SEVEN WAYS TO FIX THE WORLD

Christopher Barnatt

PROLOGUE

As the title of this book implies, the world is broken and needs to be fixed. Many people are aware of this, although relatively few are doing anything about it. Not least, the vast majority of our political and business 'leaders' continue to bury their heads in the proverbial sand in the hope that the status quo will last them out. Nevertheless, as the situation deteriorates, it is going to become more and more obvious that we cannot go on living quite as we do today.

So what exactly is the matter? Well for a start, human civilization is continuing to expand far beyond the nurturing capacity of its mother planet. Within a few decades, we will therefore face biting shortages of energy, food and fresh water. Climate change also demands our attention, while mass consumer culture is leading us to ruin. On top of all this, the dominant religion of the 20th century – economics – has started to seriously fail us all as an appropriate resource allocation mechanism. Other systems of belief and connection are also running dry, with a large number of people now isolated not just from the natural world, but from each other.

In response to these grand challenges, this book is a positive manifesto for building a better future. Admittedly, part of this Prologue will detail the starkness of our situation. Yet nowhere herein is it my intention to spread doom and gloom. Nor am I going to point fingers and apportion blame. Whether any individual, organization or nation is part of the problem or part of the solution has to be judged not on their activities in a different age, but on the basis of

their intentions and actions from this day forward. Every one of us will make an impact on the world of tomorrow. The choice before us all is simply whether we want our legacy to help or hinder those to come.

In the second half of the 20th century, raping the future to sustain the present somehow became socially and culturally acceptable. But this practice cannot go on indefinitely. For many decades a great deal of economic growth has been achieved by robbing future humanity of many of the basic necessities of living. And if this does not stop pretty soon it will be too late to make amends.

Given today's widespread addiction to short-term consumerism, fixing the world is not going to be easy. But then nothing that is worth doing ever is. As soon as there are explicit and viable options on the table, it is also likely that many people will be willing to help build a better future. Once a reasonable momentum is established, fixing the world will therefore not have to be left to an idealistic minority.

Our Challenges Ahead

As I have already stated, I have no intention of doom mongering. Yet to make explicit why we need to fix the world, it is essential to at least briefly outline the seriousness of our situation. The following therefore provides an overview of the most pressing challenges we now face. For the interested – or the alarmed – more information can be found on my website ExplainingTheFuture.com, or in my previous book *25 Things You Need to Know About the Future*.[1]

Peak Oil

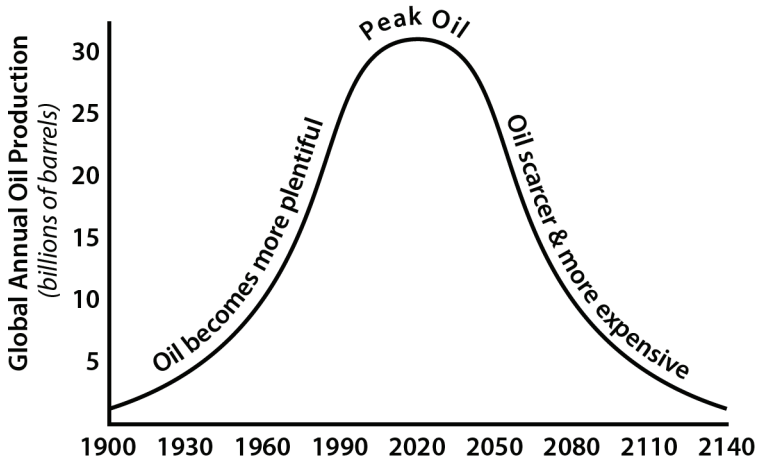
The biggest challenge on the near-term horizon is the end of our petroleum-based economy. Reliable estimates suggest that proven global oil reserves will last until about 2057.[2] It

is, however, the much more pressing matter of Peak Oil that has to demand our immediate attention.

The basic problem is that we continue to consume oil reserves faster than we discover new ones. Peak Oil subsequently refers to the point in time when global oil production will reach its maximum, and after which it will start to decline. This situation is illustrated in the approximated 'bell curve' for global oil production shown in Prologue Figure 1.

After Peak Oil is reached, there will be an ever-widening gap between oil demand and oil supply. As a result, oil will inevitably start to become scarcer and more expensive. The implications will include a rise in the price of oil-fuelled transportation, as well as an increase in the price and a decrease in availability of all products that use oil in their production. The latter include not just traditional plastics and synthetic fabrics, but also most agricultural produce. We may not currently sit at the dinner table directly ingesting petroleum. But most of us do rely on oil to kill the pests that threaten our crops. We are currently also very dependent on oil to cultivate, harvest, package and transport a great deal of our food.

Exactly when Peak Oil will occur is unknown and remains a matter of significant debate. So-called 'early toppers' – such as the UK government's former chief scientist Sir David King – believe that demand for oil may start outstripping supply as early as 2014. At the other end of the spectrum, some 'late toppers' believe that Peak Oil will not occur until at least 2030. To try and bring some clarity to the situation, in 2009 the UK Energy Research Centre published a weighty report based on a review of over 500 studies, an analysis of industry databases, and a comparison of 14 global supply forecasts. This noted that 'sufficient information is available to allow the status and risk of global oil depletion to be



Prologue Figure 1: The Peak Oil Curve

adequately assessed'. The report subsequently concluded that 'a peak in conventional oil production before 2030 appears likely and there is a significant risk of a peak before 2020'.[3]

Climate Change

The fact that the Earth is heating up due to an accumulation of greenhouse gasses in the atmosphere is now widely accepted. Admittedly, the speed and impact of this warming, together with humanity's role in making it happen, remain a matter of considerable debate. Yet no major government now denies the existence of climate change. All of us will therefore be affected not just by a changing climate, but in addition by those political and economic actions increasingly being taken to try and limit the future heating of the globe.

According to the Intergovernmental Panel on Climate Change (IPCC), by 2100 average global temperatures will rise by somewhere between 1.1°C and 6.4°C. While this may

not sound like much, even two degrees of warming is likely to decrease crop yields across southern Europe by 20 per cent, have a similar impact on rice production across Asia, and lead to the extinction of up to 40 per cent of species on the planet. Increases in average global temperatures will also further melt glaciers and raise sea levels. The IPCC has calculated that our oceans will rise by between 18 and 59 cm by 2100. In the coming decades, hundreds of millions of people will therefore face significant flooding risks. Later this century, great metropolises including London, Shanghai, New York and Tokyo are also likely to be under threat.

Some level of global warming is now irrevocably baked-in to our planetary system. The IPCC and most other informed parties therefore advise that our challenge is to try and limit the temperature increase to no more than 2°C. This would probably require carbon dioxide and other greenhouse gas emissions to peak this decade or early next, and to fall to 60 per cent of their current levels by 2050. This clearly presents a very major challenge and requires urgent action.

Some reputable commentators also caution that the IPCC could be seriously underestimating the severity of near-future climate change due to its over-reliance on computer simulations of the atmosphere. Most notably, renowned climate scientist James Lovelock has repeatedly warned that actual climate measurements already show a far greater level of global warming than the IPCC's computer models continue to predict. Worse still, Lovelock points out that by reducing the industrial emission of greenhouse gasses, we may rapidly reduce those layers of pollution that are currently preventing the Earth from warming even faster.[4] According to the National Center for Atmospheric Research (NCAR) in the United States, the Earth's deepest oceans may also at present be absorbing enough heat to conceal the true extent of global warming for up to a decade.[5]

Peak Water

Partially as a consequence of climate change, in the next few decades adequate supplies of fresh water will also be under threat. In fact, according to the United Nations, 'by 2025, 1.8 billion people will be living in countries or regions with absolute water scarcity', while two-thirds of the world's population will face stressed or restricted water supplies.[6]

Given that the majority of the Earth's surface is covered by water, many people find it difficult to believe that water scarcity presents a significant future challenge. The problem is that, even though our planet is blessed with about 326 quintillion gallons of water, around 97 per cent of this is salty and unsuitable for agricultural use or direct human consumption.

Most fresh water is also frozen in the polar ice caps or inaccessible very deep underground. While the lakes, underground aquifers and other fresh water reserves that we can use are still quite large, they have a pretty fixed rate of replenishment. Many fresh water reserves are also already being drained well beyond this natural replenishment level. As a result, many parts of the world will soon face a 'Peak Water' situation where demand starts to consistently outstrip available local supply.

Within a decade or so, groundwater production peaks are likely to become a major concern in many countries including China, India, Israel, Mexico, Saudi Arabia, Spain and the United States. In fact, around half of the world's population now lives in regions where the water table is falling. Climate change is in addition causing lakes to evaporate more quickly, as well as threatening glaciers such as those in the Himalayas that feed many major rivers in China.

Because fresh water reserves are very unevenly distributed, different parts of the world will be affected by Peak Water at different times and in different ways. In traditionally

drought-plagued regions like parts of Africa, humanitarian catastrophes loom as millions will not have enough water to drink. Across far wider parts of the globe, drinking water is unlikely to be under threat, but agricultural yields will be reduced due to a lack of sufficient water for irrigation.

In some parts of the world, water scarcity is set to force industrial relocation. For example, water-intensive industries in the United States will probably have to move from the increasingly dry south west to the Great Lakes region. Even countries with pretty robust water supplies like the United Kingdom will sooner-or-later feel the impact of Peak Water as supplies of imported food products dwindle. Many European supermarkets currently stock their shelves with fruit and vegetables grown in water-challenged countries including Ethiopia, India and South Africa. How long this can continue – both practically and ethically – must soon be seriously questioned.

Food Shortages

The 'perfect storm' of Peak Oil, climate change and Peak Water will additionally put pressure on global food supplies. Already, due to rising temperatures, water shortages and soil erosion, average harvests of grain and rice are falling in many regions. As petroleum becomes scarcer and more expensive, the use of oil-based pesticides and oil-fuelled farm machinery will also be constrained.

As China and other nations rapidly industrialize, the proportion of meat in the average human diet is also increasing. This is problematic because diets that are rich in meat are more resource intensive. At present, in a poorer nation like India the average diet requires less than 200 kg of grain to be harvested per person per year. In contrast, in the United States around 800 kg has to be harvested, with the majority fed to animals that are later eaten by humans.[7]

It is difficult to argue against the right of developing nations to industrialize. Even so, there is simply not enough conventional farm land on the planet to permit all of humanity to eat a meat-rich diet like that currently enjoyed across the West. As demand for meat continues to grow, supplies are therefore going to become relatively scarce and more expensive.

Food shortages are also likely to be heightened as land is diverted for non-food agriculture. Already vast quantities of corn, rape, sugar cane and other crops are being harvested to produce biofuels and bioplastics. In time, these more eco-friendly products may be able to be produced from agricultural waste or synthetically engineered algae. But until such third-generation petroleum alternatives become viable, every acre used to cultivate a biocrop is inevitably an acre removed from food production.

In the coming decades, the quantity of food we can obtain from the oceans will also fall rather than rise. Many groups of scientists have confirmed a serious decline in marine life, with three-quarters of fish stocks already being fished at or beyond their natural rate of replenishment. Indeed, in 2010 the ten-year Census of Marine Life reported that commercial fishing on a global scale will collapse entirely by 2050 unless drastic action is taken.[8]

Broader Resource Depletion

Almost inevitably, the constant expansion and industrialization of humanity will place intense pressures not just on supplies of water, food and oil, but on all raw materials. A 2011 report from the United Nations Environment Programme (UNEP) calculated that, if nothing is done, humanity's demand for natural resources will rise to around 140 billion tonnes of minerals, ores, fossil fuels and biomass every year by 2050.[9] Equivalent to almost three times our current rate of resource consumption, this is way beyond what can be sustained.

Over the past 40 years, a set of studies carried out at the Massachusetts Institute of Technology (MIT) has made our situation pretty explicit. The first of these was published in 1972 and called *The Limits to Growth*.[10] This was followed by a 20-year update *Beyond the Limits to Growth*,[11] and *Limits to Growth: The 30-Year Update*.[12]

The team behind *The Limits to Growth* has repeatedly warned that humanity has an ecological footprint greater than the Earth can sustain. The stark implication of this fact is that our civilization will inevitably collapse if we do not reduce global consumption levels.

Back in 1972, it was predicted that we had about half a century to change our ways. Unfortunately we have done very little, which means that we now have at most one or two decades to try and prevent our slow decline. We therefore need to urgently figure out how to achieve more with less. Or, as the aforementioned UNEP report neatly put it, we have to find ways to 'uncouple' natural resource usage from economic growth.

Unless we quite rapidly change our ways, we will soon career into a global state of 'Peak Everything'. For example, fresh supplies of critical metals including zinc, tantalum, antimony, indium, gallium and even copper could be entirely depleted by 2050. Significant shortages of these materials are also likely well before that, with prices set to rise as a result. Already the price of indium – an essential raw material used in the production of LCD displays – has risen from $40 per kilogram in 2003 to over $600. Like it or not, we cannot go on consuming natural resources in the way we do today.

Population Expansion

Underlying all of the above challenges is the pressure on the Earth caused by a significantly expanding human population. Every year there are tens of millions more human beings to

feed, clothe and shelter, with a significant proportion of them likely to demand a smartphone, a vehicle and regular air travel. Such a situation is of course unsustainable.

Around 2,000 years ago there were a mere 100 million human beings on Planet Earth. Were there still that number today, none of the aforementioned challenges would be an issue. But there are actually now around seven billion people alive, with eight billion expected by 2030 and more than nine billion by 2050. Pretty soon something will therefore have to give.

I am a pretty strong believer in the ability of the human race to invent and apply new technologies to solve apparently insurmountable problems. That is, after all, how we have survived for so long and risen to planetary dominance. In the future we may be able to use genetic engineering to increase food production, to transition to electric transportation, to develop wind, wave and solar power, and to do all sorts of other more resource efficient technological things. Even so, short of a mass future migration into space, there is no long-term technological fix to the problem of over population. In fact, technological advances that continue to extend the human lifespan are likely to more than cancel out the help that technology may render on this frontier.

Of all the challenges on the horizon, population expansion may be the most difficult to address. This is because there can be only one pretty unpalatable solution, and that is for less people to live on Planet Earth. Many futurists believe that, by the end of this century, an optimal and sustainable human population will be no more than a couple of billion. And unfortunately they may well be right.

Any rapid transition to a world with perhaps one-quarter of its current population would obviously have major

humanitarian implications. We therefore have to hope that, if a mass depopulation is our destiny, we will slowly and naturally transition to a less populated planet over a very significant period of time.

The End of Economic Growth

Our final grand challenge is to wean ourselves away from an assumed requirement for year-on-year economic growth. Just as a constantly expanding population is unsustainable on a single planet with fixed resources, so too is a constantly expanding economy. We also have no need to constantly consume more and more.

When a baby exits the womb, nobody expects the poor infant to physically expand outwards and upwards indefinitely until they die. Rather, we anticipate a period of natural growth that ceases when the child has matured into an adult. There may now be a tendency for some individuals to continue to physically expand until their obesity kills them. But that is neither a natural nor desirable situation.

Economies – like people – can and should mature to become big and wealthy enough. For several centuries economists have made us believe that constant economic growth is necessary because they have also conned us into never paying our way. Indeed, for decades governments have borrowed recklessly on the assumption that, by the time their bonds mature and have to be repaid, years of economic growth and inflation will have significantly reduced their real value. The problem is, on a planet now facing all of the aforementioned challenges, this strategy is no longer viable.

For too long the citizens of this planet have served economics and economic growth, rather than being served by the systems of resource allocation and administration that are supposed to serve us. To a large extent, redressing the balance is what this book is all about.

Seven Future Solutions

Over the past 50 years, human civilization has started to focus far too heavily on short-term decadence, and far too little on long-term survival. Not least, we have come to place the welfare of the economy above the health of the biosphere that keeps us alive. At a species level, this is nothing less than suicidal. Or to cite the opening of the *Warning to Humanity* signed by over 1,500 leading scientists and Nobel laureates on 18th November 1992:

> Human beings and the natural world are on a collision course. Human activities inflict harsh and often irreversible damage on the environment and on critical resources. If not checked, many of our current practices put at serious risk the future that we wish for human society and the plant and animal kingdoms, and may so alter the living world that it will be unable to sustain life in the manner that we know. Fundamental changes are urgent if we are to avoid the collision our present course will bring about.[13]

I could continue for tens or even hundreds of pages to provide a great many more stark, poetic and powerful indictments of our sorry situation. Many books have indeed been written that do this very well. This said, while spreading an awareness of our precarious situation is valuable, pragmatically it is far more important to start figuring out what we can do about it. Fixing rather than describing the world is after all the focus of this book. So let me now introduce you to the seven, interrelated things that I think we all need to start focusing on.

More Local Living

The first way to fix the world is to consume more local produce and to work and play far closer to home. This need

not imply that we all have to go back to living in tiny hamlets in complete isolation from the modern plague of globalization. Yet it cannot be sensible for us to continue to constantly favour food and other products that are produced hundreds or thousands of miles from where we live. Similarly, the mass transportation of people to remote workplaces is a modern ritual that we can no longer afford to practise. Chapter 1 will therefore look at a range of options for more local living. These include a re-balancing of globalization, the establishment of urban agriculture, technological developments that will facilitate more local manufacturing, and opportunities for more people to work from home.

Low Energy Lifestyles

As well as living more locally, in the fairly near future we will all have to consume less energy. Already significant investments are being made in wind, wave and solar power. However, because no alternative energy source can deliver the quantity of energy that we currently obtain from petroleum and other fossil fuels, reducing our energy requirement is going to be essential over the next couple of decades. To this end, chapter 2 reviews the pending 'net energy time bomb'. It then examines the development of low power devices, as well as those steps that will need to be taken to enable our transition to less energy-intensive lifestyles.

Dematerialization

OK, so you may have read the word 'dematerialization' and thought of a brightly clad *Star Trek* crew member beaming down to an alien planet. Here, however, I am using the word to refer to a migration toward activities that are less reliant on the consumption of physical resources.

In part, dematerialization is dependent on more local living and low energy lifestyles. But it will also require us to

do some things less or not at all, and to achieve other things in new ways.

Over the past decade, the Internet has allowed us to produce and communicate digital information far more, while manufacturing and transporting atom-based things somewhat less. With many people now downloading music and obtaining their news, books and video entertainment online, dematerialization has therefore already begun to happen.

New technologies such as 3D printing will soon also allow dematerialization to be taken to the next level. Even so, as I shall argue in chapter 3, we still need to develop a radically new relationship with things. If this can be achieved – and the whole ethos of our consumer society starts to be seriously questioned – then a new 'gentler mode of capitalism' may even emerge.

Design for Repair

Another way to reduce our consumption of both energy and physical resources is design for repair. This will facilitate a return to an age in which most products are mended rather than discarded when they go wrong. Over the past half century, the production of things that can be repaired has sadly become unfashionable, with constant disposal and product replacement strongly encouraged at a cultural level. Chapter 4 therefore focuses on what needs to be done to reverse this trend, and to return human society to an age in which most people discard things less and value things more.

Crowdsourcing

Fixing the world will require the collective talents of mass humanity. Mechanisms for effectively generating and sharing knowledge among thousands and even millions of people will therefore be needed in spades. For the majority of

recorded history, bringing together very large numbers of human beings to work on great undertakings has only been achieved under conditions of dictatorship or mass bureaucracy. Yet with the rise of the Internet there is now another way.

Crowdsourcing is where online technologies are used to generate value from the activities of a great many people. Web pioneer Tim O'Reilly has long heralded the power of the Internet to harness collective intelligence, and this practice is now seriously taking hold.[14] Indeed, as we shall see in chapter 5, tens of thousands of global strangers are already pioneering the use of collaborative online tools to create new 'open source' products that traditional businesses will not or cannot deliver. Community is therefore already beginning to trump competition, while work is starting to be obtained and allocated in new ways.

More Women in Authority

Just over half of the human beings on this planet are women. Yet look around most boardrooms and parliaments and you would not know it. As we are all aware, women remain significantly under-represented at high levels in most organizations. In some supposedly 'advanced' cultures and religions, women are still even treated as second-class citizens. As a consequence, the majority of the big decisions that drive and shape human civilization continue to be made by only one half of our gene pool.

Two of the key things that we need more of on this planet – community building and cooperation – involve the application of skills that females typically possess and practise more naturally than males. To fix the world, we therefore need more women in authority as a genetic counter-balance to male-dominated decision making. Some researchers have even indicated that the scandalous risk taking that resulted in

the credit crunch of 2008 was testosterone fuelled.[15] Lehman Sisters may indeed not have got into the same mess as Lehman Brothers. Chapter 6 subsequently assesses how we may all benefit from the introduction of a majority female perspective into humanity's decision making mechanisms. It also considers how this may actually be achieved.

The Death of Economics

John Maynard Keynes, the guru of modern economics, once stated that 'in the long run we are all dead'. It is therefore perhaps not surprising that most economists to this day continue to almost completely ignore pollution, resource depletion, the destruction of the biosphere, and many of the other consequences of modern business activity. And yet, it remains obvious to the rest of us that in the long run our children and their children will still be very much alive. All of our children and their descendants will also be cursed with our folly if we do not choose to mend our collective ways, and to start taking at least some responsibility for tomorrow.

To live above a very basic subsistence level, human beings require more than systems of barter. Financial services organizations and a modern economy are therefore a prerequisite for the survival of industrial civilization. In calling for the death of economics, I am therefore not suggesting that all economic practices and associated logic should be discarded. Rather, what I am signalling is that we should cease to rely quite so heavily on economics as the driving engine of human civilization.

Most of the really important decisions made by an individual in their lifetime are not made according to the rules of economics (although I know many economists who could show me dubious and complex equations to dispute that claim!). So why should we expect the big decisions that drive

wider civilization to always be taken on economic grounds? The use of economic logic did not drive humanity to build pyramids and cathedrals, to land on the Moon, or to go to war to prevent genocide. Increasingly, economics has obtained a stranglehold on our common sense, and this is something that needs to be addressed.

In recent decades, too great a global belief in economic logic has resulted in excessive globalization. Economic exuberance has also failed to cost the full implications of our high-energy, oil-saturated lifestyles; has fuelled our lust for materialized living; has propagated a disposable culture; has promoted competition over cooperation; and has even made us value far too highly testosterone-fuelled male management egos. OK, so if you were counting, you will have noticed that I have now linked decreasing our reliance on economics to all six of my other ways to fix the world. This ought also to be expected. Economics currently dominates our collective consciousness. If we are to fix the world – and we have to – then economics must be put firmly back in its place as just one of the many tools that we use to progress and maintain our civilization.

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Foundations for Tomorrow

In the first half of this Prologue I highlighted some pretty major, planetary-scale problems. To explain why we need to fix the world this was absolutely necessary. But I am also mindful that such a list of challenges may lead some people to believe that no individual action can make a difference. It is therefore important to stress that every one of our actions really matters a great deal.

There can be no escaping the fact that every one of us is now part of the problem or part of the solution. While any

one individual action may on the surface appear inconsequential, our *collective actions* inevitably and rapidly aggregate. This means that any actions we may individually take to improve our situation are important. Further, by deciding and acting to help build a better future, we may all inspire others to do the same.

Finally before I finish this Prologue, I need to make a couple of things absolutely explicit. For a start, I have to acknowledge that I am writing from a highly privileged, developed nation perspective. We should never forget that over a billion people still go to sleep hungry, and that most citizens of this planet cannot obtain clean water from a tap. For billions of people, the challenges of tomorrow that this book seeks to address may therefore be far less significant than those current problems with which they have to contend every single day.

For those whose lives have been blighted by the financial crisis and related austerity, fixing the world of tomorrow may also seem like a secondary concern. Noting these facts, I can only argue that the more we do to try and address our most pressing future challenges, the better it may be not just for future humanity, but for all of those people who currently live in less blessed regions of the globe or who are otherwise suffering current hardship.

I also want to acknowledge that one little book cannot actually hope to fix the world. Each of the following seven chapters will provide some ideas that individuals and individual organizations could readily embrace to start making a difference. Even so, this work can at best constitute just one tiny element of a much wider debate concerning how we may collectively win against the odds in the decades ahead.

All of us need to recognize that the future will not just happen. Or at least, it will only 'just happen' for some people if they let others do it for them or to them. More than

anything, fixing the world is about taking control of the future – and that is something in which we must all take a hand. To survive and thrive, humanity must learn to consume less while achieving more. To do this we will all increasingly have to act with others in mind – be they fellow citizens today, or the inhabitants of tomorrow.

Author's note:
If you want the endnotes,
you will have to buy the book!

ExplainingTheFuture.com/SevenWays