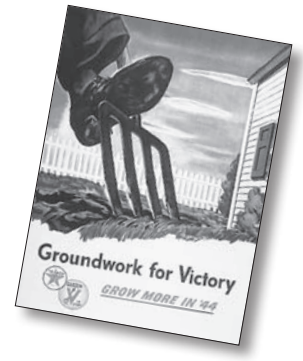
CHAPTER 1



A Fast Train

Food Security in Crisis

Well you've been on a fast train and it's going off the rails
And you can't come back can't come back together again
And you start breaking down
In the pouring rain…
Well you've been on a fast train

— Van Morrison —

SHARON: In 2006, on the first day of Rosh Hashana, the Jewish New Year, at the International Conference on Peak Oil put on by Community Solutions, I gave my very first talk about peak oil, climate change and the challenges we face in the future. I was a complete unknown, following famous speakers with more qualifications in their pinky fingers than I had in my whole body. I was terrified, and the more so because right before my talk, the marvelous Peter Bane stood up and said virtually everything I had put in my laboriously prepared speech — only better, funnier and wiser. I had about five minutes to come up with a half-hour talk, five minutes that I'd originally planned to spend throwing up with fear. Mostly I was just praying that I wouldn't leak milk all over my shirt, as I was away from my nine-month-old son for the first time.

Because it was Rosh Hashana, I thought I could kill some time by telling a story most people might not have heard. So I stood up and said that the rabbis told us that on Rosh Hashana God decides what the future of each human being will be in the coming year. Now, that part is simple enough, and probably part of the folklore of just about every culture with a divinity. But what's interesting is that Jews are told that even though God inscribes our future on

Rosh Hashana, God doesn't finalize that decision until Yom Kippur, ten days later. That is, there's a short period of time in which our future is written down — when we can see what is coming — but during which there is still hope for change, and our prayers and actions can still alter the future.

And that, I said, is where the whole world stands right now, religious or no. Climate change and peak energy and depletion of every sort mean that we are very close to having irrevocably inscribed a terrible, disastrous future for ourselves. If we don't look carefully, it might seem like it is too late to change our fate, that there isn't any hope. But the fact is, we have a very short window to change things. That doesn't mean we can keep the world from warming entirely or that we can go on using energy like there's no tomorrow. It doesn't mean that the future won't be difficult. But it would be just as big a mistake to believe that there is no hope as it is to believe that we are not on the cusp of disaster.

Where is the hope? The hope, I argued, is that there were more people in that room listening to us talk about what needs to be done than were in the room when the idea of the American Revolution first came up. The hope is that for all the evil done in human history, there are always powerful counterforces trying to do good, trying to change society, trying to overthrow bad ideas and replace them with good ones. And sometimes, just sometimes, as in the American Revolution, as in Gandhi's peaceful revolution, the good ideas actually win.

What radical idea did I have to offer anyone to base a revolution on? The only thing remaining out of that late, unlamented speech I'd labored over was one idea, a really simple one, but so far, no one had said it. I mentioned that if we are going to live with fewer fossil fuels, we are going to need to revert to a society in which meeting our own basic needs is normal — and what is more basic than feeding ourselves? Oil has replaced people in industrial agriculture, and now people have to come back and replace the oil. But the coming agrarian revolution is a good and hopeful thing, not the scary retreat to backbreaking peasant slave labor it has often been portrayed as.

I got kind of crazy and called for 100 million new farmers and gardeners to start a new revolution, to create new economies and

lower-energy, sustainable societies, to get us better food and a better life, and more democracy. I'm not really sure exactly what I said — I was running on adrenaline and the fear that no one would ever let me back on a stage again after this, so I'd better take this chance to get it all out of my system.

And believe it or not, it wasn't a disaster. I got a lot of applause, and later on Richard Heinberg, pretty much the leader of the Peak Oil Movement, wrote a paper called "50 Million Farmers" and was kind enough to credit me with influencing him. And I got to meet Aaron , who was there as a journalist and interviewed me. And from there sprang the beginnings of a real question — and this book, which tries to answer it: Could you start a new American Revolution based on an agrarian dream? Or maybe more accurately, could you re-start the first American Revolution and Thomas Jefferson's dream of a Nation of Farmers? Could you get a better food system and some security in the face of disaster and maybe, just maybe, the kind of democracy we'd once imagined?

The Train Goes Off the Rails

I am writing
because we have an emergency…
— Naomi Wolf —

In early 2008, the world's food, economic and energy train came off the rails. What was startling was that it didn't happen either gradually or in a linear way. Instead, things simply fell apart at an astounding rate, faster than anyone could have predicted without being accused of lunacy. Most of us didn't quite see it this way. This was a short-term shift, a minor downturn, we were told. So we didn't recognize the beginnings of disaster when we first saw them.

It started with biofuels and growing meat-consumption rates in developing economies. As poor people in growing economies attempted to get a share of the pie while rich people in the Global North kept a death grip on what they had, disaster ensued. The growing demand for food, for cars and cows drove the price of staple grains up at astounding rates. Scientists, estimating that biofuels were responsible for up to 60 percent of the growth in food prices, called for a moratorium on biofuel production.[2] In 2007

overall food inflation was at 18 percent,[3] which created a new class of hungry. But that was just the tip of the iceberg. In 2008 the month-to-month inflation for some commodities was higher than 2007's annual inflation. And despite a deflationary economy into early 2009, food prices were expected to remain high or rise, because farmers were unable to secure planting loans to enable them to grow food.

Rice, the staple of almost half the world's population, rose 147 percent, and wheat increased 25 percent in just one day. Price increases were inequitable (as was everything else), so while rice prices rose 30 percent in rich nations like the US, Haitian rice prices doubled.[4] The United Nations (UN) and the Organization for Economic Co-operation and Development (OECD) separately issued reports suggesting that over the next decade these trends toward higher food prices in proportion to income would continue and that, in fact, average food prices would be up to 65 percent higher than in the early parts of this decade, plunging millions into poverty and hunger. Haiti, desperately poor, was an early canary in the hunger coal mine. By early 2008 tens of thousands of impoverished Haitians were priced entirely out of the market for rice and other staples and were reduced to eating "cookies" made of nutrient-rich dirt, vegetable shortening and salt to quiet their hunger pangs.[5] Women stood on the street, offering their children to any reasonably well-fed passerby, saying, "Please, take one and feed them." Thousands of Haitians marched on Port Au Prince, yelling, "We're hungry." And indeed, the Haitian government was complicit, allowing food relief to rot on the wharves. But Haiti was just the start. More and more of the world's poor, including the poor of the US and other rich-world nations, found themselves in a disaster.

Forty nations either stopped exporting grains or raised tariffs to make costs prohibitive. Food prices rose precipitously as importing nations began to struggle to meet rising hunger. After riots over long bread lines threatened to destabilize Egypt, the Egyptian government set the army to baking bread for the hungry and raised wages to compensate for rapidly rising food prices. Mexico slashed tariffs and offered a subsidy to millions of hungry people to avoid outright starvation.[6] The UN warned that 33 nations were in danger of destabilizing, and the list included major powers such as Pakistan, Mexico, North Korea, India, Egypt and South Africa. Many of these hold nuclear weapons or are otherwise politically and strategically essential.

Food riots erupted all over the world in the first few months of 2008 —

in Bangladesh, Mexico, Ivory Coast, Uzbekistan, Pakistan, Thailand, the Philippines, Peru, Indonesia, Bolivia, Ethiopia and more. The government of Haiti was the first to experience radical change as a result of the food crisis, but others struggled with stability.[7]

The crisis didn't stop among the already poor, however. *The Economist* reported that the crisis extended well into the middle class of many nations. Joanna Sheeran, director of the World Food Project explained, "For the middle classes,… it means cutting out medical care. For those on $2 a day, it means cutting out meat and taking the children out of school. For those on $1 a day, it means cutting out meat and vegetables and eating only cereals. And for those on 50 cents a day, it means total disaster."[8] By late summer 2008, more than 175 million people who had managed to raise their incomes above $2 a day found themselves inexorably drawn back to the world poverty level,[9] while millions of those who called themselves "middle class" began, slowly, to realize that they were no such thing. Many of the supposed middle class in rich-world nations were actually the working poor who had overextended their credit to keep up appearances. As credit tightened because of a growing financial crisis, appearances were fraying. Pawnshops started to do booming business with Americans and Canadians who could no longer meet basic needs for food and gas.[10]

In 2007, a major United States newspaper reported the growing problem of seasonal malnutrition affecting poor children in the Northern US — the rising price of heating oil meant that lower-class families were struggling to put food on the table. Hungry, low-weight children were unable to maintain their body temperature in chilly houses, and a vicious circle of illness, hunger and desperation ensued. Malnourished bellies began to be seen by pediatricians treating the urban poor in cold climates.[11] Food pantries reported enormous rises in demand and declines in donations because of rising transport costs and a growing economic crisis that reduced charitable giving and increased need.[12]

Shortages have long been a chronic problem in the poor world, but by early spring of 2008, they began to arrive in the rich world. Despite Japan's deep pockets, a shortage of butter and wheat reminded the rich world of its dependence on food imports.[13] Rising food prices meant that Japan's grain budget was exhausted months before it was expected to be renewed, causing them to call for emergency allocations. Many of the supply problems were due to climate change and energy issues, as Australian dairy farmers struggled with high grain prices and the extended drought that destroyed

their pastures. In the winter of 2008/2009, a Reuters reporter witnessed elderly Parisian women fighting over discarded produce at an open market, where scavenging of food is apparently becoming widespread among a growing number of the hungry.[14]

Following anecdotal reports of limits at US bulk warehouse stores beginning in March,[15] rationing went official in late April of 2008. Many Costco stores were limiting purchases of flour, rice, cooking oil and other staples to avoid shortages — and the stores tracked purchases electronically to prevent customers from visiting other Costco stores.[16] In Alaska, near the end of the grain shipment lines, where many Americans are able to reach stores only infrequently, customers fought over bags of rice, and stores were unable to keep rice in stock.[17] One customer noted it was "just like the Philippines." Though no widespread food shortages were anticipated in most nations in the Global North, these incidents represented evidence that globalized supply chains were beginning to fray. Meanwhile, economist Jeff Rubin argued that globalization as a whole was being "reversed" by high transport costs, making it urgently necessary to begin growing and making things in the US again.[18]

The tightening of credit markets all over the globe also contributed to food insecurity. Most large US commodity farmers depend on bank credit to be able to plant. The estimate was that the US wheat crop might decline by as much as 4.4 percent, and Brazilian corn crops were expected to fall by nearly 20 percent because loans to buy fertilizers were no longer available.[19] In early 2009 it became clear that many farmers were unable to secure planting loans for the spring season.

In the early part of 2008, the US Federal Reserve shied away from acknowledging recession, and key inflation indexes actually fell, because the government doesn't include food or energy costs in the measures of inflation. This systematic mis-statement of inflation disguised that fact that many analysts estimated the real inflation levels to be at 10 percent or higher in the US.[20] Given that real wages had been falling in the US for almost 30 years, this meant that average Americans were overwhelmingly struggling to keep the bills paid and food on the table. Twenty-eight million Americans, one out of every 11, required food stamps to feed their families. In economically depressed areas like Michigan and Washington DC, it was one in seven. And as food prices rose and job losses increased to nearly half a million each month, families on food stamps struggled more and more to get enough to eat, even with the federal subsidy. As summer

months approached, millions of poor families who could rely on their children receiving two free meals a day at school faced losing even that support, as summer food programs reach only 3 million of 31 million eligible poor school children.

By autumn 2008, the word *recession* was being replaced by fears of a new Great Depression, in large part fueled by the housing collapse, which was itself fueled in part by rising energy and food prices that were strapping homeowners. Banks and major financial institutions began failing under the pressure, while economic growth in booming nations like China and India was strangled by rising food and energy costs. Much of the developing world's middle class, the new consumers that had kept the economy growing, found themselves falling back into poverty.

The energy train, the money train and the food train were inextricably linked in a host of ways that were difficult to disentangle, and each crisis fed the other, until a near-inevitable crisis in the world economy is unfolding as we write this in the fall of 2008.

While the food crisis in the poor world made headlines, the energy crisis there went almost unnoticed. More and more poorer nations simply could not afford to import oil and other fossil fuels, and they began to slowly but steadily lose the benefits of fossil fuels. Nations suffered shortages of gas, electricity and coal.[21] Tajikistan, experiencing a record cold winter found itself with inadequate supplies of heating oil, food and in a humanitarian crisis.[22] South African coal supplies were so short that electricity generation dropped back to intermittency. In May, thousands of Indians rioted, protesting power shortages,[23] and it was revealed that nuclear power plants in India were experiencing uranium shortages and coal-fired generating plants were short of coal.[24] Indonesia's oil production fell so fast that it seceded from OPEC, and Mexico seems due to cease exporting oil by 2014.[25] Meanwhile aging energy transmission infrastructure in Britain and the US desperately needed updating, without funds to do so.

In the fall of 2008 a shocking report by the International Energy Agency (IEA) on the decline of the world's 400 largest oil fields was leaked to the *Financial Times*. It suggested that without massive investment in fossil fuel developments the annual depletion rate for oil was 9 percent per year,[26] more than triple the previous estimates. As funds to invest in new energy sources dried up rapidly and credit markets tightened, this meant a world facing rapidly depleting energy supplies with limited funds to develop either renewable or fossil-fueled replacements.

Routine air travel began to disappear, and airlines went bankrupt with astonishing rapidity. There simply was no way for airlines to absorb the volatile prices of fuel and the decline in tourist and business travel due to the economic downturn.[27] The cost of shipping fruit and other perishables from distant places, largely done by air, rose dramatically. New demand for energy-efficient vehicles in China and the US made diesel fuel shortages a real possibility,[28] threatening the just-in-time delivery system most stores rely heavily on. Industrial agriculture, often described as "the process of turning oil into food," began to struggle to keep yields to match growing demand. Yield increases, which had been at 6 percent annually from the 1960s through the 1990s fell to 1–2 percent, against rapidly rising demand. Trying to keep yields up demanded more and more investment of energy (and higher costs for farmers). Climate change threatened to further reduce yields in already stressed poor nations: Bangladesh struggled with repeated climate-change-linked flooding, the Sahelian African countries and Australia with growing drought, China with desertification. The US Midwest suffered devastating flooding that reduced harvests and contaminated water tables.

Meanwhile, a new form of wheat stem rust, named Ug-99, meant that a substantial percentage of the African wheat crop was expected to be lost. Ug-99, to which there is no resistance, had reportedly spread throughout the Middle East and into India and Pakistan, and scientists suggested it would not take more than a year to make it to China and then the US. Wheat provides 20 percent of the world's total calories, and it is estimated that it will take a decade of intensive agricultural research to find a Ug-99-resistant variety — at a time when research budgets are being cut.[29] Ninety percent of all commercial wheat strains world-wide are vulnerable to Ug-99.

All indications were that both food and energy supplies would fail to keep up with demand. Unchecked climate change (the only kind we've got so far) is expected to reduce rice yields by up to 30 percent by the end of the century, and food production in the already starving Sahel is expected to be reduced by half. Genetically modified organisms (GMOs), touted as a solution, have yet to produce even slightly higher yields. Arable land is disappearing under sprawling housing and development, and aquifers are heavily depleted. Thirty percent of the world's grain production comes from irrigated land that is expected to lose its water supply in the next decades. California, facing its worst drought in more than 30 years, is fast

reaching the point in which it is more profitable for farmers to sell their water allotments than to grow food with them, and dramatic cuts in water for agriculture have been announced.[30] Australia has begun to buy out its farmers, encouraging them to leave the land and accept that some agricultural regions would never be able to support agriculture again, because of profound drought.

Meanwhile the costs of fossil-fueled agriculture skyrocketed, the cost of potash, a necessary fertilizer ingredient, rising by 300 percent in less than a year[31] and all fertilizers rising dramatically faster than other agricultural inputs. What should have been a boom for farmers, with demand so high, was actually the beginning of an increasingly precarious spiral of high prices, high indebtedness and market volatility. Agricultural indebtedness rose dramatically in the US. Rising prices for agriculture inputs began to reduce available food. In Tanzania farmers were unable to afford to plant additional land because of high fertilizer costs, and diesel costs made it prohibitive to transport food into the country; so a comparatively stable, prosperous African nation began to see rising hunger.[32]

American farmers began to see shortages of fertilizer.[33] While some American and Canadian farmers saw rising profits, others found their gains evaporating in the face of rising inputs. The only people who were getting rich were the multinational agricultural corporations like Monsanto, ADM, and Cargill, who posted record profits off of human suffering, their divisions of agricultural investment driving up prices for the world's poor and taking most of the gains in food costs.[34]

Meanwhile, the ability of nations to transport food supplies began to be called into question. Early trucker protests were intermittent and largely ineffective, but predictions of diesel shortages and a shortage of refining capacity made it a real possibility that all over the world food might not reach store shelves. In May of 2008 trucker protests brought a halt to much of European truck transport. After a difficult hurricane season in the fall of 2008, much of US oil-refining infrastructure experienced extended outages, and the Southeast, at the end of a segment of the Colonial pipeline and dependent on Gulf-coast refineries, began to suffer shortages of goods as local truckers struggled to get gasoline.

This analysis has not even included large chunks of the disaster unfolding before our eyes. By February 2009, the total committed funds for the US bailout alone stood at between 8 and 9.2 billion dollars, depending on who you asked.The housing collapse may reduce real wealth in the US by

trillions of dollars, and at this writing, the world derivative markets are showing signs of trouble, which potentially puts at risk most of the world's financial wealth. The French bank Société Général recently advised its investors to take their assets out of Chinese banks, and Russia has suspended its markets on several occasions because of massive losses. Foreclosures are predicted to rise dramatically to as many as 3 million homes in 2008–2009, and total housing values may fall by as much as 5–80 percent over their peak. In May 2008 Princeton professor Kenneth Deffeyes noted that at oil prices of $130 barrel, energy costs exceed 6 percent of world GDP. His estimate is that 15 percent would essentially swamp the global economy.[35] With oil prices at time of writing around $40 per barrel, that seems unlikely; and yet, it is worth remembering that the oil price peak was only 8 months previous, and that price volatility is one of the features of our present crisis.

By the time you read this, the circumstances will almost certainly be very different. Whether the situation will continue progressing toward disaster or the crisis will be temporarily arrested is not clear. But an increasing number of analysts agree that our long-term projections suggest more such difficulties and a great deal of struggle. We are on a fast train, and it is coming off the rails. And at stake is our basic food security, justice and our hope for the future.

The Change

A revolution never come with a warning.
A revolution just arrive like the morning.
— Michael Franti —

This book begins from the simple premise that it is both possible and necessary to stop the harm that industrial agriculture is doing — resource depletion, global warming, global poverty, increased food insecurity and hunger, and unsafe, low-quality food — and that we can do so simply by choosing to change the nature of what we grow and what we eat. It is a call for more participation in the food system, 100 million new farmers and 200 million new cooks in the US, and more worldwide. It begins with the recognition that for a host of reasons, we simply have no choice but to radically alter our food system, to end its dependency on fossil fuels and to bring food security to the table as a central issue of our times.

We can almost hear your voices now: "Did they say *100 million* new *farmers*?" It sounds like madness if you grew up in an industrial society where there was always plenty of food in the stores and on the table, where too much food, rather than too little, was often the problem. Why on earth would we need millions of new farmers and cooks? Aren't we living in the richest country in the world, the land of milk and honey, the land where mothers don't have to let their babies grow up to be cowboys or farmers anymore? Even if you know that the food system is falling apart, it represents a huge psychological shift to say that this means that we must change our lives so radically that we must participate in the food system. After all, wasn't that what modernity was for — to free us from the endless drudgery of growing and cooking food?

Believe it or not, what we are describing is a call for a return to human norms and human community, to living in a way that is connected to our land and our food, much as all human societies before ours have. We argue that not only can we cease to do the harm that industrial agriculture does but we can replace it with something better — a better way of growing and preparing food and also a democracy of the sort that Thomas Jefferson imagined for his nation (more on this further on), a democracy that is not vulnerable to being stolen or sold, as our present one is.

Moreover, we think most of us have a rapidly growing sense of unease about our own security. More and more of us are struggling to put food on our tables. Food pantries are seeing more middle-class families show up at their doors. And most of us have the sneaking suspicion that there's no magical way of preventing the disaster from coming to us. So perhaps, just perhaps, it isn't quite so crazy to suggest that something about our food system is broken. Understanding this is essential — and we need to learn it quickly. Right now, we are seeing the confluence of multiple crises destabilizing both the economy and the food supply. We face the very real possibility that we and our children may be poorer and hungrier and less healthy than we were — and what parent or grandparent or anyone who cares about the future would not do everything necessary to prevent such a disaster?

So what are those problems? What is causing these shifts in the world we knew? We've touched a little on the immediate causes, but what is at the root of the difficulty? Does it really mean we cannot go on the way we are?