

Book Excerpts



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Lesson 2 Book Excerpt**Growing the Caring Economy, Shrinking the Careless One**

pg. 93-95

A great deal of thought in recent years has gone into how reducing our use of material resources could be managed in ways that actually improve quality of life overall—what the French call “selective degrowth.”* Policies like luxury taxes could be put in place to discourage wasteful consumption. The money raised could be used to support those parts of our economies that are already low-carbon and therefore do not need to contract. Obviously a huge number of jobs would be created in the sectors that are part of the green transition—in mass transit, renewable energy, weatherization, and ecosystem restoration. And those sectors that are not governed by the drive for increased yearly profit (the public sector, co-ops, local businesses, nonprofits) would expand their share of overall economic activity, as would those sectors with minimal ecological impact (such as the caregiving professions, which tend to be occupied by women and people of color and therefore underpaid). “Expanding our economies in these directions has all sorts of advantages,” Tim Jackson, an economist at the university of Surrey and author of *Prosperity Without Growth*, has written. “In the first place, the time spent by these professions directly improves the quality of our lives. Making them more and more efficient is not, after a certain point, actually desirable. What sense does it make to ask our teachers to teach ever bigger classes? Our doctors to treat more and more patients per hour?”

There could be other benefits too, like shorter work hours, in part to create more jobs, but also because overworked people have less time to engage in low-consumption activities like gardening and cooking (because they are just too busy). Indeed, a number of researchers have analyzed the very concrete climate benefits of working less. John Stutz, a senior fellow at the Boston-based Tellus Institute, envisions that “hours of paid work and income could converge worldwide at substantially lower levels than is seen in the developed countries today.” if countries aimed for somewhere around three to four days a week, introduced gradually over a period of decades, he argues, it could offset much of the emissions growth projected through 2030 while improving quality of life. Many degrowth and economic justice thinkers also call for the introduction of a basic annual income, a wage given to every person, regardless of income, as a recognition that the system cannot provide jobs for everyone and that it is counterproductive to force people to work in jobs that simply fuel consumption. As Alyssa Battistoni, an editor at the journal *Jacobin*, writes, “While making people work shitty jobs to ‘earn’ a living has always been spiteful, it’s now starting to seem suicidal.”

A basic income that discourages shitty work (and wasteful consumption) would also have the benefit of providing much-needed economic security in the front-line communities that are being asked to sacrifice their health so that oil companies can refine tar sands oil or gas companies can drill another fracking well. Nobody wants to have their water contaminated or have their kids suffer from asthma. But desperate people can be counted on to do desperate things—which is why we all have a vested interest in taking care of one another so that many fewer communities are faced with those impossible choices. That means rescuing the idea of a safety net that ensures that everyone has the basics covered: health care, education, food, and clean water. Indeed, fighting inequality on every front and through multiple means must be understood as a central strategy in the battle against climate change.

This kind of carefully planned economy holds out the possibility of much more humane, fulfilling lifestyles than the vast majority of us are experiencing under our current system, which is what makes the idea of a massive social movement coalescing behind such demands a real possibility. But these policies are also the most politically challenging.

Unlike encouraging energy efficiency, the measures we must take to secure a just, equitable, and inspiring transition away from fossil fuels clash directly with our reigning economic orthodoxy at every level. As we will see, such a shift breaks all the ideological rules—it requires visionary long-term planning, tough regulation of business, higher levels of taxation for the affluent, big public sector expenditure, and in many cases reversals of core privatizations in order to give communities the power to make the changes they desire. In short, it means changing everything about how we think about the economy so that our pollution doesn't change everything about our physical world.

* in French, “*decroissance*” has the double meaning of challenging both growth, *croissance*, and *croire*, to believe—invoking the idea of choosing not to believe in the fiction of perpetual growth on a finite planet.

Lesson 3 Book Excerpt**Niger Delta**

p. 305-306

Since the doors to foreign investors [in Nigeria] were flung open near the end of British colonial rule, oil companies have pumped hundreds of billions of dollars' worth of crude out of Nigeria, most from the Niger Delta, while consistently treating its land, water, and people with undisguised disdain. Wastewater was dumped directly into rivers, streams, and the sea; canals from the ocean were dug willy-nilly, turning precious freshwater sources salty, and pipelines were left exposed and unmaintained, contributing to thousands of spills. In an often cited statistic, an Exxon Valdez-worth of oil has spilled in the Delta every year for about fifty years, poisoning fish, animals, and humans.

But none of this compares with the misery that is gas flaring. Over the course of extracting oil, a large amount of natural gas is also produced. If the infrastructure for capturing, transporting, and using that gas were built in Nigeria, it could meet the electricity needs of the entire country. Yet in the Delta, the multinational companies mostly opt to save money by setting it on fire, or flaring it, which sends the gas into the atmosphere in great pillars of polluting fire. The practice is responsible for about 40 percent of Nigeria's total CO₂ emissions... Meanwhile, more than half of Delta communities lack electricity and running water, unemployment is rampant, and, in a cruel irony, the region is plagued by fuel shortages.

Lesson 3 Book Excerpt**Climate Debt**

pg 408 – 409

On my first visit to the Northern Cheyenne reservation, the question of how to finance the kind of healthy economy anti-coal activists were fighting for came up often. At one point, Lynette Two Bulls, who runs an organization that teaches Cheyenne youth about their history, told me that she had heard about something exciting happening in Ecuador. She was talking about the call for the international community to compensate the country for not extracting the oil in the Yasuní rainforest, with the money raised going to social programs and a clean energy transition. It sounded like just what was needed on the reservation and she wanted to know: if Ecuador could be compensated for keeping its oil in the ground, then why couldn't the northern Cheyenne be compensated for being carbon keepers for their coal?

It was a very good question, and the parallels were striking. Yasuní National Park is an extraordinary swath of Ecuadorian rainforest, home to several Indigenous tribes and a surreal number of rare and exotic animals (it has nearly as many species of trees in 2.5 acres as are native to all of north America). And underneath that riot of life sits an estimated 850 million barrels of crude oil, worth about \$7 billion. Burning that oil—and logging the rainforest to get it—would add another 547 million tons of carbon dioxide to the atmosphere. Of course the oil majors want in.

So in 2006, the environmental group Acción Ecológica (the same group that made an early alliance with the anti-oil movement in Nigeria) put forward a counterproposal: the Ecuadorian government should agree not to sell the oil, but it should be supported in this action by the international community, which would benefit collectively from the preservation of biodiversity and from keeping planet-warming gases out of our shared atmosphere. That would mean partially compensating Ecuador for what it would have earned from oil revenues had it opted to drill. As Esperanza Martínez, president of Acción Ecológica, explained, the “proposal establishes a precedent, arguing that countries should be rewarded for not exploiting their oil. . . . Funds gathered would be used for the [renewable] energy transition and could be seen as payments for the ecological debt from north to South, and they should be distributed democratically at the local and global levels.” Besides, she writes, surely “the most direct way to reduce emissions of carbon dioxide was to leave fossil fuels in the ground.” The Yasuní plan was based on the premise that Ecuador, like all developing countries, is owed a debt for the inherent injustice of climate change—the fact that wealthy countries had used up most of the atmospheric capacity for safely absorbing CO₂ before developing countries had a chance to industrialize. And since the entire world would reap the benefits of keeping that carbon in the ground (since it would help stabilize the global climate), it is unfair to expect Ecuador, as a poor country whose people had contributed little to the climate crisis, to shoulder the economic burden for giving up those potential petro dollars. Instead, that burden should be

shared between Ecuador and the highly industrialized countries most responsible for the buildup of atmospheric carbon. This is not charity, in other words: if wealthy countries do not want poorer ones to pull themselves out of poverty in the same dirty way that we did, the onus is on northern governments to help foot the bill.

This, of course, is the core of the argument for the existence of a “climate debt”—the same argument that Bolivia’s climate negotiator, Angélica Navarro Llanos, had laid out for me in Geneva in 2009, helping me to see how climate change could be the catalyst to attack inequality at its core, the basis for a “Marshall Plan for the earth.” The math behind the argument is simple enough. As discussed, climate change is the result of cumulative emissions: the carbon dioxide we emit stays in the atmosphere for approximately one to two centuries, with a portion remaining for a millennium or even more. And since the climate is changing as a result of two-hundred-odd years of such accumulated emissions, that means that the countries that have been powering their economies with fossil fuels since the industrial revolution have done far more to cause temperatures to rise than those that just got in on the globalization game in the last couple of decades. Developed countries, which represent less than 20 percent of the world’s population, have emitted almost 70 percent of all the greenhouse gas pollution that is now destabilizing the climate. (the United States alone, which comprises less than 5 percent of the global population, now contributes about 14 percent of all carbon emissions.)

Lesson 3 Book Excerpt**“Polluter Pays” Principle**

p. 115-116

Vocabulary: stocks, derivatives, tax haven, royalty

Extractive industries shouldn't be the only targets of the “polluter pays” principle. The U.S. military is by some accounts the largest single consumer of petroleum in the world. In 2011, the Department of Defense released, at minimum, 56.6 million metric tons of CO₂ equivalent into the atmosphere, more than the U.S.-based operations of ExxonMobil and Shell combined.

Moreover, there is a simple, direct correlation between wealth and emissions—more money generally means more flying, driving, boating, and powering of multiple homes. One case study of German consumers indicates that the travel habits of the most affluent class have an impact on climate 250 percent greater than that of their lowest-earning neighbors... As journalist and climate and energy policy expert Gar Lipow puts it, “We should tax the rich more because it is the fair thing to do, and because it will provide a better life for most of us, and a more prosperous economy. However, providing money to save civilization and reduce the risk of human extinction is another good reason to bill the rich for their fair share of taxes.

Taken together, there is no shortage of options for equitably coming up with the cash to prepare for the coming storms while radically lowering our emissions to prevent catastrophic warming.

Consider the following list, by no means complete:

- A “low-rate” financial transaction tax—which would hit trades of stocks, derivatives, and other financial instruments—could bring in nearly \$650 billion at the global level each year, according to a 2011 resolution of the European Parliament (and it would have the added bonus of slowing down financial speculation).
- Closing tax havens would yield another windfall. The U.K.-based Tax Justice Network estimates that in 2010, the private financial wealth of individuals stowed unreported in tax havens around the globe was somewhere between \$21 trillion and \$32 trillion. If that money were brought into the light and its earnings taxed at a 30 percent rate, it would yield at least \$190 billion in income tax revenue each year.
- A 1 percent “billionaire’s tax,” floated by the U.N., could raise \$46 billion annually.
- Slashing the military budgets of each of the top ten military spenders by 25 percent could free up another \$325 billion, using 2012 numbers reported by the

Stockholm International Peace Research Institute. (Granted, probably the toughest sell of all, particularly in the U.S.)

- A \$50 tax per metric ton of CO₂ emitted in developed countries would raise an estimated \$450 billion annually, while a more modest \$25 carbon tax would still yield \$250 billion per year, according to a 2011 report by the World Bank, the International Monetary Fund, and the Organisation for Economic Co-operation and Development (OECD), among others.
- Phasing out fossil fuel subsidies globally would conservatively save governments a total of \$775 billion in a single year, according to a 2012 estimate by Oil Change International and the Natural Resources Defense Council.

If these various measures were taken together, they would raise more than \$2 trillion annually. Certainly enough for a very healthy start to finance a Great Transition (and avoid a Great Depression). And that doesn't count any royalty increases on fossil fuel extraction.

Lesson 4 Book Excerpt**Extractivism**

p. 169-170

Extractivism is a nonreciprocal, dominance-based relationship with the earth, one purely of taking. It is the opposite of stewardship, which involves taking but also taking care that regeneration and future life continue. Extractivism is the mentality of the mountaintop remover and the old-growth clear-cutter. It is the reduction of life into objects for the use of others, giving them no integrity or value of their own—turning living complex ecosystems into “natural resources,” mountains into “overburden” (as the mining industry terms the forests, rocks, and streams that get in the way of its bulldozers). It is also the reduction of human beings either into labor to be brutally extracted, pushed beyond limits, or, alternatively, into social burden, problems to be locked out at borders and locked away in prisons or reservations. In an extractivist economy, the interconnections among these various objectified components of life are ignored; the consequences of severing them are of no concern.

Extractivism is also directly connected to the notion of sacrifice zones— places that, to their extractors, somehow don't count and therefore can be poisoned, drained, or otherwise destroyed, for the supposed greater good of economic progress. This toxic idea has always been intimately tied to imperialism, with disposable peripheries being harnessed to feed a glittering center, and it is bound up too with notions of racial superiority, because in order to have sacrifice zones, you need to have people and cultures who count so little that they are considered deserving of sacrifice. Extractivism ran rampant under colonialism because relating to the world as a frontier of conquest—rather than as home—fosters this particular brand of irresponsibility. The colonial mind nurtures the belief that there is always somewhere else to go to and exploit once the current site of extraction has been exhausted.

Lesson 4 Book Excerpt**Regeneration**

p. 447-448

Living nonextractively does not mean that extraction does not happen: all living things must take from nature in order to survive. But it does mean the end of the extractivist mindset—of taking without caretaking, of treating land and people as resources to deplete rather than as complex entities with rights to a dignified existence based on renewal and regeneration. Even such traditionally destructive practices as logging can be done responsibly, as can small-scale mining, particularly when the activities are controlled by the people who live where the extraction is taking place and who have a stake in the ongoing health and productivity of the land. But most of all, living nonextractively means relying overwhelmingly on resources that can be continuously regenerated: deriving our food from farming methods that protect soil fertility; our energy from methods that harness the ever-renewing strength of the sun, wind, and waves; our metals from recycled and reused sources.

These processes are sometimes called “resilient” but a more appropriate term might be “regenerative.” Because resilience—though certainly one of nature’s greatest gifts—is a passive process, implying the ability to absorb blows and get back up. Regeneration, on the other hand, is active: we become full participants in the process of maximizing life’s creativity.

This is a far more expansive vision than the familiar eco-critique that stressed smallness and shrinking humanity’s impact or “footprint.” That is simply not an option today, not without genocidal implications: we are here, we are many, and we must use our skills to act. We can, however, change the nature of our actions so that they are constantly growing, rather than extracting life. “We can build soil, pollinate, compost and decompose,” Gopal Dayaneni, a grassroots ecologist and activist with the Oakland, California, based movement Generation, told me. “We can accelerate, simply through our labor, the restoration and regeneration of living systems, if we engage in thoughtful, concerted action. We are actually the keystone species in this moment so we have to align our strategies with the healing powers of mother earth—there is no getting around the house rules. But it isn’t about stopping or retreating. It’s about aggressively applying our labor toward restoration.

That spirit is already busily at work promoting and protecting life in the face of so many life-negating and life-forgetting threats. It has even reached the creek where I used to take hikes during my pregnancy. When I first discovered the trail, I had thought that the salmon that still swam in the stream were there purely thanks to the species' indomitable will. But as I met and spoke with locals on those walks, I learned that since 1992 the fish had been helped along by a hatchery a few kilometers upstream, as well as by teams of volunteers that worked to clear the water of logging debris and made sure there was enough shade to protect the young fry. Hundreds of thousands of pink, coho, chum, and chinook fry are released into nearby streams each year. It's a partnership of sorts between the fish, the forest, and the people who share this special piece of the world.

So about two months after my son was born, our little family went on a field trip to that hatchery, now being powered through micro turbines and geothermal. though he was so small he could barely see over the sling, I wanted him to meet some of the baby salmon that had been so important to me before he was born. It was fun: we peered together into the big green tanks where the young fish were being kept safe until they grew strong enough to protect themselves. And we went home with a "salmon alphabet" poster that still hangs in his room ("s" is for smolt).

Lesson 8 Book Excerpt**Managing the Sun**

p. 257-261

After dinner, consumed under towering oil paintings of plump-faced men in silver wigs, the delegates are invited to the wood-paneled library. There, about thirty scientists, lawyers, environmentalists, and policy wonks gather for the opening “technical briefing” on the different geoengineering schemes under consideration. A Royal Society scientist takes us through a slide show that includes “fertilizing” oceans with iron to pull carbon out of the atmosphere; covering deserts with vast white sheets in order to reflect sunlight back to space; and building fleets of machines like the ones competing for Richard Branson’s Earth Challenge that would suck carbon out of the air.

The scientist explains that there are too many such schemes to evaluate in depth, and each presents its own particular governing challenge. So for the next three days, we will zero in on the geoengineering methods the scientists here consider most plausible and promising. These involve various means of injecting particles into the atmosphere in order to reflect more sunlight back to space, thereby reducing the amount of heat that reaches the earth. In geoengineering lingo, this is known as Solar Radiation Management (SRM)—since these methods would be attempting to literally “manage” the amount of sunlight that reaches earth.

There are various possible sun-dimming approaches. The most gleefully sci-fi is space mirrors, which is quickly dismissed out of hand. Another is “cloud brightening”: spraying seawater into the sky (whether from fleets of boats or from towers on shore) to create more cloud cover or to make clouds more reflective and longer lasting. The most frequently discussed option involves spraying sulfate aerosols into the stratosphere, whether via specially retrofitted airplanes or a very long hose suspended by helium balloons (some have even suggested using cannons).

The choice to focus exclusively on SRM is somewhat arbitrary given that ocean fertilization experiments have been conducted on several occasions, including a heavily reported “rogue” test off the coast of British Columbia in 2012. But SRM is attracting the lion’s share of serious scientific interest: sun blocking has been the subject of over one hundred peer-reviewed papers, and several high-level research teams are poised to run open-air field trials, which would test the mechanics of these schemes using ships, planes, and very long hoses. If rules and guidelines aren’t developed soon (including, as some are suggesting, banning field tests outright), we could end up with a research Wild West.

Spraying sulfate into the stratosphere is often referred to as “the Pinatubo Option,” after the 1991 eruption of Mount Pinatubo in the Philippines. Most volcanic eruptions send ash and gases into the lower atmosphere, where sulfuric acid droplets are formed that simply fall down to earth. (That was the case, for instance, with the 2010 Icelandic volcano that grounded many European flights.) But certain, much rarer eruptions—mount Pinatubo among them—send high volumes of sulfur dioxide all the way up to the stratosphere.

When that happens, the sulfuric acid droplets don’t fall back down: they remain in the stratosphere, and within weeks can circulate to surround the entire planet. The droplets act like tiny, light-scattering mirrors, preventing the full heat of the sun from reaching the planet’s surface. When these larger volcanic eruptions occur in the tropics, the aerosols stay suspended in the stratosphere for roughly one to two years, and the global cooling effects can last even longer.

That’s what happened after Pinatubo. The year after the eruption, global temperatures dropped by half a degree Celsius, and as Oliver Morton noted in *Nature*, “Had there not been a simultaneous El Niño, 1992 would have been 0.7 degrees cooler, worldwide, than 1991.” That figure is notable because we have warmed the earth by roughly the same amount thus far with our greenhouse gas emissions. Which is why some scientists have become convinced that if they could just find a way to do artificially what those large eruptions do naturally, then they could force down the temperature of the earth to counteract global warming.

The scientist leading the briefing starts with the pros of this approach. He observes that the technology to pull this off already exists, though it needs to be tested; it’s relatively cheap; and, if it worked, the cooling effects would kick in pretty quickly. The cons are that, depending on which sun-blocking method is used and how intensively, a permanent haze could appear over the earth, potentially making clear blue skies a thing of the past. The haze could prevent astronomers from seeing the stars and planets clearly and weaker sunlight could reduce the capacity of solar power generators to produce energy (irony alert).

But the biggest problem with the Pinatubo Option is that it does nothing to change the underlying cause of climate change, the buildup of heat-trapping gases, and instead treats only the most obvious symptom—warmer temperatures. That might help control something like glacial melt, but would do nothing about the increased atmospheric carbon that the ocean continues to soak up, causing rapid acidification that is already taking a heavy toll on hard-shelled marine life from coral to oysters, and may have cascading impacts through the entire aquatic food chain. On the other hand, we hear, there could be some advantages to allowing atmospheric carbon dioxide levels to increase while keeping temperatures artificially cool, since plants like carbon dioxide (so long as it’s not accompanied by scorching heat and drought) and they might well do better in what would essentially become an artificial global greenhouse.

Oh, and another con: once you start spraying material into the stratosphere to block the sun, it would basically be impossible to stop because if you did, all the warming that you had artificially suppressed by putting up that virtual sunshade would hit the planet's surface in one single tidal wave of heat, with no time for gradual adaptation. Think of the wicked witches of fairy tales, staying young by drinking ill-gotten magical elixirs, only to decay and wither all at once when the supply is abruptly cut off.

One solution to this “termination problem,” as our British guide politely describes it, would be to suck a whole lot of carbon out of the atmosphere while the shade was still up so that when the particles dissipate and the sun beams down full bore, there is less heat-trapping gas in the atmosphere to augment the warming. Which would be fine except for the fact that we don't actually know how to do that on anything close to the required scale.

Listening to all this, a grim picture emerges. Nothing on earth would be outside the reach of humanity's fallible machines, or even fully outside at all. We would have a roof, not a sky—a milky, geoengineered ceiling gazing down on a dying, acidified sea.

And it gets worse, because our guide has saved the biggest con for last. A slide comes up showing a map of the world, with regions color-coded based on projections showing how severely their rainfall will be affected by injecting sulfur dioxide into the stratosphere. Precipitation in Europe and North America appears minimally changed, but Africa's equatorial region is lit up red, an indication of serious drought. And though the borders are hazy, parts of Asia appear to be in trouble as well because the drop in land temperature caused by a weaker sun could also weaken the summer monsoons, the main source of rainfall in these regions.

Up to this point, the audience has been quietly listening, but this news seems to wake up the room. One participant interrupts the presentation: “Let's put aside the science and talk about the ethics,” he says, clearly upset. “I come from Africa and I don't like what I'm seeing with precipitation.” Indeed, one of the society's own reports on geoengineering acknowledges that Solar Radiation Management “could conceivably lead to climate changes that are worse than the ‘no SRM’ option.”

The African delegate shakes his head. “I don't know how many of us will sleep well tonight.”