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# Nine Meals from Anarchy

Oil dependence, climate change  
and the transition to resilience

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Oil dependence, climate change  
and the transition to resilience

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Schumacher Lecture, 2008  
Schumacher North, Leeds, UK  
by Andrew Simms



*'Such essays cannot await the permanence of the book. They do not belong in the learned journal. They resist packaging in periodicals.'*

Ivan Illich

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*‘Apparently solid financial institutions have tumbled.  
So, what else that we currently take for granted might be  
prone to sudden collapse?’*

Schumacher Lecture, 4 October 2008

Delivered by Andrew Simms

Schumacher North, Leeds, UK

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*'Perhaps we cannot raise the winds. But each of us can put up the sail, so that when the wind comes we can catch it.'*

E.F. Schumacher

*'What difference does it make how much is laid away in a man's safe or in his barns, how many head of stock he grazes or how much capital he puts out at interest, if he is always after what is another's and only counts what he has yet to get, never what he has already? You ask what is the proper limit to a person's wealth? First, having what is essential, and second, having what is enough.'*

Lucius Annaeus Seneca,  
4 BC–AD 65

# To begin with – the world as it is

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The tall structures are falling silent. Once, frenetic workers on the make barged around trying to sniff out the next big killing. Their only thought was to fill up another honey pot for future plunder. Then, a couple of years ago, there were the first hints that something was going wrong. Stress levels were high, but that seemed normal for the job. Toxic substances were being abused all around, but again, that wasn't unusual; if anything, it was typical. Yet, collectively, something seemed to have infected them. Was it the parasites in their midst spoiling it for everyone?

Now, suddenly, everything seems to be on the verge of collapse. I'm not talking about sharp suits and braces in the City, of course, but bees. This is *Colony Collapse Disorder*, and no one knows exactly who's guilty, whether its pesticides, pathogens or parasites?<sup>1</sup>

It's also serious. About one in every three mouthfuls of food you eat relies more or less on honeybee pollination.

Since 2006, in the USA, beekeepers have been reporting losses of between three- and nine-out-of-ten of their hives. Even if it was physically possible, the cost of replacing bee pollination in the USA alone has been estimated as up to \$92 billion.<sup>2</sup> The British Beekeepers Association has warned that honeybees could disappear from Britain by 2018.<sup>3</sup>

In case I inadvertently sully the productive, useful, communally oriented bee, by association with the destructive, bonus-obsessed, self-satisfied City financier (or, as even the Mayor of London, Boris Johnson, calls them, the 'spivs'), let me add that the two systems under risk – the City and the hive – enjoy evocative comparisons that are as much opposite as alike.

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Let's put them on the scales again. On one hand we have the honeybee which is productive, useful and communal – a deliverer of free, life-giving, ecological services worth billions. On the other is the speculator: self-revealed as destructive, rent-seeking and self-satisfied – a wrecker of homes and livelihoods, who loses billions. Sufficiently different, in fact, as to argue in favour of a new 'Bee-Spiv' scale against which to assess anything's worth to society.

Now, back to chaos and disorder.

Once apparently solid, some would say smug and self-satisfied, financial institutions have dramatically tumbled. So, what else that we currently take for granted might be more vulnerable than imagined, and prone to sudden collapse?



# Nine meals from anarchy

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One morning in August in the year 2000, a gathering happened of very worried men from several, very powerful companies at the heart of government, in one of the world's richest countries.

Around Britain, farmers and truck drivers angered by the rising cost of keeping their vehicles running were blockading fuel depots across the country. They had found, and were paralysing, the critical infrastructure of a Western nation more effectively than any terrorist organisation.

At the height of the protests, hunkered down in private, serious meetings, Britain's biggest supermarkets, who account for around 80 per cent of our food supply, were telling Ministers and civil servants that the shelves could be bare within three days.

We were, in effect, nine meals from anarchy.

Now, I like my food. I'm a grazer; something to eat at least once an hour. I react to its potential withdrawal much like a dog reacts to any encroachment on its food bowl while eating. So imagine how I feel to be told the cupboard will soon be bare.

Nothing reveals the thin veneer of civilisation like a threat to its food or fuel supply, or the cracks in society like a major climate-related disaster. A cocktail of all three will give cold sweats to the most hardened emergency planner. But that is what we face.

Imminent, potentially irreversible, global warming; the global peak and decline of oil production; a global food chain in crisis – three linked, interacting dynamics complicated by yet another, a rich-world debt crisis.

Since I was a child, I've been quietly haunted by a book I read called *Memoirs of a Survivor* by Doris Lessing. In it, for some reason left vague, society had broken down. Everywhere people were on the move, displaced, the lucky few leaving the city to stay with relatives in the country. In Britain, the outset of the Second World War became known as the 'phony war' because there was no fighting and the conflict seemed

unreal. In spite of all the news reporting, I sense in Britain today a ‘phony calm,’ that belies the seriousness of our situation.

It’s why I want to explore how we can rapidly make a transition away from a system characterised by increasing fragility and vulnerability, towards one that is resilient – socially, ecologically and economically – and has the capacity to adapt to both environmental and human changes.

But our journey needs to be plotted more carefully than that. The destination means nothing if it lacks social justice or the conditions for human well-being. We need a form of economic organisation judged by its explicit ability to help build the strong human relationships needed to bind society together in the face of external shocks.

Along the way we will have to uncover a new route that steers the global economy towards a state of dynamic equilibrium with the Earth’s available biocapacity, and towards a state of progressive, rather than exploitative, interdependence between regions and nations. If we can find answers to all of these, we will have a compass, a working journey plan and the outline of our destination.

Preparing for this rapid transition is an urgent task. For all our technological sophistication and consumer society self-satisfaction, we are, at all times, just nine meals from anarchy. How quickly can we break the carbon chains of our dependence?



## Society’s oil-hardened arteries

Curiously, I had to rely on Canadian sources for an easily accessible official point of view on the issues at stake in the wake of the 2000 fuel protests.<sup>4</sup>

Public Safety Canada is the government department charged with keeping ‘Canadians safe from a range of risks’ – I wonder if that includes Alaskan governors.

It deals with emergencies and threats to critical infrastructure, and studied carefully what happened in the UK.

If you can’t remember, in September 2000, a group of British farmers and truck drivers decided to stage some protests. They were miffed at the price of fuel and, worse,

embarrassed by the fact that French farmers were quicker and better at demonstrating, and had already won concessions from government.

The British protestors were determined to make a point, but even they were astonished at the speed and staggering degree to which they brought the country to a standstill.

As the Canadian Government wearily observed:

*'The impact of the protest was much deeper than anticipated because it struck at a particularly vulnerable point of the UK economy – the oil distribution network, which had been organized along just-in-time delivery principles.'*<sup>5</sup>

Exactly the same 'delivery principles,' it should be added, that our food system is organised around.

Fuel refineries and distribution depots were blockaded. Within days the protests created, 'a fuel crisis that paralyzed Critical Infrastructure sectors and brought the country to a virtual halt.'<sup>6</sup>

Anticipated shortages and panic buying created, 'a chain reaction,' across sectors ranging from transport, to health care, food distribution, and financial and government services. The weakest, as usual, were most vulnerable. The NHS, for example, has to serve nearly one million meals per day.<sup>7</sup>

The Government finally realised the seriousness of the situation and strong-armed the key parties into signing a memorandum of understanding (MoU) to prevent a repeat. But the incident revealed the fragile foundation of a heavily interconnected industrialised economy that was over-reliant on oil and highly centralised distribution systems. There have been more protests since with slightly less effect.

But we are as mired in the black, sticky stuff as ever and any impression of stability is a dangerous illusion. And, both for the sake of national security *and* maintaining a habitable planet, we must re-engineer the economy and adapt our lifestyles as fast as possible before we become unstuck; because the downside of globalisation and complex economic interdependence is a world in which shocks, stresses and crashes get transmitted ever faster and amplified with often devastating consequences. Decades of unsustainable finance and consumption have left a world littered with economic landmines and confusion about how to clear them up – from the rocky ground of US sub-prime mortgages, to farms which once grew food for people to eat and now produce biofuels to keep roads clogged with cars.



## Fragile food

Internationally, the UN reports that rising food prices, driven by fuel prices, climate impacts and speculation, have added 75 million people to the roll-call of the hungry in the world, bringing the total to nearly 1 billion.<sup>8</sup> In April, 37 countries were facing a food crisis due to a mix of climate-related, conflict and economic problems.<sup>9</sup> From Haiti to Egypt, India and Burkina Faso, many saw rioting in the streets.

Stocks of rice, on which half the world depends, were at their lowest level since the 1970s.<sup>10</sup> Around the same time, US wheat stocks were forecast to drop to their lowest levels since 1948, when the country was helping to rebuild a shattered and hungry Europe after the war.

Down from over nearly 800 million bushels in 2001 to fewer than 300 million,<sup>11</sup> the USDA estimated supplies were enough to last 35 days. The American Bakers Association said it left them a supply-cushion of just 24 days, compared with a more typical 3 months. The National Family Farm Coalition and other groups called for a strategic grain reserve to be set up, emulating what is done with oil in the name of national security.<sup>12,13</sup>

In Britain, until the early 1990s, secret food stocks of easily stored basics like biscuits and flour were held officially. Now, the Government depends on retailers to keep 'buffer' reserves. But the problem is, that our highly centralised supermarkets that control around 80 per cent of Britain's grocery market, operate on the basis of 'just-in-time' delivery, designed to lower their costs. This means that they don't want to have any substantial stocks lying around.

After the most recent road hauliers strike this year, *The Times* reported government pressure on retailers to take responsibility for future contingency plans in the event of immediate threats to food supplies.<sup>14</sup> A key role in the discussions was highlighted for Tesco, who reportedly pushed to be represented on the Cabinet's, high-level, and highly secret emergency civil contingency committee, Cobra, should there be a crisis.

Cobra has powers under Part 2 of the Civil Contingencies Act, which means it can, if circumstances are considered sufficiently serious: suspend Parliament, close businesses by declaring a bank holiday, shut down businesses, destroy or requisition property, ban the freedom of assembly and movement, mobilise the armed forces and set up 'special courts. Well, as they say, 'Every little helps.'<sup>15</sup>

Against this backdrop, our national food self-sufficiency is in long-term decline. It has fallen by over one-fifth since 1995. According to Defra figures, it appears to have hit its lowest point for decades.<sup>16</sup> I say ‘appears’ because the government claim that we are 60 per cent self-sufficient has been criticised as misleading. The Soil Association points out that less than 10 per cent of the fruit we eat is grown here; up to half our vegetables are imported; and 70 per cent of animal feed used across the EU is imported.<sup>17</sup>

So, we are increasingly dependent on imports at precisely the time when, for several reasons to do with climate, energy, economics and changing consumption patterns, the guarantee of the rest of the world’s ability to provide for us is weakening.

Adding to all these vulnerabilities is the fact that up to three-quarters of agriculture biodiversity is thought to have been lost over the last century. The most significant driver of this loss, large-scale monocultures, has left us in a situation whereby 75 per cent of the world’s food is grown from only 12 plant types and 5 animal species.<sup>18</sup>



## Fossil fuels and energy

For once, let’s dip into some very conventional ‘old economics’: oil and the rudiments of supply and demand. A publication called the *Medium Term Oil Market Report* is not literature likely to make the heart race, but it concerns another important kind of pumping. Given that the global economy still wholly depends on a steady flow of oil to function, the report’s publisher, the International Energy Agency, an official advisor to most of the major economic powers, words its warnings carefully to avoid panic.

But this is what it said this year about world oil production: there will be, I quote, ‘a narrowing of spare capacity to minimal levels by 2013’. Since last year alone it had made, ‘significant downward revisions’ on ‘both non-OPEC supplies and OPEC capacity forecasts’.<sup>19</sup> Until fairly recently, interest in the subject and implications of so-called ‘peak oil,’ has been a specialist affair. The Agency might not say so explicitly, but the words sit on the page nevertheless. The fuel price rises of the last year look to be a foretaste of a far more massive crunch that will follow as the graph lines for global oil demand and supply head in opposite directions.<sup>20</sup>

The Agency’s motto – ‘energy security, growth and sustainability’ – is fine, accept that there doesn’t appear to be any.

The 'energy dependence' factor describes the ratio of net energy imports to demand. When it becomes 'positive', it means that a country is obliged to import energy to meet its demand – in other words, energy independence declines and meeting domestic needs relies increasingly on the whims and vagaries of global geopolitics. The UK lost its 'independence' in 2004. By 2006 our energy dependence factor had risen fourfold.<sup>21</sup>

Since North Sea production peaked around 1999, hopeful eyes have been focused on the major producers like Saudi Arabia to keep the economy's arteries full of oil.<sup>22</sup> But, looking ahead, Saudi Arabia has other ideas. Over the next 12 years it will be spending around \$600 billion (about the same staggering figure that the USA intends to pay to prop up its financial system) on a massive domestic infrastructure programme, including power stations, industrial cities, aluminium smelters and chemical plants. And, while doubts persist that their reserves are a lot less than publicly stated, guess what: all these new developments will be powered with Saudi oil. The rest of the world should not hold its breath waiting to be rescued.<sup>23</sup>

According to Jeremy Leggett, the head of Solar Century and author of *Half Gone*, in five years' time Britain could be importing as much as half of its energy.<sup>24</sup> A lot of hope rests in the giant pipelines bringing liquefied natural gas and pipelines from Norway and the Netherlands.

The single giant 1200-km Langede pipeline from Norway is set to provide up to a quarter of our demand for gas. Currently there are just two terminals where the gas comes ashore.<sup>25</sup>

Where domestic oil is concerned, in April this year, a strike at the Grangemouth oil refinery halted a large proportion of the UK's North Sea production.<sup>26</sup> As Jeremy Leggett puts it, 'We smell in that drama just how fragile the whole energy edifice is.'<sup>27</sup>



## A little historical chaos

Separately, of course, most of the threats above are not entirely new problems.

We could go all the way back to ancient Rome to discuss food riots. Every consul and emperor knew that if Rome's grain basket wasn't kept full, their purple robes would

quickly be violently stripped from them. But over the last few centuries, food riots have been something of a European, and particularly English, speciality.

The second half of the eighteenth century in England has been called 'the golden age of food rioting'.<sup>28</sup> In September 1795, for example, London witnessed nearly a week of rioting in which the targets were bakers, food wholesalers and monopolists.

This was not mob rule, but according to the historian E.P Thompson, 'a highly complex form of direct popular action, disciplined and with clear objectives'.<sup>29</sup> Most were responses either to shortages or unfair distribution. Eric Hobsbawm called it, 'collective bargaining by riot'.<sup>30</sup>

The rioters themselves tended not to be the typical culprits of popular imagination. Farm labourers and the poorest of the urban poor were among the rioters, but often a minority compared to artisans and industrial workers. Protests were frequently begun by women, who were the quickest to spot unfair price rises, engineered shortages, and quickest also to organise demonstrations.

As the industrial age gathered pace, Europe echoed to the sound of riots triggered by issues with food. Some rioted when attempts were made to export grain from areas with shortages; some seized food in response to price hikes and sold it on at a 'fair price'; some destroyed their own produce in protest; still others conducted 'market riots' targeted at the dealers, authorities and commercial agents deemed most responsible for price rises. The latter is probably closest to the fuel blockades of 2000.

A couple of weeks after joining **nef** (the new economics foundation) in 1999, one of my first jobs was to attend the disastrous meeting of the World Trade Organization in Seattle.

To many, the diplomatic meltdown, broken windows and teargas were a shock. But few realised that in many ways, the 'Battle in Seattle' was merely the culmination of decades of modern food riots that had been sweeping across the majority world, largely in response to the economic doctrine emitting from the governments and financial institutions of Europe and the United States.

To quote economic historians, 'modern food riots... are generated by processes analogous to economic liberalisation policies that produced classical food riots.' The difference today is internationalisation and that this is happening, 'in response to a new and ever more integrated global system.'<sup>31</sup>

For a time, food riots were a dominant form of civil unrest. There were other causes too, such as religious disputes, opposition to the enclosures, working conditions and military conscription. And, it was into broader political shifts like the rise of the Labour movement that food riots were absorbed. Then came fossil fuels, without which the industrial revolution would not have happened as it did.



## Carbon and keeping order

In October 1902, President Theodore Roosevelt faced a major coal strike<sup>32</sup> and feared the result would be ‘untold misery. . . with the certainty of riots which might develop into social war’.<sup>33</sup> In solving the crisis, Roosevelt set a precedent by introducing Federal-Government-led arbitration. He also saw the future, writing in his letters, ‘I fear there will be fuel riots of as bad a type as any bread riots we have ever seen.’<sup>34,35,36</sup>

Roosevelt was as nervous then, about government intervention in the private sector, as our government is timid in confronting the energy companies today. But, although he feared setting an ‘evil precedent’, Roosevelt concluded that he would rather, ‘run the risk of impeachment rather than expose the Nation to chaos’.<sup>37,38,39</sup>

A few decades later another kind of chaos meant access to fuel had to be managed again. During the Second World War, in 1942 the USA limited gasoline to 3 gallons per week for ‘nonessential’ vehicles. Rationing in the USA was motivated by a patriotic desire to ensure that both citizens and soldiers received a fair distribution of goods. Gasoline entitlement was set by how necessary a person’s vehicle was to them.

When the USA next implemented energy rationing at the time of the first OPEC oil crisis in the early 1970s, a similar logic was used. A *Congressional declaration of purpose* announced that ‘positive and effective action’ was needed to protect ‘general welfare. . . conserve scarce energy supplies’ and ‘*insure fair and efficient distribution,*’ [my emphasis].<sup>40</sup> Apply the same principles more generally today and many problems from hunger to global warming could be solved.

During the tension of the OPEC-driven oil-price spike of 1979, there were riots at US petrol stations. It was considered shocking when prices hit \$1 per gallon. Two nights of protest broke out in Levittown, a once ‘iconic planned suburb’, founded to showcase

the sight of the American Dream cruising around in a large car. At the end, 100 were injured and nearly double that arrested.<sup>41</sup>

Before Britain's energy shift and 'dash to gas', the Miner's strike in 1984 showed how far the Government would go here to ensure fuel supplies, even if its response had a double political purpose as it sought to disempower the unions.



## Fuel and food

Today, fossil fuels, food and climate change are impossible to separate. It was front page news in September this year when the head of the Intergovernmental Panel on Climate Change (IPCC), Rajendra Pachauri, called on people to reduce their intake of meat to help combat climate change. Amid the predictable culinary stirring of outrage, Pachauri successfully highlighted an easily overlooked fact. Not only is our food system especially vulnerable to global warming, it is also a major contributor to the problem. A few years back, Tesco's lorries alone travelled 68 million miles in the course of a year. That is the equivalent of roughly 142 round trips to the moon.<sup>42</sup>

Overall, greenhouse gases from farming are similar to those from industry and greater than those from transport.<sup>43</sup> According to another branch of the UN, the Food and Agriculture Organization (FAO), livestock production in particular accounts for nearly one-fifth of all emissions.<sup>44</sup>

Now, as a long-term vegetarian, I should declare an interest. But as the world's leading spokesperson for climate science, Pachauri understood the startling difference in energy efficiency – leaving aside all other concerns such as animal welfare – between predominantly meat-based and plant-based diets.

Allowing for the fact that there are almost as many different ways to farm as there are farmers and ecosystems, and that any system can be organised with greater or lesser efficiency, it can take, on average, 2.2 kilocalories of fossil fuel energy to extract one kilocalorie of plant-based food.<sup>45</sup> Whereas, meat has been estimated to have an average input–output ratio of 25:1.<sup>46</sup> Researchers at Cornell University calculated in the late 1990s that producing beef cattle requires an energy input to protein output ratio of a staggering 54:1, and that the grain eaten by US livestock could then feed 800 million people.<sup>47</sup>

Based on current trends, the FAO predicts that our current 60 billion count of global livestock will double by the year 2050 to 120 billion.<sup>48</sup> By then, the world's farm animals could be consuming an amount of food equivalent to the intake of 4 billion people.

Globally, one-third of arable land is set aside for growing animal feed, and over 90 per cent of soya beans and around 60 per cent of maize and barley are destined for cattle, pigs and poultry.<sup>49</sup>

Aside from choice between meat-based and plant-based diets, the other great, important distinction is between intensive farming, reliant on large inputs of fossil-fuel-intensive, artificial chemical fertilisers and pesticides, on the one hand, and the range of organic approaches on the other.

Intensive farming's biggest energy use stems from its need to defy ecological gravity. Over one-third, 37 per cent, is used in the manufacture of nitrogen fertiliser, without which the soil upon which it depends would be rapidly exhausted, and its superficially impressive productivity would be impossible.<sup>50</sup>

According to figures from the Department for Environment, Food and Rural Affairs (Defra), organic farming uses in general, over a quarter less energy compared to non-organic farming to produce the same amount of food.<sup>51,52</sup>

Today's high and volatile price of oil means, says the Soil Association, that the 'lynchpin' of industrial agriculture's efficiency claims is now lost.<sup>53</sup>

In the wake of increasingly energy-intensive meat-based diets, the World Health Organization (WHO) also warns of a dramatic growth in diseases linked to lifestyle and diet. Conditions like heart disease, strokes and cancer are set to rise dramatically alongside the incidence of obesity.

It sounds strange the first time you say it out loud, but obesity, too, is a climate change issue.

Those indulgencies that spend a moment on your lips before spending a lifetime on your hips, typically come from an oil-addicted farming system, not to mention the petrol-hungry car transport that adds to sedentary lifestyles. The clue is in the term of measurement – calories – it's about how we must consume a lot less that stem from fossil fuels.

But, it's not just about climate change; it's about social justice, too.

I mentioned that recent food prices pushed the number of hungry people to nearly one billion, yet there are over one billion overweight people in the world, too.<sup>54</sup> The one first outnumbered the other in the year 2000<sup>55</sup> – a remarkably poignant way for the world to begin a new millennium.

For my part, I have a four-year-old daughter who cannot yet read or write. But earlier this year she was given a plain cardboard lunch box. She looked at me enquiringly and said, '*With the 'M' – food in a box is a happy meal.*' And, no, it wasn't, and she has never been taken through those golden arches for a burger.

Academics at the London School of Hygiene & Tropical Medicine say that tackling obesity is an essential part of both halting climate change and dealing with the food crisis.<sup>56,57</sup> They point out that, 'Petrol tanks and stomachs were competing well before biofuels were proposed to tackle climate change.' And, Ian Roberts, Professor of Public Health, commented in *New Scientist* magazine that, 'Fats and refined sugars, which tend to dominate the diets of obese people, are particularly carbon intensive.'<sup>58</sup>

But, the push factor of massively rising biofuel demand is having striking effects. The International Monetary Fund (IMF) estimated that 70 per cent of the rise in corn prices and 40 per cent of soya bean price rises were for this reason.<sup>59</sup>

This summer the president of the FAO lamented how in 2006, \$11 to 12 billion a year in subsidies and protective tariff policies had, 'the effect of diverting 100 million tonnes of cereals from human consumption, mostly to satisfy the thirst for fuel for vehicles'.<sup>60</sup>

He added, for good measure, that in the same year, rich countries distorted world food markets with \$372 billion in subsidies, that a single country (let's guess he means the USA) wasted \$100 billion worth of food, and that the 'obesity bill' came to \$20 billion. Yet, all it would take to guarantee the right to food, and thus the right to life, would be an extra \$30 billion of spending.

In some areas the food crisis has been cynically co-opted to promote existing, asymmetrical market liberalisation and commercial agendas.<sup>61</sup> So-called EU cooperation programmes stand to make matters worse where, directly and indirectly, they promote the increasing dependence of small-scale farmers on highly volatile and rising oil prices; and in energy policies that promote agrofuels for transport.<sup>62</sup>



## Ecologically wasteful trade

Then, of course, there is the appalling wastefulness of an international trading system that ignores the real cost of transport. Its arteries and veins quietly ossify with carbon as we watch the most peculiar range of goods going backwards and forwards. There is my old friend the gingerbread man, around 460 tonnes of which the UK managed to both import and export in 2004. Or, there is the 2200 tonnes of ice cream that went backwards and forwards from the UK to Sweden in 2005. Tens of thousands of fresh boneless chicken cuts travelled similarly back and forth, along with a large collection of other commodities.

Clearly we need better road signs for economic progress. For example, combining life expectancy and life satisfaction produces the indicator known as ‘happy-life-years’, comparing that, then, to the ecological footprint gives us a more meaningful measure of ecological efficiency and economic success. Middle income developing countries and especially small island states do best on this scoring.

But, apply this analysis to Europe with a focus on fossil fuels, and we find that Europe is less carbon efficient now than it was in 1961 at delivering well-being.<sup>63</sup>

We worship of the supposed ‘efficiency’ of supermarkets. But forget the fact that, according to the government waste agency WRAP, in the grip of their marketing, we end up simply throwing away one bag in every three of the food they sell us.



## The long climate shadow

In the face of such waste, worsening projections for climate change present a growing threat to our food supply.<sup>64</sup> Even as we sit in the early days of the disruption, there have been observed combined annual losses of wheat, maize and barley measuring around 40 million tonnes, since 1981 due to temperature increases.<sup>65</sup>

But, what keeps me awake at night, literally sometimes, are projections for what could happen to the planet’s hydrological cycle.

Much of the agriculture of the poor is rain-fed. Based on a mid-range IPCC scenario for global warming, recent work by the UK's Hadley Centre for Climate Prediction and Research modelling the future global of drought patterns delivers terrifying implications for the food chain and human survival. The proportion of the Earth's land surface prone to extreme drought has trebled from just 1 per cent to 3 per cent, in less than a decade.<sup>66</sup>

But it projects that this trend will continue until extreme drought affects no less than 30 per cent of the globe by 2090.<sup>67</sup> We will, of course, be in big trouble well before then.

Drought is projected to affect the great grain-growing areas of Europe, North America and Russia, as well as the Middle East and Central Asia, North Africa and southern Africa, Amazonia/Brazil, and Central America. If people cannot grow food to eat they will migrate. If they migrate, there will be more competition for resources, and there will be conflict.

Energy use, diet, transport and climate change are linked in many ways both as cause and consequence. Analogous to what has happened in finance, just as unrealistic fossil-fuel use has leveraged many into unsustainable lifestyles (whilst marginalising many others). The sudden withdrawal of first oil, and then natural gas due to rising prices and restricted availability could trigger 'de-leveraging' with dramatic consequences.



## Economic vulnerability

You'd think a logical, even self-interested response, would be to ensure maximum self-sufficiency among the poor in the most populace parts of the world.

But, no. The world's estimated 400 million small-scale farmers, who feed over 2 billion people, mostly in Asia, face another threat: further marginalisation and insecurity as their national food economies are re-engineered, consolidated and centralised along Western lines by the major supermarkets. Asia, Latin America and Africa are all targets of the likes of Wal-Mart, Carrefour and Tesco.<sup>68</sup>

As supermarkets increasingly capture the market for food in towns and cities, this also cuts off an economic lifeline for small-scale farmers, who once supplied the urban

population through smaller stores and open-air markets. If wealthy farmers in Europe and America can't stand up to them, what chance the small-holders of Asia?

All of these changes combined; along with the lasting inequities of global trade rules and bilateral economic bullying explain why food riots are back with a chaotic vengeance.

In Britain, another type of critical infrastructure is under threat from the inexorable rise of monopolistic retailers, whose model of expansion is the US-style suburban dead zone fed by the out-of-town, big-box retail park. Vibrant, diverse and independently owned local economies provide the social and economic glue that holds communities together. We've understood this at least since Jane Jacobs wrote *The Death and Life of Great American Cities*.<sup>69</sup> As much as their vulnerable 'just-in-time' logistics, it is the surgical removal of the economic heart of communities that increases the frailty of society.



# Enough of problems

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So, now we must seek out the opposites of economic chaos, instability, inequality, oil-dependence and climate change. If you're trying to locate a hard-to-find place, I always think it's a good idea to see if someone has been there or at least somewhere similar, before.



## The Cuban 'miracle'

What, if any, guides do we have to surviving economic chaos, climate change, food insecurity, the high and rising price of oil, and its imminent global peak and long decline?

One country, very much and long maligned, provides a glimpse of what the near future may hold for others.

Cuba has already lived through the economic and environmental shocks that climate change and peak oil hold in store for the rest of the world.

Its sudden loss of access to cheap oil imports and its economic isolation were so extreme in 1990 at the end of the Cold War, and its reaction to the shock was so contrary to orthodox approaches, and successful, that it was dubbed in Washington DC the 'anti-model'. It is as near as we have to a laboratory example in the real world.

Cuba grew heavily dependent on cheap Soviet oil for its transport, industrial export-oriented farming and wider economy. Also, it sits in the flight path of the annual hurricane season, regularly contending with extreme weather events.

Then oil imports dropped by over half. The use of chemical pesticides and fertilisers dropped by 80 per cent. The availability of basic food staples like wheat and other

grains fell by half and, overall, the average Cuban's calorie intake fell by over one-third in around five years.

But, serious and long-term investment in science, engineering, health and education meant the country had a strong social fabric and the capacity to act. Successive reforms, dating back longer, reduced inequality and redistributed land.

Before its local 'oil shock', Cuba had investigated forms of ecological farming far less dependent on fossil fuels, and had in place a system of 'regional research institutes, training centres and extension services' to support farmers.<sup>70</sup>

At the heart of the transition after 1990 was the success of small farms, and urban farms and gardens. State farms later followed their example. Immediate crisis was averted by food programmes that targeted the most vulnerable people – the old, young, pregnant women and young mothers – and a rationing programme that guaranteed a minimum amount of food to everyone.

Soon, half the food consumed in the capital, Havana, was grown in the city's own gardens and, overall, urban gardens provide 60 per cent of the vegetables eaten in Cuba.<sup>71</sup> The threat of serious food shortages was overcome within five years.

Interestingly, Cuba's experience both echoes what America achieved in a more distant time of hardship during the Second World War, when Eleanor Roosevelt led the 'victory gardening movement' to produce between 30 and 40 per cent of vegetables for domestic consumption.

Cuba demonstrated that it is possible to feed a population under extreme economic stress with very little fossil fuel inputs. Other consequences were also surprising.

As calorie intake fell by more than one-third, and fuel was unavailable, the proportion of physically active adults more than doubled and obesity halved. Between 1997 and 2002, deaths attributed to diabetes fell by half, coronary heart disease by 35 per cent, strokes and all other causes by around one-fifth.<sup>72</sup>

The approach was dubbed the 'anti-model' because it was highly managed, focused on meeting domestic needs rather than export-oriented, largely organic, and built on the success of small farms.<sup>73</sup>

The same country's approach to disaster preparedness and management is also instructive. Compared to the widespread death and destruction in New Orleans following Hurricane Katrina, when Hurricane Michelle hit Cuba in 2001 only five

lives were lost, in spite of 20,000 homes being damaged, and recovery was quick. It was due to proper planning, and a collective approach managed by government, but owned at the local level.

As disasters expert Dr Ben Wisner commented on the evacuation of 700,000 of Cuba's 11 million population, 'This is quite a feat given Cuba's dilapidated fleet of vehicles, fuel shortage and poor road system.'<sup>74</sup>

At least one analyst suggests that the Cuban experiment, 'may hold many of the keys to the future survival of civilisation'<sup>75</sup>.

A colleague of mine described as 'salutary' the fact that the humble Cuban miracle required between 15 and 24 per cent of the labour force to get involved in growing food. The Soil Association points out that in the UK at the start of the twentieth century some 40 per cent of the population was in some way engaged in farming. Today it's less than one per cent.<sup>76</sup>



## The resilience of small islands

Britain is an island nation, and it seems there is more that we can learn from other islands, especially small ones.

Several years ago the International Red Cross sent me on behalf of the *World Disasters Report* to assess the early impacts of climate change on vulnerable populations. What I saw in Tuvalu, in the South Pacific, and learned from other small island states, about being resilient in the face of economic isolation and an unpredictable and extreme climate, may hold lessons now for how many millions more can withstand the upheaval of global warming on our small island planet.

We can learn a lot from the mere fact that island communities like this survived for so long on remote shards of land, exposed to the full force and vagaries of nature. To do so, first they had to respect their environmental limits, which are more obvious on small islands.

Next they evolved resilient local economies that helped them cope with extreme and unpredictable weather. These were, of necessity, based on reciprocity, sharing and co-operation, and not unlimited growth, fed by individualistic, beggar-thy-neighbour competition.

The economic historian Robert Heilbroner pointed out, that for most of the last millennium the, ‘notion that a general struggle for gain might actually bind together a community would have been held as little short of madness’.<sup>77</sup>

Today, as collectively we face and exceed the limits of the Earth’s biocapacity, we are challenged at the global level to learn in a few short years, lessons that such small communities often took millennia to arrive at.

In Karl Polanyi’s classic work *The Great Transformation*, he presents various types of social and economic organisation on islands as evidence against some of Adam Smith’s more sweeping assumptions on the central role of markets.<sup>78</sup>

Complex forms of ‘gift exchange’ operated over vast areas, revealing a system that not only met people’s needs in a challenging environment but bonded society together.

In the face of our rising vulnerabilities – the degree to which different forms of economic organisation enhance or undermine social cohesion must become a basic test of their fitness for purpose.

From a sweeping historical and anthropological survey of societies across Europe, North Africa, the Middle East and Asia, Polanyi codified certain principles common to most up until the late Middle Ages: reciprocity, redistribution and ‘householding’, by which he meant a system that enables needs to be met in a largely self-reliant way. It’s from the latter that we derive the root of the word for economics – *oikonomia*.

Of course, it is equally possible to learn how to go wrong from looking at island life. Some stories have entered popular folklore, like the demise Easter Island’s society, that crashed by disregarding environmental limits.

Nauru, a remote South Pacific island, provides a less-well-known cautionary tale. Guns, booze and venereal disease signalled its earliest encounters with the development brought by Europeans.

Then, in 1899, progress really took off when a visitor, Albert Ellis, saw a lump of high-grade phosphate being used as a doorstep. It was bird guano accumulated over thousands of years. The whole interior of the island was made of it.

Over the following century the island was dug out leaving the indigenous population clinging to a rim of land around the island’s edge, almost entirely dependent on imports for their needs.

When environmental limits are transgressed on an island, it is just possible, notwithstanding restrictive immigration laws, that people can move. But when the limits are crossed on an island in space, like Earth, the problems presented are a little more difficult, regardless of immigration laws.

How will a growing, increasingly unequal world population fit into the shrinking environmental space of a carbon-constrained economy? In the rich world we know the answer, even if we are unprepared to accept the consequences. We have to use less, much less, of the things that come from burning fossil fuels. The slightly shocked academics who studied the unfortunate history of Nauru boiled our future down to one that includes:

*'Travel by bicycle and mass transit; a diet of locally grown grains, fruits, vegetables and other foods; simple but adequate homes; and local vacations.'*<sup>79</sup>

But, in general, our research at **nef** has shown island nations to be relative models of resilience, quality of life and ecological efficiency. We developed a new measure to assess the efficiency with which natural resources are converted into meaningful human outcomes. We called it the *Happy Planet Index*.<sup>80</sup> It compares ecological footprint date with life expectancy and satisfaction. Across and within regions island nations score particularly well.

There are many probable reasons why: contact with nature, an awareness of and adaptation to more obvious limits, sharing-based economies which have been seen to reduce inequality across a community and maintain supportive social relationships, and crops bred for hardiness and grown in mixed, highly productive plots. Island diets, too, more typically follow the balance in most ecosystems which is the nine-word mantra of food and science writer Colin Tudge for a more sustainable food system: 'lots of plants, a little meat and maximum variety'.<sup>81</sup>

Slightly more wordy, but equally worthy, were the findings of the recent report of the International Assessment of Agricultural Knowledge, Science and Technology. Its approach was parallel to the approach of the IPCC – gather together a large, diverse group of scientists, and see what consensus emerges about the nature of a problem and its solutions. It found that a massive shift of support to small-scale farmers using a diverse range of agro-ecological methods would be one of the most efficient ways to build resilience, inoculate against food crises, and insure against increasingly hostile weather patterns.

For the record, the report also put straight that there is no conclusive evidence for better yields coming from GM crops, which are generally just as dependent on fossil-fuel-intensive inputs and infrastructure as conventional high-input varieties. People who tell you that we must open the door to GM crops in order to end hunger are perpetrating a grotesque deception.

Dr Michael Antoniou of King's College London recently reminded us that we have known for years that crops adapted to harsh climates and marginal soils already exist. Yet, he says, hardy staples like fonio, pearl millet, and African rice have been displaced due to external interference by less resilient crops such as maize, wheat and Asian rice.<sup>82</sup>

Perhaps what some islands have come close to achieving—is the ecological economist's holy grail, the almost mythical 'stationary' or 'steady' state of, respectively, John Stuart Mill and Herman Daly of harmony with the natural world.

Yet these terms remain problematic to many. The issue is not so much with their analysis, which, rooted in ultimately inevitable boundaries highlighted by tough natural sciences, but with their connotations.

'Stationary', and 'steady', seem somehow covered in dust, static and susceptible to mildew. I prefer the notion that economic systems should achieve a state of 'dynamic equilibrium' with the biosphere. I think it captures better a mirror of nature for society, in which, within ecosystem limits, there is constant change and development. 'Dynamic' in the sense that little is steady or stationary, but 'equilibrium' in that the vibrant, chaotic kerfuffle of life, economics and society must organise its affairs within the parent-company boundaries of available biocapacity.

The kind of economics it calls for, as Daly has written is one that is:

*'...a subtle and complex economics of maintenance, qualitative improvements, sharing frugality, and adaptation to natural limits. It is an economics of better, not bigger.'*<sup>83</sup>

Here is a direct line of descent from Kropotkin's analysis at the dawn of the twentieth century that economics could learn from the success of cooperation, or 'mutual aid' as he coined it, in ecological systems. At the time it was also a riposte to the fashionable misappropriation of Darwinism to social and economic problems, something that I fear is returning to haunt us once again.<sup>84</sup>



## Resilience UK

So, all fine in theory, but what on earth does this mean, and look like in practice for a country like Britain. Let's look at three examples: one from the past, one from the present and one from the future.

### *The past*

First is something that I have written and spoken about for so long, that now I see the people who once dismissed the notion, happily advocating it in public as if they had thought of it yesterday.

There are very few historical precedents for the scale and speed of lifestyle change and economic re-engineering demanded to prevent runaway climate change. The one clear example we have points directly to the need for an 'environmental war economy'. Britain's Second World War experience between 1938 and 1944 provides lessons to learn and mistakes to avoid. Managing energy use, food security and reducing general consumption were key. And, in spite of hardships, there were significant, unintended positive outcomes. Maternal health improved, infant mortality declined, life expectancy lengthened. People were fitter, healthier and community spirit and cohesion was reportedly high.

Initially the 'rationing' of coal was held back in favour of a high-profile campaign promoting fuel economy. To lead by example, very public energy restrictions were introduced in government and local authority buildings, shops and railway stations. The result was successful and the drop in domestic coal deliveries by early 1943 was greater than the cuts previously planned in an over-complex rationing scheme. Petrol rationing, by contrast, was introduced early on and tightened to the point where rations were only made available for 'business and other essential purposes'. The private car 'almost disappeared from the roads'.

Rationing was organised in accordance with need and was sometimes bizarrely specific. Clocks and watches, for example, were scarce except for some imported American alarm clocks. But to get one, you'd have to demonstrate that your job demanded an early hour of rising.

It's vital to remember that adapting was difficult even then. In the 1930s, people led sophisticated lives. A range of foreign food and other luxuries were taken for granted

as much then, as they are now (even if the selection was smaller). It was an *issue* when imported food disappeared almost entirely from the shelves.

Behind all the schemes to manage demand, the objective was to,

*'secure the fairest possible distribution of whatever supplies are available and to ensure... that as far as possible the things that everybody needs shall be within the reach of all'.<sup>85</sup>*

And rationing wasn't one-size-fits-all. There were special allowances for mothers and children, agricultural workers and miners who lacked work canteens, vegetarians who didn't take up a meat ration, people with illnesses and others whose diets were conditioned by their religion.

Generally, the Government deliberately chose rationing over taxation for reasons that were logical and progressive. Taxation alone, it concluded, apart from disproportionately and unfairly placing a burden on the poor, would be too slow to change behaviour. Rationing was considered quicker and more equitable. Tradable rations were rejected through fear of encouraging fraud and inflation and 'undermining the moral basis of rationing'.<sup>86</sup> Historian Mark Roodhouse derives specific policy lessons from the history. Government, he writes, needs to, 'convince the public that rationing levels are fair; that the system is administered transparently and fairly; and that evaders are few in number, likely to be detected and liable to stiff penalties if found guilty'.<sup>87</sup>

## *The present*

### Transition

The scene is a man appalled at the unsustainable and unpleasant conditions he finds in towns and cities, and determined to transform them, peacefully and in tune with nature. I could be describing Rob Hopkins, the driving force of the Transition Town network – described as the fastest-growing social experiment in the country – even though no one is quite sure how that might be measured.

But the year is 1898, and this is Ebenezer Howard, the founder of an earlier movement. He had just published the book, *Tomorrow: A peaceful path to real reform*, republished in 1902 as *Garden cities of tomorrow*.<sup>88</sup> The flowering of new social movements often has its seeds in the past. Few experimental towns were actually built, but the influence of garden cities was great. In Japan it is now government policy to build on Garden City lines.

Almost exactly a century after the first garden city was begun on land at Letchworth, the first transition town initiative was set up in Kinsale, Co. Cork, Ireland. There are now dozens of transition towns in the UK and internationally, with hundreds more under consideration. The South West is trying to become a transition region and Wales is considering being a transition country.

The common aim is to reduce oil dependence, and lower the ecological impact of their economies by localising the way they meet their needs for food, energy and other goods and services.

The first stage is to produce an 'Energy Descent Plan'. By 2021, Kinsale Transition Initiative plans to source the majority of its energy from sources within a ten-mile radius. Its distributed energy system will include wind, biomass from short-rotation coppice, and anaerobic digesters for a combined heat and power plant, and solar.

Similar initiatives in Europe include the community of Vauban, near Freiburg in Germany. It claims to have achieved CO<sub>2</sub> emissions reductions of between 80 and 90 per cent, due to good building design, renewable energy, car sharing and good water management.<sup>89</sup>

The dramatic renaissance of urban gardening and horticulture in the UK is evidence of an unplanned cultural and economic self-medication. In the face of food and fuel prices, and the alienation of spending six months of your life shopping in a supermarket, it's clearly meeting a need.

Seed suppliers in the UK report 'astronomical' growth in the sale of vegetable seed varieties.<sup>90</sup> In the USA, they are reported to be 'through the roof'.<sup>91</sup>

The 'core economy'<sup>92</sup>

There are other ways, too, that we are turning to the book of nature to solve our problems.

While the biosphere can be seen as our natural resource 'operating system', the inventor of Time Banks, Edgar Cahn, writes of another fundamental system that has been called the 'core economy' by economist Neva Goodwin.

Cahn, writes of two economic systems, the money economy and the core economy. The core economy is the operating system that the money economy depends-on, yet takes for granted and often cannibalises.

The core economy consists of family, neighbourhood, community and civil society. It is what you and I do when we provide care for children, families and the elderly. It produces safe neighbourhoods, makes democracy happen and creates community and civil society. It's what comes to your rescue and shares when you need it.

Back in 1998, the value of the household work done in the core economy in the US was valued at \$1.9 trillion. In 2002, the informal care that keeps the elderly out of homes was given a replacement price of \$253 billion.

Like with the bees, the problem is what happens when you undermine the operating system. Having for decades promoted the self-interest of finance above the well-being of the core economy, will it be strong enough now that we need it among the wreckage left behind by the chimera of triumphal capital?

The invisible hand of the market has been at odds with the invisible heart of the core economy, and it is the latter that we cannot do without and must take precedence.

A healthy core economy will share the characteristics of those resilient island economies – strong in reciprocity, cooperation, sharing, and collaboration in the delivery of essential services, care provision and raising families. Remember Kropotkin's *mutual aid*.

To boost the core economy we need to imagine a significantly expanded and broadened role for public services – such as the so-called extended schools and health centres.

In this way, people become involved in helping to 'produce' their own well being. An elderly person visiting the doctor complaining of symptoms linked to the cold, might, for example, be prescribed help from another patient to fit insulation or low energy light bulbs to lower fuel bills. In return they might offer the practice to make supportive phone calls to check on people returning home from hospital.

It's called 'co-production', it's based on reciprocity, and it works. It builds more resilient and cohesive communities.<sup>95</sup> To grow it will need a duty on public services to collaborate among themselves, and with the voluntary sector, and health and safety rules will need looking at again.

A shorter working week, freeing up time to contribute, and lower house prices so that we don't have to work so much would also help. But this alone, is not enough.

## *The future*

### A Green New Deal

History shows that more cooperative forms of economic organisation can emerge in response to extreme hardship, dependence and exploitation.

For example, cultures and models of self-help were born under far harsher circumstances than now during the Industrial Revolution.

The great capitalist-turned social-reformer (and deeply odd individual) Robert Owen, formed the superbly named *Grand National Moral Union of the Productive and Useful Classes*, and the English labour movement stepped into the light.

He was hugely influential, but sometimes it took others to turn his ideas into practical realities.

One group, formed just down the M62 from here in Leeds, comprising 28 weavers, became known as the Rochdale Society of Equitable Pioneers, and created the consumer cooperative movement.

Now, again, we need the co-ops, the credit unions and the mutuals. But we also need a Green New Deal to tackle the triple crunch, and kick-start our environmental transformation and ensure that we are no longer, at any one time, nine meals from anarchy.

Our modernised *Green New Deal*, published on the 75th anniversary of Roosevelt's plan, is, like his plan, designed to happen in two waves.<sup>94</sup>

First, we outline a structural transformation of the regulation of the financial system, including major changes to taxation. Secondly, we call for a sustained programme to invest in, and deploy, energy conservation and renewable energies, coupled with effective demand management.

In place of Roosevelt's politically clever 100-day programme – in which all of his measures were passed – we find ourselves with the very real timeframe of less than 100 months, imposed by the unthinkable prospect of runaway climate change.

The outcomes of our plan, will create countless green-collar jobs, introduce greater economic stability, bring huge benefits to the real economy and establish prudent environmental policy.

Three interlocking elements make up the Green New Deal:

- 1. Stabilising the financial system:** A financial system built on speculation and the reckless accumulation of debt needs saving from itself with a thorough overhaul of regulation. This would include breaking up discredited financial institutions that have only survived through the injection of vast sums of public money.

Instead of institutions that are ‘too big to fail’, we need institutions that are small enough to fail without creating problems for depositors and the wider public.

We also need to minimise corporate tax evasion by clamping down on tax havens and obfuscatory corporate financial reporting.

- 2. Raising the resources to invest in change:** The Green New Deal needs resourcing. As part of the financial reform described above, cheaper money is needed to invest in the environmental transformation of our energy, transport and building infrastructure.

In parallel, to prevent inflation, we want to see much tighter regulation of the wider financial environment. There are plenty of other ways of urgently freeing-up necessary finance.

As just one part of a wide-ranging package of financial innovations, the Deal calls for the establishment of an Oil Legacy Fund, similar to a highly successful Norwegian Government’s initiative, paid for by a windfall tax on the profits of oil and gas companies.

More realistic fossil fuel prices, raised to include their cost to the environment, will generate further revenue and create economic incentives that drive efficiency and bring alternative fuels to market. Importantly, this multiple approach will help pay for the safety nets needed for those vulnerable to higher food and fuel prices, and help keep chaos from the door.

- 3. Environmental transformation:** The end game of the Green New Deal is to bring about a low-carbon, high-well-being economy.

There are numerous benefits in shifting to a more efficient, decentralised energy system that uses a wide range of renewable energy technologies applied at different scales, and in which demand is actively managed.

Centralised energy infrastructures can be extremely inefficient.<sup>95</sup> In the UK, Greenpeace estimates that up to two-thirds of potential energy is lost between

generator and consumer.<sup>96</sup> Far more efficient models developed by The World Alliance for Decentralised Energy have been used by the UK Foreign Office to project China's energy future; by the Federal Government of Canada to look at the country's energy system; and by the European Commission to investigate the options for the EU.

But, once again, some small islands are showing the way. The tiny island of Niue in the South Pacific plans to become the first nation on Earth to meet all its energy requirements from renewable sources. Sagar island in the Sunderbans Delta, off the mainland in West Bengal, home to just under 200,000 people living in 43 villages has the same objective.<sup>97</sup>

With the right economic incentives, the foundations of a new energy system could be laid tomorrow.

Increasing our energy security and independence by making every building a power station and efficiency centre will create a "carbon army" of countless green collar workers.

But that is only the beginning; re-engineering our food and transport systems would cut out unnecessary fossil-fuel use and increase our resilience and security.



# Conclusion

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I hope I have littered enough ideas of what to do about being *Nine Meals from Anarchy* throughout the talk. But, an enjoyable feature of giving a lecture is that you don't have to write something as if it were a ministerial briefing with tidy little recommendations.

Let's learn from our history. Let's learn from communities already in transition, and take as appropriate from examples like the Cuban 'miracle'. Let's have a Green New Deal to address the triple crunch.

Considering that it took governments in the UK and the USA just a week to drop decades of hardened economic doctrine to save the financial system (a subsidiary of the environment) from meltdown, nationalising banks at great public expense, we should be asking why it takes any longer to act to save the planet from runaway warming.

The biosphere and the core economy have in common that they are fundamental operating systems – they are necessary, prior conditions for markets to exist. The financial economy is dependent on, and subsidiary to, both.

Not only would it be a bad idea to try to replace their functions with market-based exchanges –it would probably be impossible. Imagine pollinating Kent by hand or, asking the CBI to start from scratch and arrange toilet-training for Britain's entire senior management. The point is to create a context in which ecosystems and the core economy can flourish and, 'do their thing'.

All of the problems I've discussed are, to a large extent, the stresses and strains of endless, unsustainable economic growth. So I will finish with an appropriate short story.

*The Lorax* is an old tale from Dr Seuss about a travelling salesman called the 'Once-ler.' He's a chancer who happens across the splendour of a forest of Truffalo trees, and discovers that he can make from them something called 'Thneeds'. In no time at all

the trees are being felled, and loaded lorries are leaving factories bearing the slogan, 'Everyone needs a Thneed.'

To the Once-ler's annoyance he then encounters the Lorax, a creature that was, to quote:

*'...shortish. And oldish.  
And he spoke with a voice  
That was sharpish and bossy.'*

Yes, the Lorax was a prototype environmentalist. He spoke for the trees and lectured the Once-ler on all the animals that depended on them. Undeterred, the Once-ler replies that he's:

*'Figgering on biggering  
and BIGGERING  
and BIGGERING  
and BIGGERING  
turning more Truffula Trees into Thneeds  
which everyone, EVERYONE, EVERYONE needs!'*

Soon all that's left is a wasteland, a closed factory, denuded landscape and some rocks carved with the word 'UNLESS, left by the Lorax.' Not until a child came along much, much later did the Once-ler, holed up in a creaky cabin, understand what it meant. Handing the child the last surviving Truffalo Tree seed, with instructions to plant and care for it, and protect it from axes, he says,

*'UNLESS someone like you  
Cares a whole awful lot,  
Nothing is going to get better  
It's not.'*

Time, then, for us to care, a lot, and act accordingly. Finally, before there is anarchy in this room as I keep you from your own food, I must finish and thank you for listening.



# Endnotes

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- 1 United States Department of Agriculture, Agricultural Research Service (May 2008)  
<http://www.ars.usda.gov/News/docs.htm?docid=15572> <http://www.ars.usda.gov/is/AR/archive/may08/colony0508.htm>
  - 2 Colony collapse disorder and the human bee (30 July 2008) [www.eworldvu.com](http://www.eworldvu.com)  
<http://www.zimbio.com/Beekeeping/articles/47/Colony+Collapse+Disorder+Human+Bee>
  - 3 'Diseases could wipe out honeybees by 2018' 10 March, 2008, *The Daily Telegraph*
  - 4 Public Safety Canada, (25 January, 2005) Incident Analysis: IA05-001, Impact of September 2000 Fuel Price Protests on UK Critical Infrastructure, [http://www3.ps-sp.gc.ca/opsprods/other/IA05-001\\_e.asp](http://www3.ps-sp.gc.ca/opsprods/other/IA05-001_e.asp)
  - 5 Public Safety and Emergency Preparedness Canada (2005) *Impact of September 2000 Fuel Price Protests on UK Critical Infrastructure* (Ottawa, Canada: PSEPC).  
<http://www.iwar.org.uk/cip/resources/PSEPC/fuel-price-protests.htm>
  - 6 *Ibid.*
  - 7 The NHS serves 300 million meals per year. The Strategy Unit (2008) *Food Matters: towards a strategy for the 21st century* (London: The Cabinet Office).
  - 8 UN FAO (18 September 2008) 'Soaring prices add 75 million people to global hunger rolls, Rome' [The estimated number of undernourished people worldwide rose to 923 million in 2007].
  - 9 UN FAO (April 2008) *Crop Prospects and Food Situation, No 2*. <http://www.fao.org/docrep/010/ai465e/ai465e02.htm>
  - 10 Mortished C (7 March 2008) 'Already we have riots, hoarding, panic: the sign of things to come?' *The Times*.  
<http://www.timesonline.co.uk/tol/news/environment/article3500975.ece>
  - 11 Dreibus TC (8 February 2008) 'Wheat surges to record as US supply may drop to 60-year low' (Bloomberg)  
<http://www.bloomberg.com/apps/news?pid=20601087&sid=ai1Gp1En5v8s&refer=home>
  - 12 Bennett D (4 August 2008) 'Growers and economists push for strategic grain reserves' *Farm Press*.  
<http://deltafampress.com/corn/grain-forum-0804/>
  - 13 Kirchhoff S (2 May 2008) *USA TODAY*.
  - 14 Oakeshot I (6 July 2008) 'Government asks stores to stockpile food to overcome hauliers strike' *The Times*.  
<http://www.timesonline.co.uk/tol/news/politics/article4276490.ece>
  - 15 BBC (6 April 2006) 'Cobra: The UK's emergencies team' [http://news.bbc.co.uk/1/hi/uk\\_politics/4663369.stm](http://news.bbc.co.uk/1/hi/uk_politics/4663369.stm)
  - 16 Defra (2007) *Agriculture in the United Kingdom 2006* (Norwich UK: The Stationery Office).  
<http://statistics.defra.gov.uk/esg/publications/auk/2006/default.asp>
  - 17 Maynard R (15 September 2008) Response from the Soil Association to Defra discussion paper, *Ensuring the UK's Food Security in a Changing World* (Bristol: Soil Association).
  - 18 FAO (1999) *Women: users, preservers and managers of agrobiodiversity* (Rome: FAO).
  - 19 International Energy Agency (July 2008) *Medium term oil report, 'Despite slowing oil demand, IEA sees continued market tightness over the medium term'* (Madrid: IEA).
-

- 20 *Ibid.*  
[http://www.iea.org/Textbase/press/pressdetail.asp?PRESS\\_REL\\_ID=267](http://www.iea.org/Textbase/press/pressdetail.asp?PRESS_REL_ID=267)
- 21 Simms A, Johnson V (2007) *Chinadependence: The second UK Interdependence Report* (London: nef).
- 22 Porter A (7 June, 2004) 'Is the world's oil running out fast?' <http://news.bbc.co.uk/1/hi/business/3777413.stm>
- 23 King Jr, N (12 December 2007) 'Saudi industrial drive strains oil export role' *Wall Street Journal*.
- 24 Leggett J (2 May 2008) 'Just as the need for renewables becomes critical, the oil giants signal an alarming retreat' *The Guardian* [www.guardian.co.uk/commentisfree/2008/may/02/renewableenergy.energy](http://www.guardian.co.uk/commentisfree/2008/may/02/renewableenergy.energy)
- 25 Madslie J (24 June 2004) 'New pipeline to deliver a fifth of UK gas'  
<http://news.bbc.co.uk/1/hi/business/3835441.stm>
- 26 Oil refinery talks as strike ends (29 April, 2008)  
[http://news.bbc.co.uk/1/hi/scotland/tayside\\_and\\_central/7372367.stm](http://news.bbc.co.uk/1/hi/scotland/tayside_and_central/7372367.stm)
- 27 Leggett (2008) *op. cit.*
- 28 Quoted in Walton J, Seddon D (1994) *Free markets and food riots: the politics of global adjustment* (Oxford: Blackwell).
- 29 Thompson EP (1971) The moral economy of the English crowd in the eighteenth century *Past and Present* **50**: 76–136.
- 30 Quoted in Walton and Seddon (1994) *op. cit.*
- 31 Walton and Seddon (1994) *op. cit.*
- 32 Grossman J (October 2008) The coal strike of 1902 – turning point in US policy (Washington DC: US Department of Labor, Office of the Assistant Secretary for Administration and Management).  
<http://www.dol.gov/oasam/programs/history/coalstrike.htm>
- 33 Letter, Roosevelt to Winthrop Murray Crane (Governor of Massachusetts), 22 October 1902, in Morrison EE (ed.) (1951) *The Letters of Theodore Roosevelt, Vol. III* (Cambridge: Harvard University Press) p 360.
- 34 Letter, Roosevelt to Low, 3 October 1902, Morrison (1951) *op. cit.* p 336.
- 35 Letter, Roosevelt to Low, 5 October 1902, Morrison (1951) *op. cit.*
- 36 Letter, Roosevelt to Bacon, 5 October 1902, Morrison (1951) *op. cit.* p. 340.
- 37 Draft and final copy of opening address to 3 October 1902 Conference, Morrison (1951) *op. cit.*
- 38 Letter, Roosevelt to Mrs W. S. Cowles, 16 October 1902, Morrison (1951) *op. cit.*
- 39 Letter, Roosevelt to Crane, 22 October 1902, Morrison (1951) *op. cit.* pp. 361–362.
- 40 United States Code, Title 15: commerce and Trade, Chapter 16B – Federal Energy Administration, Subchapter I, Section 761. Congressional declaration of purpose.
- 41 Nunnally D (29 May 2008) 'Recalling the suburban gas riots of 1979' *The Philadelphia Inquirer*.
- 42 Simms A (2007) *Tescopoly: How one sbop came out on top and why it matters* (London: Constable).
- 43 McMichael A, Powels J, Butler C, Uauy R (2007) Food, livestock production, energy, climate change, and health *The Lancet* DOI:10.106/S0140-6736(07)61256-2.
- 44 Steinfeld H, Gerber P, Wassenaar T, Castel V, Rosales Ml (2006) *Livestock's long shadow: Environmental issues and options* (Rome: FAO). Nb: the figure is around 18 per cent, measured in CO<sub>2</sub>e, including transportation of livestock and production of feed. Increasingly meat-based diets stand to worsen this problem.
- 45 Giampietro M, Pimentel D (1994) *The tightening conflict: population, energy use, and the ecology of agriculture* <http://www.dieoff.com/page69.htm> [25 March 2008].
- 46 Pimentel D, Pimentel M (2003) Sustainability of meat-based and plant-based diets and the environment *American Journal of Clinical Nutrition* **78**: 660S–666S.

- 47 Press Release (7 August 1997) US could feed 800 million people with grain that livestock eat, Cornell ecologist advises animal scientists, <http://www.news.cornell.edu/releases/aug97/livestock.hrs.html>
- 48 Steinfeld *et al.* (2006) *op. cit.*
- 49 Compassion in World Farming (2008) *Global warning: climate change and farm animal welfare*, Summary Report (Surrey, CIWF).
- 50 Defra (2004) *Agriculture in the UK 2004*. <http://statistics.defra.gov.uk/esg/publications/auk/2004/default.asp>
- 51 Cormack, Dr WF (2000) Energy use in organic farming systems (OF0182) (Terrington, ADAS Consulting Ltd for Defra). <http://orprints.org/8169/>
- 52 Williams AG (2007) Developing and delivering environmental Life-Cycle Assessment of agricultural systems, Defra project (ISO222) (Bedfordshire: Cranfield University). <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=2&ProjectID=13913>
- 53 Press Release (12 June 2008) Soaring prices and climate change expose fertilisers as economically and environmentally unsustainable (Bristol: Soil Association).
- 54 WHO facts – <http://www.who.int/dietphysicalactivity/publications/facts/obesity/en/>
- 55 According to the World Resources Institute [full ref add]
- 56 Edwards P, Roberts I (2008) Transport policy is food policy *The Lancet* **371**:1661. <http://www.thelancet.com/journals/lancet/article/PIIS0140673608607163/comments?action=view&totalComments=3>
- 57 Press Release (16 May 2008) Global food crisis and transport policy are linked (London: University of London) <http://www.lshtm.ac.uk/news/2008/transportandfood.html>
- 58 Roberts I (27 June 2007) 'The fat picture' *New Scientist*.
- 59 John Lipsky, First Deputy Managing Director, IMF, speaking at the Council on Foreign Relations, 8 May 2008. [www.imf.org](http://www.imf.org)
- 60 FAO Director-General, Jacques Diouf. (3 June, 2008) Rome summit. <http://www.fao.org/foodclimate>
- 61 Press Release (3 June 2008) WTO Doha round will not solve the global food crisis: Civil society calls for real solutions (Anuradha Mittal, Oakland Institute, Aftab Alam Khan, International Coordinator, ActionAid International, Danilo Ramos, Asian Peasant Coalition).
- 62 Ref: Food and Ethics Council June 2008. [The IMF has commented that increasing demand for biofuels explains '20 to 30%' of recent food price increases. This is corroborated by the International Food Policy Research Institute (IFPRI) which puts the contribution of biofuels to the crisis at 30%. The Commission's conservative estimate that the EU 10% target will lead to a 3–6% price increase in cereals could result in up to 100 million extra people in hunger by 2020.]
- 63 Thompson S, Abdallah S, Marks N, Simms A, Johnson V (2007) The European Happy Planet Index: An index of carbon efficiency and well-being in the EU (London: **nef**). [http://www.neweconomics.org/gen/z\\_sys\\_publicationdetail.aspx?pid=244](http://www.neweconomics.org/gen/z_sys_publicationdetail.aspx?pid=244)
- 64 Anderson K, Bows A (2008) Reframing the climate change challenge in light of post-2000 emission trends *Philosophical Transactions of the Royal Society, A* **366**: 3863–3882.
- 65 Lobell DB, Field CB (2007) Global scale climate-crop yield relationships and the impacts of recent warming *Environmental Research Letters*, 02/014002, IOP Publishing.
- 66 Burke EJ, Brown SJ, Christidis N (2006) Modelling the recent evolution of global drought and projections for the twenty-first century with the Hadley Centre climate model, *Journal of Hydrometeorology* **7**: 1113–1125. Contact [eleanor.burke@metoffice.gov.uk](mailto:eleanor.burke@metoffice.gov.uk)
- 67 Ibid.
- 68 Simms (2007) *op. cit.*
- 69 Jacobs J (1961) *The death and life of great American cities* (New York: Vintage Press).

- 70 Pfeiffer DA (2006) *Eating fossil fuels – oil, food and the coming crisis in agriculture* (Gabriola Island, BC, Canada: New Society Publishers).
- 71 Gonzales, Mario, and Catherine Murphy. 2000. “**Urban Agriculture in the City of Havana: a Popular Response to a Crisis**,” in *Growing Cities, Growing Food*. Eds. Bakker, Nico, et al, DSE & ZEL Germany, pp 329-347; also Novo GM, Murphy C (2001) ‘Urban agriculture in the city of Havana: A popular response to a crisis’ in *Growing cities growing food: urban agriculture on the policy agenda. A reader on urban agriculture Resource Centres on Urban Agriculture and Food Security*. <http://www.ruaf.org/node/82> [11 March 2008].
- 72 Franco M, Orduñez P, Caballero B, Tapia Granados JA, Lazo M, Bernal JL, Guallar E, Cooper RS (2007) Impact of energy intake, physical activity, and population-wide weight loss on cardiovascular disease and diabetes mortality in Cuba, 1980–2005 *American Journal of Epidemiology* **166(12)**:1374–1380.
- 73 Pfeiffer (2006) *op. cit.*
- 74 Wisner B (14 November 2001) ‘Socialism and storms: Cuba’s success in minimising loss of life during Hurricane Michelle highlights the social dimension of coping with natural disasters’ *The Guardian* <http://www.guardian.co.uk/world/2001/nov/14/cuba.socialsciences>
- 75 Quoted in Pfeiffer (2006) *op. cit.*
- 76 Maynard (2008) *op. cit.*
- 77 Heilbroner R (1999 revised edition) *The Worldly Philosophers* (London: Penguin).
- 78 Polanyi K (1944) *The great transformation; the political and economic origins of our time*.
- 79 McDaniel CN, Gowdy JM (2000) *Paradise for sale: a parable of nature* (Berkeley, CA: University of California Press).
- 80 Marks N, Simms A, Thompson S, Abdallah S (2006) *The Happy Planet Index; an index of human well-being and environmental impact* (London: nef).
- 81 Tudge C (2007) *Feeding people is easy* (Pari, Italy: Pari Publishing).
- 82 <http://www.guardian.co.uk/theguardian/2008/sep/24/4>
- 83 Daly HE (1993) ‘From adjustment to sustainable development: the obstacle of free trade’ in Nader R (ed) *The case against free trade: GATT, NAFTA, and the globalization of corporate power* (Berkeley, CA: North Atlantic Books).
- 84 Kropotkin P (1902) *Mutual aid: a factor of evolution* (London: Heinemann).
- 85 Felton (1945) ‘Civilian supplies in wartime Britain in the series *British achievements of the War years*, Ministry of Information (facsimile reproduction by the Imperial War Museum, London, 2003).
- 86 Roodhouse M (March 2007) Rationing returns: a solution to global warming? *History and Policy* <http://www.historyandpolicy.org/papers/policy-paper-54.html#summ>
- 87 *Ibid.*
- 88 1965 edition published by MIT Press, Boston.
- 89 HIC (2005) Sustainable urban district Freiburg-Vauban (Freiburg: Habitat International Coalition).
- 90 Boom in home-grown veg (22 September 2008) *Western Morning News*. <http://www.thisiswesternmorningnews.co.uk/news/Boom-home-grown-veg/article-343265-detail/article.html>
- 91 Home grown in the fall (29 September 2008), <http://www.thestate.com/living/story/537336.html>
- 92 Cahn E (2006) *Priceless money: banking time for changing times* (Washington DC: TimeBanks USA). Available as an ebook from <http://coreeconomy.com>
- 93 Stephens L, Ryan-Collins R, Boyle D (2008) *Co-production: a manifesto for growing the core economy* (London: nef).

- 94 Simms A, Pettifor A, Lucas C, Secrett C, Hines C, Leggett J, Elliott, Murphy R, Juniper T (2008) *A Green New Deal: Joined-up policies to solve the triple crunch of the credit crisis, climate change and high oil prices* (London: **nef**, on behalf of the Green New Deal).
- 95 Casten T, Ayers R (2006) *Energy myth eight – Worldwide power systems are economically and environmentally optimal*. In *Energy and American society – thirteen myths* (Netherlands: Springer).
- 96 Greenpeace (2005) *Decentralising power: an energy revolution for the 21st century* (London: Greenpeace-UK).
- 97 Simms A, Reid H, Johnson V (2007) *Up in Smoke? Asia and Pacific: The threat from climate change to human development and the environment* (London: **nef**).

# A Green New Deal



In July 2008, **nef** published the Green New Deal on behalf of the Green New Deal Group.

Britain faces a 'triple crunch,' a combination of a credit-fuelled financial crisis, accelerating climate change and soaring energy prices underpinned by an encroaching peak in oil production. These threaten to develop into a perfect storm, the like of which has not been seen since Great Depression. To help prevent this, a group of specialists in finance, energy and the environment, meeting since early 2007 came together to develop a proposal for a Green New Deal.

It is a massive environmental transformation whose economic boost will insulate us against recession, while delivering the rapid transition needed if we are to play our role in averting runaway climate change. International in outlook, the Green New Deal requires action at local, national, regional and global levels. Focusing first on the specific needs of the UK, the Green New Deal outlines an interlocking programme of action that will require an ambitious legislative programme backed by a bold new alliance of industry, agriculture, labour and environmentalists.

## The Green New Deal Group

The Green New Deal Group is, in alphabetical order: Larry Elliott, Economics Editor of *the Guardian*, Colin Hines, Co-Director of Finance for the Future, former head of Greenpeace International's Economics Unit, Tony Juniper, Environmentalist and former Director of Friends of the Earth, Jeremy Leggett, founder and Chairman of Solarcentury and SolarAid, Caroline Lucas, Green Party MEP, Richard Murphy, Co-Director of Finance for the Future and Director, Tax Research LLP, Ann Pettifor, former head of the Jubilee 2000 debt relief campaign, Campaign Director of Operation Noah, Charles Secrett, Advisor on Sustainable Development, former Director of Friends of the Earth, Andrew Simms, Policy Director, **nef** (the new economics foundation).

[www.greennewdealgroup.org](http://www.greennewdealgroup.org)



*'Apparently solid financial institutions have tumbled.  
So, what else that we currently take for granted might be  
prone to sudden collapse?'*

Schumacher Lecture, 2008, Schumacher North, Leeds, UK

**Written by:** Andrew Simms, policy director and head of the climate change programme at **nef** (the new economics foundation)

This pamphlet is a publication of **nef**'s climate change and energy programme in association with Schumacher North.

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