Living the Revolution

Mark Mason

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The Enlightened Self-Interest of
Being the Change the World Needs

Two Sample Chapters Only
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Chapter 1: Converging Catastrophes

The problems we face. Why they are not addressed

Gandhi said, 'Be the change you wish to see in the world.' If you are reading this book, you probably share with me the desire to do this. Most of this book will look at how we can live our lives in such a way that we contribute to overcoming some of the serious problems threatening humanity. We can live the revolution we wish to see happen, and our example will show others we can live very satisfying and rewarding lives in the process of being a part of the answer, not part of the problem.

Before we look at how to do this, though, we will need to briefly survey the scope of the danger we face, looking at each of a number of problems that threaten to converge into a 'perfect storm' for humanity if we fail to come to grips with them. We will look in this chapter at what *governments* could be doing about them, and why they are, in fact, doing very little. After that, from Chapter 4 onward, we'll look at what we, ordinary people who care, can do by how we live our lives, both to lessen the impact of these problems and to adapt to the new living conditions they will present us with.

The Problems

1/ Climate Change:

Emissions of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), the main greenhouse gasses, are causing our planet to warm up, and this warming threatens many aspects of our lives. Our polar ice caps are beginning to melt,

and already, between 1870 and 2015, there have been sea level rises of about nine inches. Scientists tell us that by 2030 the sea will rise by an average of another two inches, and by 2050 another five inches. This would begin to flood some of the world's coastal cities that are barely above sea level now. By the end of the century there will be at least another foot of sea rise, and it could be as much as four feet.[1] Even a two foot further rise, which is very likely, would inundate many coastal cities, and make hundreds of millions of people homeless. It would also flood with sea water large areas of land used to grow food crops. River deltas are amongst our most fertile land, but they are close to sea level, and will be lost. Increasingly destructive storms, life-threatening heat waves and other extreme weather such as droughts affecting our ability to grow food are the other biggest likely impacts of climate change.

United Nations' figures show about half the world's greenhouse gas emissions come from our food production system, including agriculture, animal husbandry and processing, packaging and transport of food,[2] yet when countries meet to talk about what to do about climate change, farming and other aspects of food production always seem to get a pass, and only fossil fuels are talked about. One can only assume this is because big agri-business insists on it, saying it can barely feed the world as it is, and would not be able to do so if they had to reduce greenhouse gas emissions. We will see later that agriculture can be done in a different way, in a word, organically, that would almost totally eliminate its greenhouse gas emissions. Big agricultural chemical companies, of course, don't want to lose business, and they, like other corporations, give large campaign donations to politicians. One of the things 'Big Food' appears to want in

return for its campaign donations is that agriculture is off the climate change agenda. So, no wonder we are getting nowhere with reducing global warming! There are some very rich, very selfish, people out there getting in the way of the process so they can continue to get even richer. And, of course, industrial CO_2 polluters have similarly used the power of the purse to make sure governments require very little of them—so much so that since the first climate convention in 1992, worldwide greenhouse gas emissions are up by 57%![3]

Meanwhile, the melting of polar ice is exposing methane hydrate locked in the ice, and releasing methane in large quantities. The more methane gets released the quicker global warming will progress, as methane is over thirty times as potent a greenhouse gas as CO_2, and the more the polar ice melts due to this increased global warming, the more methane will be released. We are already close to the tipping point when this positive feedback loop would go out of control and lead to calamitous climate change.

2/ Water and Food Shortages:

There are many threats to the world's future food supply, and indeed huge numbers of people are already going hungry and starving to death around the world. One of the main factors that will limit our ability to grow enough food for everyone will be a lack of water. It takes a lot of water to grow food, especially using conventional agricultural methods. 92% of all the world's fresh water usage is for growing food.[4] Organic farming uses less water and gives higher yields in drought conditions[5] because the humus it creates in the soil soaks up water which can then be gradually accessed by

plant roots, whereas in artificially fertilized soils, that have far less humus, much of the irrigation water drains right through to the subsoil and the water table, and leaches minerals from the soil in the process.

As we just mentioned, many of the foods we most like to eat take huge amounts of water to grow. It takes 1,847 gallons of water to produce a single pound of beef, 1,056 gallons for one gallon of brewed coffee, 1,729 gallons for a pound of olive oil, 2,061 gallons for a pound of chocolate and 15,159 gallons for a pound of vanilla beans. On the other hand potatoes and broccoli take only 34 gallons per pound, tomatoes only 26 gallons per pound, and strawberries, pineapple and watermelon each take less than 50 gallons per pound.[4] What we eat can certainly make a difference to the world's ability to feed itself. And some of the most delicious and healthy fruits and vegetables are also the most sustainable for the planet.

Much of the world's agriculture has been relying on using water from huge underground aquifers which once used up will only replenish over geological time (thousands of years). Most of these aquifers are becoming depleted, so every year they can water less land. A good example is the Ogallala Aquifer, below eight states in the Great Plains of the United States, that produces about 30% of all the irrigation water used in the whole country as well as household water for 2.5 million people. Since intensive irrigation began in the 1940s, the water level has dropped by as much as 300 feet in parts of this aquifer, and much of the land formerly watered by it has reverted to desert. Rainwater only replenishes the Ogallala aquifer by an average of about one inch each year[6], so, assuming an average drop of 100 feet in the aquifer, 1,200 years of water have been used up in just 60

years. Other similar aquifers in China, India, and around the world are also becoming depleted, many even more severely than the Ogallala. This groundwater situation is obviously going to become increasingly bleak, and will make careful water management essential. Yet despite the fact that organic farming uses less water, conventional 'industrial' agriculture continues to get nearly all of the Farm Bill agricultural subsidies, since it has much more lobbying clout and has the resources to give large campaign donations to politicians—less than 1% of the richest again holding our world to ransom so they can make even more money.

And big agriculture is sabotaging our food future in more ways than just wasting water. Honey bees and other pollinators are dying off around the world, often due to pesticide use, and in particular due to a new widely used class of insecticides called neonicotinoids, or 'neonics'—bees and most other pollinators are insects, after all.[7] And they pollinate many of our most desirable and important food crops. Yet chemical companies continue to make huge profits from pesticide sales, and there is very little that government does about it. Such is the influence of this industry on government through its economic might.

Plowing, a mainstay of conventional agriculture, is causing our topsoil to rapidly blow away. It has been estimated that for every bushel of corn harvested, two bushels of topsoil are blown away because of plowing.[8] And once this topsoil is in the air, sunlight converts the nitrates in it to nitrous oxide, a particularly potent greenhouse gas. Over fishing of the oceans and continued population growth also threaten our future food security. We could be converting to different agricultural methods such as organic farming, and governments could be encouraging this

with subsidies, but they are doing very little. Instead, big agriculture continues to get the lion's share of agricultural subsidies because of the political power it gains through extensive lobbying and giving campaign donations to politicians. The situation in Europe is not so bad, which gives us some hope. There GMO food is either banned or has to be labeled as such, and pesticides that kill bees, such as neonics, are more strictly controlled. Particularly notable for its progressive stand on food quality is Russia, which in 2014 banned the import of all GMO products. Dmitry Medvedev, Russia's prime minister, commented on this ban saying, 'If the Americans like to eat GMO products, let them eat them then. We don't need to do that; we have enough space and opportunities to produce organic food.'[9]

3/ Economic and Population Growth and Huge Wealth Disparities:

We live on a finite planet, which means our population, and the amount of material things we make and use, cannot keep growing forever. In fact, we are already close to, or even past, sustainable levels of both population and industrial output. Further growth can only damage our long-term prospects for occupying planet Earth. Climate change is just one of a number of unfortunate consequences of continued growth. So why can't we settle down to zero population growth and a 'steady state' economy that doesn't grow?

Economists keep telling us that we need to have about 3% economic growth each year to maintain close to full employment, and, as a result, such growth has been seen as the holy grail of economics. The reason economists say this is that over the last 60 years or so, productivity has been increasing at an average of about 3% a year. This means that each year we can make 3% more goods and services in the

same amount of time than we could the previous year. This is the 3% growth in output. They say that if we didn't make 3% more goods and services then we would need 3% less workers and there would be unemployment increasing by this amount each year. This has been seen as a compelling argument, but it completely ignores the fact that a 3% increase in productivity can also, if we want it to, mean that we can make the same amount of goods and services in 3% less time, and so reduce the work week by an average of 3% per year while keeping pay levels the same. This is the steady state option. With this option the benefits of productivity increases would be shared by all through needing to work less. With the growth option, however, the extra goods and services produced could either be shared equally by all, or could be largely appropriated by the rich and powerful.

What has happened over the last 60 years is that productivity has more than tripled, but most workers have seen little increase in living standard. Indeed, most families now need two incomes to get by, whereas 60 years ago one income was typically enough. So where has all this tripled amount of productivity gone, since virtually none of it has gone to workers? To the rich and powerful—all of it! This is why for many years the rich have been growing richer and the poor poorer, and the wealth disparity is at record levels. We have reached the point where half the world's wealth is owned by just 1% of the population,[10] and the top 350 American CEOs earn at least 300 times what median paid workers earn (up from 25 times in the 1970s).[11]

You have heard of the 'great train robbery,' well this is the 'great productivity robbery.' All this productivity has been stolen from the people who actually produced it. But what is even worse is that the manufacture of all the

unnecessary things, produced as our productivity increased, has polluted our planet with greenhouse gases, smog and garbage, and used up so much of our fossil fuels that we are now facing a situation where we may not have sufficient safely-useable energy left to manufacture the renewable energy infrastructure we need to have enough energy in the future.

So, knowing this, why do governments still strive to have at least 3% growth each year? It's for the rich, of course. They are getting richer under the growth option at the expense of everyone else, including their own children and grandchildren who will inherit the Earth they are trashing. And of course the rich give campaign donations to politicians who are thus obliged to keep the growth option going. The rich also own most of the media and publishing houses, fund think tanks that feed conservative propaganda to the press they own, and donate heavily to universities, so they can also make sure news stories, books and university courses on economics don't mention the steady state option of reducing the work week at the same pay when productivity goes up.

Some governments have made attempts to keep the population of their countries under control, notably China, but most do very little. Overpopulation is a severe problem in the Philippines, largely because it is a Catholic country and the church opposes birth control. Their government is beginning to promote birth control in opposition to the church, but it is a mammoth task for them.

Since we are close to the carrying capacity of the Earth, either we have to voluntarily reduce our birth rate, or cascading catastrophes will increase the death rate, as is

already beginning to happen in some parts of the world such as Africa and the Middle East.

It has been shown that young women who have at least some education, some prospects in life, and access to birth control, have fewer children than their uneducated, poverty stricken sisters. So aid organizations that work to educate children and provide better economic prospects for communities can, if they also provide the means for birth control, greatly help communities control their population. One major problem is that Catholic and some other religious aid organizations oppose the use of birth control, and since aid organizations work together in many ways, this tends to shift the focus of most aid organizations and governments away from providing contraceptives. The sad fact is that many otherwise successful aid efforts to improve the standard of living of communities are undone in quite a short time by population increases that lead to them again having not enough food for everyone. Since the education and improved economic prospects of such communities would have made them open to using birth control, it is doubly sad that in many cases contraceptive help is not provided for 'religious' reasons. A well known example of this is the work of the Catholic Mother Theresa in India. Although she helped many poverty stricken people, the value of her good work was largely, if not completely, undone by her implacable opposition to the use of birth control.

Another problem is that some religious and ethnic groups, that perceive themselves under threat, want to grow as quickly as possible to increase their political and military power. Indira Gandhi, a former prime minister of India, introduced a birth control education program in 1972. It was met with vehement opposition, however, from both Hindus

and Muslims. Both groups felt it was an attempt to reduce their numbers and political power. They even accused her of cultural genocide. Many people believe her assassination twelve years later was because she introduced this program. After her death her birth control education program was shut down, and the issue of birth control has never again been successfully raised in India.[12]

One thing we can do to help this situation is to make sure our charitable giving goes to organizations like Oxfam that concentrate on all three of the vital areas of aid: educating children, improving the economic prospects of communities, and making sure birth control is available. Governments could be doing this, too, in their foreign aid, but, as usual, various powerful special interest groups—particularly religious organizations in this case—are, more often than not, steering them away from doing so by their undue influence.

4/ Fossil Fuels Running Out:

It takes the energy equivalent of about 70 barrels of oil to make an average car,[13] as much as it uses to drive 117,600 miles (at 40 mpg), so imagine how much energy it takes to make one of those huge windmills that generate electricity—200 barrels, 500 barrels? People say there's no great rush—when the oil finally runs out we can just make a bunch of windmills and solar farms to supply our energy. But if it takes such a huge amount of energy to manufacture the renewable energy infrastructure we need, then we won't, at that point, have the energy left to make enough of it, will we? That's what most people don't realize. Humanity was lucky enough to get an easy-to-harness, cheap fossil fuel 'inheritance.' Whether we invest a large part of it in creating

a renewable energy infrastructure that will keep supplying us with energy forever, or whether we use nearly all of it for our current energy needs, is up to us.

It's like two brothers who inherit a million dollars each. One brother invests most of his million in rentals and the stock exchange, and has a perpetual income he can live quite well on. The other brother keeps spending his money on extravagant living until he has only $100,000 left before looking around for investments of only that amount that he might live on. Which one of these brothers will humanity be like with respect to our fossil fuel inheritance? We've already used up about half of our fossil fuel inheritance—that's like one of the brothers only having $500,000 left. At this point it becomes imperative to invest the rest or inevitably face living in the poor house. So if we are to avoid being in an 'energy poorhouse' for generations, we need to start investing big time in renewable energy infrastructure, while we still have enough energy to do so.

Unfortunately, there is a big problem facing the world even if we do seriously start using our remaining fossil fuel to create our renewable energy infrastructure. We have been busy for the last 60 years making far more things than the world needs by pursuing the 'economic growth model.' This has created a serious climate-change problem that will only be exacerbated, perhaps critically, if we use a lot more fossil fuel derived energy to manufacture the renewable energy infrastructure we need. Naomi Klein, one of the greatest climate change activists of our time, has noted with dismay that Germany's CO_2 emissions actually went up in 2012 and 2013, despite Germany's record high levels of conversion to renewable energy during these years.[14] This shows how little understanding there is of the reality that manufacturing

renewable energy infrastructure takes a huge energy investment from other sources of energy such as oil and electricity from coal, and that we should expect emissions to temporarily go up, as they did in Germany, perhaps quite substantially, while we create the renewable infrastructure we need.

Some people have suggested the way out of this dilemma is to use nuclear power to make the transition to renewable energy, since it doesn't produce greenhouse gases. After the serious problems in Chernobyl and Fukushima, however, we can see that nuclear energy is fraught with even more serious problems than climate change is, as it could threaten the very existence of life on Earth. Have we then, through overusing fossil fuels to pursue unnecessary and wasteful growth, put ourselves in hole we can't get out of? Thankfully, there do appear to be a couple of possible ways out.

One way would be to revolutionize the way we do agriculture to eliminate the nearly one half of greenhouse gases it causes, so we could invest energy into creating renewable energy infrastructure without exacerbating climate change too much. We will look further into this option in Chapter 5.

Another way out of the hole would be if we could develop a safe form of nuclear energy as a transitional source. This is, of course, why scientists are pursuing nuclear fusion—the energy source that powers the sun. It is unlikely, however, that fusion will become viable any time soon, so we cannot rely on it. A new type of nuclear reactor that is currently being developed, called a Liquid Fluoride Thorium Reactor (LFTR), might, however, fit the bill, if it ends up meeting the expectations of its proponents, something we may well be somewhat skeptical about. According to these

proponents, LFTR reactors (which I'll just call thorium reactors from now on) cannot have 'meltdowns' like happened in Chernobyl and Fukushima, since their reactor cores are already in a liquid form that automatically drains away to a safe storage vessel if control of a reactor is lost. It is also claimed they don't need to operate at huge pressures like uranium reactors, produce a much smaller amount of radioactive waste than uranium reactors, and that waste has such a short half life that it would all be effectively gone after only 300 years. By comparison, the extremely toxic plutonium produced by uranium reactors has a half-life of 24,000 years, and it would take over 200,000 years to dissipate. Apparently, a certain amount of the plutonium produced by uranium reactors can even be used up by thorium reactors and converted to its less toxic and much shorter lived waste. Finally, there is four times as much thorium in the world than uranium, and thorium reactors are said to be 200 times more efficient at getting the energy out of it, so there could be 800 times as much energy available from thorium than from uranium. This would overcome another problem with uranium reactors—that we can't get enough energy from them, anyway, to fully make the transition to renewable energy.

The USA had a working molten salt reactor, which uses similar technology to a LFTR thorium reactor, at Oak Ridge Tennessee, but President Nixon closed it down because it didn't produce plutonium, and he wanted more plutonium to make more nuclear weapons![15] The Chinese are now working on a LFTR type thorium reactor, and hope to have a commercial model up and running by 2020.[16] Why, then, are governments around the world not investing in thorium reactor research? The current nuclear power industry and

nuclear weapons manufacturers, of course, have a vested interest in the status quo, and like other large corporations, give campaign donations to politicians to make sure things don't change.

5/ The Waste and Danger of War:

Around the world, $1.75 trillion a year is being spent on wars and other military spending,[17] nearly half of this by the United States alone, which has put it into the uncontrollably huge amount of debt of $19.27 trillion (on May 14, 2016 and increasing by just over a billion dollars a day). This goes up to $102.12 trillion (increasing by about ten billion dollars a day) if unfunded liabilities are included.[18] Also, huge amounts of oil have been used by the world's militaries, releasing vast amounts of greenhouse gases that exacerbate global warming. Imagine if we had put all of this effort and energy into producing renewable energy infrastructure! We would be close to having the infrastructure set up by now. Regrettably, we have instead produced enough nuclear weapons to end all life on Earth if even only a portion of them are used. Many of these nuclear weapons are in the hands of unstable or belligerent countries like Pakistan and North Korea, where the chance of them being used deliberately or by accident is significant. Why has humanity been so stupid as to do all this?

People say they have to be able to defend their country against enemies, and that is why we need to spend more and more on 'defense.' Unfortunately, there is some truth to this. A country that totally disarmed when other countries didn't would be at great risk the way the world is at the moment. But countries *could* safely decide to disarm most of their

offensive weapons such as aircraft carriers (which for the rest of their nuclear-powered lives could be used as cargo ships that wouldn't emit carbon dioxide), close their military bases around the world, bring home all their troops, and concentrate just on having a military that could effectively defend their country against an attack on its own territory. Many countries already have this approach to defense. If the United States, unilaterally or with a few other countries, decided to do this as well, many other countries around the world would soon follow its example. And by doing so, the USA would only need to spend about 25% of what it currently does on its military to fully protect itself, and could reallocate the money saved to paying off national debt, renewing critical infrastructure, creating renewable energy infrastructure, giving foreign aid to generate international goodwill, and improving the economy in many other ways that would benefit everyone in the country. Retrenched military personnel would have just the right skills to help build the renewable energy infrastructure we need, and could be employed to do so.

Ironically, the USA would then be in a better position to defend itself than it is now. This is because history shows that countries with strong economies nearly always win wars fought against countries with weaker economies but initially stronger militaries. The American Civil war was a good example of this. The North ended up decisively defeating the South because of its industrial might, even though the South had by far the best general in Robert E. Lee, who won nearly all the initial battles. Likewise, Germany started WWII with a huge military advantage, but lost the war because of its economic weakness and the economic strength of the Allies, in particular the Soviet Union and the USA.

If economic strength is the most important part of a country being able to defend itself, then why does the USA keep spending more and more on its military, while spiraling deeper and deeper into debt? The answer is because of the stranglehold of the military-industrial complex Eisenhower warned us about at the end of his presidency. This military-industrial complex is made up of companies such as munitions manufacturers and banks that make huge amounts of money from war, and get their way with government due to the campaign donations they make to politicians. Being a five-star WWII general and also a Republican president of the USA, Dwight D. Eisenhower knew a thing or two about defending his country. This expertise led him to say, at the beginning of his presidency in 1953:

> Every gun that is made, every warship launched, every rocket fired signifies, in the final sense, a theft from those who hunger and are not fed, those who are cold and are not clothed. This world in arms is not spending money alone. It is spending the sweat of its laborers, the genius of its scientists, the hopes of its children. The cost of one modern heavy bomber is this: a modern brick school in more than 30 cities. It is two electric power plants, each serving a town of 60,000 population. It is two fine, fully equipped hospitals… We pay for a single destroyer with new homes that could have housed more than 8,000 people… This is not a way of life at all, in any true sense. Under the cloud of threatening war, it is humanity hanging from a cross of iron.

This points out, from a position of great authority, how damaging war is to humanity, and the pressing need to reduce military spending to the minimum level needed for countries to defend their own shores. The ruling elite knows,

however, that a frightened population is, overall, a more compliant population, and that, as a result, having frequent wars is important to it maintaining its position of power and privilege in society.[19] So, don't expect governments to do anything about this problem any time soon We, as individuals, can, however, do something about it. If we live simply, get out of debt, grow some of our own food, and share resources with each other as this book proposes, we can live very rewarding lives on incomes low enough that we will pay little or no war tax, otherwise known as US Federal Income Tax. This is the most effective way of doing war tax resistance, precisely because it is perfectly legal, helps reduce climate change and gives us the time we need to build community and social justice and spread the word about this better way of living.

If the governments of the world wanted to do something really useful with their militaries, they could cooperate on a plan to protect the Earth from an asteroid strike such as the one that caused the mass extinction of species on Earth in which the dinosaurs died out. It is known that many asteroids will be passing close to Earth over coming years, but we have yet to assemble and test the hardware needed to divert one from a direct strike.

The Ruling Elite Problem

There are other problems that threaten us, of course, such as corruption in the health and pharmaceutical industries, which we will deal with in another chapter. The overarching problem though, as we have seen in this chapter, that is preventing governments from dealing with any of the other great problems, is *a ruling elite problem*. The ruling elite, a group of billionaire families often operating independently

from each other, controls governments by giving campaign donations to politicians, and most of its members don't care about having a sustainable planet or about other people living sustaining, fulfilling lives—they only want to get richer and more powerful. This is not just an idea of mine. Many people are saying it these days, including, of course, Bernie Sanders. For instance, climate activist and author John Atcheson wrote recently that any of our problems, if traced back their roots, will be seen to involve the undue influence of money in politics.[20]

The next two chapters will examine the ruling elite in some detail, to gain an understanding of how it works. Then in Chapter 4 we will begin to outline how we the people can, by how we live our lives, sideline the ruling elite and work toward building a sustainable and sustaining future for all of us.

Chapter 5: Food

We Are What We Eat

Choosing what we eat and how we obtain our food are the most important ways for us to be the change we wish to see in the world. This is because food is so important to the survival and health of us all. 'We are what we eat,' as the saying goes. After the air we breathe and the water we drink, food is the one thing we really need to survive. It is also important because the way we grow and distribute food at the moment, mainly through industrial agriculture, is creating close to half the greenhouse gas emissions that are causing climate change.[1] On average, for every calorie in the food we eat that comes from the sun, *ten* calories of energy is input from fossil fuels to grow it.[2] But it doesn't have to be that way. Local small-scale organic farming for a vegetarian or vegan diet can, with wise management, have zero greenhouse gas emissions or even sequester more CO_2 into humus in the soil than it produces. Soil has an enormous capacity to hold carbon. The Earth's soils hold over twice as much carbon as the air.[3] This means that reducing the CO_2 in the atmosphere from 400 ppm, its current dangerous level, to 350 ppm, considered to be a safe level, a reduction of 12.5%, could be achieved by increasing carbon levels in the world's soils by an average of just 6%! Because of this, the agricultural portion of greenhouse gas emissions could quite quickly be largely eliminated if the right decisions were made. Increasing the carbon levels in soils by an average of just 3% would achieve this.

This cannot, for a long time into the future, be done with the other major part of greenhouse gas emissions—that

caused by burning fossil fuels for energy, transportation and manufacture. We are always going to need to heat our houses and travel about, and building our renewable energy infrastructure is going to use a huge amount of fossil fuel for many years until it can finally be carbon neutral. To achieve the net reduction of greenhouse gas emissions we so desperately need during the decades it will take to make this transition, it will be vital to change the way we grow and consume food.

And, of course, growing some of our own food organically, and buying locally grown organic food for as much of the rest as we can, will, if enough people do it, greatly help this essential shift in how we live. Many people have already seen the importance of this and have switched to buying and growing organic, and more are doing so all the time. Nevertheless, it is still only a few percent of the population who are doing it, so there is much room for improvement.

The Indian sage, Paramhansa Yogananda, who lived and taught in the USA for many years said, 'There is no such thing as altruism, only enlightened self interest.' What he meant by this is that it is impossible to do things to genuinely help others without also gaining from them ourselves, even if it is just the happiness that comes from helping others. The self interest is 'enlightened' in this situation because it is a long-term self interest that goes hand-in-hand with helping others. Emerson also said something similar. He wrote, 'It is one of the most beautiful compensations of this life that no man can sincerely try to help another without helping himself.' It follows from what both these great men said that if we are doing something that makes us long-term unhappy for the 'sake of others,' then we are not really helping them at all, but instead are just spreading our unhappiness to those

around us. For instance, couples in unhappy marriages who stay together for 'the sake of the kids' rarely help their children by doing so, and very often make them feel they are the cause of their parents' unhappiness, which in turn deeply afflicts their lives with guilt. What this has to do with food is that the 'big idea' that what really is good for us is good for everybody, and what is bad for us is bad for everybody, applies big time to food. Let's see how.

It's in our enlightened self interest to eat organic

In some alternate universe it could be that through the sacrifice of eating less healthy food we could reduce emissions of greenhouse gases and use less precious water to grow our food, 'for the sake of the planet.' In our universe, though, it doesn't work that way. It is actually quite the reverse. Organic food is healthier than non-organic, as it contains about 60% more vitamins, minerals and anti-oxidants, more than offsetting its slightly higher cost, and doesn't contain poisonous pesticide residues. It also tastes better. So, in various different ways organic food is better for us and more enjoyable to eat.

Organic food is also better for the environment, and hence for other people, in a host of ways. Firstly, and most importantly, organic farming has much lower greenhouse gas emissions than conventional farming, and if mindfully done can even be carbon neutral. One reason for this, as we have already mentioned, is that growing food organically builds humus in the soil which sequesters CO_2 from the atmosphere. Another is that humus rich topsoil is less likely to blow away in the wind, as it is better bound together and holds more water than topsoil that has been artificially fertilized.

Artificial fertilizers cause the humus in the soil, and the soil 'structure' itself, to break down, causing the soil to dry out quickly and become dusty. When it is then plowed, a procedure that is much more common in industrial agriculture than in organic farming, huge amounts of topsoil are lost as dust. It has been estimated that in non-organic farming, for every bushel of wheat or corn that is harvested, two bushels of topsoil are lost to the wind.[4] Quite apart from the tremendous loss of all-important topsoil caused by this that has turned huge areas into deserts already, this wind-borne dust is rich in nitrates from the soil, typically, in industrial farming, added as nitrogen-based artificial fertilizers, and UV light from the sun converts these nitrates into nitrous oxide, a greenhouse gas that is 300 times more potent than CO_2. In addition, just applying nitrogen-based artificial fertilizers to soils, even when there is no plowing, causes the release of substantial amounts of nitrous oxide. According to the United States Environmental Protection agency (EPA), 74% of U.S. nitrous oxide emissions come from agricultural soil management, with a further 5% coming from manure management. What is more, nitrous oxide emissions from agricultural soils are rapidly rising, being 18% higher in 2013 than in 1990.[5]

By contrast, organic farming has much lower nitrous oxide emissions than conventional farming. This is because emissions of nitrous oxide are directly linked to the amount of mineral nitrogen in soils, and organic farming does not use mineral nitrogen. Also, the diverse crop rotations and green manuring in organic farming improves soil structure, which in turn leads to organic soils being more aerated and having lower mobile nitrogen concentrations, and all of these factors lead to reduced emissions of nitrous oxide. What is

more, on-farm use of manure, increasingly not done in industrial agriculture, but basic to organic farming, reduces nitrous oxide emissions by eliminating the emissions caused by treating manure as waste and not recycling it as valuable fertilizer. So, organic farming, depending on how well the nitrogen cycle is managed, can have anything from substantially lower nitrous oxide emissions, to having very much lower emissions than conventional agriculture.[6] And this is, of course, in addition to organic farming's much lower CO_2 emissions, mainly due to its sequestration of CO_2 into humus through composting and mulching.

As mentioned in Chapter 1, organic farming also uses less water than conventional agriculture, and out-produces it in mild to severe drought conditions. Organic farming further helps the environment by not using pesticides, which have a long history of damaging nature and are considered to be at least partially responsible for the colony collapse disorder in bees that threatens future food production in a big way. Altogether, then, there are many ways in which organic farming is better for the environment, and better able to feed the planet in the future. And this, as we saw earlier, is in addition to organic food tasting better and being better for our health. It is certainly in our 'enlightened self interest' to eat organic! A substantial switch to organic agriculture could end up being a large part of what saves the planet from disastrous climate change and mass starvation. And we can be a part of that by eating organic ourselves, where possible, and, through our example, persuading others to do the same.

Growing Our Own Food is Good for Everyone

Growing as much as possible of our own food, organically of course, is also good for us and good for everyone. It is good

for us because it saves us money, gives us the freshest possible, and thus most nutritious, food, gives us healthy exercise out in the fresh air and the satisfaction of supplying one of our most basic needs. It teaches us about the world of nature, its subtlety and its bounties, can fulfill part of our need to be creative in life, is a wonderful hobby, and enables us to share both knowledge and produce with our friends and neighbors and so build community. And through it we can gradually become expert enough at gardening that we could survive on what we grow if we needed to—a skill that might be very important once climate change really starts to bite and there are world-wide food shortages.

Growing some of our own food is also good for the world in general. It lowers greenhouse gas emissions because it is grown organically and because it is right there in the garden and doesn't need to be shipped to you from somewhere else, often from a great distance. There is less waste of food, too, in a world where 925 million people go chronically hungry,[7] since you can pick just what you need for a meal, and the rest stays fresh on the plant where its nutritional value is preserved. By contrast, fruit and vegetables purchased from a store have lost much of their nutritional value by the time we buy them, and even more by the time we get to eat them. This nutrient waste is not usually counted as wasted food, but really it is, as it is for the nutrients that we eat food. A part of the fresh food we buy also goes bad before we can eat it, often because we have to buy more than we need due to the way it is packaged. When I buy cilantro or chives, I have to buy a whole bunch, and often a part of it goes bad before I can eat it. When I harvest these from my garden, I just pick the leaves I need and eat

them within a few minutes when they are still chock full of taste and nutrients.

Avoid Wasting Food and Learn to Compost

It is estimated that 40% of the food produced in the USA ends up being wasted, at various points along the supply chain, largely from going bad and being thrown out, and this doesn't count the nutrient loss just mentioned. Only 3% of this wasted food gets composted; the rest ends up in landfills where its decomposition accounts for 23% of all methane emissions in the USA, and methane is 34 times as potent a greenhouse gas as CO_2.[7] A British report estimates that if all food scraps were removed from landfills in their country, it would reduce greenhouse gases by the same amount as taking one fifth of all the cars in the country off the road! This underscores the importance of not only wasting as little food as possible, but also of composting food scraps rather than throwing them in the garbage. Composting greatly reduces methane emissions and can even capture the small amount of methane normally released if it is done by a process called 'anaerobic digestion.'[7]

The 'humanure' from composting toilets can also be added to compost heaps if it is put into contained heaps and done in the right way. If sufficient cover material, typically sawdust, is used there will not be an odor problem in the toilet or compost heap, and the heat generated by the heap will kill harmful bacteria, making the compost sanitary and safe to use on food gardens after about a year. Recycling humanure in this way, along with other organic matter such as garden weeds, straw, leaves, shredded junk mail and food scraps, prevents it polluting oceans and rivers, as sewerage often does, and returns a lot of desperately needed food

growing power to the soil. The carbon and nitrogen cycles in nature are meant to be closed cycles that can continue indefinitely, but when we siphon off carbon and nitrogen through putting sewerage into the ocean and rivers instead of returning it to the soil, where it's meant to be, our soils are constantly losing fertility. To learn how to do humanure composting correctly, safely and easily, go to the Humanure Handbook website, where you can read, for free, basic instructions on how to do this sort of composting or buy the full handbook that has already sold over 59,000 copies. The link is: http://humanurehandbook.com/manual.html .

As an example of the waste of nutrients that occurs when we buy food from a store, sweet corn loses much of its sweetness within minutes of being picked,[8] and rapidly loses other nutrients due to its high respiration rate. Also, tomatoes that are picked green, even though they will ripen, will never have as much vitamin C as tomatoes that are picked ripe.[9] It is obvious from these figures and examples how much growing our own food can cut down on waste, and maximize the benefit to us of the food we eat. The one form of waste that can still happen when growing one's own food is when we grow more than we need. This can be avoided, however, by doing a number of staged plantings that will be ready to eat at different times, by canning, drying or freezing part of the what we harvest to eat later during the winter, and by giving away our surpluses to friends and neighbors, which fosters community and may lead to us being offered a part of their surpluses on other occasions.

We can also help those around us by being an example of how much we can enjoy and benefit from growing some of our own food. When people taste the surplus food we give

them, and experience how good it makes them feel, they will want to grow their own! And this will spread the benefits even further. In the future, when the specter of starvation walks the planet, as it inevitably will the way things are going, all of us who grow some of our own food will free up other food for governments to distribute to the hungry, and we will have the skills to teach people how to grow food for themselves, too, which will help many to live rather than die.

The Example of Cuba

The nation of Cuba was thrown into a crisis when the Soviet Union collapsed. The Soviet Union had been sending Cuba large amounts of oil, fertilizer and other agricultural chemicals, but the new Russia was unable to keep sending any of this. Since Cuba was unable to get help from the USA either, because of its embargo, it realized it had to learn how to grow its food organically, and as quickly as possible. With help from permaculture experts from Australia, they soon began to do it, and although the average Cuban lost a lot of weight during the following three years, at the end of this period they had converted nearly all their agriculture to organic and were able to feed themselves again. Every small plot of land, in or out of cities, was used to grow food, to the extent that half of Havana's food supply came to be grown within its city limits. Cuba's experience in transitioning almost totally to organic agriculture is a model the rest of the world could follow. It shows we can do it, too. There is an excellent documentary about this critical transition in Cuba called *The Power of Community*.

Even in an Apartment

Even if you live in an apartment and can only grow tomato and basil plants in pots on a window sill that catches the sun, you are still playing a valuable part in helping the world feed itself. And that would be a great way to begin to learn to grow some of your own food. It could lead to a next step of getting a plot in a community garden. As Lao Tse said, 'A journey of a thousand miles begins with a single step.'

Meat Eating vs. Vegetarian and Vegan Diets

What kinds of food we eat has just as great an impact on climate change and water usage as whether it is grown organically or not. Eating meat, especially red meat, has a hugely greater environmental impact than eating vegetarian or vegan. The United Nations' 2006 report *Livestock's Long Shadow* says in its introduction:

The livestock sector emerges as one of the two or three most significant contributors to the most serious environmental problems, at every scale from local to global. The findings of this report suggest that it should be a major policy focus when dealing with the problems of land degradation, climate change and air pollution, water shortage and water pollution and loss of biodiversity.

Livestock's contribution to environmental problems is on a massive scale and its potential to contribute to their solution is equally large. The impact is so significant that it needs to be addressed with urgency. Major reductions in impact could be achieved at reasonable cost.[10]

This report says livestock are responsible for 18% of greenhouse gas emissions, a bigger share even than that of

transportation, and that global production of meat is projected to more than double between 2000 and 2050.[10] Evidently there is a huge problem here that is not being addressed, for the usual reason that governments ignore problems: the undue influence of powerful financial and industrial groups due to the 'legalized bribery' of campaign donations.

Most meat is grown using grains that could feed people, and if the grains were eaten directly, many times more people could be fed. To grain feed beef, about 15 pounds of grains and legumes are needed to produce one pound of beef,[11] and such a combination is as good a source of protein as meat for people. This means the world can feed 15 times as many people on grains and legumes than it can on beef. This ratio is slightly lower for other meats, but still significant. To feed everyone in the future nearly everyone will need to be at least largely vegetarian.

In terms of water usage, it takes 1,847 gallons of water to produce one pound of beef, 1,248 gallons per pound for lamb or mutton, and 718 gallons per pound for pork. Chicken uses 518 gallons per pound. Two forms of animal protein used in vegetarian diets are eggs at 395 gal/lb. and dairy—cheese at 381 gal/lb and milk at 122 gal/lb. Tofu at 302 gal/lb. and rice at 299 gal/lb. are in line with eggs and cheese and higher than milk. This shows that vegan diets don't have any great advantage over vegetarian diets in terms of water usage. It is clear, though, that both vegetarian and vegan diets have much lower water usage than diets containing meat. This is especially so if one considers that potatoes and broccoli use only 34 gal/lb., sweet potatoes 46 gal/lb. and strawberries, pineapple and watermelon each take less than 50 gal/lb.[12] Since 64% of the world's population is expected to live in

water stressed areas by 2025, the amount of water needed to grow our food is a major concern.[10]

Natural Plant Based Diets are Healthier

Many studies have shown that a vegetarian diet is healthier than meat eating diets, and as you can see, they are also healthier for the planet and for its ability to support us. Seventh Day Adventists are very much like other Americans in many respects except that they are health-conscious vegetarians. Among them it would seem that combining vegetarianism with eating healthy foods and having a healthy lifestyle leads to great improvements in health. And they are much healthier than the average for Americans. Adventists in the Californian town of Loma Linda have 66% lower rate of death from heart disease for men and a 98% lower rate for women than other Californians, 72% and 82% lower rates of death from stroke, and 60% and 75% lower rates of death from cancer.[13]

The point about eating healthy foods being just as important as eating vegetarian is worth stressing. Even within a vegetarian diet, some foods are both better health wise and better for the planet than others. Fresh non-starchy vegetables and fruit, salad greens and tomatoes all take very little water to grow and produce little greenhouse gases, and, along with olive oil, whole grains and some protein from nuts, constitutes the basis of the 'Mediterranean diet' that most Seventh Day Adventists adhere to, which is not only good for their health, but makes them feel better as well—more alert, inspired, enthusiastic and happy.[13] Adventists also avoid coffee and alcohol, which just happen to be high water use foods at 1056 gallons of water needed to make one gallon of coffee and 872 gallons for one gallon of wine.

There is much debate about the health of chocolate, but most would agree eating a lot of it could cause weight gain, and it takes 2,061 gallons of water to make a pound of it, more than it takes to produce beef.[12] Overall, eating processed foods made with artificial ingredients, white flour and red meat, and having a high fat content, have been shown to lead to depression, anxiety, hyperactivity, mood swings, being upset, scared, distressed, hostile, and a wide variety of other mental and emotional problems.[13] And processed foods require more energy and water input than natural foods in order to manufacture and transport them.

So, overall, it is clear that the food that is bad for us is bad for the planet, and the food that is good for us is good for the planet. And, as a result, eating food that is good for us will help reduce climate change and enable us to feed more of the world's people in the face of climate change.

How do we, though, persuade the next generation that the food that is healthy for them and for the planet is also the most enjoyable to eat? Kids are given sweet, fatty, refined foods as treats, so they see these as being what is enjoyable and take these tastes into adulthood. Does it have to be that way, though? Years ago I knew a naturopath in Australia, who had two children, a boy and girl, aged about six and eight. She'd fed them a healthy, delicious vegetarian diet since the very first food passed their lips. Once they started school, though, her kids heard about McDonalds from their friends and kept pestering their mother to take them to eat there. For a long time she resisted this, but eventually gave in and said, 'We're going to McDonalds!' The kids were really excited about the outing. They each ordered Big Macs. After their first bites into their Big Macs, though, both the kids

said, ‘Yuk! These are horrible! Do we have to eat them?’ This really is a true story! Educate your kids’ tastes with lovingly prepared, delicious vegetarian and vegan food, and they won’t even want to eat junk food.

The Bonus of Fruit and Nuts

Nuts appear, at first sight, to be an exception to the ‘enlightened self interest’ rule, in that they are healthy foods but require a lot of water to grow them. For instance, hazelnuts and walnuts take 1,260 gallons of water per pound. However, nuts come from large trees that have their roots down deep where the soil stores water from winter rains. In climates that have good winter rain, mature fruit and nut trees can go through the whole summer without being watered, so, although nuts use a lot of water, they can need little or no irrigation water if grown in the right climates. Instead, like other trees needed to convert CO_2 back to oxygen and sequester the carbon into organic matter, they use water that would otherwise not be accessed and return it to the atmosphere as water vapor that falls again as rain. And if not accessed, the winter rains would run off all the more quickly, cause more erosion and be wasted in the ocean.

Nuts come from trees, and we need more trees to forestall climate change and attract rain to dry areas. Fruit and nut trees produce edible food as a bonus, on top of the essential job they do as trees, so it is not quite fair to attribute a high water cost to them. It would be fairer to say they have no water or carbon cost at all, since having more trees is a vital hedge against climate change, and the fruits and nuts are a bonus produced at no extra water or carbon cost.

Different Ways to Grow Food Organically

There are a number of variations on how to grow food organically. These include Permaculture, Biodynamic farming and Agroecology. Each of these is basically an enhanced way of doing organic farming. You may wish to research these options, and others, to see which ones appeal to you before planning and planting your food garden.

Permaculture is a collection of agricultural and design principles that copies and simulates natural ecosystems. It builds a 'permanent agriculture' that resembles the final 'forest' stage of a natural plant succession, which once created needs minimal weeding and other upkeep. One of the founders of Permaculture, Bill Mollison, said, 'Permaculture is a philosophy of working with, rather than against nature; of protracted and thoughtful observation rather than protracted and thoughtless labor; and of looking at plants and animals in all their functions, rather than treating any area as a single product system.'[14] Permaculture was built on the work of Joseph Russell Smith who in 1929 published *Tree Crops: A Permanent Agriculture*, in which he summed up his experiments in using fruit and nut trees for food for people and animals. He saw everything in the world as being interconnected, and suggested planting smaller food plants underneath fruit and nut trees. This book inspired many others who wanted to make agriculture more sustainable, including Toyohiko Kagawa who started 'forest farming' in Japan.[15] An excellent book on how to do Permaculture in your back yard or small farm is *Gaia's Garden* by Toby Hemenway.

Biodynamic farming was developed in the 1920s based on the spiritual and practical suggestions of Rudolf Steiner. It seeks to create a diverse and balanced farm ecosystem that

builds the fertility of the farm and produces food that is as healthy as possible. It strives for a 'triple bottom line' of economic, ecological and social sustainability.[16]

Agroecology is the application of ecology to the design and management of a sustainable agriculture. It is a whole systems approach that includes social equity and healthy environments as a part of what they hope to achieve.[17] It would seem to have a lot in common with Permaculture, but to also have its own variants that could well appeal to some, such as it being a more academic and politically activist approach.

There are also many other variations of organic food growing that you will run across. One concept I like, from the 'Anastasia' books, is that each person should have their own personal food garden which they think of as their 'space of love,' and that if they give enough time and love to this space it will return to them everything they need for their health and well being.

Seed Saving

One thing all these approaches to organic food gardening have in common is the saving of seeds. In the past farmers had to save their seeds so there could be a crop the following year—it was vital to staying alive. When I visited Monticello, Thomas Jefferson's house in Virginia, I noticed an elaborate and beautiful chest of many small drawers right at the center of the house, with a note on it saying it was the seed store where the seeds saved from the harvest were kept for the next planting. It was at the center of the house because that was the safest place to protect the seeds from loss in the case of storms or floods. Although we can buy seeds now, the time will almost certainly come again when

to have seeds we will need to save and trade them. Because of this, it would be wise to start saving seeds now, to get into the habit of doing it, learn how to best do so, and establish networks for swapping seeds we have saved.

Which Individual Foods Are Best For Us?

We have already looked at how a healthy vegetarian diet, such as the Mediterranean diet, is better for us and for the planet than diets containing red meat and processed foods high in sugar, refined carbohydrates and fat. But how do we determine which individual foods are best for us? One possible way to do this is to look at which foods we have eaten throughout the time we have been human beings, and that we have, as a result, evolved to take advantage of. This is the basis of the popular 'Paleo' diet. This diet assumes, however, that early humans ate huge quantities of meat, an assumption that is gradually being disproved these days.[18] And even to the extent that they did eat meat, perhaps that was opportunistic, and not necessarily what was best for their health? After all, modern people often don't choose to eat what is healthiest for them, and perhaps our Paleolithic ancestors were the same. Instead, it may make more sense to look at the human digestive system, see what it is adapted to eat, and see what other primates with similar digestive tracts eat, such as chimpanzees and orangutans. This approach suggests that fruit, nuts and other parts of plants are our natural diet, but that meats, grains and dairy are not. It would seem that our guts have basically evolved to eat fruits, nuts, tubers and leaves, but that, through our evolutionary journey to becoming human beings, different subgroups of people have evolved the ability to tolerate and perhaps even thrive

on some other foods such as dairy.[18] Goat milk may be better for more people than cow's milk because humans have been keeping goats longer than they have been keeping cows. Also, the oils in seafood, that we know are more healthy for us than the fats in red meat, are healthier because early human settlements, as archaeologists tell us, were nearly all by lakes, rivers or the ocean, that their animal protein mainly came from seafood, and we evolved to take advantage of it.[19]

It would seem, then, that foods other than the basic core of fruits, nuts and vegetables may or may not be good for any particular individual, and that we need to find out by trying them for ourselves to see if they agree with us, and to see if they have any particular health benefits. I would maintain, however, that the principle of 'enlightened self-interest' suggests the foods that are the most sustainable for the planet will also, by and large, be the healthiest for us. The next chapter about health will, in part, look at certain foods that have great health benefits for many people and also have a light impact on the environment.

Whole-Food Plant-Based Diets and Telomeres

Recent research suggests that a whole-food plant-based diet is what will keep us young and healthy, and can even reduce our biological age. It has been found that the telomeres binding the ends of our chromosomes usually get shorter as we age, and when they get really short we die. Dr Elizabeth Blackburn shared the 2009 Nobel Prize in Medicine for the discovery of telomerase, an enzyme that *builds* telomere length and reverses cellular aging. Her work showed that eating a whole-food plant based diet over a period of three months could boost telomerase activity and increase

telomere length, and no other diets or interventions have been shown to have this effect.[20] This would seem to support other evidence, such as the health and longevity of Seventh Day Adventists, that a diet of whole fruits, vegetables and nuts is the healthiest diet for most people.

Better Cooked or Raw?

One final thing to consider is whether food is better cooked or eaten raw. One theory suggests that when humans learned to cook food they increased the amount of carbohydrates they could get from their food because the food became easier to eat, and this enabled our species to evolve to expand its brainpower, since the brain uses up a lot of energy. This may well have been part of how human beings gained their impressive brainpower, but it doesn't follow, as some seem to think, that this means we are now better off eating most of our food cooked. Nowadays we have blenders, juicers and food processors to do the heavy chewing of raw food for us, and make the nutrients in it quickly available to us. Most of us would have trouble chewing up and eating a pound of raw carrots. If they were cooked it would be much easier. But if the raw carrots were juiced into a large glass of carrot juice, that would be the easiest of all to eat. Not surprisingly then, most recipes in raw food diets involve juicing, blending or food processing raw ingredients. And, of course, cooking destroys many of the vitamins and enzymes that are in raw food, and causes many oils in foods, or that we cook them with, to oxidize into dangerous free radicals. As a result, raw foods have a strong claim to being healthier.

Raw nuts, grains and seeds have enzymes in them protecting them from breaking down, and this makes them

hard to digest. They also have phytic acid to bind and preserve minerals until the seed germinates and the embryo plant needs them, and this prevents us from accessing the minerals and can even bind minerals from other foods eaten at the same meal and prevent them from being absorbed into our bodies. This can cause mineral deficiency problems such as severe tooth decay. Soaking seeds, grains and nuts overnight, however, begins to change the biochemistry of this, and allowing them to sprout completes the process. The seed previously needed to be protected, but now it is soaked in water it moves into germination mode. The protective enzymes break down, and digestive enzymes take their place to start the digestion of the starch in the seed so the embryo plant can use it as food. This also makes the seed easier for us to digest, as much of it is pre-digested for us. The enzyme phytase is also released, on soaking, to break down the phytates and phytic acid to release their minerals for the plant, and us, to use. We can blend the seeds at this point, or let them continue to grow into sprouts. Cooking also breaks down protective enzymes, along with all the other enzymes, so it is worth bearing in mind that roasted nuts and seeds are easier to digest than dry, unsoaked, raw ones. Soaking reduces the amount of phytic acid by about a half, but doesn't entirely eliminate it, so it would make sense to eat most or all of your nuts, grains and seeds at one meal each day so the phytic acid in them doesn't prevent you from absorbing minerals from your other two meals. Fermentation processes also greatly reduce phytic acid levels, so, for instance, whole-wheat sour-dough bread has very little phytic acid in it, whereas other whole wheat breads contain quite a lot of it.

Recipes

What chapter on food would be complete without at least a couple of recipes? To talk so much about healthy food and not describe how to prepare some actual food that is good for us and the planet would be a little inconsiderate, I think! So here are two very healthy, environmentally friendly, blender recipes that are among my favorites.

Almond Milk

• Soak about two thirds of a cup of raw almonds for a few hours, or overnight. Discard the soak water.

• Rinse the soaked almonds well to remove the nicotine from the 'skins.' (You'll see the soak water is a brown color—that's the nicotine.)

• Put the soaked almonds into a blender. Barely cover the almonds with water and add a few ice cubes (to keep the mixture cool while it blends so the enzymes don't break down—though this is a moot point with Californian almonds that have been irradiated and are no longer living, viable seeds).

• Blend at high speed for a few minutes. The mixture should be thick and syrupy so the bits of almond rub against each other and grind up very fine. Add just enough water for the mixture to blend smoothly. Blend until you get a smooth paste. If the mixture gets warm, add more ice.

• Thin down with another half cup of water, and try it for taste. I like it without a sweetener, but, if you want to, add honey or maple syrup to taste at this point. You can also add fruit such as strawberries if you wish to.

• Finally add more water and blend briefly until you thin it to a milk-like consistency that seems right to you. It should

make about a quart of almond milk. Store it in a bottle in the fridge, and shake it before use. The milk should end up pretty smooth, but if you want you can strain it through a nut milk bag which you can buy at a health food store.

This makes, in my opinion, a much better almond milk than you can buy in a store. A variation is to use some other soaked seeds along with the almonds. Ones I have tried that work well include millet, buckwheat and sunflower seeds.

Avocado Smoothie

• Scoop out the soft contents of a ripe medium to large avocado into a blender.
• Add about a cup of ice cubes and a cup of water.
• Blend until smooth.
• Add honey or maple syrup to taste. You will probably need quite a bit of sweetener, but be careful not to overdo it and drown out the avocado taste.
• Add water and blend until it is thin enough to pour but is still quite thick.
• I think it tastes great just like this, but you can experiment with adding mint, cilantro or a little lime juice.

I discovered avocado smoothies in Bali, where some food stalls and restaurants offer them for breakfast.