by trying to foster a capacity to be in the presence of difficult experiences and not engage in a quick fix (i.e., the addictive behaviour), but rather to help the person move in the direction of their own long-term values and goals (i.e., psychological flexibility). Such solutions involve firstly not engaging in the addictive behaviour; and secondly engaging in some alternative, more satisfying (values-wise) behaviour. Such a solution stands in contrast to the life-limiting ways in which people often react to pain, such as by withdrawal or denial (i.e., experiential avoidance), reactions that typically limit the possibilities for positive change.

Other therapies, such as Acceptance and Commitment Therapy (ACT) make the issue of experiential avoidance even more central. ACT is similar to MI in

that it is values-focused, but it has a particular emphasis on developing acceptance and mindfulness in the presence of difficult experiences that may be encountered during change. Such mindfulness may be critical for changes that require some discomfort or some uncertainty as change occurs. The societal changes we need certainly fit into this category. There is good evidence that ACT is also effective in reducing addictive behaviour (Hayes et al. 2004).

5 **Therapists must embody and express acceptance and compassion:**

Dialogue needs to be non-judgemental. Making people feel badly about themselves or punishing them is rarely effective for motivating change. When it is effective, it is rarely so for long, as these types of approaches simply lead to either momentary compliance or to reactance and resistance to change. For example, victim impact processes where offenders are forced to see the harm they have caused are surprisingly ineffective, having, in some cases, been associated with **increased** offending (Wheeler et al. 2002). Acceptance does not mean that the therapist necessarily agrees with or approves of a client's choices, and Millner and Rollnick (2012) highlight the importance of interacting with clients in ways that recognise their worth, empathise with their perspective, support their autonomy, and affirm their strengths and endeavours.

To get a better idea of the fundamental differences between the confrontational and the MI approach, do watch these two YouTube videos, which show application of the two approaches to helping someone feel motivated to quit smoking:

- **Confrontational approach:** www.youtube.com/watch?v=80XyNE89eCs
- **MI approach:** www.youtube.com/watch?v=URiKA7CKtfc

2.5 **Scaling Up From the Individual to the Societal Level**

How might the principles behind MI scale up to a societal level? Societies certainly seem all too ambivalent about changing their current behaviours that result in climate change, etc., even though the scientific consensus is that change is imperative if humanity is to avoid massive problems in the future. However, confronting society with this problem directly, as the scientific and activist communities have often done thus far, often evokes denial and resistance. Drawing on the MI metaphor, it would be more effective to engage society in positive change talk in empathic and supportive ways, focus on shared goals, evoke and motivate positive change, and plan effective pathways to change.

Of course, for this metaphor to be apt, one must ask: Who is the addict and who is the therapist? Society is more than just the sum of individuals, and there are many distinct sub-groups, interest groups, and behavioural outliers within it. Some of these groups are obviously more ambivalent about change than others. Probably the closest analogy is that the scientific and activist communities play

the role of therapist, albeit in principle, to take a more detached view of the implications of current behaviour for the future. Just as a GP would not support a client's goal to continue smoking given the overwhelming evidence of the health costs down the road, there is an overwhelming amount of scientific evidence that changes in societal behaviour are needed. But, as mentioned earlier, how this information is conveyed can make a huge difference in whether the groups of people that are currently ambivalent to change feel motivated to change their behaviours. Part of the problem may be that the scientific and activist communities have not been employing an effective therapy to encourage positive change, leading in some cases to a breakdown of trust with other parts of society. But there is no way to step around the idea that change is needed, and something more analogous to MI might be more effective.

Before going into more detail on how the MI metaphor might be applied to our current societal addictions, let's first have a look at a few historical examples of how societal addictions were overcome or where they were not overcome and led to the collapse of civilisations.

2.6 History: Collapse Is Common, But Social Transformations Are Possible

Many ancient civilisations have collapsed, including Egypt, Mesopotamia, Rome, the Aztec and Inca, and the Maya (Wright 2004; Johnson 2016). We know that there are circumstances in which a society is resilient to perturbations and there are circumstances in which a society is so vulnerable to perturbations that it will be unable to cope (Redman 1999; Schellnhuber et al. 2004; Steffen et al. 2004; Diamond 2006; Costanza et al. 2007). For example, Diamond identifies what he considered to be the 12 most serious environmental problems facing past and future societies, problems that often have led to the collapse of historical societies:

- 1 Loss of habitat and ecosystem services
- 2 Overfishing
- 3 Loss of biodiversity
- 4 Soil erosion and degradation
- 5 Energy limits
- 6 Freshwater limits
- 7 Photosynthetic capacity limits
- 8 Toxic chemicals
- 9 Alien species introductions
- 10 Climate change
- 11 Population growth
- 12 Human consumption levels

More importantly, Diamond and several other authors before him (Tainter 1988; Ponting 1991; Yoffee and Cowgill 1991) emphasise that the interplay

of multiple factors is almost always more critical than any single factor. Societies on the edge become brittle and lose resilience (including the ability to adapt social values to new circumstances), making them more susceptible to the impacts of potential perturbations of several kinds, including climate change, political corruption, war, and terrorism. In addition, what happens to any society is an emergent phenomenon, the result of individual decisions and conflicts in combination with environmental factors.

2.6.1 The Ancient Maya as a Case Study

The ancient Maya provide an example of a complex socioecological system which developed impressively before facing catastrophic reorganisation. At the end of the Classic period the population of the Maya lowlands had reached an order of magnitude larger than the region supports today, with some estimates as high as 10 million people. Following their Late Classic peak, there was a political, social, and economic crisis, and many cities, some supporting up to 100,000 people, were abandoned.

To help understand how the ancient Maya system functioned, and whether it might have been possible to maintain resilience and avoid collapse, an integrated computer simulation model called MayaSim was constructed (Heckbert et al. 2013; Heckbert et al. 2014). Models like these can be used to test hypotheses about whether system-level interventions might have resulted in a different outcome for the simulated society.

The MayaSim model describes how anthropogenic and biophysical processes interacted and changed over time and space over a 600-year time period in the Yucatan peninsula. MayaSim represents individual settlements as ‘agents’ located in a landscape represented as a grid of cells. Settlement agents manage agriculture and forest harvesting over a set of local cells, and establish trade with neighbours, allowing trade networks to emerge. Agents, cells, and networks represent elements of the historical Maya civilisation, including demographics, trade, agriculture, soil degradation, provisioning of ecosystem services, climate variability, hydrology, primary productivity, and forest succession. Simulating these in combination allows patterns to emerge at the landscape level, effectively growing the social-ecological system from the bottom up. The MayaSim model was able to reproduce spatial patterns and timelines mimicking what we know about ancient Maya history, such as the general location of important capital cities, the maximum overall population, and eventual collapse (Figures 2.4 and 2.5). Importantly, it modelled the interaction of natural capital and ecosystem services with climate, economic production, trade, human population, and overall wellbeing. The Maya were subject to periodic drought cycles, shown as dips in total real income in Figure 2.5. During the development period from 0 to around year 450 in the simulation, they were able to recover from these droughts and continue. But eventually declining ecosystem services, increasing population, and an overextended trade network combined with a drought triggered collapse.

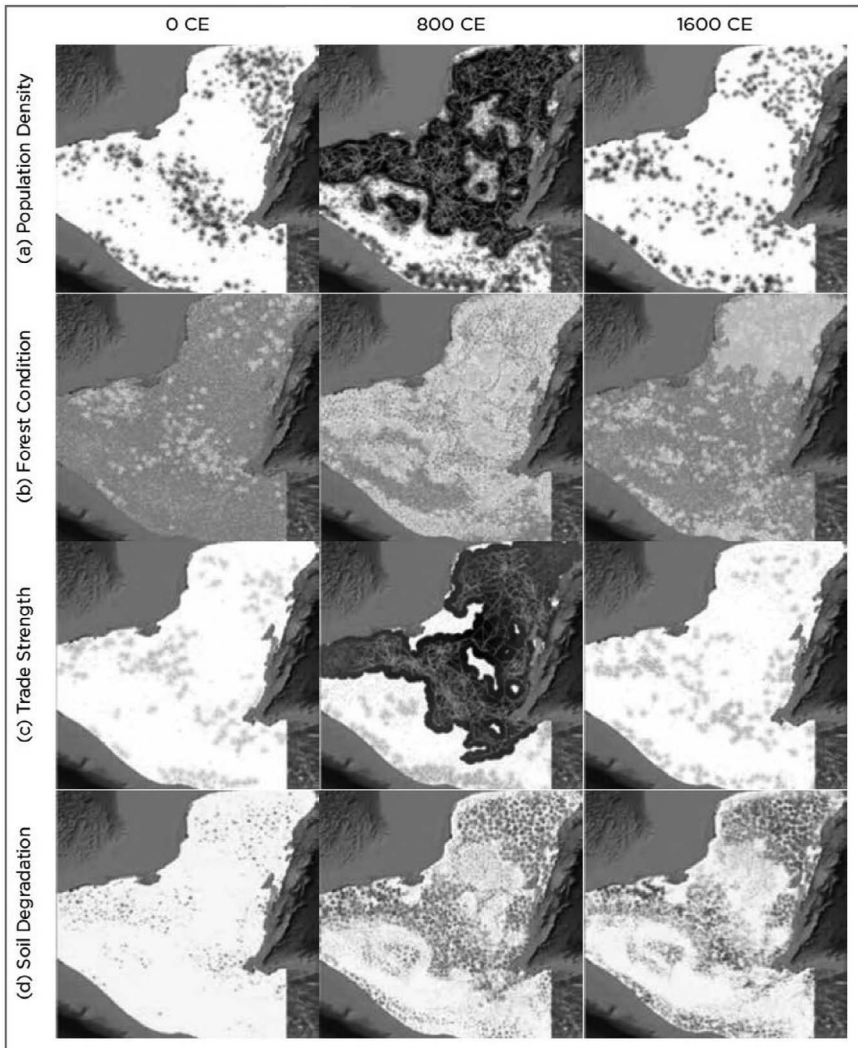


Figure 2.4 Population density, forest condition, settlement trade strength, and soil degradation for the simulated landscape at 800-year intervals. Darker colouring shows increased a) population density, b) forest condition, c) trade strength, and d) soil degradation.

Source: Heckbert et al. 2014.

Was the collapse of the Maya socioecological system inevitable? Given sufficient foresight, could the Maya have avoided collapse and achieved a sustainable outcome? The model was also used to see what interventions might have allowed the Maya to avoid collapse. A scenario in which three interventions

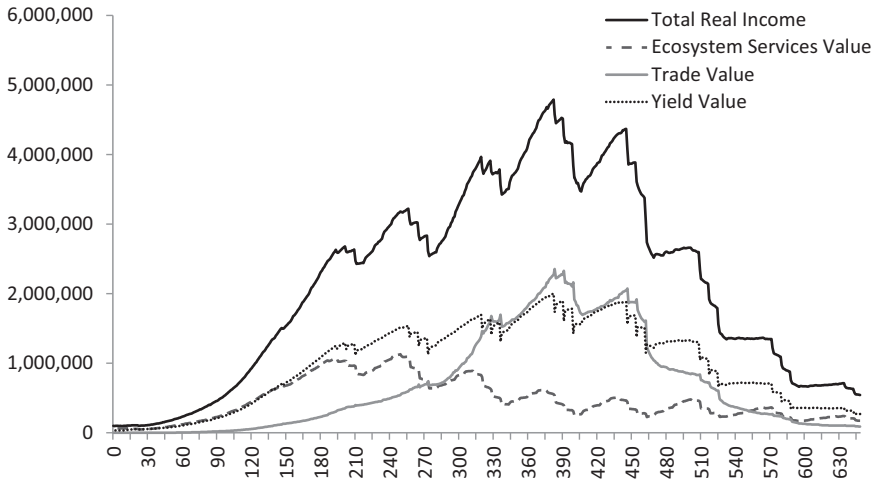


Figure 2.5 Real income of all simulated settlements over time by contributions from agriculture, ecosystem services, and trade value. Ecosystem services is eventually superseded by agriculture, and both by trade around time step year 350.

Source: Heckbert et al. 2014.

are implemented simultaneously (population control, reduced forest harvesting and reduced soil productivity loss) is the only outcome where the collapse is mitigated, and the trade network, real income levels, and population all recovered. A significantly higher real income is also achieved in this scenario, suggesting that multiple interventions can yield win-win solutions, and the more points of intervention available, the more degrees of freedom exist for managing towards a sustainable and desirable society.

What does this mean for our modern society? Like the ancient Maya, the world today is highly interconnected but at a larger global scale. We are pushing GDP growth at all costs, moving us closer to the edge of collapse. We are approaching or exceeding the ‘safe operating space’ for humans (Rockstrom et al. 2009b) and the collapse this time would be global rather than regional.

The coordinated interventions that the Maya needed to avoid collapse would have taken a major shift in their world view and goals. They were as addicted to their system as we are to ours today, the difference is that today we can clearly see the collapse coming. We know the interventions that are needed to overcome our addiction. Can we develop the societal therapies in time?

2.6.2 A Few Successful Examples at the Societal Scale

Alternatively, there are historical examples where societal therapies were implemented and did work. Below are a few examples, including the features of these examples that mirror the MI approach.

2.6.2.1 Gandhi and Overcoming Colonialism

Rather than confront British colonialism in India directly via an armed rebellion, Gandhi famously employed ‘passive, non-violent resistance’. He was able to mobilise a large segment of the population around a shared positive vision of an independent India. He also realised that reforms within the British system would never be enough. Like an addict who realises that ‘cutting back’ will never work, Gandhi knew that a major transformation of the system was necessary. He facilitated a shared vision of the goal (an independent India), broad civic engagement and support, clear tactics, and a positive framing of the intended result. As can be expected with any therapy to a recalcitrant addiction, success did not come overnight, but it did eventually come.

2.6.2.2 Emancipation and the Civil Rights Movement

Slavery had become ingrained in the economic systems of several New World countries, notably the US South. The South was in a very real sense ‘addicted’ to slavery, and all the rules, norms, institutions, and culture surrounding and supporting it. Breaking out of that pattern required a civil war – not the best or most effective kind of therapy. In addition, the addiction to ‘slavery’ did not end with emancipation. The institutions of slavery persisted under different names with the continued segregation of blacks and their relegation to second-class citizen status, and the denial of full voting and other rights. It was not until the Civil Rights movement of the 1960s that the full rights of black Americans were restored. This movement was analogous to MI in its use of empathy, engagement, non-violence, and a focus on positive change with clear goals. Martin Luther King’s famous ‘I have a dream’ speech articulated those goals in a very compelling way. The process was certainly not painless, but the Civil Rights movement ultimately succeeded in achieving most of its goals. However, one can still see the legacy of slavery and racism in US society. Recent events in US politics (i.e., the Trump administration) can be viewed as a partial relapse on the road to recovery. As is often the case with individual addicts, a full recovery from the addiction is tenuous and requires ongoing commitment to the new vision.

2.6.2.3 Cigarette Smoking

Rates of smoking have declined in the United States from over 50% of men and 34% of women in 1965, to just 23.5% of men and 17.9% of women in 2010 (Control and Prevention 2011). Biglan (2015, p. 19) argues that “the tobacco control movement is probably the most significant science-driven behavioural change our culture has ever seen”. A major element of the success of this change was the fact that smoking is clearly measurable and obviously harmful. This meant that goals for change could be clearly stated, and the effectiveness of interventions could be easily assessed against the clear and simple goal of reducing rates of smoking.

Other key elements of the tobacco control movement in the US included public advocacy, good science (e.g., epidemiology identifying incidence and prevalence), good ongoing measurement and reporting, and excellent programmes, policies, and practices designed to both educate and make smoking less attractive than alternatives. In summarising the effectiveness of these interventions, Biglan (2015, p. 134), a noted expert in the tobacco control movement in the US, argued: “I have to confess that policies, public advocacy, and education have been far more important than programs in reducing smoking.” This provides an interesting counterpoint to the other examples of social change mentioned earlier and the problem of reducing societal addiction to consumption and to actions that cause climate disruption. Unlike these more complex situations, smoking is an example where the goals are exceedingly clear, the behaviour change needed is directly under *individual* human control, most of the people engaged in the behaviour are intrinsically motivated to want to change (a large fraction of smokers would prefer not to be smokers), there is strong empathy for smokers (generally speaking) and there is clear and agreed-upon evidence for the need to change. Despite all this, it still took 50 years for smoking rates in the US to halve in the face of tobacco companies seeking to lobby governments and muddy the waters of scientific evidence. Advocacy, policies, and education can work but in the face of determined opposition, it can take a long time.

The analogy with fossil fuels and climate change is clear and often made (Suranovic 2013). Like the tobacco industry, the fossil fuel industry knew of the dangers in using their products, but engaged in ongoing disinformation campaigns and political lobbying to prevent change (Speth 2021). In fact, both industries used many of the same scientists, publicists, and advertising firms to downplay the dangerous impacts of their products (Hulac 2016). Both industries continue to behave like drug dealers concerned only with their own interests by preventing the addiction being recognised and overcome. The health effects of climate change are already being felt, but are still mainly in the future. The obvious analogy would be with a smoker who is beginning to wheeze and cough and knows that they are having a detrimental effect on their own health and longevity but continues to smoke because it is just too hard to quit.

I know from personal experience as a former smoker how easy it is to deny the problems. I also know that even after accepting the problems and wanting to quit, it is far from easy, to say the least. I’m sure I tried every suggestion in the book to help me quit, from a rubber band around my wrist that I could snap whenever I got the urge to smoke to trying to cut down gradually to nicotine gum. What finally worked for me was something like MI. I had a bad flu that lasted a week. During this I had a fevered vision of how much my life would improve without cigarettes. That dream provided the deep motivation I ultimately needed, and I never smoked another cigarette. Likewise, creating a shared vision of a better world is a key step in overcoming our addiction to growth.

2.7 Societal Therapy and Creating Shared Visions

Think of the challenge we face in building a sustainable and desirable future as a design problem. Before construction starts on a major building, a clear blueprint is needed. Otherwise, if workers are allowed to just start putting pieces together on their own without a clear vision of the goal, the result is likely to be ugly and inefficient at best and have a high probability of collapse. On a larger scale, planning and visioning exercises are effective precursors for building sustainable communities and cities. Likewise, creating a *shared* vision of the kind of world we all want is an essential first step in motivating and coordinating the policies and practices to get there. This is an essential lesson that can be learned from the success of MI in overcoming addictions.

To review, MI suggests that there are four basic principles that underlie successful therapies. Applied to a societal context, these basic MI principles can be summarised as:

- 1 **Engaging:** *building relationships with diverse stakeholders to encourage change talk. This must involve truly deliberative discussion, not endless debate.*
- 2 **Focusing:** *building shared goals among those stakeholders. This must be a process that allows stakeholders to participate effectively and fairly.*
- 3 **Evoking:** *helping stakeholders identify motivations for positive change*
- 4 **Planning:** *helping stakeholders move from goals to actual change*

How might these ideas be applied to whole communities and societies to enable them to engage in thinking about their goals and preferred alternative futures in a way that will allow positive change? Next, I discuss in detail one example of a process that may be a good analogy to MI at the societal level. I do not wish to imply that this is the only possible approach to societal therapy. There are a range of methodologies employed in fields like participatory action research and participatory planning that could be brought to bear and ideas about participatory governance, some of which I mention further on.

2.7.1 Community Scenario Planning

Scenario planning (SP) is one technique that could be used at larger community, national, and even global levels to discuss goals, motives, and futures. SP provides an opportunity to discuss and develop consensus (or consent – see Section 5.4) about what social groups want (Peterson et al. 2003). Accurately predicting the future is difficult, if not impossible, for complex socio-ecological systems due to the number of interacting and irreducible uncertainties involved. What people can do is to lay out a series of plausible scenarios that help to better understand future possibilities and the uncertainties surrounding them. Put in terms of MI principles, laying out plausible future scenarios is analogous to encouraging people to engage in change talk. Scenario planning differs from forecasting, projections, and predictions in that it explores plausible possible

futures rather than probable futures, and it lays out the choices facing society in whole systems terms. I hasten to add that SP has only rarely been used to engage the broader public in thinking about alternative futures for the whole community. To be effective as a societal therapy, it needs to be extended and modified to do so. With appropriate extensions to engage the public via, for example, opinion surveys and deliberative polling and dialogues, 'Community Scenario Planning' (CSP) can be seen as incorporating the key MI principles. It first engages participation in a broad discussion of change (plausible futures) and in focusing on shared goals revealed by preferences in deliberative polling surveys for particular futures. CSP can then focus and evoke positive change towards preferred futures and motivate planning for effective change.

Several SP exercises have been conducted at a range of geographic scales and for a range of purposes, including global futures (Costanza 2000b; Nakićenović and Swart 2000; Raskin et al. 2002; Millennium Ecosystem Assessment (MEA) 2005) regional futures (Zhongming et al. 2009; Bohensky et al. 2011), corporate strategy (Wack 1985), political transition (Kahane 2004) and community-based natural resource management (Wollenberg et al. 2000). For example, the carbon emissions scenarios developed by the IPCC (Nakićenović and Swart 2000; Van Vuuren et al. 2014) have been widely used to study their potential impacts on future climates.

One of the most compelling examples of the application of SP was during the transition in South Africa after apartheid. Adam Kahane convened a scenario planning workshop that involved leaders from both white and black political parties (Kahane 2004). They decided as a group to go beyond recriminations and to create together four possible future scenarios for the country (i.e., the MI principle of *engaging* in change talk), only one of which – the 'flight of the flamingos' – envisioned a shared country with everyone rising together with truth and reconciliation (i.e., the MI principle of *focusing* on shared goals). The adoption of this scenario by all parties as the preferred future (i.e., the MI principle of *planning* from goals to actual change) enabled a relatively smooth transition in a situation that could have been much worse had this important consensus about a vision for the country not been reached (i.e., the MI principle of *evoking* positive change).

CSP can be seen as a way to engage the broader public directly in a discussion of shared societal goals, motives, and futures in a way that is very analogous to MI, as discussed earlier. However, to date, as in the South Africa example, scenario planning has largely been used by small groups of planners, policy makers, and strategists, and has yet to be effectively extended to stimulate deliberative discussion of alternative futures and goals among the broader public.

Some small steps in this direction include Costanza (2000a) and Landcare Research Scenarios Working Group (2007) in New Zealand. Both of these studies included limited surveys of opinions and ranking of the scenarios. The results were intriguing. For example, in the Landcare case, respondents were asked which of four scenarios they thought New Zealand was headed towards and which of the four scenarios they preferred for themselves and the

country. There was very little overlap in the results to these two questions. The scenario most respondents said they preferred was ‘Independent Aotearoa’ – a sustainable wellbeing scenario, but the scenario they thought they were headed towards was ‘Fruits for a Few’ – a business as usual scenario with increased inequality.

In a more recent attempt to broaden participation, Costanza et al. (2015) proposed a country-wide survey of scenarios for Australia. They reviewed a broad range of scenarios of the future developed for Australia and globally in a range of participatory processes and developed a synthesis set of four scenarios for Australia. These four synthesis scenarios were structured around two axes: (1) individual vs. community orientation and (2) continued focus on GDP growth or a shift of focus to a broader conception of wellbeing. This created four distinct futures labelled: (1) Free Enterprise; (2) Strong Individualism; (3) Coordinated Action; and (4) Community Wellbeing (Figure 2.6). For each scenario a narrative and other descriptions of the scenario were created. A country-wide opinion survey of the scenarios was carried out in May and June of 2016. Results showed that 71% of a representative sample of over 2000 participants preferred the Community Wellbeing future – the opposite of the emphasis on short-term, individualistic goals that perpetuate our current societal addiction (Chambers et al. 2019). However, respondents also thought the Community Wellbeing future was Australia’s least likely future, with just 17% believing this is where Australia is heading. The most likely future respondents saw for Australia was a continuation of Free Enterprise, which is based on economic growth at the expense of equity and environmental quality. These results showed the significant difference between where Australians felt Australia was heading and where they wanted it to go. Follow-on activities to further engage the public in thinking about the kind of future they really want and sharing their opinions with others is essential to continue the ‘therapy’.

In a related exercise, the Australian Academy of Sciences led the ‘Australia 2050’ project, which embarked on activities to support widespread, inclusive



Figure 2.6 Four alternative future scenarios for Australia used in the public opinion survey.

Source: Chambers et al. 2019.

national conversations on the country's future (see video and reports at www.science.org.au/publications/australia-2050). One of the Australia 2050 events gave participants from diverse sectors of society the opportunity to explore 'growth', 'collapse', 'restraint', and 'transformation' futures (Cork et al. 2015). They were not expected to agree with one another, but instead encouraged to listen with curiosity and respect for others' perspectives in the spirit of MI 'engaging in change talk'.

These kinds of examples point to the kind of societal therapy that might work in a manner analogous to MI. Scenarios, by definition, focus on 'change talk', although skill is required to encourage participants to think beyond business as usual. Well-facilitated scenario processes can help participants to identify aspects of the future they wish to encourage and other aspects they would like to avoid. This can both create a wish to be involved in making the future and generate ideas about how this can be done in partnership with others. CSP processes that encourage empathy, compassion, and acceptance through listening and understanding before debate and action, can help participants see their own strengths and weaknesses and reveal strengths and weaknesses in others that can give participants more hope about co-creating and implementing sustainable and desirable futures.

2.8 Cultural Evolution and Scenario Planning

One famous psychology joke asks, "How many psychologists does it take to change a light bulb? Answer: Only one – but the light bulb has to *really want to change*." This joke indicates the centrality of the idea that in therapy, a therapist cannot force people to change their thoughts, feelings, attitudes, and preferences. So how can we facilitate a process by which a whole society both explores its desires for change and comes to some agreement about what that change should look like?

Recent research on organisations and societies that have shown high capacity to adapt or transform in the face of challenges has revealed the importance of recognising, not only the likelihood of challenges, but also that current approaches to dealing with those challenges might be ineffective (Walker et al. 2004; Folke et al. 2010). Getting a society to accept the reality of challenges like climate change, for example, might not be enough to get everyone to want to change if the people in charge think its institutions and other resources will not be able to cope with the challenge.

It is important to note here the differences between getting individuals within society to change their behaviours and getting society as a whole to change. Society is not just a collection of individuals. It also includes all the formal and informal rules, norms, laws, and institutions that make up the society and culture (i.e., social capital) within which individuals operate and cooperate. Getting people to change their individual behaviours without changing the culture is like swimming upstream against a very strong current. But cultures do evolve and change as new rules, norms, laws, and institutions develop and become widespread. So,

what we are really talking about is how to accelerate cultural evolution in the direction of a more sustainable and desirable future (Costanza 2014).

However, like other evolutionary processes, cultural evolution is prone to path dependence, multiple equilibria, lock-in, traps, and societal addictions (Costanza 1987; Arthur 1988; Costanza et al. 1993). Many historical civilisations have collapsed due to their inability to escape these processes (Tainter 1988; Diamond 2006; Costanza et al. 2007). For example, the ancient Maya, as discussed earlier, developed elaborate trade networks, elites, and cities that lost resilience to recurring drought cycles and eventually collapsed (Diamond 2006; Heckbert et al. 2014). On the other hand, one unique feature of cultural evolution compared to biological evolution is that it is ‘reflexive’, in the sense that goals and foresight can affect the process. As Beddoe et al. (2009, p. 2488) put it:

To a certain extent, we can design the future that we want by creating new cultural variants for evolution to act upon and by modifying the goals that drive cultural selection. If our societal goals shift from maximizing growth of the market economy to maximizing sustainable human well-being, different institutions will be better adapted to achieve these goals. As we learn more about the process of cultural evolution, we can better anticipate the required changes and can more efficiently design new institutional variants for selection to work on.

CSP is one way to do this at the societal level. By constructing a set of plausible alternative future scenarios, the community can see how current choices might play out, without pre-judging the alternatives. One can then ask the equivalent of “How is our current behaviour working?” given the possible consequences that scenario planning can lay out. What is our preferred future and what changes will move us towards that preferred future? CSP, extended to include public opinion surveys about the scenarios, can be seen to embody the four key processes underpinning MI: (1) *Engaging* in a broad discussion of the possibilities for change by developing alternative future scenarios; (2) *focusing* on shared goals by developing preferences for futures with specific qualities; (3) *evoking* and motivating positive change towards preferred futures; and (4) *planning* for actions and policies that could help achieve this future.

As I have stressed, society is more than the sum of individuals and to change societal behaviour we need to change social goals, norms, rules, incentives, etc. – that is, culture. Societal therapy is ultimately aimed at doing just that. For example, a carbon tax will be more acceptable in a society that has embraced the goals embedded in the ‘community wellbeing’ scenario than in one addicted to the ‘free enterprise’ scenario.

2.9 Other Relevant Approaches

I do not mean to imply that scenario planning is the only possible therapy at the societal level. The climate change adaptation research community and other

research communities involved in tackling common pool resource and sustainability issues are increasingly drawing on participatory approaches that emphasise inclusive, respectful listening aimed at eliciting values and goals, exploring potential change and co-developing plans for change without prescribing pre-determined solutions. These include adaptation pathways approaches (Fazey et al. 2010; Wise et al. 2014), approaches for assessing social-ecological resilience (Walker and Salt 2012), and calls for wise stewardship of Earth's ecosystems (Fischer et al. 2012). There are diverse tools and methods for facilitating such inclusive participation. For example, mathematical modelling can be used as a form of consensus building (Costanza and Ruth 1998) and fostering respectful dialogue and engagement with diverse stakeholders using, for example, mediated modelling (Van den Belt 2004), companion modelling (Étienne 2014), or multi-model approaches (Fulton et al. 2015).

Like therapists working with addicts, researchers involved in these approaches perceive that change is beneficial and they choose methods that enable and support change. This is different from researchers seeking to be impartial observers, who see their role as reporting the facts and leaving others to act on those findings. In this way, these approaches require some care to ensure that any decisions to change are owned by the stakeholders and not imposed by the scientist or activist. Just as it is in MI, clients' autonomy must be respected. To quote Miller and Rollnick (2009, p. 131):

MI is not a sleight of hand for end-running, outwitting, or hijacking an individual's motivation. It is about eliciting the person's own inherent arguments for change, not imposing someone else's.

That said, MI is also not about seeking to explore all perspectives, nor does it involve focusing on reasons not to change. The MI agenda is to inspire and foster change, and it is only change talk that is reflected to the client and strengthened: "it makes little sense to intentionally elicit and give equal airtime and attention to the counter-change arguments" (Miller and Rollnick 2009, p. 133).

Like a therapist employing MI with an addict, the researcher/activist has already made a judgement about the benefits of change, but that judgement is not one to be imposed on the client. Rather, researchers/activists seek to build relationships and learning processes that strengthen awareness, autonomy, and well-informed decision-making among diverse stakeholders. Methods to do this include highlighting adaptation pathways that identify options that do not lock in maladaptive futures. Similarly, resilience researchers recognise the inevitability of a changing world, and when asking questions about resilience (e.g., 'resilience of what to what?') they are not seeking to keep everything the same, but instead to work with stakeholders to identify what is valued in their system and what changes stakeholders are prepared to make, including options to adapt or transform their activities.

Perhaps the most important current global change process relevant to this discussion is the United Nations Sustainable Development Goals (United

Nations 2015). These 17 global goals were agreed to by all UN member states in September 2015. They embody an essential recognition that we live in a finite and interconnected world where we must integrate prosperity, equity, and sustainability. They cover poverty, inequality, economy, environment, and more. Taken together they represent a positive global scenario meant to apply to all countries. While the SDGs have been agreed to by all UN member states, converting that agreement into a shared vision among the world's people that can drive change is another matter that will require significant additional work. I suggest that a version of CSP could be useful in this regard. The SDGs represent a vision of a positive future not unlike several others that have been put forward in the context of scenario planning. The 17 SDGs in their present form (with 169 targets and over 300 indicators) have been difficult to communicate to the global public, but a narrative description of the sustainable and desirable SDG vision as one possible future scenario would likely be more compelling to more people. Chapter 4 describes what such a world might look like. Global surveys of people's preferences for the SDG's scenario in contrast to other scenarios would begin the broader engagement and discussion of the future we want among the global population in the spirit of MI.

The point is that there are parallels between MI therapy aimed at fostering change in individuals and a range of approaches that are working to support change in social-ecological systems. These parallels suggest the potential to learn more from MI research experience. Interdisciplinary and transdisciplinary research initiatives aimed at a better understanding of cultural evolution are central to all of these advances in better navigating and designing complex social-ecological futures. There is certainly much room for further development, and consideration of what works at the individual scale that may help to guide cultural evolution in more productive directions.

2.10 Conclusions

MI is successful at the individual level because of its balanced combination of client-catered attitudes and goal-oriented processes. It helps individuals to recognise and articulate what is not working for them in their current behaviour, without being too confrontational or directing. On the other hand, it is also goal-oriented and helps individuals to envision and create more positive futures for themselves.

If an individual does not want to change, then MI would suggest allowing that to be the case and reflecting it back to the person. That is the only way to maintain rapport with the client. This can be followed up with an exploration of whether the person's current behaviour is working well for them and matching their values and goals. As such, if a client says, "I don't want to change," rather than just letting it go at that, the therapist can say "OK, I hear that you don't want to change. I wonder if we could talk about how you see your current behaviour now in the context of your values and goals, so that I can understand why you feel like your current behaviour is working well for you."

That conversation might lead the individual to provide a strong rationale for the status quo, or it might lead the individual to recognise that there are some mismatches between their current behaviours and values. If the latter occurs, it is an excellent opportunity for an MI therapist to help evoke some change talk and begin the process of positive change.

At the societal level, making the transition to a sustainable and desirable future will not be easy and will require a more nuanced conversation and consensus building about societal goals than has so far been the case. In many ways many societies are locked-in, trapped, and in a very real sense ‘addicted’ to the current regime. Growing knowledge of how to overcome individual addictions may help if that knowledge can be scaled up to the societal level. Evidence suggests that directly confronting addicts with their problems in an effort to scare them into changing often leads to denial and reactance and is therefore often counterproductive. Yet this is exactly what many researchers and activists currently do at the societal level regarding issues like climate change, overpopulation, overconsumption, and inequality. Presenting evidence about risks is important, but how that evidence is presented and contrasted with values and positive goals is critical if we hope to change behaviour at either the individual or societal levels.

At the individual level, MI techniques engage with addicts in a non-judgemental way to help them overcome ambivalence and develop a positive vision of a better life that is based in their deepest values. Such a vision can often motivate substantial change. This is what a strategy of what I call Community Scenario Planning (CSP) – scenario planning and envisioning extended to include surveys and broad societal dialogue about alternative futures) – could provide at the societal level. **What is necessary to implement this strategy is to fully engage the larger society in discussing alternative futures and building a broadly shared vision of preferred futures.** Putting future scenarios out to the public in the form of public opinion surveys (Chambers et al. 2019), dialogues, deliberative polling, media events, and other approaches can do this, but this is a largely unexplored area. There is ample room for creative design and testing of a range of societal therapies. Scaling up what works at the individual level may be an important path to more effective societal therapies that will allow humans to build a sustainable and desirable future together.

Notes

- 1 Another significant meeting that occurred at the Grand Hotel was held in 1982. It was an initial meeting of ecologists and economists organised by Ann-Mari and Bengt-Owe Jansson and funded by the Wallenberg foundation (Jansson, A.-M. (1984). *Integration of Economy and Ecology*. Stockholm, Wallenberg Foundation), This meeting and a few other subsequent meetings led to the formation of the International Society for Ecological Economics (ISEE) and the journal *Ecological Economics*, discussed further on.
- 2 See: www.div12.org/psychological-treatments/disorders/mixed-substance-abusedependence/.

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3 Wellbeing Economics

A New Vision of How the World Works and How It Could Be Better

To build a shared vision of the world we all want requires, as a basis, a new understanding of how the world works and what characteristics can lead to the sustainable wellbeing of both humans and the rest of nature. In the Anthropocene, human impacts on ecological life support systems are increasingly complex and far-reaching. At the same time, maintaining equitable living standards in ‘developed’ nations and reducing poverty in ‘developing’ nations places increasing demands on the planet’s physical life support functions. It also requires that we rethink what is meant by ‘development’ in the first place. In this ‘full’ world, the emphasis in research, education, and policy needs to shift from addressing issues in isolation to studying whole, complex, and interconnected systems, and the dynamic interactions between the parts. Incorporating both biophysical and social dynamics makes these problems ‘wickedly complex’ and impossible to address from within the confines of any single discipline. This chapter describes a transdisciplinary approach to understanding and managing our complex world for the better. This approach has been called by many names, including ‘ecological’ or ‘wellbeing’ economics. It is based on an overarching goal of creating sustainable, equitable wellbeing for both humans and the rest of nature, with three broad sub-goals of sustainable scale, fair distribution, and efficient allocation of resources. It is based on a whole system perspective of economies embedded in societies embedded in the rest of nature. The chapter explores and integrates research on the psychology and measurement of wellbeing, Earth system science and planetary boundaries, integrated dynamic modelling of social-ecological systems, valuation and management of our full portfolio of assets (built, human, social, and natural), and measuring progress beyond GDP.

3.1 Beyond the Empty World Model

The current mainstream model of development, sometimes known as the ‘Washington Consensus’, is based on several assumptions about the way the world works, and what the economy is and for. Table 3.1 describes some of the major differences between this model, the ‘green’ economy model, and the ecological or wellbeing economics model.

Table 3.1 Major differences between the current, conventional economic model, the ‘green growth’ economy model, and the ecological or wellbeing economics model.

	<i>Current Economic Model</i>	<i>Green Growth Economy Model</i>	<i>Ecological/Wellbeing Economics Model</i>
Primary policy goal	More: Economic growth in the conventional sense, as measured by GDP. The assumption is that growth will ultimately allow the solution of all other problems. More is always better.	More but with lower environmental impact: GDP growth decoupled from carbon and from other material and energy impacts.	Better: Focus must shift from merely growth to ‘development’ in the real sense of improvement in sustainable human wellbeing, recognising that growth has significant negative by-products. More is not always better.
Primary measure of progress	GDP	Still GDP, but recognising impacts on natural capital.	Index of Sustainable Economic Welfare (ISEW), Genuine Progress Indicator (GPI), or other improved measures of real welfare.
Scale/carrying capacity/role of environment	Not an issue, since markets are assumed to be able to overcome any resource limits via new technology, and substitutes for resources are always available.	Recognised, but assumed to be solvable via decoupling.	A primary concern as a determinant of ecological sustainability. Natural capital and ecosystem services are not infinitely substitutable and real limits exist.
Distribution/poverty	Given lip service, but relegated to ‘politics’ and a ‘trickle-down’ policy: a rising tide lifts all boats.	Recognised as important, assumes greening the economy will reduce poverty via enhanced agriculture and employment in green sectors.	A primary concern, since it directly affects quality of life and social capital and is often exacerbated by growth: a too rapidly rising tide only lifts yachts, while swamping small boats.
Economic efficiency/allocation	The primary concern, but generally including only marketed goods and services (GDP) and market institutions.	Recognised to include natural capital and the need to incorporate the value of natural capital into market incentives.	A primary concern, but including both market and nonmarket goods and services, and effects. Emphasis on the need to incorporate the value of natural and social capital to achieve true allocative efficiency.
Property rights	Emphasis on private property and conventional markets.	Recognition of the need for instruments beyond the market.	Emphasis on a balance of property rights regimes appropriate to the nature and scale of the system, and a linking of rights with responsibilities. Includes larger role for common-property institutions in addition to private and state property.
Role of government	Government intervention to be minimised and replaced with private and market institutions.	Recognition of the need for government intervention to internalise natural capital.	Government plays a central role, including new functions as referee, facilitator, and broker in a new suite of common-asset institutions.
Principles of governance	Laissez-faire market capitalism.	Recognition of the need for government.	Deliberative democracy, Sociocracy, Lisbon principles of sustainable governance.

The assumptions of the mainstream model emerged during a period when the world was still relatively empty of humans and their built infrastructure. Natural resources were abundant, social settlements were sparser, and the quantity and access to built infrastructure represented the main limit on improvements to human wellbeing. It made sense, at that time, not to worry too much about environmental and social ‘externalities’. They could be assumed to be relatively small and ultimately manageable. It made sense to focus on the growth of the market economy, measured in terms of gross domestic product (GDP) as a primary means of improving human wellbeing. It made sense, in that context, to think of the economy as only marketed goods and services, and to think of the goal as increasing the amount of goods and services produced and consumed.

As discussed in Chapter 1, the world has changed dramatically now that we are solidly in the Anthropocene, and we live in a world relatively full of humans and their built infrastructure. Since the end of WWII, the planet has experienced what has been called ‘the great acceleration’ in terms of fossil fuel consumption and the growth of market economies (Steffen et al. 2015a). The human footprint has grown so large that, in many cases, limits on the availability of natural resources and impacts on climate and ecosystems now constrain real improvement in wellbeing more than limits on built infrastructure do. In this new context, we first must remember that the real goal of an economy should be to sustainably improve human wellbeing, and that the quality of human life is interdependent with the quality of all life on the planet. We must remember that material consumption and GDP are merely a means to that end, not ends in themselves. We must recognise, as both ancient wisdom and new psychological research tell us, that material consumption beyond real need can actually reduce wellbeing. Such a reorientation leads us to specific tasks to achieve change. We must identify what really does contribute to human wellbeing and recognise and gauge the substantial contributions of natural and social capital, both of which are coming under increasing stress. We must be able to distinguish between real poverty in terms of low quality of life, and merely low monetary income. Ultimately we have to create a new vision of what the economy is and what it is for, and a new model of development that acknowledges the new full-world context (Costanza 2008).

3.2 The Psychology of Wellbeing: What Is the Economy For?

There is a substantial body of new research on what actually contributes to human wellbeing and quality of life. While there is still much ongoing debate, this new science clearly demonstrates the limits of conventional economic income and consumption in contributing to wellbeing. For example, psychologist Tim Kasser, in *The High Price of Materialism* (Kasser 2002), points out that people who focus on material consumption as a path to wellbeing are actually less satisfied with their lives and even suffer higher rates of both physical and mental illness than those who do not focus so much on material

consumption. Material consumption beyond real need is a form of psychological ‘junk food’ that only satisfies for the moment and ultimately leads to depression, Kasser says.

Economist Richard Easterlin (Easterlin 2003, p. 11182) has shown that wellbeing tends to correlate well with health, level of education, and marital status and shows sharply diminishing returns to income beyond a fairly low threshold. He concludes that:

people make decisions assuming that more income, comfort, and positional goods will make them happier, failing to recognize that hedonic adaptation and social comparison will come into play, raise their aspirations to about the same extent as their actual gains, and leave them feeling no happier than before. As a result, most individuals spend a disproportionate amount of their lives working to make money, and sacrifice family life and health, domains in which aspirations remain fairly constant as actual circumstances change, and where the attainment of one’s goals has a more lasting impact on happiness. Hence, a reallocation of time in favor of family life and health would, on average, increase individual happiness.

British economist Richard Layard synthesises many of these ideas and concludes that current economic policies are not improving wellbeing and happiness and that “happiness should become the goal of policy, and the progress of national happiness should be measured and analyzed as closely as the growth of GNP [Gross National Product]” (Layard 2005, p. 147).

Economist Robert Frank, in his book *Luxury Fever* (Frank 1999), also concludes that some nations would be better off – that is, overall national wellbeing would be higher – if we actually consumed less and spent more time with family and friends, working for our communities, maintaining our physical and mental health, and enjoying nature.

On this last point, there is substantial and growing evidence that natural systems contribute heavily to human wellbeing. In a paper I and my colleagues published in the journal *Nature* (Costanza et al. 1997), the annual, nonmarket value of the Earth’s ecosystem services was estimated to be substantially larger than global GDP. This estimate was admittedly a rough first cut, but the goal of this paper was to stimulate interest and research on the topic of natural capital and ecosystem services. It has certainly had that effect – the paper is one of the most highly cited in the ecology/environment area in the last 25 years and has stimulated a huge amount of discussion, research, and policy follow-up. For example, the UN Millennium Ecosystem Assessment (Millennium Ecosystem Assessment [MEA] 2005) was a global update and compendium of ecosystem services and their contributions to human wellbeing. The Economics of Ecosystems and Biodiversity (TEEB) Synthesis report (Sukhdev and Kumar 2010) was another important contribution to this rapidly increasing field of study and policy. The World Bank had its Wealth Accounting and Valuation of Ecosystem Services (WAVES) project. The Intergovernmental Platform on

Biodiversity and Ecosystem Services (IPBES) was established (www.ipbes.net). Finally, the Ecosystem Services Partnership (ESP) is a global effort to coordinate the thousands of researchers and practitioners around this topic (www.es-partnership.org).

Therefore, if we want to assess the ‘real’ economy – all the things that contribute to real, sustainable, human wellbeing – as opposed to only the ‘market’ economy, we must measure and include the non-marketed contributions to human wellbeing from nature; from family, friends, and other social relationships at many scales; and from health and education. What does such a more comprehensive, integrative definition of wellbeing and quality of life look like?

3.3 An Integrative Definition of Quality of Life and Wellbeing¹

When we evaluate the state of human affairs or propose policies to improve it, we typically proceed from assumptions about the characteristics of a good life and strategies for achieving them. We might suppose, for example, that access to material resources is a part of a good life and, therefore, that increasing economic production per-capita is an appropriate goal. Unfortunately, our underlying assumptions are rarely tested and established. We therefore need a more basic approach to defining wellbeing or quality of life (QOL) that, in turn, can guide our efforts to improve humans’ experience. Examinations of QOL often fall under two headings:

- (1) So-called ‘objective’ indicators of QOL include, for example, indices of economic production (i.e., GDP), literacy rates, life expectancy, and other data that can be gathered without a subjective evaluation being made by the individual being assessed (although, of course, we must acknowledge that subjective judgements of the researcher or statistical offices are involved in the process of defining and gathering ‘objective’ measures as seen in the case, for example, of selecting a proxy for ‘literacy’). Objective indicators may be used singly or in combination to form summary indexes, as in the UN’s Human Development Index (HDI) (United Nations Development Programme 1998), the Index of Sustainable Economic Welfare, or Genuine Progress Indicator. To the extent that such a measure can be shown to be valid and reliable across assessment contexts (admittedly a difficult task), these relatively objective measures may help us gather standardised data that are less vulnerable to social comparison and local adaptation. For example, a valid measure should minimise the degree to which QOL is largely a function of comparing one’s life to others’ in one’s locale, in the media, or some other narrowly construed group; a person’s QOL should not be considered high simply because others in the locale are more miserable.
- (2) Subjective indicators of QOL gain their impetus, in part, from the observation that many objective indicators merely assess the opportunities that individuals have to improve QOL rather than assessing QOL itself. Thus,

economic production may best be seen as a *means* to a potentially (but not necessarily) improved QOL rather than an end in itself. In addition, unlike most objective measures of QOL, subjective measures typically rely on survey or interview tools to gather respondents' own assessments of their lived experiences in the form of self-reports of satisfaction, happiness, wellbeing, or some other near synonym. Rather than presume the importance of various life domains (e.g., life expectancy or material goods), subjective measures can also tap the perceived significance of the domain (or 'need') to the respondent. Diener and Suh provide convincing evidence that subjective indicators are valid measures of what people perceive to be important to their happiness and wellbeing (Diener and Suh 2003). Nevertheless, there are individuals who cannot provide subjective reports or whose subjective reports may not be as trustworthy in reflecting their true welfare because of the internalisation of cultural norms (Nussbaum and Glover 1995), mental illness, lack of information, or other reasons.

What seems best, then, is to attempt an approach to QOL that combines objective and subjective approaches. An integrative definition of QOL is as follows: QOL is the extent to which objective human needs are fulfilled in relation to personal or group perceptions of subjective wellbeing (Figure 3.1). Human needs are basic needs for subsistence, reproduction, security, affection, etc. Subjective WellBeing (SWB) is assessed by individuals' or groups' responses

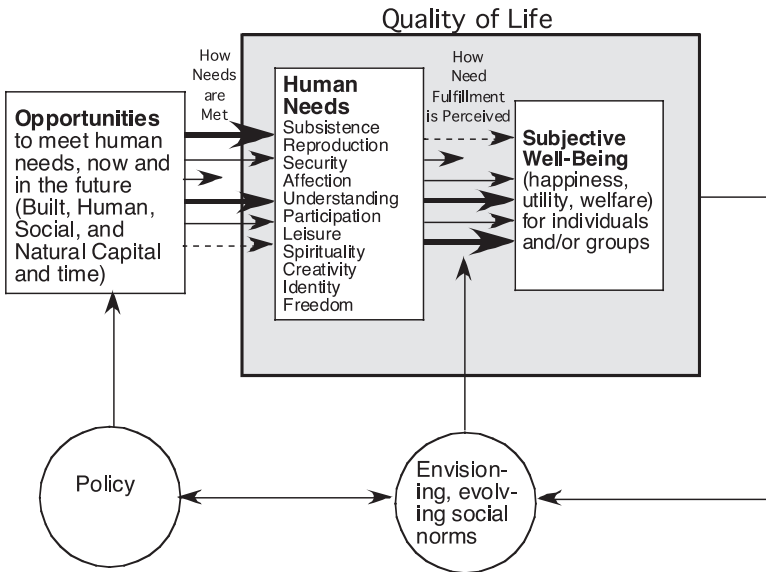


Figure 3.1 Quality of Life (QOL) as the interaction of human needs and the subjective perception of their fulfilment, as mediated by the opportunities available to meet the needs.

Source: Costanza et al. 2007a.

to questions about happiness, life satisfaction, utility, or welfare. The relation between specific human needs and perceived satisfaction with each of them can be affected by mental capacity, cultural context, information, education, temperament, and the like, often in quite complex ways. Moreover, the relation between the fulfilment of human needs and overall subjective wellbeing is affected by the (time-varying) weights individuals, groups, and cultures give to fulfilling each of the human needs relative to the others.

With this definition, the role of policy is to create opportunities for human needs to be met, understanding that there exists a diversity of ways to meet any particular need. Built, human, social, and natural capitals represent one way of categorising those opportunities. Time is also an independent constraint on the achievement of human needs.

Social norms affect both the weights given to various human needs when aggregating them to overall individual or social assessments of SWB, and also policy decisions about social investments in improving opportunities. Social norms evolve over time due to collective population behaviour (Azar 2004). The evolution of social norms can be affected by conscious shared envisioning of preferred states of the world (Costanza 2003).

3.4 The Four Capitals: Measuring and Managing Our Full Portfolio of Assets

One convenient way to summarise the opportunities for meeting human needs is to group them into four basic types of assets or ‘capital’ that are necessary to support the real, human-wellbeing-producing economy: built, human, social, and natural capital (Figure 3.2).

Ecological economists refer to these as ‘capital’ in the sense of a stock or accumulation or heritage – a patrimony received from the past and contributing to the welfare of the present and future. Clearly this use of the term ‘capital’ is much broader than that associated with ‘capitalism’ in the same sense that ‘social’ is much broader than ‘socialism’.

These assets, which overlap and interact in complex ways to produce all human benefits, are generally defined as follows:

- **Natural capital:** The natural environment and its biodiversity. Among other things, natural capital is needed to provide ecosystem goods and services. These goods and services are essential to basic human needs such as survival, climate regulation, habitat for other species, water supply, food, fibre, fuel, recreation, cultural amenities, and the raw materials required for all economic production.
- **Social and cultural capital:** The web of interpersonal connections, social networks, cultural heritage, traditional knowledge, and trust, and the institutional arrangements, rules, norms, and values that facilitate human interactions and cooperation between people. These contribute to social cohesion; strong, vibrant, and secure communities; and good governance,

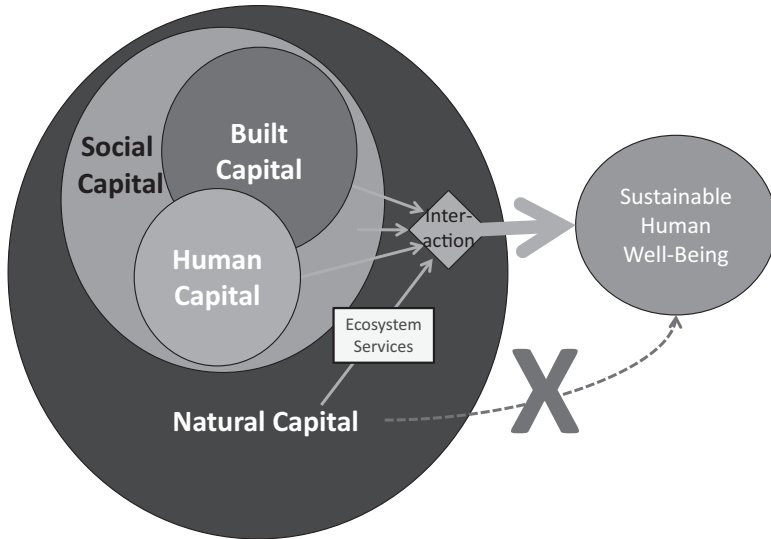


Figure 3.2 Interaction of natural, social, human, and built capital necessary to produce sustainable human wellbeing. Ecosystem services are the relative contribution of natural capital (in combination with the other capitals, not alone) to sustainable wellbeing. These contributions require the other capitals and do not flow directly to human wellbeing as the 'X' on the dotted line indicates.

and help fulfil basic human needs such as participation, affection, and a sense of belonging.

- **Human capital:** Human beings and their attributes, including physical and mental health, knowledge, and other capacities that enable people to be productive members of society. This involves the balanced use of time to fulfil basic human needs such as satisfying employment, spirituality, understanding, skills development, creativity, and freedom.
- **Built capital:** Buildings, machinery, transportation infrastructure, and all other human artifacts and services that fulfil basic human needs such as shelter, subsistence, mobility, and communications.

It is clear that human, social, and built assets depend entirely on the natural world, and that natural capital is therefore not infinitely substitutable. Sustainability therefore requires that we live off the interest (sustainable yields) generated by natural capital without depleting the capital itself.

To think of nature, the biosphere, the Earth as a form of capital is a way of recognising its importance to the economy, an importance that is often overlooked. Ecological and wellbeing economics understands economies as embedded in cultures and societies, which are embedded in the rest of nature. This means that economies rely on the ecosphere to provide materials and

energy and accommodate all the wastes that economic activity inevitably produces. Natural capital is similar to built capital in that it provides goods (e.g., minerals, timber, fish, fossil fuels) and services (e.g., pollination, flood control, climate regulation, recreation) without which economies could not function. But it is quite distinct in other important ways, and they can only be substituted for each other to a limited degree.

The broad array of *services* that ecosystems produce are very valuable to human wellbeing, but do not consume the capital itself. A good example is the recreational, cultural, and aesthetic benefits from forests, which are based on the existence and functioning of the forest ecosystem. These benefits do not require the consumption of forest natural capital, like timber, which is the only thing that ends up in conventional measures of forest benefits like GDP. On the contrary, they require healthy, sustainable, and diverse forest ecosystems.

In speaking of ‘natural capital’ the term ‘capital’ is used in its physical, not financial sense, e.g., a carpenter’s stock of tools or a factory assembly line. A herd of livestock is a capital stock that yields a flow of new members. The physical herd converts grass, water, etc., into new animals. The net increment is income or sustainable yield. The constant herd is capital, reproducing stock. This is a physical stock–flow relation independent of financial arrangements. Indeed, the word ‘capital’ derives from ‘capitas’, the number of heads the herdsman has in his livestock. Similar stock–flow relationships hold for forests, fisheries, and other populations.

But natural capital is also very different from built capital. First, built capital is made from natural capital. In other words, nature can exist without built capital, but built capital cannot exist without natural capital. There is an essential hierarchy limiting the extent to which built capital can substitute for natural capital, and they are better thought of as complements than substitutes.

Second, built capital represents a ‘fund’ that provides a ‘service’, as, for example, a lathe provides a service when it is used to shape wood. The lathe does not end up embodied in the wood. Natural capital can also be a fund that provides services, such as when a forest provides habitat for forest species or recreational benefits or climate control. But natural capital can also be a stock out of which a supply of material flows. Henceforth, the forest that provides habitat as a fund–service is also a stock of trees that supplies a flow of wood (the very wood used on the lathe). Services do not deplete funds. Flows do deplete stocks, which can, however, be regenerated if renewable. Since materials flowing from natural capital are usually sold through markets, and ecosystem services often are not, there is an ever-present tendency to overuse natural capital for the ‘provisioning’ flows it can provide to the detriment of its capacity to provide services (Gisladdottir et al. 2020).

A third and more profound reason for differentiating between natural and built capital is that built capital is simply an object for the benefit of humans. That is why it exists. When built capital no longer provides a useful service, it is demolished. Nature, of which humans are an integral part, is much more than that. Nature is populated by countless species, many of whom are sentient,

experience a range of emotions, learn, and live in communities of their own making. Reverence for all life acknowledges that the rest of nature also has rights and that a fair distribution of resources needs to acknowledge those rights (Hatley 2016).

3.5 Ecosystem Services

‘Ecosystem services’ (ES) are the ecological characteristics, functions, or processes that directly or indirectly contribute to human wellbeing: that is, the benefits that people derive from functioning ecosystems (Costanza et al. 1997; Millennium Ecosystem Assessment (MEA) 2005). This simple and seemingly straightforward definition has been the subject of much debate, so some clarification may be needed. First, it is important to distinguish between ecosystem processes and functions, on the one hand, and ecosystem services on the other. Ecosystem processes and functions contribute to ecosystem services, but they are not synonymous. Instead, they describe biophysical relationships that exist regardless of whether humans benefit. By contrast, ecosystem services are those processes and functions that benefit people, consciously or un-consciously, directly or indirectly. They only exist if they contribute to human wellbeing and cannot be defined independently (Braat 2013). The concept of ‘ecosystem dis-services’ denotes the processes and functions that affect humans in ‘negative’ ways, causing damage and costs (Shapiro and Báldi 2014; Sandbrook and Burgess 2015). However, the connections between ecosystem processes and functions and human wellbeing are complex and the various pathways are still not well understood, so we have to take a pluralistic and precautionary approach to assessing these connections and valuing benefits. There is not one right way to assess and value ecosystem services. There is however, a wrong way – which is to not to do it at all.

Some have argued (Thompson and Barton 1994; McCauley 2006), that the concept of ecosystem services represents a very ‘anthropocentric’, instrumental, or utilitarian view of nature – that nature only exists to ‘service’ humans. Firstly, I do not agree with this simplified view of the concept of ecosystem services. In my view, the notion of ecosystem services implies recognition that humans depend on their services for wellbeing and their very survival on the rest of nature and that *Homo sapiens* is an integral part of the current biosphere. Secondly, these criticisms ignore the fact that humans are a biological species and, like all other species, they ‘use’ the resources in their environment to survive and thrive. Unless we recognise our interdependence with the rest of nature, we are putting our species’ wellbeing at risk, and at the same time blindly endangering global ecosystems. So, rather than implying that humans are the only thing that matters, the concept of ecosystem services makes it clear that the whole system matters, both to humans and to the other entities we are interdependent with. If anything, the ecosystem services concept is a ‘whole system aware’ view of humans embedded in society and embedded in the rest of nature. ‘Centric’ with any prefix doesn’t really describe this complex interdependence.

3.6 Ecologically Sustainable Scale: How Physically Big Can the Economy (and Population) Get?

In the current Anthropocene epoch, we must recognise that humanity and the human economy are embedded within and supported by a finite ecological life support system that is Planet Earth. There are fundamental limits on the size or scale of the human-dominated components of this finite system that can be supported.

The evolution of the human economy has passed from an era in which built capital was the limiting factor in economic development to an era in which remaining natural capital (along with rapidly eroding social capital in some countries) have become the limiting factors. Economic logic tells us that we should maximise the productivity of the scarcest (limiting) factor, as well as try to increase its supply. This means that economic policy should be designed to increase the productivity of natural capital and its total amount through renewal and regeneration, rather than to increase the productivity of built capital and its accumulation, as was appropriate in the past when it was the limiting factor (Lovins et al. 2018).

Given the growing importance of natural capital to sustainable human wellbeing, we have to take both the negative impacts of humanity on natural capital more seriously and recognise the positive contributions of natural capital to sustainable wellbeing more completely. We have to recognise, as Kenneth Boulding did more than 50 years ago, that we are no longer in an era of ‘cowboy economics’ with endless frontiers to grow into, but in the new era of ‘spaceship economics’ where managing our complex planetary craft is now the top priority (Boulding 1966).

So the question becomes: what are the limits to the size or scale of the human material economy within the boundaries of the planet’s life support capacity, and what is the safe operating space for humanity? Several recent studies have tried to answer this question by looking at a range of planetary scale variables and establishing ‘planetary boundaries’ (Rockstrom et al. 2009; Steffen et al. 2015b; Persson et al. 2022).

Figure 1.2 in Chapter 1 showed the nine global scale boundaries that have been identified and where humanity currently sits in relation to the ‘safe operating space’. Biodiversity loss, climate impacts, land system change, nitrogen overuse, and novel entities overproduction are primary risk factors, with other impacts not far behind. Sustainable wellbeing requires that we respect the limits of these boundaries. To do that we have to recognise that the market economy, at least in its physical dimensions, cannot grow forever.

3.7 Fair Distribution: Who Gets What and Why?

How resources and wealth are distributed among participants (including humans and other species) in a complex socio-ecological system is a key element if one is trying to improve the overall health and wellbeing of the system.

As far as building social capital is concerned, the *fairness* of how resources and wealth are distributed is fundamental. Human societies are built on cooperation with non-genetically related individuals and the idea of sharing resources fairly is clearly a part of human behaviour even from infancy.

There is a substantial amount of research using versions of what is called ‘the ultimatum game’ (Güth et al. 1982) to study fairness. In this game one player, *the proposer* has a sum of money that they must split with a second player, *the responder*. If the responder accepts the proposer’s split, they both get their share. If the responder declines the proposed split, neither gets anything.

For example, if the sum were \$100 and the proposer offered \$1 to the responder and if the responder accepted this split, then the proposer would get \$99 and the responder would get \$1. According to the ‘rational consumer’ model of human behaviour, this is an optimal solution. Why would the responder not accept \$1, which is obviously better than \$0?

But in real experiments across a broad range of cultures responders almost never accept this ‘unfair’ split (Oosterbeek et al. 2004). They usually only accept a ‘fair’ split, which is closer to 50:50, and not often outside a 60:40 split. This indicates that humans value fairness in resource allocation and not just receiving any quantity.

These results reflect the fact that humans are not isolated, individual utility maximisers, as the ‘rational consumer’ model of mainstream economics suggests, but are embedded in cultures that rely on cooperation, trust, and social capital to survive and thrive. Fairness is required to build trust and social capital is required to achieve sustainable wellbeing.

So the question becomes: what is fairness and how is it related to equity? According to philosopher John Rawls (Rawls 2009), a fair distribution is not necessarily one where everyone is equal, but one in which everyone agrees to the distribution from behind a ‘veil of ignorance’ about their position in society. Rawls imagines an ‘original position’ where everyone is deciding on the rules of society and how resources are to be distributed, but no one knows where they will fall in the social order. From behind this veil of ignorance, people would design a fair system since it would be in their best interest to do so. For example, slavery would be rejected because behind the veil of ignorance one would not know if they would be a slave or a slave owner.

This type of reasoning has been shown to favour decisions that are more equitable and that improve the common good (Huang et al. 2019). In other words, a Rawlsian approach to fairness encourages a more equitable distribution of resources and wealth, fosters trust, and builds social capital.

In the post-WWII period from 1945 to the late 1970s, income inequality was decreasing in most ‘developed’ economies. This was due to strong welfare state legislation, high marginal tax rates (up to 90% for the top marginal rate in the US), and an economic philosophy that saw government’s role as actively redistributing resources to increase wellbeing. That changed with the election of Ronald Reagan in the US and Margaret Thatcher in the UK, and the shift to neo-liberal economic policies that lowered taxes on the rich, dismantled the

welfare state, and exacerbated income inequality. Since 1980 income inequality has been increasing in economies that have adopted these policies. Fairness and social capital have suffered, and one result is the increasing political polarisation in many countries.

A wellbeing economy requires strong social capital, and a fair distribution is essential. This implies a much more equitable distribution than we have now in most countries, and the situation is getting worse. Our methods of (mis) measuring social progress focused on GDP take no account of distribution or fairness and the single-minded pursuit of GDP is having the unintended side effect of increasing inequality and decreasing societal wellbeing, as discussed in the following sections.

3.8 Efficient Allocation: How Do We Make the Most of What We Have?

A final class of problems with the current system is how resources are allocated. One popular definition of economics is “the allocation of scarce resources to meet desirable ends”. The conventional, neo-classical approach to economics focuses on the allocation part of this definition but misses the boat on increasing knowledge about what resources are now becoming scarce and what ends are desirable.

In the conventional view, *allocation* refers to the relative division of the resource flow among alternative product uses – how much goes to production of cars, shoes, cell phones, and so on. A good allocation, in this view, is one that is *efficient*, that is, one that allocates scarce resources among product end-users in conformity with individual preferences as weighted by the ability of individuals to pay. The policy instrument that brings about an efficient allocation is relative prices determined by supply and demand in competitive markets.

One major problem with this view is that it relies on competitive markets to solve the allocation problem and to do so efficiently. This might work if all markets were truly competitive (i.e., no monopolies), if there were no externalities (costs or benefits that are not included in the market price), and if fairness and sustainable scale were not issues, among a host of other ‘market failures’ (Stiglitz 1989). In addition, under this view individual preferences are taken as fixed and given and are the main standard of efficiency. The job of the economy is simply to satisfy current individual preferences as efficiently as possible, without regard to how those preferences came to be, how they are changing, or how they relate to the preferences of the community, nation, or planet (Norton et al. 1998).

The conventional approach to allocation leaves much to be desired. Given the prevalence of externalities and other market failures, it cannot be claimed that the current system is anywhere close to being efficient. Among the major current externalities are the massive non-marketed contributions of natural and social capital to wellbeing. We cannot hope to have an efficient allocation of

resources unless and until these contributions are adequately taken into account and valued. Let me be perfectly clear that this *does not* mean that natural and social capital should be privatised and incorporated into the market. It does mean that the market alone cannot efficiently allocate resources in today's full world where natural and social capital are increasingly scarce, contribute heavily to the 'desirable ends' of the economy, and are largely non-rival and non-excludable public goods. We need new institutions (e.g., common asset trusts discussed in Chapter 5), to adequately take the value of natural and social capital into account, working in parallel with well-regulated markets and appropriate economic incentives in order to efficiently allocate resources. We also need a broader consensus on what the 'desirable ends' of the economy are. These desirable ends include fairness and sustainability, not just efficiency. Only then can we have an economy that truly lives up to what should be its intended purpose – *an economy that can provide for the sustainable wellbeing of humans and the rest of nature.*

3.9 Measuring Success: Beyond GDP to Sustainable Wellbeing

Given that the goals of a wellbeing economy should include true efficiency, fairness, and sustainable scale, how do we measure overall progress towards those goals? As discussed in Chapter 1, GDP only measures market activity and is not a good guide if our goal is sustainable wellbeing. But societies are addicted to GDP growth as a result of years of uncritical focus on the short-term benefits to an increasingly small elite while ignoring its massive and growing negative side effects. Uncritical growth in material production and consumption is only one means to the end of sustainable wellbeing, and this short-term fix, while seductive like drugs or alcohol, is ultimately destructive.

Former U.S. Attorney General Robert F. Kennedy once said that a country's gross domestic product (GDP) measures everything, "except that which makes life worthwhile". As discussed in Chapter 1, the metric was developed in the 1930s and 1940s amidst upheaval from the Great Depression and global war. Even before the UN began requiring countries to collect data to report national GDP, Simon Kuznets, the metric's chief architect, had warned against equating its growth with wellbeing. As Kuznets said: "The welfare of a nation can scarcely be inferred from a measurement of national income as defined by GDP. . . . Goals for 'more' growth should specify of what and for what."

GDP measures mainly market transactions. It ignores social costs, environmental impacts, and income inequality. If a business used GDP-style accounting, it would aim to maximise gross revenue even at the expense of profitability, efficiency, sustainability, or flexibility. That is hardly smart or sustainable. Yet, since the end of WWII, growing GDP has remained the primary national policy goal in almost every nation (van den Bergh 2009). In addition, GDP only measures *income*, not *wellbeing*. Income is one contributor to wellbeing, but it is certainly not the only one, as discussed earlier.

Meanwhile, researchers have gotten much better at measuring what actually does make life worthwhile. The environmental and social effects of GDP growth can be estimated, as can the impacts of income inequality (Kubiszewski et al. 2013). As discussed earlier in this chapter, the psychology of human wellbeing can now be surveyed comprehensively and quantitatively. A plethora of experiments have produced alternative measures of progress. Table 3.2 lists a few of the alternative measures of national wellbeing that have been proposed. They range from those that adjust and enhance GDP to include natural and social capital, like the Genuine Progress Indicator discussed further on, to surveys of life satisfaction (like the World Values Survey and Bhutan's Gross National Happiness), to indices constructed from a range of diverse indicators like the OECD Better Life Index. These are discussed in more detail further on.

The chance to dethrone the GDP is now in sight. In 2015, the United Nations announced the Sustainable Development Goals (SDGs), a set of international objectives to improve global wellbeing. Developing integrated measures of progress attached to these goals offers the global community the opportunity to define what sustainable wellbeing means, how to measure it, and how to achieve it. Missing this opportunity would condone growing inequality and the continued destruction of the natural capital upon which all life on the planet depends. It is important to note that while the SDGs represent a much broader description of shared societal goals, they still include Goal #8 – Decent Work and Economic Growth. I think this should be modified to 'fulfilling work and economic *prosperity*' which may or may not include GDP growth. The existing wording and the targets and indicators behind it show the continuing addiction to GDP.

When it was instituted more than seven decades ago, GDP *was* a relevant signpost of progress. Increased marketed economic activity provided employment, income, and amenities to reduce social conflict and prevent another world war.

However, the world today is very different from the one faced by global leaders who met to plan the post-war economy at Bretton Woods in 1944 and placed the GDP on its throne. As John Kenneth Galbraith once observed, "to furnish a barren room is one thing. To continue to crowd in furniture until the foundation buckles is quite another." The emphasis on GDP in developed countries now fuels social and environmental instability. It also blinds developing countries to possibilities for more sustainable models of development. Soaring economic activity has depleted natural resources (Ragnarsdóttir et al. 2012; Sverdrup et al. 2013), and much of the wealth generated has been unequally distributed, leading to a host of social problems (Wilkinson and Pickett 2010, 2018). John Stuart Mill noted more than two hundred years ago that, once assured decent living standards, human efforts should be directed to the pursuit of social and moral progress and the increase of leisure, not the competitive struggle for material wealth.

The limits of GDP are clear. For example, increased crime rates don't raise living standards, but they can lift GDP by raising expenditures on security systems. Or, despite the destruction they wrought, the Gulf Oil Spill in 2010 and Hurricane Sandy in 2012 both boosted US GDP because they stimulated rebuilding and clean-up operations.

Table 3.2 Some alternative national indicators of welfare and wellbeing divided into three broad groups: modifications to GDP or other economic accounts (light grey), surveys of life satisfaction (dark grey), and weighted composite indices.

<i>Indicator</i>	<i>Units</i>	<i>Number of Indicators</i>	<i>Explanation</i>	<i>Area coverage</i>	<i>Time</i>
Genuine Progress Indicator (GPI)	\$	26	Personal Consumption Expenditures weighted by income distribution, with volunteer and household work added and environmental and social costs subtracted.	17 countries + regions	1950–present
Genuine Savings	\$	5	Level of saving after depreciation of produced capital; investments in human capital; depletion of minerals/energy/forests; and damages from air pollutants are accounted for	140 countries	1970–2008
Inclusive Wealth	\$	8	Asset wealth including, built, human, and natural resources	20 countries	1990–2008
Australian Unity Wellbeing Index	Index #	14	Annual survey of various aspects of wellbeing and quality of life	Australia	2001–present
World Values Survey	Index #	100's	Periodic (5 so far) survey of a broad range of social, environmental, and economic variables	73 countries	1981–2008
Gallup–Healthways Wellbeing Index	Index #	39	Annual survey in six domains: live evaluation, physical health, emotional health, healthy behaviour, work environment, and basic assets	50 states in US	2008–present
Gross National Happiness	Index #	33	In-person survey in nine domains: psychological wellbeing, standard of living, governance, health, education, community vitality, cultural diversity, time use, ecological diversity	Bhutan	2010
Human Development Index (HDI)	Index #	4	Index of GDP/person, spending on health and education, and life expectancy	177 countries	1980–present
Happy Planet Index	Index #	3	HPI = subjective wellbeing * life expectancy/ecological footprint	153 countries	3 yrs
Canadian Index of Wellbeing	Index #	80	Includes community vitality, democratic engagement, education, environment, population, leisure, living standards, and time use	Canada	1994–present
National Wellbeing Index	Index #	5	Proxies for built, human, natural and social capital with weights based on regression with subjective wellbeing	56 countries	1 yr
OECD Better Life Index	Index #	25	Includes housing, income, jobs community education, environment, civic engagement, health, life satisfaction, safety, and work–life balance	36 OECD countries	1 yr
Well-Being of Nations	Index #	63	63 indicators in 20 domains weighted and ranked	180 countries	1990–2000
Sustainable Society Index	Index #	22	22 indicators in 5 domains ranked with various weightings	150 countries	2 yrs
Ecological Footprint	global hc/person	5	Area of productive land and water required to support current lifestyle	153 countries	1960–present

As noted earlier, we have been aware of these issues for decades, and yet we continue towards an unsustainable and undesirable future due to our addiction to the current system with a perpetual growth mantra.

3.10 Why Are We Stuck?

There is broad agreement that global society should strive for a high quality of life that is equitably shared, and sustainable. Elite groups of scholars from French President Nicholas Sarkozy's 2008 Commission on the Measurement of Economic Performance and Social Progress (Stiglitz et al. 2010) to a 2009 report from the Pardee Center for the Study of the Longer-Range Future (Costanza et al. 2009) to the ongoing European Commission's Beyond GDP initiative² – have all concluded that growing GDP is dangerously inadequate as a measure of that goal. That conclusion was also echoed in “The future we want”, the declaration of the 2012 Rio+20 UN Conference on Sustainable Development, which was agreed to by all UN member states.

Nonetheless, GDP remains entrenched in our ways of thinking about national policy (van den Bergh 2009). Vested interests are partly responsible, and the siloed education system is another. Former U.S. President Bill Clinton's small move towards a ‘green GDP’ was killed by the coal industry. However, much of the problem is that no alternative stands out as a clear successor with adequately broad support.

It is often said that you get what you measure. Building the future we desire requires that we measure what we want, remembering that it is better to be approximately right than precisely wrong. Creating the successor to GDP will require a sustained, transdisciplinary effort to integrate metrics and build consensus. One potential vehicle for doing this is the ongoing UN Sustainable Development Goals (SDGs) process.

3.11 The SDGs and Sustainable Wellbeing

The UN Sustainable Development Goals (SDGs), agreed to by all UN member states in the UN 2030 Agenda for Sustainable Development (United Nations 2015), are a major step forward and improvement on the previous Millennium Development Goals (MDGs). They address some of the systemic barriers to sustainable development and contain better coverage of, and balance between, the three dimensions of sustainable development – social, economic, and environmental – and their institutional/governance aspects. In addition, the SDGs apply to all countries, not just ‘developing’ nations, as the MDGs did. The SDG process provides an opportunity to trigger systemic change to build a sustainable future in an increasingly interconnected world. However, with 17 goals, 169 targets, and over 300 indicators, the SDGs provide diluted guidance at best. This is to be expected, given the complex political process that led to the SDGs.

Along with their targets and indicators, the SDGs provide a detailed dashboard for the transition to sustainable development. Some would argue that a

dashboard approach is sufficient and the only feasible option. But dashboards and aggregate indicators are *not* mutually exclusive – in fact they are both essential. For example, having a well-instrumented dashboard in your car is essential, but so is knowing where you are going and whether you are making progress towards your destination. As baseball star Yogi Berra once quipped: “if you don’t know where you’re going, you end up somewhere else.” We must first decide where we are going – our overarching goal – in order to measure progress towards it. The 17 proposed SDGs are best seen as sub-goals or means to this larger end (Figure 3.4). We should certainly not throw out the dashboard, but merely recognise that *both* the dashboard and aggregated indicators of overall progress towards our shared goal are necessary if we hope to achieve our goals. The SDGs need an overarching goal with clear metrics of progress towards that goal that are geared to integrate the sub-goals (Costanza et al. 2014a).

The SDG process so far has merely opened the door. There is still much additional work needed to elaborate (1) the complex interconnections between the goals; (2) the means-ends continuum towards an overarching goal; and (3) a ‘narrative of change’ to describe the societal shifts and policy reforms necessary to achieve the SDGs and how this could actually happen within existing socioeconomic and geopolitical circumstances (Costanza 2014; Ostrom 2014).

Currently the SDGs are only lists of goals with isolated indicators. But the SDG process can and should be expanded to include comprehensive and integrated measures of sustainable wellbeing (Griggs et al. 2013). The expansion should also assess how various interconnected indicators contribute to this overall goal (Figure 3.3).

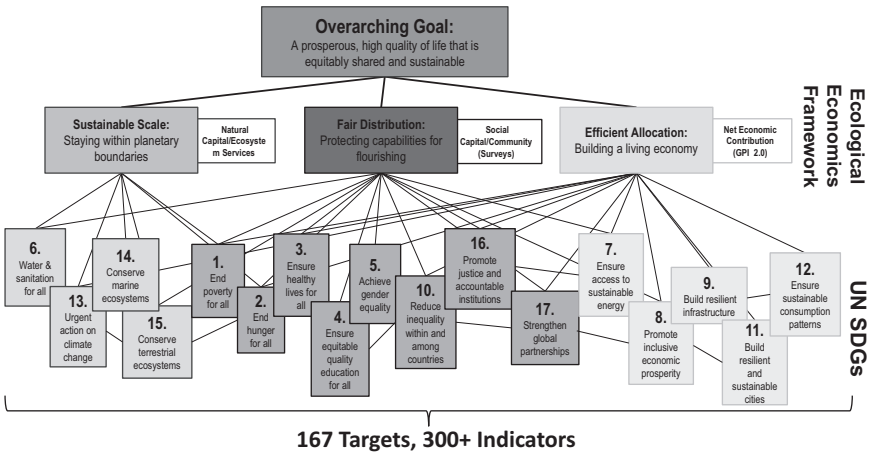


Figure 3.3 The relationship of the 17 UN Sustainable Development Goals (SDGs) to each other, to the framework of ecological economics, and to the overarching goal of a sustainable, equitable and prosperous system of humans embedded in the rest of nature.

Source: Costanza et al. 2016.

There are certainly significant barriers to doing this, including vested interests, bureaucratic inertia, and the tendency of governments, academia, and other groups to work in isolation. But these barriers and the societal addiction they perpetrate can be overcome with dedicated leadership and the development of a shared vision of what a positive SDG wellbeing future could look like (see Chapter 4 for more on this). Crucially, people can now communicate across the globe with an ease unthinkable in the days of Bretton Woods.

Any ‘top down’ process must be supplemented with a ‘bottom up’ engagement of civil society that includes city and regional governments, NGOs, business, and other parties.

Now is the time for GDP to abdicate its reign as the primary measure of national progress. The successor should be a new set of metrics that integrates what we now know about how ecology, economics, psychology, and sociology collectively contribute to understanding and measuring sustainable wellbeing. The new metrics must also garner broad support.

3.12 There Are Alternatives

There have been many alternative approaches to aggregate indicators of societal wellbeing and progress developed over the years (Table 3.1). Three basic approaches have been used in developing these indicators (Costanza et al. 2014b) as outlined in the following sections.

3.12.1 Consumption, Production, and Wealth-based Indicators

Conventional measures of national progress, like GDP, are based on production and consumption of goods and services exchanged in markets (with the odd imputed value). GDP was never designed as a measure of societal wellbeing, but a popular assumption, derived from utilitarian philosophy, is that all else being equal, more consumption leads to higher wellbeing and that therefore GDP/capita can be used as a proxy for national wellbeing. This assumption has been challenged for decades and problems with using GDP as an indicator of national wellbeing are well known (Stiglitz et al. 2009; Fioramonti 2013b; Fleurbaey and Blanchet 2013; Costanza et al. 2014b).

For example, UNDP (1996) identified five types of negative GDP growth: (1) *jobless growth* (the economy gets bigger with more buying and selling of goods and services, but without creating more jobs); (2) *voiceless growth* (an apparently successful economy rides on the back of the suppression of civil rights, union membership and democracy); (3) *ruthless growth* (accompanying high or rising inequality); (4) *rootless growth* (culturally destructive effects of economic globalisation); and (5) *futureless growth* (that steals our collective future by depending on the unsustainable consumption of finite natural resources). The current type of GDP growth in many countries exhibits all or most of these negative characteristics. There is nothing inherently wrong with GDP growth, as long as it serves the broader goal of sustainable wellbeing. To do that it must not exhibit any of these negative characteristics.

The degree of addiction to GDP growth in a country might be thought of as the difference between GDP growth and improvement in sustainable wellbeing. Addicts continue to pursue destructive behaviour in spite of the negative consequences. GDP addicted countries continue to pursue growth in spite of the fact that it may be jobless, voiceless, ruthless, rootless, and futureless, as described earlier, and is reducing sustainable wellbeing.

Several alternatives have been devised that attempt to correct some of the problems with GDP. These include Green GDP (Boyd 2007; Li and Lang 2010), Genuine Savings (Hamilton and Clemens 1999; Pillarisetti 2005), the Inclusive Wealth Index (Roman and Thiry 2016; Managi and Kumar 2018; Dasgupta et al. 2021), the ‘degrowth accounts’ proposed by O’Neill (2015), the Index of Sustainable Economic Welfare (ISEW) (Daly and Cobb 1989), and an updated version also known as the Genuine Progress Indicator (GPI) (Talberth et al. 2007). For example, the GPI is calculated by starting with personal consumption expenditures, a measure of all spending by individuals and a major component of GDP, weighting it by income distribution to recognise the impacts of inequality on societal welfare (Wilkinson and Pickett 2010), and making more than 20 additions and subtractions to account for ‘goods’ and ‘bads’ which are not included in conventional measures of national income (Figure 3.4). ‘Goods’ include volunteer work and work in the family, and ‘bads’ include costs of divorce, crime, pollution, and the depletion of natural capital. The GPI has been estimated for several countries and has been formally adopted

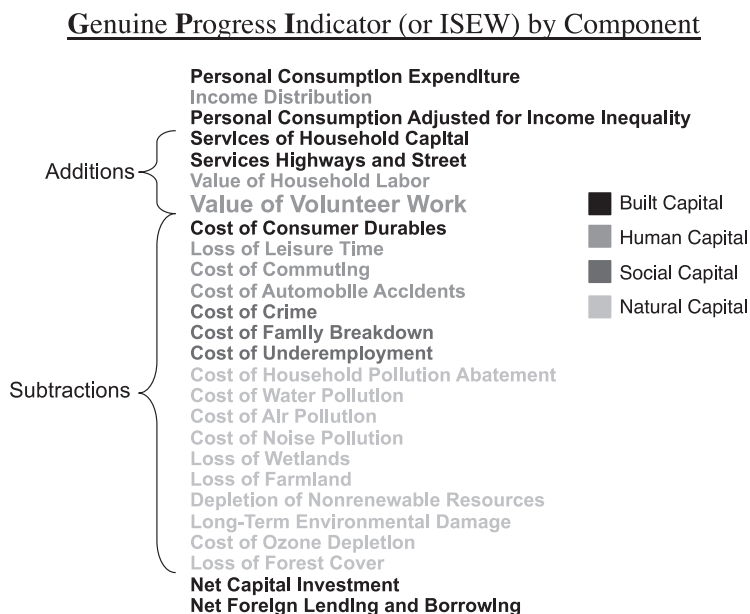


Figure 3.4 Components of the Genuine Progress Indicator (GPI).

by the US states of Maryland and Vermont. Results show that when growing inequality and environmental costs are incorporated, GPI has not been growing at all in many countries over the last several decades (Kubiszewski et al. 2013). Figure 3.5 shows that we have moved from a period of economic growth, where GDP and GPI were both rising, to a period of ‘uneconomic growth’ when GDP/capita is rising but GPI/capita is stagnant or falling. This is a measure of the strength of our global addiction to GDP growth. Like a drug addict who requires constantly more of the drug just to maintain the same effect, economies in the ‘uneconomic growth’ phase are pursuing GDP growth in spite of it no longer being able to produce genuine progress.

An important distinction to remember here is that GDP only measures marketed income, while GPI attempts to measure welfare or wellbeing, including marketed income as one component, but also accounting for inequality and the loss of social and natural capital.

The SDGs include some costs and benefits not incorporated in the GPI, for example, gender equality, urban resilience, and accountable institutions. One could create a more comprehensive indicator that incorporated these factors as well as other changes that have been suggested. One characteristic of GPI is

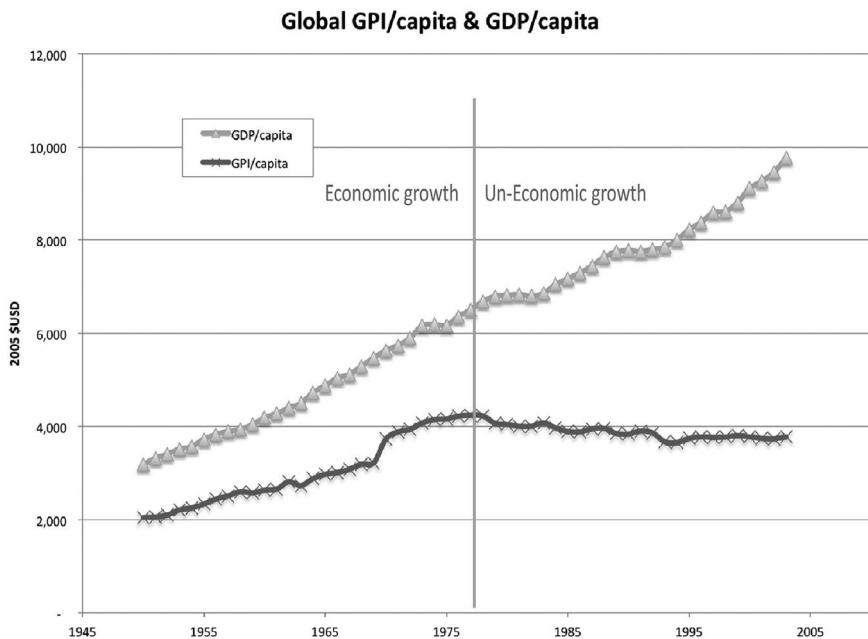


Figure 3.5 Estimates of global GDP/capita and GPI/capita. We have moved from a period of economic growth, where GDP and GPI were both rising, to a period of ‘uneconomic growth’ when GDP/capita is rising but GPI/capita is stagnant or falling. This shows the strength of our global addiction to GDP growth.

Source: Kubiszewski et al. 2013.

that it is denominated in monetary units, making it directly comparable with GDP but also requiring that all the elements be assessed in monetary units. These valuations can be quite difficult and imprecise. But one should keep in mind that GDP itself, and the data behind it, is not as precise as often assumed, especially for developing countries (Fioramonti 2013a; Fioramonti 2014).

3.12.2 Aggregation Into a Unit-less Index

One could build an aggregate, unit-less indicator from the SDG indicators or any suitable set of indicators. The well-known problem with this approach is how to weight the different indicators. There are several examples of this approach (see Table 3.2). One recent example is the OECD Better Life Index³ which is built from 11 elements, each with one or two indicators. In the default mode, each element is ranked on a 1–10 scale and the elements are averaged together, weighted equally. However, one can change the weights on the website and observe the effects on the rankings. The OECD is collecting a survey of user weightings and this could be used to construct a weighted index. But weighting all the SDG indicators via surveys seems too ambitious and a simple unweighted average seems arbitrary and not in line with different national priorities. Furthermore, for many of the SDGs and associated goals and indicators, data will not be available for all countries in the short and medium term. Similar concerns can be raised with respect to new indices such as the Social Progress Index (recently adopted in Massachusetts and in Paraguay as well as the Icelandic town of Kópavogur) and the Legatum Prosperity Index, which aggregate various dimensions of wellbeing, social capital, and prosperity.

3.12.3. Contributions to Subjective Wellbeing

Another approach to weighting is to construct a regression model with all indicators as the independent variables and some existing approximation of overall wellbeing – for example, subjective life satisfaction scores – as the dependent variable. This would provide statistically derived weights in terms of degree of correlation with the dependent variable. The main challenge here is what to choose as the dependent variable. Subjective wellbeing (SWB) derived from international/national public opinion surveys has been suggested by some as the most appropriate dependent variable and the most appropriate national policy goal (Layard 2005). There has been some research with statistical models that include subjective wellbeing as the dependent variable and built, human, natural, and social capital indicators as the independent variables (Vemuri and Costanza 2006; Abdallah et al. 2008). These approaches successfully predict over 80% of the variation in subjective wellbeing across countries. More recently, the World Happiness Report (Helliwell et al. 2019) developed regressions of SWB against a range of independent variables that explained 73% of the variation across countries. It is interesting to note that GDP per capita explained only about 10% of the variation in life satisfaction across countries in this study.

However, it is also well known that individuals' perceptions are limited, they may be culturally biased, and people may be unaware of important factors that contribute to their wellbeing (Kahneman 2011). For example, the contributions of natural capital and ecosystem services may not be well perceived by individuals and may not show up in life satisfaction surveys. Individuals do not directly perceive the climate regulation benefits of forests, or the storm protection benefits of coastal wetlands, although these may be critical contributors to their sustainable wellbeing. Moreover, measures of subjective wellbeing can be heavily influenced by cultural factors making international comparisons difficult. For example, studies comparing levels of happiness and depression in China and the United States showed that, although the Chinese are less happy (Spencer-Rodgers et al. 2004) and optimistic (Lee and Seligman 1997) than their American counterparts, people living in the US are more depressed than the Chinese (Demyttenaere 2004).

3.12.4 *A Hybrid Approach*

All the approaches mentioned here have positive and negative aspects. So, the question becomes: can we construct a hybrid indicator that incorporates most of the positive aspects and minimises the negative? As Costanza et al. (2014b, p. 285) conclude:

The successor to GDP should be a new set of metrics that integrates current knowledge of how ecology, economics, psychology and sociology collectively contribute to establishing and measuring sustainable wellbeing. The new metrics must garner broad support from stakeholders in the coming conclave.

Against this backdrop, one potential hybrid Sustainable Wellbeing Index (SWI) could be a combination of three basic parts, each covering the contributions to sustainable wellbeing from the dimensions of economy, society, and nature.

a Net Economic Contribution: E

The GPI can be thought of as a measure of the *net* contribution of economic (production and consumption) elements to wellbeing. As we have seen, it weights personal consumption by income distribution, adds some positive economic elements left out of GDP, and subtracts a range of costs that should not be counted as benefits. Although some costs to natural and social capital are included in GPI, many others are missing (e.g., loss of community cohesion due to the social disruptions caused by economic growth) and we also need a way to measure and include the positive benefits to wellbeing from natural and social capital. We therefore need to supplement the current GPI with additional cost estimates from the SDGs, including its targets and proposed indicators. Let's call this net economic contribution *E*. But we also need to include measurements of the positive contributions of natural and social capital.

b Natural Capital/Ecosystem Services Contribution: N

The positive contributions of natural capital and the ecosystem services it provides have been estimated in spatially explicit form and can be valued in different units, including monetary units (Costanza et al. 1997; Sutton and Costanza 2002; Costanza et al. 2014a; Ouyang et al. 2020). These can be estimated at the country level, as well as at subnational and regional scales and included. For example, the Wealth Accounting and Valuation of Ecosystem Services (WAVES) project of the World Bank⁴ is actively pursuing this agenda, as are several other initiatives, including the new Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES),⁵ The Economics of Ecosystems and Bioersity (TEEB),⁶ the Economics of Land Degradation Initiative (ELD),⁷ and the Ecosystem Services Partnership (ESP).⁸ Let’s call this ecosystem services contribution **N**.

c Social Capital/community Contribution: S

The positive contributions to wellbeing from social capital could be captured via surveys of the various components of life satisfaction. For example, the World Values Survey as well as regional barometers (e.g., Eurobarometer, Afrobarometer, etc.) ask questions about trust (see Figure 2.1), and other aspects of social capital. However, additional survey questions may be needed that ask explicitly about the value of community and social capital, in addition to individual life satisfaction. Let’s call this social capital contribution **S**.

Figure 3.3 shows the 17 SDGs and how they contribute to each of the three categories mentioned here. These categories correspond to the three basic goals of ecological and wellbeing economics outlined earlier and the three basic components of sustainability. Note that many of the SDG sub-goals contribute to more than one category.

Ultimately, a pluralistic approach that allows several options to be investigated will be required in the short term, and a consensus-building process will be needed to narrow down the possibilities to those that are most useful in assessing overall progress towards sustainable wellbeing.

But for a start, the following can be proposed:

$$\text{SWI} = f(\mathbf{E}, \mathbf{N}, \mathbf{S}) \quad (1)$$

Where: SWI = Sustainable Wellbeing Index

E = Net economic contribution

N = Natural Capital/Ecosystem Services contribution

S = Social capital/Community contribution

How these three elements combine to produce SWI is important. They are not linear combinations since the absence of any one of these factors would lead to zero SWI. At the same time, they are not purely multiplicative with the possibility for infinite SWI. For example, it is clear that increases in material

standards make a very major difference to wellbeing in poorer countries where many people lack basic necessities, yet as countries get richer, further increases in material standards make less and less difference to wellbeing. In richer countries social capital and community may be the limiting factors. Therefore a ‘limiting factor’ approach might be a better option. For example, an equation like the following might work (Costanza et al. 2016):

$$SWI = L_{\max} * (E/(k_e + E)) * (N/(k_n + N)) * (S/(k_s + S)) \quad (2)$$

Where: L_{\max} = the maximum achievable SWI when all factors are simultaneously at their maximum.

k_e = the ‘half saturation constant’ of E – the value of E where the result of this term achieves $\frac{1}{2}$ its maximum value

k_n = the ‘half saturation constant’ of N

k_s = the ‘half saturation constant’ of S

In this equation, each of the terms approaches 1 as the variable approaches infinity. As all the terms approach 1, SWI approaches L_{\max} . L_{\max} can be denominated in any relevant units, the simplest being a unit-less maximum on a 0 to 100 or 0 to 10 scale, like the subjective wellbeing scales.

The larger the half saturation constant relative to the size of the variable, the slower is the approach to 1. Any one of the variables can be the ‘limiting factor’. For example, if E is very large, its term in the equation will be close to 1. But if S is small its term will be a small fraction that will reduce and limit SWI.

This approach is based on the idea that the best system is one that achieves the overarching goal of a *simultaneously* prosperous, high quality of life that is equitably shared and sustainable. The goal is not infinite growth, but *balanced* prosperity, equity, and sustainability.

Many countries have words that encapsulate this overarching goal as the essence of the ‘good life’. For example, the Swedish term ‘lagom’ means roughly ‘just the right amount, equitably shared’, not too little, not too much (Costanza 2015). In Finish it’s ‘kohtuus’. In parts of Latin America, this concept is encapsulated in terms such as ‘buen vivir’ and ‘pura vida’, while in Africa it connects with collective welfare traditions like ‘ubuntu’. We are searching for a way to quantify and guide progress towards the goals that many cultures implicitly have already.

3.12.5 Comprehensive Systems Dynamics Model

One of the reasons that GDP has achieved such dominance as an indicator of national progress is that it is integrated with an underlying model of the economic system. The model used is the basic linear Input–Output model originally developed by Leontief (1941). It is a linear accounting model of flows from sector to sector in the economy and to ‘final demand’ (which is GDP). It does not account for stocks of capital assets except as a flow of ‘net capital

formation' that is part of final demand. It is the basis of the System of National Accounts (SNA) that all countries currently use and report to the UN.

We need to replace the misuse of GDP as a measure of national success with not just an alternative indicator of wellbeing, but also with a dynamic, non-linear, systems model of the entire system of the economy-in-society-in-nature that keeps track of both stocks and flows. The input-output structure of the economy could be embedded in this model, but it would have to go far beyond that in order to account for the costs and benefits from natural and social capital and the dynamics of capital formation and decline. Versions of such models exist (Boumans et al. 2002; Costanza et al. 2007b; Victor 2018; Sverdrup et al. 2021) and several are currently in further development. This approach could help to build better assessments of progress towards sustainable wellbeing. These models can also span several time scales, including past, present, and future scenarios, allowing us to make better predictions of what sets of policies are sustainable and desirable and overcome the short-termism that afflicts much of current policy.

It is also important to note that diverse strategies will be needed. Different countries and communities will need different approaches to achieve sustainable wellbeing. For example, in high-income countries, material consumption will probably have to decline overall and be much more fairly distributed – which is sometimes called 'degrowth' (Kallis 2018). In low-income countries, on the other hand, material consumption will probably have to increase, while minimising environmental impact and being much more equitably distributed – what is sometimes called 'green growth' (Hallegatte et al. 2012). In all cases, however, GDP growth should not be the goal, but rather improvement in sustainable wellbeing – what is sometimes called an agnostic approach to growth or 'agrowth' (Van den Bergh 2015).

3.13 Conclusions

The agreed SDGs are a major achievement in the development of shared goals for all of humanity. They have been agreed by all UN member states and they include economic, social, and environmental elements. However, they lack an overarching goal and an effective aggregate indicator of progress towards those goals. One could argue that such an aggregate indicator is not necessary (or possible) and that the pursuit of the individual goals will be sufficient to achieve sustainable development. That might be true if the goals were independent of each other, and they all contributed to the overarching goal equally. This is obviously not the case, especially in the context of the widely different situations in each country. We need an aggregate indicator that can assess the relative contribution of each of the SDGs and their interactions with each other to assess overall progress. I have suggested three fundamental categories that could make up a hybrid indicator and how they could be combined. An underlying systems dynamics model to assess interactions and synergies over space and time, including both stocks and flows, causes and effects is also needed. It is

also necessary to develop a framework of policy reforms and societal change that make the achievement of the SDGs possible at both the national and global level. In today's interconnected world, the SDGs cannot be achieved unless there is sustainable wellbeing globally. But a key additional feature of the therapy is developing a broader engagement with society in this shared vision. I imagine that only a small fraction of the global population has even heard of the SDGs. The next chapter is about how to create that shared vision.

Notes

- 1 Much of this section is taken from Costanza, R., B. Fisher, S. Ali, C. Beer, L. Bond, R. Boumans, N. L. Danigelis, J. Dickinson, C. Elliott and J. Farley (2007a). Quality of life: An approach integrating opportunities, human needs, and subjective well-being. *Ecological Economics* 61(2–3): 267–276.
- 2 https://ec.europa.eu/environment/beyond_gdp/background_en.html.
- 3 www.oecdbetterlifeindex.org/.
- 4 www.wavespartnership.org/.
- 5 www.ipbes.net/.
- 6 www.teebweb.org/.
- 7 <http://eld-initiative.org/>.
- 8 www.fsd.nl/esp.

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4 Active Therapy

Creating Shared Goals for a Sustainable and Desirable Future

We cannot predict the future, but we can design and help create the future we all want. To do this we need to better understand of how cultures evolve and change and how to overcome societal addictions and roadblocks to positive change. Creating a shared vision is a critical step in this process, best thought of as ‘societal therapy’. On the world stage, the UN Sustainable Development Goals (SDGs) are an important step towards creating a shared vision of a positive future for all countries on Earth. Goal setting, envisioning, and scenario planning are important tools that have been used to guide and enable transitions in businesses, communities, and individuals. This chapter discusses these theories, tools, and processes and how they have been used to create alternative futures to motivate and guide major transitions. It then proposes a research and action agenda to enable better understanding of cultural evolution, how to direct it towards desired goals, and how to create a shared vision of the goal – a world of sustainable wellbeing we all want. The chapter explores the following key questions:

- 1 How does cultural evolution work? How do we explain the growth, development, decline and transformation of alternative socio-ecological regimes, including the roadblocks to positive societal change?
- 2 What are the potential ways to overcome roadblocks to positive societal change, including ‘societal therapy’?
- 3 How can shared visions of the future be created at multiple time and space scales?

4.1 Cultural Evolution and the Role of Envisioning in Creating the Future We All Want

One often hears about the need for a ‘theory of change’. This usually means a strategy for accomplishing the stated goals of a project, rather than a real, general theory of how change happens (Anderson and Harris 2005). The Center for Theory of Change defines it as: “A Theory of Change provides a roadmap to get you from here to there”.¹ While it is certainly good to have a well thought out strategy for accomplishing specific social goals, a true theory of

social change is a very different and much more ambitious thing. If the goals of a social-change project are societal in scale – if they hope to implement changes as sweeping as transforming a civilisation’s relationship to the rest of nature into a sustainable one – a more complete theory is needed.

A successful (i.e., fully functional) theory of social change must acknowledge that social systems are always and everywhere embedded in the ecosystems that contain and support them. Humans do not live on the blank white pages of textbook abstraction, but in a physical world where growing seasons, rainfall averages, arable landscapes, and other physical phenomena shape what can and can’t, and what will and won’t be possible outcomes for purposive social change. Ecosystems at multiple scales, including the entire Earth ecosystem, are also subject to their own evolutionary dynamics. This means that a successful theory of social change must be grounded in an expanded evolutionary paradigm that is capable of addressing not only how organisms and ecosystems evolve and change, but also how rules, norms, institutions, and cultures evolve and change (Ostrom 2013). This chapter first discusses a broader theory of how complex systems from organisms to ecosystems, communities, states, nations, and the planet as a whole evolve and change, and how we can use this theory to design strategies to get from here to a desired there.

In biology, evolution is *the* theory of change – it applies across the board. Over time, for all life forms, adaptive change is the only constant. But in the recent past, evolutionary theory has gone down what David Sloan Wilson has identified as some wrong paths. The emphasis on selection at the genetic level, to the exclusion of selection at other levels of organisation, has hindered the development of the field and slowed integration with the social sciences. When one considers the evidence more comprehensively, it is clear that selection occurs at multiple levels, and ‘between group’ selection may in some circumstances be more important than within group selection (Wilson and Wilson 2007a).

Multilevel selection theory is relevant to any trait that affects the fitness of other individuals in addition to the individual possessing it, which includes but goes far beyond the stock example of altruism. The theory can help explain the origin and major transitions of life, the structure of animal societies and multi-species ecosystems, and human evolution – even including the rise and fall of empires and the nature of religion.

(Wilson and Wilson 2007b)

That norms, rules, communities, and cultures evolve in a way analogous to biological systems builds on the work of several other researchers (Boyd and Richerson 2005). From a multilevel selection point of view, cultural evolution can *only* occur at the group level since communities and cultures are inherently collections of individuals who are not genetically related. In fact, as Wilson and Wilson (2007a) point out, even complex individual organisms are really communities of multiple organisms – such as the complex internal bacterial communities that make digestion possible in many organisms.

At the level of communities, what has been termed the ‘symbotype’ replaces the genotype as the carrier of information to the next generation (Wilson et al. 2013a). Symbotypes are cooperative rules and norms which occur at multiple levels of organisation, from the specific to the basic ‘world views’ that guide the behaviour of entire cultures. Selection likewise occurs at multiple levels, both within and between levels. Which level of selection dominates will vary with a number of factors, but as Ostrom’s research has shown, it is certainly possible for symbotypes to evolve in complex social groups to counteract selection for selfishness within the groups.

This perspective, drawn from current work in multilevel selection theory, sheds light on the major problem facing humanity today. The problem isn’t simply the interconnected crises of climate disruption, species extinction, or growing inequality, but something larger and more general. Civilisation as currently practiced is both unsustainable ecologically and undesirable socially. It is no longer contributing to net improvement of overall human wellbeing (Costanza et al. 2013; Kubiszewski et al. 2013). As discussed earlier, the dominant global culture is based on a consumerist worldview and takes maximising material consumption, as measured by GDP, as the primary path to change and improvement. To salvage civilisation from the excesses of its success will require the articulation of alternative cultural symbotypes and selection pressure to prefer one of the alternatives that is thus generated.

How might this happen? One way to think about this comes from the work of Paul Ray and Sherry Anderson, who have been surveying Americans and categorising them into alternative worldviews (Ray and Anderson 2000; Ray 2008). They have grouped Americans into three broad symbotypes: (1) Modernists (M) – the dominant worldview of markets and economic growth – 46% of the population in 2000; (2) Traditionalists (T) – a nostalgic appeal to earlier (often more religious) times – 26% of the population in 2000; and (3) Cultural Creatives (CC) – a worldview based on sustainability, equity, and sufficiency – 28% of the population in 2000. CCs are “disenchanted with owning more stuff . . . materialism . . . status display and the glaring social inequities of race” (Ray and Anderson 2000, p. 17). These percentages have been changing rapidly. In 1965 CCs were a mere 3%, Ms 50%, and Ts 47% of the population. We thus have a measure of how fast basic cultural symbotypes have been changing at least in the US, and a ‘theory of change’ that may help understand historical behaviour and forecast how and when a major cultural transformation might occur.

For example, we might hypothesise that if recent rates of change of cultural symbotypes continue, at some point in the not-too-distant future the fraction of the population that is motivated by the CC worldview will come to dominate and (assuming a democracy) will begin to change goals, rules, and policies in ways that more directly support the CC symbotype. One might call this combination of worldview, institutions, and technologies at multiple levels of organisation a ‘socio-ecological regime’ and conclude that a useful theory of change would need to explain the growth, development, decline, and

transformation of alternative regimes (Beddoe et al. 2009). One hypothesis is that socio-ecological regimes change when ‘tipping points’ are reached, often requiring some combination of financial, political, or environmental crises as a trigger. One might argue that the recent trend to polarise world views signals a resurgence of the M and T symbotypes and a delay in reaching a potential tipping point.

This can occur because, like other evolutionary processes, cultural evolution is prone to path dependence, multiple equilibria, lock-in, societal addiction, and traps (Costanza 1987; Arthur 1988; Costanza et al. 1993; Costanza et al. 2017). Many historical civilisations have collapsed due to their inability to escape these processes (Tainter 1988; Diamond 2006; Costanza et al. 2007). For example, the ancient Maya developed elaborate trade networks, elites, and cities that lost resilience to recurring drought cycles and eventually collapsed (Diamond 2006; Heckbert et al. 2014).

As discussed earlier, societies, like individuals, can get trapped in patterns of behaviour (social traps or ‘societal addictions’) that provide short-term rewards but are detrimental and unsustainable in the long run. Current examples include societal addiction to inequitable over-consumption fuelled by fossil energy and a ‘growth at all costs’ economic model. We might learn how to overcome these societal addictions from successful therapies at the individual level (Costanza et al. 2017). Effective therapies for societal addictions may be possible, but, as we learn from Motivational Interviewing, they will require a rebalancing of effort away from only pointing out the dire consequences of current behaviour (without denying those consequences) and towards building a shared vision of a positive future and the means to get there.

One unique feature of cultural evolution compared to biological evolution is that it is ‘reflexive’ in the sense that goals and foresight can affect the process.

To a certain extent, we can design the future that we want by creating new cultural variants for evolution to act upon and by modifying the goals that drive cultural selection. If our societal goals shift from maximizing growth of the market economy to maximizing sustainable human well-being, different institutions will be better adapted to achieve these goals. As we learn more about the process of cultural evolution, we can better anticipate the required changes and can more efficiently design new institutional variants for selection to work on.

(Beddoe et al. 2009, p. 2488)

This can radically speed up the change process in socially desired directions. The rapid rise of *Homo sapiens* demonstrates our species’ ability to rapidly change behaviour through cultural rather than biological evolution. What the Maya and other collapsed civilisations evidently lacked was the ability to envision radically different world views, institutions, and technologies – new cultural regimes and symbotypes – in response to changing conditions or the ability to make timely, smooth, intentional, and appropriate transitions. If this feature of

cultural evolution can be improved, it may help to avoid lock-in, evolutionary dead-ends, and societal collapse.

Biological evolution has no foresight and can only act on and select from the alternatives in place at any point in time. Humans are rapidly improving their ability to build complex models, simulations, and designs of future possibilities. Such models are useful for exploring and pushing past entrenched understanding of various challenges from climate change to nutrient dynamics. However, to fully leverage the adaptive learning capacity such models and projections can provide in a societal context, engagement with stakeholder communities is essential. Over time the ability to pre-select the preferred alternatives from a much wider range of possibilities emerges.

Scenario planning is one technique that can be used to accomplish this task at larger community, national, and even global scales. Scenario planning creates an ability to discuss and develop consensus about what social groups want (Peterson et al. 2003). Predicting the future is impossible, but what we can do is lay out a series of plausible scenarios, which help to better understand future possibilities and the uncertainties surrounding them. Scenario planning differs from forecasting, projections, and predictions, in that it explores *plausible* rather than *probable* futures, and lays out the choices facing society in whole systems terms. One can think of these in evolutionary terms as alternative symbotypes for selection, but in hypothetical rather than real versions.

4.2 Scenarios: Alternative Visions of the Future

‘Scenario’ is a term with multiple meanings. Scenario exercises vary in their objectives and hence in their characteristics (Biggs et al. 2007). Scenarios are essentially stories that consider how alternative futures, typically related to a particular focal issue (O’Brien 2000) may unfold from combinations of highly influential and uncertain drivers and their interactions with more certain driving forces. Scenario planning differs from forecasting, projections, and predictions, in that it explores plausible rather than probable futures (Peterson et al. 2003). Although aspects of the future worlds depicted by scenarios may come to eventuate, these worlds are often best viewed as caricatures of reality from which we can learn.

Scenarios are best suited to exploring situations of high uncertainty and low controllability (Peterson et al. 2003). In these situations, scenarios can help to illuminate the consequences of these uncontrollable forces and to formulate robust responses. Importantly, scenarios can help to reveal policy and value changes that may be required, as well as key branching points at which such changes can most affect outcomes (Gallopín 2002).

Scenarios have been developed for a range of applications from global to local scales, including corporate strategy (Wack 1985), political transitions (Kahane 1992; Kahane 2004), and community-based natural resource management (Wollenberg et al. 2000; Evans et al. 2006). Table 4.1 shows a small sample of the range of previous scenario planning exercises that have been

carried out at global, national, and regional scales. In the following, I explore one of these exercises – the Great Transition Initiative. An interesting feature of many of these exercises is that their scenarios tend to fall along a spectrum of ‘quality of life’ or human wellbeing and therefore I have grouped the scenarios in this way in Table 4.1.

The Great Transition Initiative (GTI) is an ongoing effort which began in the 1990s (Gallopín et al. 1997). The scenarios have changed name and number over time, but the current set involves four major scenarios: fortress world, market forces, policy reform, and great transition (Raskin et al. 2002). Figure 4.1 is a graphical representation of these alternative futures.

I’ve arranged these scenarios along two axes, both of which refer to aspects of the basic societal world view or vision. The vertical axis contrasts a world view based on GDP growth as the path to progress against a focus on a broader conception of wellbeing. The horizontal axis contrasts a focus on individualism with a focus on community, that corresponds to the four scenarios described in Figure 4.1.

The **fortress world scenario** is a variant of a broader class of barbarisation scenarios, in the hierarchy of the Global Scenario Group (Gallopín et al. 1997).

Table 4.1 A selection of previous scenario planning exercises.

	<i>Quality of Life or Overall Wellbeing of the Scenario</i>			
	<i>Most Desirable (highest overall wellbeing)</i>	<i>Intermediate (based on cooperation)</i>	<i>Intermediate (based on individuals and markets)</i>	<i>Least Desirable (lowest overall wellbeing)</i>
South Africa (Mont Fleur) (Kahane 1992)	Flight of the flamingos	Icarus	Lame Duck	Ostrich
Four Futures (Costanza 2000)	Ecotopia	Big Government	Star Trek	Mad Max
Special Report on Emissions Scenarios (SRES) (Nakicenovic et al. 2000)	‘B1 world’ (global sustainability)	‘B2 world’ (local stewardship)	‘A1 world’ (world markets)	‘A2 world’ (national enterprise)
Millennium Ecosystem Assessment (MEA) (2005)	Adapting mosaic	Global orchestration	TechnoGarden	Order from Strength
Great Transition Initiative (Raskin et al. 2002)	Great transition	Policy reform	Market forces	Fortress world
New Zealand (Landcare Research Scenarios Working Group 2007)	Independent Aotearoa	Living on no. 8 wire	New frontiers	Fruits for a few
Great Barrier Reef (Bohensky et al. 2011)	Best of both worlds	Treading water	Free riding	Trashing the commons



Figure 4.1 A pictorial depiction of the four Great Transition Initiative scenarios.

Source: <https://greattransition.org>.

Barbarisation scenarios envision the grim possibility that the social, economic, and moral underpinnings of civilisation deteriorate, as emerging problems overwhelm the coping capacity of both markets and policy reforms. A focus on individual wellbeing at the expense of the larger community leads to growing inequality, the need for more police and security personnel to defend the individuals who are claiming most of the economic output.

The **market forces scenario** is a story of a market-driven world in the 21st century in which demographic, economic, environmental, and technological trends unfold without major surprises relative to unfolding trends. Continuity, globalisation, and convergence are key characteristics of world development – institutions gradually adjust without major ruptures, international economic integration proceeds apace, and the socioeconomic patterns of poor regions converge slowly towards the development model of the rich regions. Inequality is still high, climate change and ecosystem destruction are not addressed, but growing GDP is used to tamp down resistance and focus attention on growth. This is essentially a ‘business as usual’ scenario.

The **policy reform scenario** envisions the emergence of strong political will for taking harmonised and rapid action to ensure a successful transition to a more equitable and environmentally resilient future. It explores the requirements for simultaneously achieving social and environmental sustainability goals but still under high economic growth conditions like those of market forces. This is essentially the ‘green growth’ scenario.

The **great transition scenario** explores visionary solutions to the sustainability challenge, including new socioeconomic arrangements and fundamental changes in values. This scenario depicts a transition to a society that preserves natural systems, provides high levels of wellbeing through stable material sufficiency and equitable distribution, and enjoys a strong sense of local solidarity.

An interactive website (<https://greattransition.org/>) allows users to visualise and explore the scenarios. The descriptions of these scenarios in the published books and websites are the most extensive of the scenario studies mentioned here, and probably the most extensive of any existing scenario exercise. The status and trends of over 40 variables are plotted for each scenario, including several variables related to ecosystem services (i.e., CO₂ emissions, water use, and forested area) and an overall quality of development index that is similar in structure to the Genuine Progress Indicator (GPI) and other indices of societal well-being.

4.3 The UN Sustainable Development Goals as a First Step

As noted earlier, the SDGs represent the first time in human history that all countries have agreed on a detailed set of goals focused on overall societal well-being, rather than merely growth of GDP and material consumption (even though GDP growth is still one of the goals). They address some of the systemic barriers to sustainable development and the need for balance between, the three dimensions of sustainable development – social, economic, and environmental – and their institutional/governance aspects. As discussed earlier, the SDG process provides an opportunity to trigger systemic change to build a sustainable future in an increasingly interconnected world. However, with 17 goals, 169 targets, and over 300 indicators proposed, the SDGs provide diluted guidance at best. This is to be expected, given the complex political process that led to the SDGs; so far it has merely opened the door.

There is still much additional work needed to elaborate (1) the complex interconnections between the goals; (2) the means-ends continuum towards an overarching goal; and (3) a ‘narrative of change’ to describe the societal shifts and policy reforms necessary to achieve the SDGs and how this could actually happen within existing socioeconomic and geopolitical circumstances (Costanza 2014; Ostrom 2014). The SDGs need an overarching goal with clear metrics of progress towards that goal that are geared to integrate the sub-goals (Costanza et al. 2015). They also need a more detailed elaboration of what the world would look like if the SDGs were actually achieved. What would people’s lives be like in an SDG world and how would they be different and better than they are now?

A world where the SDGs have been achieved shares many (if not most) of its characteristics with the great transition scenario discussed earlier. So how can we build on this confluence to engage the global public in building the shared vision of the world we all want to overcome our addiction to the growth at all costs paradigm?

Creating a truly shared vision is one of the most powerful ways to motivate change in complex organisations at multiple scales. The SDG process discussed earlier is an historic step in creating such a shared global vision. A major question is: How can we build on the SDG process to engage the global public in building this shared vision? We now have the technology to make this process feasible at multiple time and space scales, given that the internet allows real time communication with almost everyone on the planet. We are certainly not using this technology effectively for the purposes of building shared visions yet, but we could. We could use it to carry out massive public opinion surveys about alternative futures (Chambers et al. 2019), or deliberative processes involving broad swaths of the population to build and refine the vision. We can also more fully engage the arts and film community to create visions of the world in formats people can relate to. Imagine, for example, a blockbuster film with the same set of characters interacting in four alternative futures. These kinds of stories are the missing element in allowing people to think about alternative futures and build consensus on the future we want.

While multiple futures are possible and plausible, the goal of a ‘sociotecture’ (societal design) of intentional change would be to design futures that are both sustainable and desirable while also recognising evolutionary dynamics. The goal of a theory of intentional change is to bring to bear an integrated understanding of cultural and biological evolution to allow the transitions to desired ends to be made in positive, adaptive ways. A cultural evolutionary theory of change is to the design of intentional futures as a theory of structural statics is to architecture – a necessary understanding that allows the construction of viable alternatives. Elinore Ostrom’s design principles (Wilson et al. 2013b) are one way of thinking about how to create sustainable and desirable futures. They point the way to a sociotecture of intentional change and help us think about the design of rules, norms, and institutions for managing the commons that will be both sustainable and desirable.

Making the transition to the world we want will not be easy. In many ways we are locked-in, trapped, and in a very real sense ‘addicted’ to the current regime. As discussed, growing knowledge of how to overcome individual addictions may help here (Miller and Rollnick 2002; Carroll et al. 2006; Costanza et al. 2017). We know that directly confronting addicts with their problems in an effort to scare them into changing leads to denial and is often counterproductive. And yet this is exactly what we are doing at the societal level with issues like climate change and the negative effects of GDP growth. At the individual level, developing a positive vision of a better life is often the most effective first step in what we have to recognise as ongoing therapy. This is what scenario planning and envisioning can provide at the societal level. In cultural evolutionary terms, we can produce positive hypothetical symbotypes to expedite and direct the process. So, we need not only a science and theory of intentional change, but also a sociotecture and therapy integrated with it to develop and test alternative models and visions of the world we want and to help us get there. It is impossible to predict the

future, but we can help guide and model the evolutionary process to create the future we want.

One of the main challenges with this approach is scaling up. Scenario planning and envisioning exercises are very effective tools to build a shared vision among the small number of participants usually involved in these exercises. But how do we engage the whole society in this exercise? One approach is to build the scenarios or vision with a small group of representative stakeholders and then communicate the scenarios or vision to the larger community in ways that engage them in the discussion and consensus building. As an example, the following section discusses a fairly detailed description of a possible future. It was developed in a workshop setting and describes the consensus among a diverse group of participants. It is fairly consistent with the Great Transition scenario and the SDGs, but was developed independently of those two exercises. It is evidence, I believe, that a future something like the one described here is what most people on Earth want, and that building consensus around this kind of vision is a key step in the therapy to overcome our societal addiction to growth.

4.4 What Could a Sustainable and Desirable Wellbeing Economy Look Like?

In the previous sections I have sketched out the general characteristics of a sustainable wellbeing world and how it differs from our current society: it is ecologically sustainable, fair, efficient, and secure. Here I develop the implications for the whole system. To build consensus we need to fill in the details in a coherent vision that is tangible enough to motivate all kinds of people to work towards achieving it. Without this coherent, relatively detailed, and shared vision of what a sustainable wellbeing society could look like, there will be continuing limited political will and only dispersed effort to take us from here to there in our theory of social change. The default vision of continued, unlimited increases in material consumption is inherently unsustainable and undesirable, as I have pointed out, but we cannot break away from this vision until a credible and widely shared alternative is created.

Here, I sketch out one version of such a vision as a starting point.² There are several other visioning exercises that have created similar descriptions, including the Great Transition Initiative (www.gtinitiative.org) mentioned earlier, and the Future We Want (www.futurewewant.org). One of the most compelling recent descriptions of what a positive future could look like is Kim Stanley Robinson's novel *The Ministry for the Future* (Robinson 2020). This kind of engaging narrative description of a positive near-term future and how it could potentially come into being, with all the possible drama and missteps along the way, is an important way to build understanding of the problem and broad consensus about the possibility for a better future. Ultimately, this vision must be shared and further developed through participatory democratic processes; so let me emphasise again that the description here is only an example and a starting point.

To iterate again, the key challenge for humanity to achieve a sustainable and desirable future, is to create a shared vision detailing what we as a global society with many cultures and communities want to sustain, incorporating the central shared values that express our hopes for the future. This vision must incorporate a diversity of perspectives and be based on principles of fairness, respect, and sustainability. But I think it is useful to share this vision, since I hope it represents a vision that is already broadly representative of the kind of world most people would prefer, if given the opportunity to express their preferences and deliberate broadly on the vision. It is just one version among the many hundreds of such descriptions of a positive future vision that are now out there, but I think that most of these visions share many core elements present within this one.

This draft vision was initially created by a diverse group of participants at a workshop in 2001. I have updated it slightly, but I find from continuing dialogue, personal experience, and emerging literature that it still resonates with what I think most people would want to see in a sustainable wellbeing future. It also shows that it is possible for a diverse group of participants to reach a fairly broad but still detailed consensus on the outlines of a preferred future. Doing this at scale is the challenge for using this process as a key step in overcoming our addiction to growth.

This draft vision is divided into five parts: (1) worldview, (2) built capital, (3) human capital, (4) social capital, and (5) natural capital, encompassing the basic elements of the ecological economics framework. This vision is written from the perspective of the year 2050, describing the world we have achieved. But again, think of it as an example and a starting point for the co-creation of a broadly shared vision.

4.4.1 *Worldview*

Our worldview no longer divides the planet into ‘humans vs. nature’. People now recognise that humans are a part of nature, one species among many, and must obey the laws and constraints imposed on all of nature. Nevertheless, humans bear responsibility that other creatures do not – we don’t blame deer for overgrazing – yet we expect humans to recognise their ‘overgrazing’ and stop it. We recognise that nature is not something to be subjugated, but instead is something we depend upon absolutely to meet physical, psychological, cultural, and spiritual needs. We recognise that natural resources are scarce and must be invested in. Our goal is to create conditions conducive to healthy life and wellbeing in the broadest sense.

For centuries the worldview of mechanistic physics dominated Western society. Within this worldview, each action has an equal and opposite reaction, and only by studying systems at smaller and smaller scales can we come to fully understand these reactions. As more and more people have come to understand the inherent complexity of ecosystems and human systems, we have come to realise that results cannot always be predicted because effects are not linear but

cyclic with feedbacks, and that irreducible uncertainty dominates the provision of life-support services by healthy ecosystems.

An ecological worldview of complexity and indeterminacy, inspired by nature as our mentor – holistic, integrated, and flexible – has replaced the worldview of mechanistic physics. Unfettered individualism is appropriate and even necessary in a world of vast frontiers and unlimited elbow room. Individualism is still extremely important in 2050, but is far more tempered by a concern for the common good. This has led to a system where communities promote individual liberty as long as individual actions do not have a negative impact on the community. Individuals in return accept that they are a part of society, and it is unfair and illegal (even uneconomic) to impose costs on society for private gain. This attitude was necessary to wean ourselves of our dependence on heavily polluting single-occupancy vehicles, for example.

Further, ever-increasing consumption is no longer considered an integral component of human needs as it was in the early part of the century. People pay attention to their other needs and desires, such as joy, beauty, affection, community, participation, creativity, freedom, and understanding. Building strong community helps us meet these needs, while working ever harder to pay for more consumption deprives us of the time and energy required to fulfil them. Thus, status is not conferred by high incomes and high consumption (individual ends), but rather by contribution to civil society and community ends. With the recognition that consumption beyond limit is not only physically unsustainable but also does little to improve our quality of life, we now understand that a ‘steady-state’ economy – prosperous and fulfilling the full range of human needs, but within planetary boundaries – is our goal – and economy and society based on everyone having just the right amount – what the Swedes call ‘lagom’. Some countries have had to increase production and consumption to get to this level, while others have been able to reduce unnecessary consumption. A steady-state economy does not mean an end to development; it simply means that we limit the input of raw materials into our economic system and their inevitable return to the ecosystem as waste to a level compatible with the ecological constraints imposed by a finite planet with finite resources. We now live happily and well within the safe operating space of our planet – what Kate Raworth has called the ‘safe and just operating space’ (Raworth 2017). We do not know the precise location of these planetary boundaries, and they are subject to change. Therefore, ‘adaptive management’ has become the guiding principle.

The economy is now powered by our incoming solar energy – direct sunlight captured by solar panels – as well as wind, hydro, and the traditional forms of solar energy capture (agriculture, forestry, and fisheries). Economic production focuses on quality over quantity, on everyone having enough, and on fulfilling employment. Rather than the earlier focus on the production of goods, we now focus on the production of the services provided by goods and how those services are distributed. We do not need cars, we need transportation. We do not need televisions; we need entertainment and information. Goods are only a means to an end – the larger end of sustainable human wellbeing – and

by recognising this our economy has developed as never before without growing in physical terms.

4.4.2 Built Capital

Built capital is the human-made infrastructure used to meet human needs. Technological advance over the last century has had a large impact on the type of built capital we find in 2050. Different priorities have had as much or even greater impact.

Housing: Communities have been dramatically redesigned to integrate living space, community space, and workspace with recreational needs and nature. Workspace includes the stores that supply our everyday needs as well as production facilities for most of the goods those stores supply. People now live very close to where they work, where they shop, and where they play. The huge cities of the early 21st century did not disappear, but they have been dramatically reorganised. Cities are now aggregations of smaller communities in close physical proximity but where each community meets the housing, employment, social, recreation, and shopping needs of those who live there. The ‘20-minute neighbourhood’ idea – that all basic services should be no more than a 20-minute walk away – has taken hold as an urban design principle. Natural areas have also made a big comeback in cities. The specifics of community size and design are, of course, determined by local physical and cultural conditions, and there is enormous diversity.

In addition to these very practical aspects, communities have been designed as soul-satisfying spaces that resonate with our evolutionary history. Most communities include natural areas and incorporate parks and other green spaces (though ‘green’ is a misnomer in drier parts of the world, where xeriscaping is the norm), and such spaces also serve as common space for community members. They also foster social interaction, community, and social capital. Rather than something new, this is simply a resurgence of a millennial tradition of settlement patterns.

Because community space is abundant and well designed, private homes are generally smaller (hence cheaper and easier to care for) and are much more energy efficient. Private lawns have virtually disappeared, though lawn-like community green spaces still exist, and private gardens abound. Private gardens in fact meet a substantial portion of community food needs. Walking and bicycle riding have effectively become the dominant forms of transportation, except in the worst weather. Rapidly increasing energy costs provided the initial incentive, but people then discovered the enormous benefits of such pedestrian communities.

One of the biggest impacts was simply getting people out of their cars. Walking to work, the store, community meeting places, or nature preserves brings people into direct contact with the other members of the community. People walking together in the same direction naturally converse, establishing friendships, informing each other of current events, and discussing issues of

relevance to the community. In fact, developing community and social capital has become one of many explicit goals for designing built capital. Modern communities are very healthy places for humans and other species. Invigorating exercise and nurturing social interaction have replaced the stress of hour-long commutes, road rage, and the pollution of vehicle exhaust, improving both physical and mental health. Air quality is very high. Many roads and parking lots have become redundant, and in their spaces stand parks, streams, and greenways, providing clean air, clean water, and healthy recreation, among numerous other vital ecosystem services. The dramatic reduction in impervious areas has reduced flooding and allowed the land and the ecosystems it sustains to filter water, restoring waterways to health.

With scarcer resources, the practice of destroying still useful buildings to build others on the same site has diminished, and stable populations have further decreased the need for new construction. But from time to time new buildings are still required. Ecologically designed 'living buildings' have become the norm for new construction.

Transportation: As already mentioned in the description of communities, single-occupancy vehicles are now rare. The dominant modes of transportation within communities are walking and bicycling; between communities people use high-speed rail. Public transportation is important within communities and is designed to transport goods as well as passengers, making it convenient for grocery shopping and the like. Because so many people use public transportation, it is abundant and extremely convenient. Rail is common, but so are electric buses and taxis. 'Traffic' is a thing of the past, and public transportation gets people around much more quickly than private vehicles used to, at a fraction of the cost. Dramatically fewer vehicles on the roads has also cut maintenance costs to a fraction of what they were, and new roads are unnecessary. Some people still own private vehicles, but these vehicles are expensive and their owners pay a higher share of costs of road-maintenance costs. Most communities have mainly electric cars, including ZipCars (car sharing programmes) available for rent when private transportation is absolutely required. When not being driven, these cars provide electric energy storage.

Energy: Renewable resources now meet virtually all of the world's energy needs. The conversion from hydrocarbons was facilitated by continuous increases in efficiency of energy use, combined with appropriate full-cost pricing of all energy sources, including environmental and health costs and risks of the full fuel cycle. Photovoltaic tiles are ubiquitous roofing materials, and roofs alone meet over half the world's energy needs. Large-scale hydro-power has decreased in importance as more and more rivers are restored to their natural states, but low-impact mini-turbines are increasingly common. In spite of the abundance of non-renewable, non-polluting forms of energy, energy-efficiency research is still very important, and advances continue to be made in both renewable-energy supply and demand management. The 'smart grid' has done much to help this transition. In many places municipalities and/or cooperatives now locally manage the generation, supply, and distribution of

renewable energy resources, keeping prices affordable and ownership democratically controlled.

Industry: Industry has changed dramatically. Industrial design is now based on a circular economy, with closed-loop systems in imitation of nature, where the waste product from one industry becomes the feedstock of the next. Wasted heat from industrial processes is used to heat nearby homes and workspaces. When possible, industrial production uses local materials to meet local needs, and wastes (the few that are not put to use) are processed locally. Most smaller-scale industries consist of a mix of locally owned proprietary firms and smaller corporations on the one hand, and cooperatives and new community-based commons institutions on the other (Alperovitz 2011). While these characteristics do not always maximise productive efficiency, the benefits in terms of social capital and community wellbeing far outweigh the costs.

First, local production dramatically reduces transportation costs, helping to compensate for sometimes-higher production costs. Second, it makes communities directly aware of the environmental impacts of production and consumption. Costs of waste disposal are not shifted elsewhere. Third, industries are more a part of their communities. Most of them are locally owned by the workers they employ, by new cooperative and municipal institutions, and by the people whose needs they meet. Rather than simply trying to maximise returns to shareholders, industries strive to provide healthy, safe, secure, and fulfilling working conditions for workers. Those who produce goods and those who consume them know each other, so workers take particular pride in the quality of what they produce.

Fourth, the decentralisation of the economy means that the economy as a whole is much less susceptible to business cycles, increasing job and community stability – a central requirement of local sustainability planning in general. Fifth, an emphasis on local ownership and production for local markets has reduced the importance of trade secrets and patents; competition has been replaced to some extent by cooperation.

Sixth, a significant number of larger firms are structured as public and quasi-public enterprises jointly owned with the workers involved. They are designed on the one hand, to help target and anchor jobs to help achieve local stability, thereby also supporting sustainability planning, and on the other, to be less dependent on very short-term profit considerations necessary to meet stock market expectations that foster excessive growth.

Finally, decreased competition has led to a dramatic decrease in the size of the advertising industry. This means that money once spent on convincing people to buy one brand over another is now spent on making those products better – or simply not spent, making those products more affordable.

Markets and competition, of course, still play an important role. Industries are free to sell to distant communities, though having to pay the full cost of transportation provides a natural barrier. Still, this threat of competition means that communities need not rely solely on the good will of local industries to keep prices low. Trade secrets play less of a role in competition than in the past

due to the resurgence of sharing information, which also limits corruption and lobbying. The development of open-source software shows that freely sharing knowledge can lead to more rapid technological innovation than the profit motive provided by privatising knowledge through patents. The problems with patents have become more obvious with the tremendous growth in green technologies, which have proven themselves capable of slowing climate change, reducing pollution, and decreasing demands on scarce ecosystem resources, but only by being used on a large scale. Patents on these technologies (and the accompanying monopoly profits) would mean that much of the world would be unable to afford them. The global community has come to realise that it cannot afford the price of people not using these technologies.

Fortunately, the free flow of information has led to impressive new innovations, often making patents obsolete. Some industries retain substantial economies of scale, using fewer resources per unit when producing in enormous factories, such as in the case for solar cells. Large corporations still exist to produce such goods, but many are structured in ways that broaden representation on boards and in certain cases entail public ownership or joint public/worker ownership. Corporate charters have largely changed to the ‘benefit corporation’ model that explicitly acknowledges a firm’s responsibility to produce a social benefit rather than merely a private profit.

4.4.3 Human Capital

Human capital was defined in the early part of the century as the practical knowledge, acquired skills, and learned abilities of an individual that make him or her potentially productive and thus equip him or her to earn income in exchange for labour.

The definition of human capital itself has changed – no longer emphasising solely productivity in terms of income exchanged for labour. The primary emphasis instead is now on knowledge, skills, and abilities that make people productive members of society. The goals of society are far more than simply earning income. Education is now integrated into everyday life, not simply something we do for a few hours a day before we grow up. And it is not always confined to classrooms – schools are an institution, not a physical place. Nature offers us an amazing laboratory every time we step outside, and is valued every bit as much in urban settings as in rural. This is even more true in 2050, when our communities are designed to maximise exposure to healthy ecosystems. Education about civic responsibilities and roles is heavily stressed, and such topics are taught by direct exposure to the decision-making process or hands-on participation in activities that benefit the community. Youth are schooled in civic responsibility by actively participating in the community. And what better place to learn skills required for economic production than at the workplace? Apprenticeships are now an integral part of the learning process. Technology also plays an important role in education. Online learning environments are used where appropriate but by no means replace direct interaction. Education

is now an interactive balance between online tools and content acquisition, and on-the-ground problem solving in the community.

Education and science no longer focus solely on the reductionist approach, in which students are only taught to analyse problems by breaking them down into their component parts. While the reductionist approach and analysis still play an important role in education, the emphasis is now on synthesis – how to rebuild the analysed components of a problem into a holistic picture to solve problems. Synthesis is critical for understanding system processes, and system processes dominate our lives.

Beyond analysis and synthesis, learning also now emphasises communication. Researchers skilled at communication can more readily share ideas, and ideas grow through sharing. Workers skilled at communication can work together to solve production problems. Citizens skilled at communication can contribute to the ever-evolving vision of a sustainable and desirable future that is the motivating force behind policy and governance. Citizens are also able to communicate their knowledge with each other, so that education, livelihood, family, and community become a seamless whole of lifelong learning and teaching, everyone simultaneously student and teacher.

Education also now emphasises much more than just scientific understanding of the material world. Critical thinking and research are important, but so are creative expression and curiosity. Knowledge and science are not portrayed as value-neutral endeavours; students now learn that the very decision of what to study is a moral choice with broad implications for society. The goal of education is to cultivate wisdom and discernment, to cultivate the emotional maturity to allow responsible decision making in every type of human endeavour.

The whole notion of work has also changed, and the word itself has lost the connotation of an unpleasant chore. Work hours have been reduced through work sharing and more generous leave policies to allow for a more reasonable balance of family and work life. Moreover, people now recognise the absurdity of applying technology to the problem of producing more goods to be consumed during leisure time regardless of the drudgery involved in the production process itself. Instead, to recruit the needed workers, industry is now forced to redirect some of its technological prowess towards making work itself a pleasurable part of our days that engages both mental and physical skills. A typical job now involves far more variety, not only to make work more exciting and interesting, but also to take advantage of the full range of a person's skills. There is less distinction between what would have earlier been considered gainful employment and volunteer work.

Everyone participates in civil society, both in decision making and in maintaining the public space. This is not an onerous chore, but a pleasurable time for socialising with neighbours and community. Nor does it take time away from private lives since the typical work week in traditional jobs now averages only 20 hours. Education deemphasises the old 'more is better' mindset and promotes a greater understanding of the linkages between economic production,

nature, human development, and society. This has made people more aware of the true costs of excessive consumption.

With years of technological advance and diminished 'needs', society is now able to provide a satisfactory living wage to all who work and to meet the basic needs of those who do not. Participation in the various types of work is expected and supported, but not forced. Because work is now more a fulfilling experience than an onerous necessity, there is little resentment of those who do not work but rather a feeling of concern that these people are not developing their potential as humans. Living in more tightly knit communities where social goals are actively discussed, people now better understand the importance of their work and feel greater obligation to contribute to the common good. Remuneration for work has been restructured to provide the greatest awards to those who provide the greatest amount of service to the community, such as teachers, childcare providers, and so on.

Human capital is also directly related to human populations. The population has stabilised at a level compatible with the safe operating space of our planet.

4.4.4 Social Capital

Social capital refers to the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions. Social capital is not just the sum of a society's institutions, which underpin that society; it is the glue that holds them together.

The dominant form of social capital in the employment and economic sphere in the early part of the century was the market. The interaction between employer and employee was that of buying and selling labour. In this model, employer loyalty exists only as long as the continued employment of the employee increases profits. Employee loyalty exists only as long as no other job offers a greater salary or better fringe benefits (which may include location, working conditions, etc.). The interaction between producer and consumer is even more market-based in this model. People buy a product only as long as it is perceived to provide the greatest value in monetary terms, though admittedly advertising may play as large a role in shaping perceptions as the actual price and quality of the product.

In 2050, worker and worker/community ownership of many industries and local production for local markets has changed these relationships. Such enterprises logically pay more attention to worker and community wellbeing than enterprises driven by the need to generate shareholder profit. Wellbeing, of course, includes profit-shares but is increased by working conditions that are healthy, that stimulate creativity, and that create feelings of participation, community, and identity. While not all enterprises are owned in these ways, when a significant percentage of enterprises began to offer these conditions, they put pressure on the others to do so as well. In the absence of strong social capital, local production for local markets can be a disaster. In many cases, it might be inefficient to have a number of firms providing similar products for a small

community. This could lead to monopoly provision of certain goods. If the market had remained the dominant form of social capital driving interactions between producers and consumers, high profits and poor quality would have resulted. However, when worker-owners also live in the local community, they have to directly answer to their neighbours for both the price and quality of what they produce. High-quality production is a source of pride, while low quality and high prices are perceived as incompetence and laziness, decreasing the individual's social standing in the community.

Local currencies also now contribute significantly to locally based production and consumption. Such systems existed in many communities in the early part of the century, such as in Ithaca, New York (www.ithacahours.org) and the Berkshires in western Massachusetts (www.berkshares.org). These currencies are backed only by trust that other members of the community will accept them in exchange for goods and services, and therefore require strong social capital to function. They also build social capital every time a community member accepts the currency. They are virtually immune to national and global economic instability and provide communities with greater autonomy.

For local markets to work, social capital must be strong. As discussed in the section on built capital, the very physical structure of communities now works to create that social capital. Abundant community spaces, parks, and recreation areas stimulate social interaction, build friendships, and generate a sense of responsibility toward neighbours and community. With single-occupancy vehicles almost gone and people living in smaller communities, just getting from place to place brings people in close contact with their neighbours.

At the beginning of the century, public transportation was primarily found only in large cities, and fellow passengers were strangers, not neighbours. Under these circumstances, public transportation did little to build social capital. But this is no longer the case in 2050. Some neighbourhoods coalesced around different ethnicities and cultures, and these too served as sources of social capital. However, the world has rid itself of the racism, sexism, regionalism, and other prejudices that were all too prevalent earlier, while recognising the value of diversity in all its varieties. People have more time for family, and family life is characterised by more balanced gender roles.

The process of government itself now creates social capital. Many countries are no longer weak representative democracies, but strong participatory ones. In a participatory democracy, the people must discuss at length the issues that affect them to decide together how the issues should be resolved. In the old world – of high-pressure jobs, little free time, and large communities of anonymous strangers – this approach to government seemed impractical, unwieldy, and too demanding. Now, with smaller communities of neighbours, a far shorter work week, and engaged, active citizens, participatory democracy is a privilege of citizenship and not an onerous chore. Of course, this required that civic education form an essential part of education and development of human capital from childhood on. This approach to government is particularly effective at the local level. As citizens come together in regular meetings to discuss

the issues and work together to resolve them (even when substantial conflict exists), it creates strong bonds of social capital and plays an essential role in forging a sense of community.

Government, of course, implies action, and action implies purpose. The purpose must be defined by the people, who in these civic meetings also forge a shared vision of the future to guide their actions. This vision is not static but must adapt to new information and new conditions as they emerge. Of course, not all issues can be decided on the local level. Institutions are required at the scale of the problems they address. It is at the local level where people will feel the consequences of ecosystem change, for example, but causes may be distant, perhaps in other countries. On the national level it is not feasible to bring together millions of people to discuss the issues and decide on actions, so some form of representation is required. But representatives are now chosen through direct participation by people to whom they have strong social ties and obligations, so these representatives are far more likely to truly represent their communities and not some large corporation that funds their rise to power. Additionally, new intermediary representative institutions on the regional scale exist to bridge the gap between local and national governance.

Social capital, the glue that holds society together, also includes basic moral values and ethics such as honesty, fair dealing, care for the disabled and vulnerable, and a common set of cultural practices and expectations that for the majority do not have to be enforced by law. Both markets and government bureaucracies fail without these common values. These values are rooted in community and nurtured by the religions of the world and other systems of thought and practice. Social capital has deep roots, and has been depleted in many areas.

4.4.5 Natural Capital

Natural capital consists of all the world's ecosystems – their structure and processes that contribute to the wellbeing of humans and every other species on the planet. This includes both mineral and biological raw materials, renewable (solar, wind and tidal) energy and fossil fuels, waste-assimilation capacity, and vital life-support functions (such as global climate regulation) provided by well-functioning ecosystems.

The absolute essentiality of natural capital is now so completely accepted that it is taken for granted that we must protect it if we are to survive and thrive as a species. Any schoolchild is able to tell you that you cannot make something from nothing, so all economic production must ultimately depend on raw material inputs. Economic production is a process of transformation, and all transformation requires energy inputs. It is equally impossible to make nothing from something, so every time we use raw materials to make something, when that product eventually wears out, it returns to nature as waste. It is therefore incumbent upon us to make sure that those wastes can be processed by the planet's ecosystems or technical systems we have designed. Waste-absorption

capacity is only one of many critical but still scarcely understood services provided by intact ecosystems. These ecosystem services include regulation of atmospheric gases, regulation of water cycles and the provision of clean water, stabilisation of the global climate, protection from ultraviolet radiation, and the sustenance of global biodiversity, among many others. Without these services, human life itself would be impossible.

By 2050, we have made substantial efforts to protect ecosystem services. But uncontrolled human economic activity still has the capacity to damage them sufficiently to threaten our civilisation. Obviously, well-functioning ecosystems are composed of the same plants and animals that serve as raw-material inputs to the economy; and, all else being equal, increasing raw-material inputs means diminished ecosystem services. Extraction of renewable raw materials directly diminishes ecosystem services, while the extraction of mineral resources unavoidably causes collateral damage to ecosystems. Ecosystem services are also threatened by waste outputs. While waste outputs from renewable resources are, in general, fairly readily assimilated and broken down by healthy ecosystems, ecosystems have not evolved a similar capacity to break down waste products from mining and industry, concentrated heavy metals, fossil fuels, and synthesised chemicals. In 2050 we have dramatically decreased our reliance on these slow-to-assimilate materials like plastics.

Natural capital is also economically important because it provides so many insights into the production process. The more we have learned about how nature produces, the more we have realised the inefficiency, toxicity, and wastefulness of former production techniques. It has now become a standard approach when seeking to solve a production problem to examine healthy ecosystems and strive to understand how they 'solve' similar problems.

A recognition and high level of awareness of the importance of natural capital have led to dramatic changes in the way it is treated. The negative environmental impacts of non-renewable resource use, even more than such materials' growing scarcity, have forced us to substitute them for renewable resources, reversing the trend that began with the Industrial Revolution and making renewables more valuable than ever. Passive investment in natural capital stocks – that is, simply letting systems grow through their own reproductive capacity – is insufficient to meet our needs. Active investment is required. We are actively engaged in restoring and rebuilding our natural capital stocks by planting forests, restoring wetlands, and increasing soil fertility. The former philosophy of natural capital as free goods provided by nature has disappeared. This change has required and inspired significant institutional changes. For example, notions of property rights to natural capital have changed. Most forms of natural capital are now recognised as intergenerational assets. For example, legislation in many countries now explicitly prohibits the extraction of renewable resources beyond the rate at which they can replenish themselves, which would leave future populations dependent for survival on non-renewable resources in danger of exhaustion and for which no substitutes exist.

Property rights to land are explicitly extended to future generations, and there are steep fines or even criminal penalties for purposely leaving land in worse condition than when it was purchased. While ecological factors determine the total amount of natural capital that we can safely deplete, market forces still determine how that natural capital should be allocated. In addition to these fixed limits on resource use, green taxes now force both consumers and producers to pay for the damage caused by resource depletion and waste emission. When these costs are unknown, those undertaking potentially harmful activities are forced to purchase bonds or insurance that guarantee reimbursement to society for whatever damages do occur. These policies have dramatically increased the costs of degrading natural capital. As a result, most countries are rapidly weaning themselves from dependence on non-renewable resources, having developed renewable substitutes for most of them. Many countries are competing to become global leaders in green technology. While we once relied on hydrocarbons as a feedstock for many industrial processes, we now rely heavily on carbohydrates produced by plants. This allows us to build nontoxic, biodegradable carbon polymers from CO₂ extracted directly from the atmosphere. As this technology came into its own, it helped to stabilise and even reduce atmospheric CO₂. Whether we will be able to continue to reduce global warming is still an open question, but one with growing cause for optimism.

Our understanding of ecosystem function has progressed dramatically and we continue to discover new ecosystem services. Yet for every puzzle we solve, we uncover three others. And we remain unable to accurately predict impacts of human activities on specific ecosystems, in part because of ongoing changes induced by continued global change. While the rate of warming has slowed, ecosystems are still slowly adapting to the impacts of that warming. The precautionary principle therefore now plays a critical role in deciding how we treat the environment when there is doubt over the potential impact of resource extraction or waste emissions on ecosystem goods and services. We choose to err on the side of caution. Continuing ecological-restoration efforts have begun to reverse the massive degradation that took place from 1950 through 2025, but continued global warming still threatens dangerous disruptions in ecosystem services. In keeping with the precautionary principle, we now consider it an imperative to develop extensive ecological buffers and to take the idea of planetary boundaries seriously.

Finally, let me remind the reader that this vision is an example and a starting point for broad discussion and consensus building. In addition, it is certainly not the only such vision out there. But I think it contains many of the elements of similar visions. So there is already a lot of overlap and consensus to build on. However, to be an effective societal therapy in a way analogous to Motivational Interviewing, we need to engage the larger society in building a truly shared vision of a sustainable wellbeing future. That is a huge challenge and will require creative new techniques. One thing that may make this possible is the recent development of the ability to communicate with everyone

on Earth in real time. This is a very recent development in human history, but this technology could be used in creative new ways to build consensus, rather than division.

4.4.6 Is This Feasible?

But first, let's try to answer a question that many people will probably have after reading the previous description. This all sounds great, they might argue, but how could it ever happen? Isn't it all just pie in the sky thinking that is not really feasible in the real world? There are a couple of answers to this question. The first is best described in the work of Andrew Simms (Simms 2013) who takes us on a tour of all the places on Earth where the kinds of things described in this vision already exist and are doing well – they are just not all happening in the same place. There are also many small-scale examples of sustainable communities that can serve as models. Many groups and communities around the world are involved in building a new economic vision and testing solutions. These are described later in Chapter 6.

The problem is that we live in a globalised world addicted to fossil fuelled economic growth and it is difficult to generate larger scale examples that are independent enough from the world system to actually try something significantly different. In a sense, we need a total 'regime shift' to a new system (Beddoe et al. 2009) and that often requires at least a partial collapse of the existing order combined with the societal therapy described here. Nevertheless, even though the world is still largely enmeshed in the conventional economic paradigm, several cities, states, regions, and countries are further along the path I outline than others. The Wellbeing Economy Alliance (WEAll) and the Wellbeing Economy Governments (WEGo), described in the following chapters are trying to pull together these initiatives into a global movement.

Once we have developed consensus on the world we all want, the transition will be a process of ongoing societal therapy and directed cultural evolution. To direct this process, we need to generate, communicate, and broadly discuss the many smaller-scale experiments that embody the vision and policies I have articulated.

Notes

1 [www.theoryofchange.org/ what-is-theory-of-change/#4](http://www.theoryofchange.org/what-is-theory-of-change/#4).

2 This vision is adapted and updated from one created at a workshop held at Oberlin College in January 2001, attended by the following diverse group: Audra Abt, Gar Alperovitz, Mary Barber, Seaton Baxter, Janine Benyus, Paul W. Bierman-Lytle, Grace Boggs, William Browning, Diana Bustamante, Warren W. Byrne, Mark Clevey, Jane Ellen Clougherty, Robert Costanza, Tanya Dawkins, James Embry, Jon Farley, Joshua Farley, Harold Glasser, Becky Grella, Elaine Gross, Gerald Hairston, Sarah Karpanty, Carol Kuhre, George McQuitty, Peter Montague, Dondohn Namesling, Aiza Biby, David Orr, John Petersen, William Prindle, Tom Prugh, Jack Santa-Barbara, Claudine Schneider, Ben Shepherd, Megan Snedden, Karl Steyaert, Theodore Steck, Harvey Stone, Paul Templet, Mary Evelyn Tucker, Sarah van Gelder, Rafael Vargas, and Verlene Wilder.

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5 **Creating a Sustainable Wellbeing Future**

How Do We Get From Here to There?

A global movement of individuals, organisations, and governments is needed to shift economies away from a narrow focus on marketed goods and services (i.e., what is measured through GDP) to one more broadly focused on ‘sustainable wellbeing’. Such a movement has been forming, over the last decade, including activists, academics, governments, non-government organisations, and entrepreneurs of various types from around the world. There are many espoused versions of the basic ideas using different approaches and languages as described in the previous chapters, but they all share a common goal which the UN Sustainable Development Goals (SDGs) are an important step in articulating. The challenge is to acknowledge, harmonise, and amplify these many initiatives, while allowing a diversity of thinking, experience, and language to communicate with a variety of audiences. The Wellbeing Economy Alliance (WEAll) is a collaboration formed to catalyse a cooperative, harmonised, and effective approach to creating wellbeing economies. This chapter describes the history and agenda of WEAll, and the research, policies, and action needed to make it successful. It describes the degree of consensus that currently exists on the kind of world we all want (from surveys) and lists and evaluates a range of policies to get there, covering ending fossil fuel subsidies and encouraging renewable energy, deliberative democracy, common asset trusts, tax and subsidy reform, guaranteed income, for-benefit corporations, education reform, and more.

5.1 Finding the Path to the Future We All Want

In Chapter 4, I described the first, important step in the societal therapy needed to break our addiction to fossil fuels and growth at all costs – building a shared vision of the kind of future world we all want. This is certainly no easy task, but achieving it will open the door to a range of policy options that were (and are still) inconceivable at scale under the previous vision. The path to our preferred future will not be straight and direct. It is impossible to predict the details of how this journey will evolve. But when the vision is clear, the path will reveal itself through iterative adaptation.

Consider an analogy from sailing: if we have no destination in mind while at sea, but only wish to maximise speed, then we will choose the point of sail that

does that. If we are in the middle of a vast, seemingly unlimited sea then this strategy could work for quite a while. Alternative strategies would be seen as nothing more than distractions. But if we discover rocks and reefs that lie in the path while wishing to reach safe harbour and not just to maximise speed, then another strategy becomes not only possible, but essential. We may have to tack and jibe back and forth into the wind, but there are many possible paths to reach our safe harbour goal.

Likewise, since WWII we have assumed that maximum GDP growth rates are the goal, and that economies can grow forever with no ultimate limits or barriers. In that ‘empty world’ vision, policies that might detract from GDP growth are seen as distractions at best. But in the ‘full world’ Anthropocene epoch we now inhabit, the barriers and limits are becoming all too obvious and the goal itself must change. The policies, that in an empty world seemed to be unthinkable distractions from the goal of GDP growth, now become essential and obvious to achieve our safe harbour of sustainable wellbeing.

This is also an iterative process. Thinking about the path will solidify the vision, as people begin to see how the vision might be achieved. In what follows, I explore just a few of the possible policy options that can help achieve a sustainable wellbeing future – akin to the vision described in Chapter 4, but one that has been more broadly shared and about which a broad consensus has been reached. We must remember that both the vision and the policies are constantly evolving, and it will take an alliance of stakeholders to move the agenda along and continue its development.

In the following sections is a short list of some of the policies that can help achieve the vision, organised around the three subgoals described in Chapter 3 of sustainable scale, fair distribution, and efficient allocation. A few of these are elaborated in more detail later.

But to be clear, this is not a comprehensive or static list. A key insight from addiction therapy is that there are many paths to achieving the goal, and one must be adaptive and creative. So these suggestions are only a partial starting point as part of an ongoing discussion and adaptive experimentation. There are a huge number of individuals and organisations that are already thinking along similar lines and that have proposed a large and growing number of policy options to achieve the goals outlined here. The Wellbeing Economy Alliance is one initiative trying to bring these groups together around the shared goal of a sustainable wellbeing future. There are even a few vanguard governments as part of this alliance that have established the Wellbeing Economy Governments (WEGo) group, which I describe later.

It should be noted that none of these policy ideas are new, and most have already been implemented somewhere (see Chapter 6). This is to say that they are not ‘pie in the sky’ ideas. They are feasible and in use in some places on Earth already, but to bring them to scale they must be implemented more broadly in support of an overarching shared vision of a wellbeing economy and society. The first step in this therapy is building a vision of our shared goals.

Only then will the policies become obvious and the ways to implement them at scale will become feasible.

For example, here is a short list of some possible policies to move towards a sustainable wellbeing economy. A few of these are explained in more detail later in this chapter.

Sustainable Scale: Respecting Ecological Limits

- Establishment of systems for effective and equitable governance and management of the natural commons, including the atmosphere, oceans, and biodiversity, and common asset trusts.
- Creation of cap-and-auction systems for basic resources, including quotas on depletion, pollution, and greenhouse gas emissions, rooted in basic planetary boundaries and resource limits.
- Quickly phase out the consumption of fossil fuels and replace them with renewable substitutes, while at the same time implementing energy conservation measures to make sure that everyone on Earth has sufficient energy.
- Investments in sustainable infrastructure, such as renewable energy, energy efficiency, public transit, watershed protection measures, green public spaces, and clean technology.
- Promotion of regenerative agriculture, stronger regulation of factory farming, and a ban on wild animal eating and trading.
- Dismantling incentives towards materialistic consumption, including stronger regulation of advertising, banning advertising to children, and regulating commercial media.
- Linked policies to address population and consumption.
- Adapt the Rome Statute to include Ecocide Law in the International Criminal Court.

Fair Distribution: Protecting Capabilities for Flourishing

- Guaranteed fulfilling employment or income, and more balanced leisure-income trade-offs.
- Reducing systemic inequalities, both internationally and within nations, by improving the living standards of the poor, limiting excess and unearned income and consumption, and preventing private capture of the commons.
- Establishment of a system for effective and equitable governance and management of the social commons, including cultural inheritance, financial systems, and information systems like the internet and air waves.
- More progressive taxation, elimination of tax havens, taxing speculative financial transactions, and broader use of common asset trusts and sovereign funds.
- Ban tax havens, tax the rich, design for redistribution.
- Adopt Universal Basic Income, to provide an environment for flourishing for all.

- Return the creation and control of the money supply to the public, rather than the private banks, and explore the broader use of complementary local currencies.

Efficient Allocation: Building a Sustainable Macro-economy

- Use of full-cost accounting measures to internalise externalities, value non-market assets and services, reform national accounting systems, and ensure that prices reflect actual social and environmental costs of production.
- Fiscal reforms that reward sustainable and wellbeing-enhancing actions and penalise unsustainable behaviours that diminish collective wellbeing, including ecological tax reforms with compensating mechanisms that prevent additional burdens on low-income groups.
- Systems of cooperative investment in stewardship (CIS), payment for ecosystem services (PES) and common asset trusts (CATs).
- Increased financial and fiscal prudence, including greater public control of the money supply and its benefits and other financial instruments and practices that contribute to the public good.
- Ensuring availability of all information required to move to a sustainable economy that enhances wellbeing through public investment in research and development and reform of the ownership structure of copyrights and patents.

I'll not try to cover all of these ideas in detail for three reasons: (1) The governance system needed to adequately implement them has to be actively adaptive. Policies must be viewed as experiments and the results must be monitored against progress towards the overarching goal and the system must be able to learn and change; (2) There are much better descriptions and a robust literature elsewhere for most of them; and (3) This is not a complete or static list.

So I'm not proposing these ideas as the answers for how to get to a sustainable wellbeing future, but only as some proposed experiments that can help us learn about the path and allow for adaptation and corrections. Nevertheless, I'll go into detail on a few interconnected ideas as examples, including property rights regimes, common asset trusts, tax and subsidy reform, and participatory governance institutions.

5.2 A Broader View of Property Rights and Common Assets

Conventional economic markets are relatively efficient at managing 'simple' (rival, scarce, and easily excludable) goods and services (Figure 5.1). Under special conditions, markets can determine a price such that the marginal cost of producing a good equals its marginal benefit.¹ However, as discussed in previous chapters, the limiting factors to creating a sustainable and desirable world in today's Anthropocene epoch are natural and social capital, which are not simple goods (Daly 2005; Beddoe et al. 2009) yet arguably provide

the majority of support to sustainable human wellbeing (Costanza et al. 1997; Costanza et al. 2014b). In addition, even simple marketed goods require inputs in their supply chains from natural and social capital which are not included in the cost of production, limiting the efficiency of market pricing and allocation (Daly and Farley 2010). Natural and social capital require significantly different institutions and management regimes than those used for simple, marketable assets and the goods and services they help produce (Kubiszewski et al. 2010; Costanza et al. 2014a).

The characteristics of resources are not always well defined and can change with technological advancements. Figure 5.1 shows the characteristics of various resources in terms of their rivalness and their ease of exclusion. Rivalness refers to the degree to which one person's benefiting from a good or services prevents others from also benefiting. For example, if I eat an apple, no one else can eat the same apple. They are therefore rival. But if I benefit from a stable climate, everyone else can also benefit. A stable climate is non-rival. The ease of exclusion is a spectrum since technology may change this characteristic. Simple goods are easily excludable and rival. For example, I can exclude people from eating my apples unless they pay me for them. Fish in the open ocean are rival as there is a limited amount, but it is very difficult to exclude someone from fishing in the open ocean. The open ocean itself is a non-rival and difficult to exclude natural capital asset, whereas fish once harvested can become rival and

		Ease of Exclusion		
		Easy	Difficult	Approaching Impossible
Rivalness	Rival & Scarce	Market Goods And Services Clothing	Open access goods Wild Game	Fish in Open Ocean
	Rival & Abundant	Public Goods and Some Services		
	Parks	Regulating and Cultural Ecosystem Services	Atmospheric Oxygen	
	Non-Rival	Public Services		
Flood Protect	National Security	Ozone Protection		
Non-Rival & Additive	Information, Social Capital, Telecommunication			
Telephones	Music	Internet		

Figure 5.1 Goods and services classified according to rivalness and excludability.

Source: Adapted from (Kubiszewski et al. 2010).

excludable market goods. However, this is changing as technology is making excludability easier with GPS tracking of both boats and fish. The internet, on the other hand, is non-rival (it improves the more people that use it) and it's hard to exclude people from it. The same management schemes used for assets and goods that are rival and easily excludable, are inappropriate for the management of those that are non-rival and not easily excludable.

Sustaining and enhancing human wellbeing requires a balanced portfolio of all our assets – individual people, society, the built economy, and natural ecosystems. As discussed in Chapter 3, these four basic types of capital assets (human, social, built, and natural) all have distinctly different characteristics that affect how they interact to produce ecosystem services and other public and private benefits (Costanza et al. 2014b). Their characteristics and interactions can also guide what types of property rights regimes and institutions are most effective for managing them sustainably and well.

To solve our increasing challenges around environmental degradation and climate disruption, society must design and implement new institutions based on more nuanced forms of property rights (Hanna et al. 1995; Baden and Noonan 1998). Private property rights and conventional markets are a necessary institution as part of this mix, but will not ensure ecological sustainability and fair distribution (Prugh et al. 2000) on their own. Common property rights and institutions can help do so. Private property rights are relatively effective for allocating 'simple' rival and excludable assets, goods, and services, but we cannot rely on private property and markets to allocate resources that are non-rival and/or not easily excludable (Ostrom 2008). Creating a sustainable and desirable future requires that we find the right balance between private and community property at multiple scales in space and time.

5.2.1 Property Rights to the Commons

The basic idea behind common property regimes is that assets created by nature or by the whole society should belong to everyone, including future generations. This idea has a long history in environmental discourse (Bromley 1992; Barnes 2006; Bollier 2007; Bollier and Helfrich 2014). A recent manifestation is the idea of granting legal rights to natural systems. For example New Zealand's Whanganui River, and India's Ganges River, were recently granted the legal rights of 'personhood' and Ecuador's Constitution now grants nature the 'right of integral respect' (Tanasescu 2017). These initiatives are quite consistent with what I am proposing. Next, I flesh out some ways to act on these legal precedents to create more nuanced property rights regimes to better manage the commons.

The 'tragedy of the commons' (Hardin 1968), was a mislabelling of a resource which had no ownership or rights and was an open access resource, not one with community ownership rights and shared management (Feeny et al. 1990). Resources owned in common can be effectively managed through collective institutions that assure cooperative compliance with established rules and

agreements (Berkes 1989; Feeny et al. 1990; Ostrom 1990; Barnes et al. 2008; Atkins et al. 2019). Ostrom articulated eight core design principles as guidelines for effective and sustainable commons management. Table 5.1 lists these principles and a more generalised version from Atkins et al. (2019). While incorporation of these design principles does not guarantee a successful commons management system, they have been shown to be important ways to guide and evaluate system design. For example, one analysis of the effectiveness of Ostrom's design principles in 91 case studies of common property resource management found that the principles are well-supported by the data (Cox et al. 2010).

By declaring certain assets the shared property of all community members, the beneficiaries are clearly defined, and all members have incentives to monitor their neighbours and ensure no individual takes too much (as in the case of Territorial Use Rights for fishing (Young 2013)). Those who do take more than their share are likely to be first rebuked by their compatriots, and if rebuke fails, reported to the law – an example of principle 5 (see Table 5.1), *graduated sanctions*. As Wilson et al. (2013) note, when citizens have “a sense of ownership, monitoring and graduated sanctions take place spontaneously” (p. S29).

But simple rights of ownership do to not ensure responsible management of a resource. Property rights usually refer only to control over a resource, not to responsibility for its effective management. For global resources such as the atmosphere and open ocean fisheries, there *must* be an element of stewardship on behalf of those who cannot directly speak for their interests, such as those

Table 5.1 Elinor Ostrom's eight core design principles for sustainable commons management, with a generalised version (Atkins et al. 2019) and a description of the basic function of each principle in the context of CATs.

<i>Ostrom's principle</i>	<i>Generalised version</i>	<i>Function</i>
1. Clearly defined boundaries	Shared identity and purpose	Defines group and establishes property rights
2. Proportional equivalence between benefits and costs	Equitable distribution of contributions and benefits	Ensures effectiveness by balancing individual and collective interests
3. Collective choice arrangements	Fair and inclusive decision-making	“
4. Monitoring	Monitoring agreed behaviours	“
5. Graduated sanctions	Graduated responding to helpful or unhelpful behaviour	“
6. Conflict resolution mechanisms	Fast and fair conflict resolution	“
7. Minimal recognition of rights to organise	Authority to self-govern (according to principles 1–6)	Ensures effectiveness while supporting engagement
8. Polycentric governance	Collaborative relations with other groups (using principles 1–7)	Connects to other spatial and temporal scales

without access to adequate resources for their sustenance, the dispossessed and future generations. It is the role of government to ensure such stewardship occurs through guaranteeing that agreements to control the commons meet the needs of all involved in the system.

Governments (or a coalition of national governments, in the case of global resources such as atmospheric waste absorption capacity or oceanic fisheries) are generally required to create and enforce property rights regimes. For example, the public sector can cap resource use at rates less than or equal to renewal rates, which is compatible with inalienable property rights for future generations. Since these resources are created by nature and enforcement requires the cooperative efforts of society as a whole (but especially government), rights to the resource should also belong to society as a whole. Individuals who wish to use the resource for private gain must compensate society for the right to do so. For example, a cap, auction, and dividend scheme, in which the revenue is equally distributed among all members of society or invested in common good infrastructure works like this (Barnes 2006; Barnes et al. 2008). Taxes on waste emissions and resource extraction can serve the same purpose as a cap and auction system. Preventing the re-sale of the temporary use-rights would reduce the potential for speculation and private capture of rent.

Under common ownership regimes, both costs and benefits accrue to the community as a whole, and the two are more likely to be brought into balance. This satisfies Ostrom's second core design principle – that there be proportional equivalence between benefits and costs (Table 5.1). Cap, auction, and dividend schemes ensure that everyone who uses common assets must pay the same price, with resulting revenue spent on the common good, while taxes on rent ensure that no one captures unearned profits from common assets. Both policies ensure that principle 2, *equitable distribution of contributions and benefits*, is met.

5.2.2 *The Public Trust Doctrine*

The *public trust doctrine* has its roots in ancient Roman law and occurs in the many legal systems derived from it. It holds that certain natural resources should be held in trust as assets for public use. It is the government's responsibility as trustee to protect these assets from harm and maintain them for the public's use. It also asserts that the government cannot sell off these public assets to private parties.

The public trust doctrine has been used in many countries in the past to protect water bodies, shorelines, fresh water, wildlife, and a few other resources, but as Wood (2014) argues, the time has come to expand the reach of the doctrine to cover all of the critical natural capital and ecosystem services that support human wellbeing, including the atmosphere, the oceans, ecosystems, and biodiversity. Wood argues that governments have been shirking this responsibility to protect 'nature's trust' and instead have retreated to a statutory and regulatory approach to the environment that has allowed the decimation of

natural capital by private interests. She makes the case that, under the public trust doctrine, governments cannot legally shed their responsibility to protect the environment in trust for current and future generations and notes that “Properly understood, the public trust stands as a fundamental attribute of sovereignty – a constitutive principle that government cannot shed” (Wood 2014, p. 129).

The public trust doctrine implies that critical natural capital should be seen as a community asset that belongs to all, and should be held in trust and managed responsibly for the benefit of current and future generations. It also implies that the public can hold governments responsible for failure to fulfil their responsibilities to protect public assets. It further implies that governments can claim natural resource damages from parties responsible for the damage in order to restore the asset and make the public ‘whole’. For example, the US government claimed damages from BP for the Deepwater Horizon oil spill and for the Exxon Valdez oil spill. Kuwait claimed environmental damages from Iraq for the first Gulf War (Payne and Sand 2011).

The ‘Nature’s Trust’ idea can also significantly change the whole discussion about how to deal with climate disruption. Rather than national governments negotiating with each other about emissions reductions, governments can be seen as co-trustees with a fiduciary responsibility to protect the atmospheric trust. To do this they can claim damages from the private interests that harm the public asset. As Wood (2014) notes: “Trustees have an affirmative obligation to recoup monetary damages against third parties that harm or destroy trust assets.” For example, several US states, including Rhode Island, are suing oil companies for climate related damages (p. 185).²

5.2.3 Common Asset Trusts (CATs)

Trusts are widely used and well-developed legal mechanisms designed to protect and manage assets on behalf of specific beneficiaries. Extending this idea to the management and protection of natural capital, such as the atmosphere, oceans, and ecosystems more broadly, is a straightforward extension of this idea. Common asset trusts (CATs) are based on the integration of the public trust doctrine and community property rights as described earlier. In essence, a CAT is a collection of agreements and poly-centrally governed institutions in support of a shared purpose – the sustainable management of public goods. But how should such agreements and institutions be designed for maximum effectiveness in realising that purpose? Ostrom’s design principles for sustainable commons management (Table 5.1) provide a guide to key factors to consider in the design of CATs.

For example, existing legal structures around property provide conflict resolution mechanisms that are widely perceived as fair (principles 5 and 6 – see Table 5.1). Implementation of CATs should also pay close attention to two other principles: 3–collective choice arrangements and 7–minimal recognition of rights to organise, both of which relate to the unwillingness of people to

accept rules imposed from above. Participatory, transparent, democratic, governance is therefore essential for CATs. Communication between the board of trustees and civil organisations should be built into the CAT. It is also essential to recognise that CATs are designed to protect the rights of future generations, which clearly cannot help to formulate rules and goals. The need to respect ecological limits must therefore be non-negotiable. Finally, CATs must explicitly deal with border-crossing pollutants and other impacts (principles 7 and 8).

5.3 Tax and Subsidy Reform

Taxes have two effects. First, they generate revenue for the government, and second, they increase the cost of the things that are taxed and discourage their consumption relative to alternatives. Taxes that shift the burden of taxation away from the useful products of the economy and onto undesirable by-products like carbon emissions, pollution, and the depletion of natural capital in general can thus provide revenue while discouraging natural capital depletion. This ‘ecological’ tax reform would ease the burden of taxation on the economy at the same time it eases the economy’s burden on the environment.

The argument that polluters should pay for their pollution dates back at least to the writings of A.C. Pigou, who argued that a pollution tax should be set such that an increment of pollution incurs a tax equal to the damage done to others by the pollution (Pigou 1924). In this way pollution is in theory controlled in the most efficient and cost-effective manner, with compensation paid by the polluter via the tax. The informational requirements for measuring the damage done by pollution are tremendous, however, so any estimation of a ‘correct’ level for a Pigouvian tax will necessarily be approximate.

More recent analyses have sidestepped the informational requirements of Pigouvian taxes and emphasised instead a ‘double dividend’ to the economy and the environment from ecological taxes. Taxes on income, capital, or other useful products of the economy tend to discourage productive activity, and with these ‘dead weight’ distortions, the economy runs less efficiently. The first dividend of reformed taxes accrues to the economy as market-distorting taxes on income and capital are reduced in favour of less distortionary taxes on resources and pollution. The second dividend accrues to the environment as the ecological taxes encourage efficient use of resources and further control of pollution. A tax shift onto pollution may thus be justified on narrow economic efficiency grounds without the detailed information necessary to estimate the ecological benefits of the shift (Barker et al. 1993). Taxes on carbon dioxide and other greenhouse gas emissions are the most well-known form of ecological tax, and economists of almost all stripes agree that such a tax would be an effective way to reduce greenhouse gas pollution (Andersen and Ekins 2009).

Some ecological taxes have already been implemented and there has been sufficient positive experience with them to justify considering their more widespread use. The 1989 US Federal tax on ozone-depleting chemicals stands as a model of the win-win to the economy and environment, in terms of shifting

the burden of taxes onto pollution. Following the Montreal Protocol of 1987, this tax on chlorofluorocarbons (CFCs) and other ozone-depleting chemicals raised more than a billion dollars in revenue while it rapidly depressed the production of ozone-depleting chemicals and stimulated the production of benign alternatives. It curbed production of ozone-depleting chemicals at a pace that exceeded the more stringent 1990 Adjustments and Amendments to the Montreal Protocol, and did so smoothly and without a thicket of regulations. It allowed industry to respond to market forces to control ozone-depleting chemicals in the most cost-effective ways without the necessity of dictating the detailed means (Gale and Barg 2014).

This principle has been adopted more broadly internationally and reflects a growing trend to use taxes more creatively as a tool to stimulate appropriate kinds of economic development. An early example in the Netherlands was a levy on industrial discharges according to their biological oxygen demand and concentrations of heavy metals. The levy, which was first developed to pay for subsequent water treatment, also encouraged more than two-thirds of the affected industries to reduce their effluents dramatically and develop their own more efficient treatment processes (Roodman 1998).

Carbon taxes or cap/dividend/trade schemes are a recent manifestation of ecological tax reform. There is widespread support for this policy among economists, policy professionals, and environmental activists, but fierce resistance from the fossil fuel industry and politicians beholden to them. There is little doubt that adequately structured and enforced carbon taxes or cap/dividend/trade schemes would work to rapidly bring down carbon emissions and hasten the shift to renewable energy. That is, of course, the reason for the resistance from fossil fuel interests. They don't want the use of their products to decline along with their revenues and the value of their enormous reserves. It is also increasingly clear that the fossil fuel industry knew about the damage to the climate caused by carbon emissions for decades. They lobbied governments and produced well-funded misinformation campaigns. US Federal Administrations from Carter to Trump also knew about the impacts of carbon emissions (Speth 2021). As Speth says about the defendants (the US government) in the *Juliana v the United States* 'Our children's trust' case:

- defendants knew the basic science of climate change and knew that the continued burning of high levels of fossil fuels would lead to climate danger; and
- defendants knew of pathways recommended by experts within government and others to transition away from fossil fuels, including through conservation, efficiency, and solar and other renewables.

Notwithstanding this, defendants continued from the Carter years to the present to plan for, support, invest in, permit, and otherwise foster a national fossil-fuel-based energy system.

This is fossil fuel reliance – a major symptom of the societal addiction we face. The fossil fuel industry powers economies around the world, but the damages from continuing this dependence are rapidly growing. The impacts are now clear to everyone willing to look, in the form of increasing extreme weather events from droughts, heat waves and wildfires to storms and floods. If we are to overcome this addiction and achieve a world of sustainable wellbeing, we are going to have to overcome this resistance to the urgent and rapid change that is necessary. As noted earlier, a crucial first step is building a shared vision of a better world. That vision can motivate policies for change like the following, which combine the ideas of ecological tax reform and common asset trusts.

5.3.1 Carbon Taxes and an Atmospheric Common Asset Trust

The atmosphere is a community asset that belongs to all of us – humans and the rest of nature. The problem is that it is currently an open access resource – anyone can emit carbon dioxide into the atmosphere with no consequences to themselves, but with huge cumulative consequences to the climate and the global community. Many agree that charging companies and individuals for the damages their emissions cause, for example, a comprehensive carbon tax or cap/auction/dividend/ trade system, would drastically cut emissions. However, despite some interesting regional experiments, implementing this kind of system via international negotiations at the global level has proven close to impossible. Fossil fuel interests and lobbyists have heavily influenced politicians and have been blocking binding commitments and effective economic instruments like carbon taxes or cap/auction/dividend/trade systems.

Global civil society can change this if it claims property rights over the atmosphere. By asserting that all of us collectively own the sky, we can begin to use the legal institutions surrounding property to protect our collective rights, charge for damages to the asset, and provide rewards for improving the asset. The Public Trust Doctrine described earlier is a powerful emerging legal principle that supports this idea. Governments have been shirking this responsibility to protect ‘nature’s trust’ (partly due to the influence of the fossil fuel industry) and need to be required to fulfil their duty, including claiming damages. This problem is complicated by the fact that the atmosphere is a global asset. However, from the perspective of Nature’s Trust, the fact that nations are co-trustees makes them no less responsible for protecting the asset than individual sovereigns are for protecting assets like shorelines or open water bodies that occur exclusively within their borders. The Nature’s Trust idea significantly changes the whole discussion about how to deal with climate disruption. Rather than national governments negotiating with each other about emissions reductions, governments should see themselves as co-trustees with a fiduciary responsibility to protect the atmospheric trust. To do this, they can claim damages from the private interests that are causing the problem. As Wood notes, “Trustees have an affirmative obligation to recoup monetary damages against third parties that harm or destroy trust assets” (p. 185). If an oil spill occurs in the oceans,

governments collect natural resource damages for cleaning up the mess. Yet they sit idle in the face of a catastrophic ‘spill’ of carbon dioxide into the atmosphere.

Holding climate polluters accountable for their damage is more straightforward than it might seem. Approximately 90 companies globally are responsible for introducing two-thirds of the carbon emitted into the atmosphere (Ekwurzel et al. 2017). This means that damage claims could target a relatively small number of business interests. In addition, all governments would not need to agree in order to employ this tactic. Since all governments are co-trustees in the global atmospheric asset, a subset of nations could bring the damage claims. Damages achieved from these legal actions could fund restoration projects in those same countries, provided that they are certified to sequester atmospheric carbon or expedite the transition to non-nuclear, renewable energy. In addition, governments could charge for ongoing damages via a carbon tax, cap/dividend/auction or other mechanisms. But, given that governments have not acted on their own, well planned civil-society pressure will be required to support governments to act, and to counteract the inevitable corporate resistance. A concerted effort to ‘claim the sky’ as a public trust on behalf of all global society, in combination with the solid legal framework provided by the public trust doctrine, may just do the trick. The Civil Rights Movement in the US was based on equally solid legal principles but required coordinated social activism to achieve success. A broad coalition of individuals and groups can declare that the atmosphere belongs to all of us and our descendants, and that we demand that the polluters pay for recovering and maintaining our atmosphere. We can establish an Earth Atmospheric Trust to charge for damages to the atmospheric commons and to qualify restoration projects (projects that achieve carbon drawdown through soil sequestration and reforestation, or that promote transition to a renewable energy infrastructure). These are not ‘carbon offset projects’. We have to go beyond offsets to demand cleanup of the atmosphere. The Trust can maintain a financial accounting and carbon accounting of projects funded by corporate polluters to carry out their liability to the citizen beneficiaries. A public outreach campaign to build pressure can start by sending invoices to the polluters themselves for past and ongoing damages.

Here are some details about how the Atmospheric Trust could be funded, and the possible structure of the trust itself.

Funding for the trust includes:

- 1) *Create a global cap, auction, and trade system for greenhouse gas emissions – all greenhouse gas emissions from all sources.* Although either could work, we believe a cap, auction, and trade system is superior to a tax system for this purpose, because the major goal is to cap and reduce emissions in a predictable way. Caps set quantity and allow price to vary; taxes set price and allow quantity to vary. The European Union Emissions Trading Scheme is an example of this approach.³

- 2) *Auction off all permits* to introduce greenhouse gases into the system. Some trading among permit holders may be allowed, but the auction of permits is *essential* in order to send the right price signals to permit holders. The EU trading scheme initially started by giving away the permits for free, but has changed to auctioning most of the permits. Unlike the EU scheme and other emissions trading schemes, permits in the EAT scheme would be issued at the point of entry into the economy rather than the point of emissions to the atmosphere. Holding climate polluters accountable for their damage is more straightforward than it might seem. As mentioned, approximately 90 entities globally are responsible for introducing two-thirds of the carbon emitted into the atmosphere.⁴ This means that permits could target a relatively small number of private and state interests, mainly the fossil fuel sector, rather than the entire population. If carbon intense industries internalise their negative externalities (with its associated operational cost), this will be translated in higher prices of products and services that depend on these industries and will hasten the transition to products and services that do not.
- 3) *Gradually reduce the cap to stabilise concentrations of greenhouse gases in the atmosphere at a level equivalent to 450 ppm of carbon dioxide* (or better) as recommended in the Paris Agreement. The price of permits will go up and total revenues will increase as the cap is reduced.

The revenues from these activities would then be deposited into an Atmospheric Trust with the following features:

- 4) It would be administered by trustees serving long terms and provided with a clear mandate, appropriate governance structures and incentives to protect the asset (the climate system and atmosphere) for the benefit of current and future generations.
- 5) *Return a fraction of the revenues to all people on Earth in the form of an annual per capita payment.* This amount will be insignificant to the rich, and much smaller than their per capita contribution to the fund, but will be enough to lift many of the world's poor out of poverty. It is likely that the Trust's income would rise as the cap is lowered.
- 6) *Use the remainder of the revenues to enhance and restore the asset, to encourage both social and technological innovations, and to run the Trust.* These funds could be used to fund renewable energy projects, research and development on new energy sources, payments for ecosystem services such as carbon sequestration, etc.

The details of this global CAT would need to be co-produced using the Ostrom principles as guidelines, as described earlier, and incorporating the governance principles discussed in the next section. A system designed with these general features would directly deal with climate change, while being fair, efficient, and

relatively immune to political manipulation, and it would also help to alleviate global poverty.

5.4 Participatory Governance Institutions for Sustainability

A key aspect of our current addicted system is that in most countries governance institutions are geared towards satisfying the interests and desires of a small subset of the population. This is obvious in autocratic political regimes, but even in many ‘democratic’ countries, decisions are all too often dictated by special interest groups (including the fossil fuel, construction, defence, and pharmaceutical sectors) and do not reflect the preferences and will of the people (Greider 2010; Gilens and Page 2014). The elites in power are obviously reluctant to change and tend to deny the severity of problems – just as addicts will deny problems with their habit.

Representative democracy is in many cases these days *not* representative of the *demos* (the people) at all, but rather of the *ploutos* (the wealthy and powerful). Many governance systems that call themselves democracies are plutocracies or oligarchies, not true democracies. This enhances the strength of the addiction and complicates therapy because the plutocrats are benefiting enormously from the current system and are not motivated to change. These plutocratic systems do not facilitate true participation in governance, and this leads to large swaths of the population feeling unheard and unhappy while the system remains very resistant to change. As discussed in Chapter 3, participation in decision-making is a major contributor to both individual and societal wellbeing.

Gilens and Page (2014) tested the hypothesis that economic elites control policy decision-making for the US using a unique data set that included measures of 1,779 policy issues. They concluded that “economic elites and organized groups representing business interests have substantial independent impacts on U.S. government policy, while average citizens and mass-based interest groups have little or no independent influence” Gilens and Page (2014, p. 564).

In fact, the US has been downgraded to a ‘flawed democracy’ in the 2020 Economist Intelligence Unit’s Democracy Index, along with 51 other countries. According to this index the world now has 57 authoritarian regimes, 35 hybrid regimes, 52 flawed democracies, and only 23 full democracies (Economist Intelligence Unit 2020). However almost all of these still describe themselves as democracies.

But even in relatively well-functioning full democracies like Scandinavia, special interests often still have undue influence over governance. The plutocrats and autocrats have a clear shared vision of the world they want and are implementing it, but this vision is increasingly in conflict with the vision of the general population and in conflict with sustainable wellbeing. The proposed solutions often involve fixing the voting system to make it fairer and more representative, getting the money out of politics, and reducing the influence of lobbyists. These are certainly essential steps and are the signs of a full

democracy as opposed to flawed democracies like the US, but the problems are much deeper. They relate to how collective decisions are made and how to improve truly participatory collective decisions that reflect the broader goals of sustainable wellbeing for the entire population and the rest of nature. Here are a few ideas that have been developed that may help do that.

5.4.1 *Deliberative Democracy*

Deliberative democracy is based on the idea that true deliberation, free from the distortions of unequal political power, is necessary for legitimate democratic decision-making. It can be either direct or representative. In direct deliberation, all stakeholders relevant to a decision deliberate together (as in New England town meetings). In the representative case, how the representatives are selected is key. The process must be free from the distortions of political power and influence that are so prevalent in existing democracies as discussed earlier. One method for doing this is known as ‘sortition’ where the representatives are selected at random from the stakeholder or candidate population, rather than by election via voting. This has the advantage of preventing the buying of influence over candidates’ positions since there is no possibility to influence the selection process. In Athenian democracy, sortition was the primary way of selecting political officials. Its use was regarded as an essential feature of democracy. Today, a form of moderated sortition is used to select prospective jurors and citizen advisory groups, but its use could be greatly expanded and combined with a general improvement in the level of equitably accessible civic education so all members of the community/public understand their role and are empowered to make informed decisions when serving in these posts.

The United States spent an estimated \$14 billion on the extremely polarising 2020 national and state elections. Imagine if this had been done by sortition. The president and vice president would be selected at random from a large pool of qualified candidates. This pool could consist of all members of Congress and state governors, all of whom would have been selected by the same process. This would spell the end of political parties, lobbyists, political campaigns, and attempts to buy influence. It would be free from the distortions of unequal political power and better represent true democracy. Of course, the current political parties are totally addicted to the current system and will not break the habit easily, even in the face of the obvious dysfunctionality of the current system in making political decisions that are truly for the common good.

Assume that deliberative groups are formed by some version of sortition or other truly representative systems. How do they then deliberate in a way that is productive and can lead to good decisions? Civil discussion among equals is an essential feature of true democracy. To make decisions the usual recommendation is that the goal is consensus and failing that some form of majority voting. But some interesting work has been done on a method known as ‘sociocracy’ that may be better than either of these.

5.4.2 Sociocracy

Sociocracy is governance by the *socius* or group or society. It has roots in the ideas of Auguste Comte and Lester F. Ward in the 19th century, and Kees Boeke in the 1920s. It is also related to Quaker meeting practice. In its modern manifestation as a formal system of governance and decision making, its origins can be traced to Gerard Endenburg, a Dutch entrepreneur, who developed the Sociocratic Circle Organisation Method (SCM). Since then, the method has been developed and used successfully by thousands of companies and communities to improve governance and decision-making. A number of websites provide practical guides.⁵

Sociocracy is based on four key ideas (Owen and Buck 2020):

- 1 **The principle of consent governs decision-making**, rather than consensus or majority rule. This is an important distinction. Majority rule disadvantages and disenfranchises the minority, while requiring absolute consensus can stall progress. Consent, by contrast, requires that all participants can ‘live with’ the decision. Participants ask themselves if the decision is ‘good enough for now and safe enough to try’. If there are participants who cannot consent to a decision, then a discussion is started, aimed at finding an acceptable adaptation to the original proposal that satisfies the objection. This often leads to an improved proposal that can accommodate the shared interests of the whole group. The process generates improved engagement by participants in the decision-making process and broader, more sustainable support for decisions. It also implies that decisions only need to be ‘safe enough to try’ and that the results of the decision should be closely monitored and revisited if the intended results do not come to pass. Thus, the process is a form of ‘active adaptive management’ discussed further on.
- 2 **Overlapping networks of semi-autonomous ‘circles’ as the fundamental structure**, rather than a strict hierarchy or flat organisation. The circles are groups appropriately sized to deal with the domain of responsibility that has been allocated by the overall group. Consent, as described earlier, is used for decision-making in all circles as well as for selection of individuals for specific roles within the circle. Circles are overlapping with shared membership in each overlap.
- 3 **Egalitarian selection of individuals for leadership and functional tasks**. Elections are also taken by consent. Members of a circle first nominate either themselves or other members of the circle for a role. They must present the rationale for why they or their choice would be the best person for the role. There is then a deliberative discussion about the nominations with the possibility to change nominations. At some point, the discussion leader will recommend the election of the person for whom there are the strongest arguments. If any circle members have reasoned objections, there is further discussion until consent is achieved. This may

go very quickly or require several rounds. But the bottom line is that the process chooses the individual who the entire circle can at least 'live with'. This is quite different from the majority rule process, which often results in the election of individuals who are only acceptable to slightly more than half of the group.

- 4 **Double Linking of circles to facilitate vertical and horizontal networking** and communication. Circles are overlapping and at least two individuals are included in each of the overlaps. At the highest level of the organisation, there is a 'top circle' that works within the policies of the circle structure rather than ruling over it. This is analogous to a board of directors for a company or a Parliament for a country. The members of the top circle can include external experts with expertise in law, government, finance, community, and the organisation's mission. It would also include members from overlapping lower circles.

More recently, Sociocracy 3.0 has elaborated on these ideas and developed seven foundational principles. I'm reproducing them here directly from the website (<https://patterns.sociocracy30.org/principles.html> accessed 12/2021).

The Principle of Effectiveness: Devote time only to what brings you closer towards achieving your organization's overall objectives, so that you can make the best use of your limited time, energy and resources.

The Principle of Consent: Raise, seek out and resolve objections to decisions and actions, so that you can reduce the potential for undesirable consequences and discover worthwhile ways to improve.

The Principle of Empiricism: Test all assumptions you rely on through experiments and continuous revision, so that you learn fast, make sense of things and navigate complexity as effectively as you can.

The Principle of Continuous Improvement: Regularly review the outcome of what you are doing, and then make incremental improvements to what you do and how you do it based on what you learn, so that you can adapt to changes when necessary, and maintain or improve effectiveness over time.

The Principle of Equivalence: Involve people in making and evolving decisions that affect them, so that you increase engagement and accountability, and make use of the distributed intelligence toward achieving and evolving your objectives.

The Principle of Transparency: Record all information that is valuable for the organization and make it accessible to everyone in the organization, unless there is a reason for confidentiality, so that everyone has the information they need to understand how to do their work in a way that contributes most effectively to the whole.

The Principle of Accountability: Respond when something is needed, do what you agreed to do, and accept your share of responsibility for the course of the organization, so that what needs doing gets done, nothing

is overlooked and everyone does what they can to contribute toward the effectiveness and integrity of the organization.

Sociocratic principles and processes are a form of deliberative democracy that have been used successfully by companies and small groups. I had some personal experience with the method during my involvement with the development of the Champlain Valley Cohousing community in Vermont in the early 2000s. I can attest to its success in this context and its clear superiority over consensus or majority rule decision-making in this group of about 20 families. The challenge is scaling up to larger communities, states, nations, and the world. But there is no fundamental reason why this could not work. The main barrier is our addiction to the current systems of governance.

There are also significant overlaps between Sociocratic principles and those that have been developed in other contexts by other groups. For example, I hope you can see the overlap with the following list sustainable governance principles developed over 20 years ago as just one example.

5.4.3 The Lisbon Principles

At a workshop held in Lisbon, Portugal, in July 1997, sponsored by the Independent World Commission on the Oceans (IWCO) in conjunction with the Luso-American Development Foundation, a group of 16 diverse participants developed a core set of principles for sustainable governance of the oceans (Costanza et al. 1998). These six principles are general enough to apply to the governance of our natural capital assets generally and are reproduced below:

Principle 1: Responsibility. Access to environmental resources carries attendant responsibilities to use them in an ecologically sustainable, economically efficient, and socially fair manner. Individual and corporate responsibilities and incentives should be aligned with each other and with broad social and ecological goals.

Principle 2: Scale-matching. Ecological problems are rarely confined to a single scale. Decision-making on environmental resources should (i) be assigned to institutional levels that maximise ecological input, (ii) ensure the flow of ecological information between institutional levels, (iii) take ownership and actors into account, and (iv) internalise costs and benefits. Appropriate scales of governance will be those that have the most relevant information, can respond quickly and efficiently, and are able to integrate across scale boundaries.

Principle 3: Precaution. In the face of uncertainty about potentially irreversible environmental impacts, decisions concerning their use should err on the side of caution. The burden of proof should shift to those whose activities potentially damage the environment.

Principle 4: Active Adaptive management. Given that some level of uncertainty always exists in environmental resource management,

decision-makers should continuously gather and integrate appropriate ecological, social, and economic information with the goal of adaptive improvement.

Principle 5: Full cost allocation. All of the internal and external costs and benefits, including social and ecological, of alternative decisions concerning the use of environmental resources should be identified and allocated. When appropriate, markets should be adjusted to reflect full costs.

Principle 6: Participation. All stakeholders should be engaged in the formulation and implementation of decisions concerning environmental resources. Full stakeholder awareness and participation contributes to credible, accepted rules that identify and assign the corresponding responsibilities appropriately. Deliberative democracy and sociocratic ideas can help effectively improve this process.

To sum up, the ideas elaborated here are intended to be the basis for discussion as part of ongoing societal therapy. Once change has been motivated by the shared vision, the paths to get there can begin to take shape. They are the ‘planning’ phase in Motivational Interviewing terms. To be effective they must support and implement the shared vision developed earlier. Lacking the shared vision, the motivation to change is not sufficiently there and the addiction can remain in place.

Notes

- 1 Assuming a long list of conditions apply, including no externalities.
- 2 www.commondreams.org/news/2019/07/23/big-win-rhode-island-court-battle-make-polluters-pay-consequences-climate-crisis.
- 3 https://ec.europa.eu/clima/policies/ets_en.
- 4 www.theguardian.com/environment/2013/nov/20/90-companies-man-made-global-warming-emissions-climate-change.
- 5 <https://patterns.sociocracy30.org/>.

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6 Sustaining a Better World in 2050 and Beyond

Ongoing Envisioning and Adaptive Management

The last chapter of this book is a description of a world where the therapy has worked, but there will always be the constant possibility of relapse. How do we guard against falling into the same traps and ensure that progress is sustained by maintaining a creative, adaptive approach? This chapter reinforces the policies mentioned in Chapter 5, but from the point of view of maintenance and adaptive improvement, rather than creation, and shows that the kind of future described in previous chapters is not just a utopian pipe dream. On the contrary, it is already happening in many places around the world, but it is not yet widely shared and implemented. Examples are given from historical and current implementations of these policies. For example: education reform in Finland, universal basic income experiments in Kenya, Finland, and India, transition towns and ecovillages in many countries, renewable energy systems at many scales, regenerative agriculture, government efforts to measure sustainable wellbeing, and many more. The shared vision of the better world needed to motivate change starts by pointing out that this world is both possible and better, and that it can, and in many ways, already has been achieved in some places.

6.1 The Future We Want Is Already Here

Andrew Simms called this vision of a positive future ‘fantasy economics’ (Simms 2013). He describes a fantasy land called ‘Goodland’ where most of the features described in previous chapters exist and life is good for the vast majority of people. But Goodland is not a utopian pipe dream that could never happen. In fact, it is a world assembled (like a fantasy football team) from the best parts of what is already going on somewhere in the world right now. Many of the pieces needed to build a sustainable and desirable future have already been designed and tested on a smaller scale. We have working prototypes of most of the components, and we just need to put them together and scale up.

In this chapter, I’ll assemble this fantasy world from existing pieces, just to show that it’s perfectly feasible. Just as an addict knows from observing other people that life is possible and better without the thing they are addicted to, we need to know that a world beyond our current one is possible. The evidence is all around us if we just put it together.

After that, I'll end with some ideas about how to continue the journey. A sustainable and desirable future is not a fixed point in time or space, but a process that requires continuous active adaptive governance and management, re-envisioning of evolving goals, and re-design of policies to meet them. Just as an addict can easily relapse under the right circumstances, we need to establish and maintain the circumstances that prevent a relapse. How to make better collective decisions is key to how to keep us from falling back into the traps.

But first, here are a few examples of the many new directions, experiments, and models of the wellbeing economy already happening around the world.

- The ability to communicate in real time with everyone empowers millions of people at virtually no cost and makes social organising easier¹ than ever before. Peer-to-peer networking has become a reality, whether sharing information, data, software, goods, services, car rides, accommodation, lending and/or political strategies. The downside of social networking has been revealed in recent years and that is certainly an issue that needs to be addressed. But we can also use the enormous potential of the internet to help build the shared vision that societal therapy needs.
- Renewable energy allows for decentralised systems of production and consumption, turning households into independent nodes of a global network. Costs are now below fossil fuels, despite the \$10 million USD a minute in subsidies (Coady et al. 2017) that fossil energy still enjoys. Advanced economies and developing nations are already transitioning to renewable energy.² Jobs are being lost in the fossil fuel industry, but are on the rise in renewable energies³ – the US solar sector employs 77% more people than coal mining, creating employment opportunities 17 times as fast as the job creation of the economy as a whole. By 2015, China alone had created 3.5 million renewable energy jobs. In 2016, renewable energy employment was growing at 5% a year globally. Renewable energy use increased 3% in 2020 as demand for all other fuels declined, driven by an almost 7% growth in electricity generation from renewable sources.⁴
- As the world realises the new era of the 'Anthropocene' and accepts the UN Sustainable Development Goals (SDGs), businesses around the world are beginning to protect natural capital and ecosystems.⁵
- The Senegalese government has equipped 100 villages with techniques learned from ecovillages, and aims to create 14,000 ecovillages.⁶ At a larger scale, more than a thousand Transition Towns have been initiated across the world.⁷
- As central authorities fail citizens, more states, regions, and cities take the lead.⁸ For example, when Donald Trump withdrew from the Paris Climate Agreement, US states and cities defied Washington's withdrawal by adopting their own climate change response plans. Civil society organisations are taking the lead in pulling together innovative funding to transform urban areas and at the same time achieve the SDGs.⁹ Two hundred city regions will be involved by 2022.

- California committed to double energy efficiency and generating half of the state's electricity from renewable sources by 2030.¹⁰ They have actually achieved this by 2020. Nine New England states require car makers to shift to zero-emission vehicles. New York state launched an energy plan to help residents produce and share their own energy.
- Smart villages using off-the-grid solutions are mushrooming in Asia and Africa. Sweden is on track to become fossil fuel free by 2040.¹¹
- Economic and social innovations: Millions of people are rethinking the economy by introducing alternative currencies, most of them in digital format, using the 'blockchain' process on which bitcoin is based.
- Basic income experiments are underway, in places as diverse as Kenya, Finland,¹² and India.¹³ Transition Towns have developed a guide for creating resilient local economies (REconomy) and local currencies.¹⁴ The European Union and Finland have put forward a circular economy policy.
- More and more countries are joining the Extractive Industries Transparency Initiative (EITI) so that local people can follow the money generated by companies working within their borders.¹⁵
- Regenerative agriculture, pioneered in Africa, South America, and South Asia, but also applied from USA to Sweden, offers sufficient food for all using methods that restore ecosystems and capture carbon and increase yield. The Drawdown project sees regenerative agriculture as being the only way to sequester enough carbon out of the atmosphere (Hawken 2017).
- There are many small-scale examples of sustainable communities that can serve as models. Many groups and communities around the world are involved in building a new economic vision and testing solutions. There are far too many to list all, but here are a few examples:
 - Transition town movement (www.transitionnetwork.org)
 - Global EcoVillage Network (gen.ecovillage.org)
 - Co-Housing Network (www.cohousing.org)
 - Wiser Earth (www.wiserearth.org)
 - Sustainable Cities International (www.sustainablecities.net)
 - Center for a New American Dream (www.newdream.org)
 - Democracy Collaborative (www.community-wealth.org)

All of these examples embody the vision, worldview, and policies I have elaborated to some extent. Their experiments collectively provide evidence that the policies are feasible at a smaller scale. In addition, there are many people, organisations, and governments willing and ready to take action. The challenge is to scale up some of these models to society as a whole.

As mentioned earlier, the problem is that we live in a globalised world, and it is difficult to generate larger scale examples that are independent enough from the larger world to actually try something significantly different.

But here are a couple of ideas around equity and adaptive governance that deserve a bit more elaboration.

6.1.1 Universal Basic Income and Job Guarantees

The ideas of universal basic income (UBI), negative income tax, job guarantees, or services guarantees have been getting quite a bit of attention in recent years, including a few experimental applications. In fact, the idea is quite old. The emperor Trajan of Rome, distributed the equivalent of about USD 300 for all Roman citizens that applied from AD 98–117 (Durant 2002). Thomas More in his 1516 classic ‘Utopia’ included universal basic income for all (More 2014).

Similar ideas were embedded in Franklin Roosevelt’s ‘Second Bill of Rights’, proposed during his State of the Union address in January 1944, after the tide of WWII had turned in the Allies’ favour. He argued that the first US Bill of Rights had “proved inadequate to assure us equality in the pursuit of happiness”. His remedy was to declare the need for an “economic bill of rights”. His text still resonates today:

We have come to a clear realization of the fact that true individual freedom cannot exist without economic security and independence. Necessitous men are not free men. People who are hungry and out of a job are the stuff of which dictatorships are made. In our day these economic truths have become accepted as self-evident. We have accepted, so to speak, a second Bill of Rights under which a new basis of security and prosperity can be established for all – regardless of station, race, or creed.

Among these are:

- The right to a useful and remunerative job in the industries or shops or farms or mines of the nation;
- The right to earn enough to provide adequate food and clothing and recreation;
- The right of every farmer to raise and sell his products at a return which will give him and his family a decent living;
- The right of every businessman, large and small, to trade in an atmosphere of freedom from unfair competition and domination by monopolies at home or abroad;
- The right of every family to a decent home;
- The right to adequate medical care and the opportunity to achieve and enjoy good health;
- The right to adequate protection from the economic fears of old age, sickness, accident, and unemployment;
- The right to a good education.

Roosevelt’s list of rights was a predecessor to the UN’s 1948 Universal Declaration of Human Rights and the 17 Sustainable Development Goals (SDGs), which were adopted by all UN member states in 2015.

Carrying on some of the New Deal vision, even Republican President Richard Nixon in 1969 was on the verge of enacting an unconditional income

for all poor families, equivalent to about USD 10,000 in today's dollars (Bregman 2017).

There are now countless examples documenting where cash handouts to households with no strings attached have worked (Barrientos et al. 2010). Properly administered cash transfers have demonstrated that households make good use of the money which is effective in reducing poverty with long-term benefits. Since they reduce bureaucratic overhead they are also less expensive than conventional welfare payments (Barrientos et al. 2010).

The range of experiments from across the world demonstrate that the idea of basic income works in a multitude of ways – economic, psychological, and social. In general, the experiments with UBI have been extremely positive and have shown that providing a basic income does not cause people to work less – quite the contrary it allows people the support they need to find productive work. It is also much more cost effective than conventional ‘means tested’ welfare programmes.

But can it be scaled up to *Universal Basic Income* (UBI), or something similar?

According to the Basic Income Earth Network (BIEN – <https://basicincome.org>), there are five defining characteristics of basic income:

- 1 Periodic: distributed in regular payments
- 2 Cash payment: distributed as funds, not coupons or vouchers
- 3 Individual: paid to every adult citizen, not just every household
- 4 Universal: it is paid to all citizens, regardless of their situation
- 5 Unconditional: there is no requirement to work or willingness to work

UBI proposals differ in their sources of funding, amounts distributed, and other dimensions, and there is ongoing debate and experimentation. For example, there is ongoing discussion about whether the goal should be universal access to income, the services the income can buy, the ability to earn income via job guarantees, or some combination of these (Mitchell and Watts 2005; Harvey 2012).

Probably the most compelling description and case for UBI is Rutger Bregman's “Utopia for realists: the case for a universal basic income, open borders, and a 15 hour workweek” (Bregman 2017). In it, Bregman details the rationale for UBI, its historical precedents and experiments, the objections to the idea and responses, and prospects for its adoption.

It is clear that if our shared societal goals are sustainable and equitable wellbeing as described in this book, then providing basic income and/or basic services and/or the guarantee of access to these services if able and willing to work has to be a key feature. It has worked where it has been tried and can be used more broadly.

6.1.2 Active Adaptive Governance and Management

Imagine that we have overcome our societal addiction to growth and achieved a world that is prosperous in the broad sense of the term, where both humanity

and the rest of nature are flourishing, well within planetary biophysical boundaries. How do we maintain and manage that system to make sure it does not relapse into autocratic growth fetishism?

Education is certainly key. Each generation must be educated to think critically and to actively engage in the process of governance at all levels as described here. We have to rebuild our social capital and trust in each other to prevent the kind of status competition and inequality that drove the growth addiction.

Active adaptive management and governance are also key. This means that all policy decisions must be thought of as experiments. We will never be clever enough to predict with certainty the outcome of a policy in a complex socio-ecological system. But how do we best learn from those policies? We certainly must *make* a prediction of the outcome. But we then must *monitor* the results to see if our prediction held up. If it did not, we can use the discrepancy between our prediction and reality to better understand what went wrong and adapt. This must become the standard way of doing things, not the exception.

This also must apply to our goal setting and envisioning. This process must be an ongoing, essential part of a strong and sustainable democracy/sociocracy that is as broadly participatory as possible. We have the communication technology to make this possible at scales we could only dream of mere decades ago. Practicing ongoing, participatory envisioning will keep us from falling into the social traps and addictions outlined in this book and so prevalent in today's world. It can help build and sustain the world we all want.

Notes

- 1 <https://anonhq.com/social-media-and-political-activism-in-the-modern-era/>.
- 2 www.youtube.com/watch?v=2b3ttqYDwF0.
- 3 <https://fortune.com/2016/01/12/solar-jobs-boom/>.
- 4 www.iea.org/reports/global-energy-review-2021/renewables.
- 5 www.wemeanbusinesscoalition.org/.
- 6 <https://ecovillage.org/ecovillage-summit-in-dakar-senegal/>.
- 7 <https://transitionnetwork.org/transition-near-me/>.
- 8 www.motherjones.com/environment/2016/03/california-cuts-greenhouse-gas-jerry-brown-growth-energy/.
- 9 <https://ecosequestertrust.org/about/resilience-brokers-are-here/>.
- 10 www.arb.ca.gov/html/fact_sheets/2030_renewables.pdf.
- 11 www.independent.co.uk/news/world/europe/sweden-renewable-energy-target-2040-country-on-track-a7381686.html.
- 12 www.theguardian.com/world/2017/jan/03/finland-trials-basic-income-for-unemployed.
- 13 www.forbes.com/sites/timworstall/2017/01/31/the-important-part-of-indias-economic-survey-universal-basic-income/?sh=620404ce2525.
- 14 <http://reconomy.org/>.
- 15 <https://eiti.org/>.

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Epilogue

The world faces a convergence of social, environmental, and economic crises, which have a common cause: our addiction to an outdated and unsustainable development paradigm based on fossil-fuelled GDP growth at all costs. We need a different development approach based on achieving the wellbeing of the entire, integrated system of humans embedded in their diverse societies which are embedded in the rest of nature. The solution will require a credible system to replace reliance on GDP growth with a more comprehensive, dynamic understanding of the links among the many contributors to sustainable human wellbeing, including natural, human, social, and built assets. It also requires a recognition of the degree of addiction to the current system and the appropriate therapies needed to allow the transformation to a sustainable wellbeing economy and society – the world we all want.

In this book I've tried to put the pieces of this solution together. My career has intersected with many of the scientific fields, government agencies, and business sectors necessary to address this complex problem – a problem that cannot be solved from the perspective of any one discipline or sector. We are going to have to learn to work in much more transdisciplinary ways in order to co-create the world we all want. I have hope that this whole systems, collaborative approach to science and policy is growing and will help humanity overcome our current addictions.

I should also note that we will also have to overcome another addiction embedded in our culture, what linguist Deborah Tannen has characterised as the “argument culture” (Tannen 2012; Costanza 2020). In this culture, even the most complex problems are cast as polar opposites. All discussions are cast as debates between two extremes in which one side is correct while the other is wrong. The media, law, politics, and academia are all caught in the argument culture and polarisation seems to be getting worse.

While there is nothing inherently wrong with debate and direct confrontation on some topics, the problem is that this does not work for all topics. For example, the complex problems discussed in this book require a more multi-faceted approach – one that encourages real dialogue and consensus building, or at least consent building, and does not cast every discussion as a zero-sum, win-lose, either/or dichotomy. This suggests that the endeavour of building a

shared vision of the world we all want and the paths to get there should be led by modesty, recognising the limits of our ability to fully understand a complex and evolving world.

In striving to be more transdisciplinary in our approach to problem-solving, it is important to recognise that the argument culture encourages creating and protecting disciplinary and sectoral boundaries. Sharp boundaries, unique languages and cultures, and lack of whole-system perspectives make the problems we now face very difficult, if not impossible, to solve together. The argument culture encourages continual sub-dividing into smaller and smaller fields, with a resulting decrease in the ability to achieve system-level changes.

The extreme polarisation we see today is a manifestation of this argument culture. But there are potential solutions. I discussed deliberative democracy and sociocracy as efforts to overcome the argument culture to build consensus (or at least consent). We must fundamentally rebuild our culture into one that uses deliberative discussion rather than confrontational debate to solve complex problems and make good group decisions.

I hope that this book will help to stimulate that deliberative discussion about where we want to go as a multi-scale, pluralistic, diverse, global society, and how we can overcome the barriers and addictions that are holding us back.

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