2040 HANDBOOK:

2040 Handbook Notes: Foreword and Introduction:

Foreword:

- "The future can't be predicted, but it can be envisioned and brought lovingly into being." Donella Meadows (p.2)
- Foreword by Paul Hawken, author of Drawdown: The Most Comprehensive Plan ever proposed to reverse global warming.
- We have known about global warming since 1856. (p. 6)
- We face a problem so immense that we are staggered by its enormity and understandably feel powerless to prevent of address it. The question Damon Gameau asks is simple: Why look only at the problem?
- "Every problem is a solution in disguise!"
- 2040 is a vista into a remarkable future wherein imaginative and practical solutions to global warming are not penance but promise, not obligations but opportunities, not inhibition but innovation. (p. 6-7)
- Most viable way to address climate change is to address current human needs—human beings need, and respond to, solutions that improve their security, income, health and habitats. (p. 7)

Introduction:

- Language is the means by which a civilization passes its values to a new generation. Early explorers (Chinese Admiral Zheng) spoke of being "reverent guests" of the land; native people called it "Mother Earth" and Father Sky"—seeing themselves as a part of a web of life. We must change the current way too many people look at nature—just as a machine, separate from us and as something to be exploited.
- It is not THE environment; it is OUR environment. We are not separate from it and never have been. (p. 10)
- Renee Lertzman, an environmental psychologist, said many people are experiencing a latent form of climate anxiety or dread—cognitive dissonance created when we know we are damaging and destroying the planet but still entrenched in the very practices that are causing it. (p. 13)
- Gameau's change came after visiting the Amazon and seeing the jungle's reliance on a web of interconnectivity for survival. For example, Trees communicate and support each other through a network of fungi.
- 86% of Americans spend their time indoors! How do you stand up for nature when you don't feel comfortable in it?? Shut your phone off one day a week and get outside! (p.14)

DIAGNOSIS: (p. 17-20)

- earth has a bad fever since 1910—increase of 1 degree C.; oceans are not only warmer(over 90% of heat is absorbed there)
- oceans 30% more acidic—killing coral reefs that house ¼ of all marine life
- 40% more carbon in atmosphere (over 410 ppm)—leads to excess heat which leads to severe droughts and wildfires and more intense storms
- Greenland losing 300 billion tons of ice every year—sea level rising
- Deforestation that leads to losing biodiversity
- Topsoil health is diminishing rapidly—60 more years of planting
- 97% consensus amongst scientists that human activity is causing climate change
- We need 1.7 earths' worth of resources each year

"We'll lose more species of plants and animals between 2000 and 2065 than we've lost in the last 65 million years"—Paul Watson (p.23)

Neuroscience and mental health findings suggest that when info has a charge to it that brings up fear, guilt, anxiety or worry, even confusion, we cannot process it well—cognitively impaired because limbic system (emotions) take over prefrontal cortex (problem solving area) (p.24)

As a father he wanted to find an alternative to the doom and gloom. The aim of the book is to provide you with genuine hope and inspiration based on real solutions.

Opportunity to come together and change the course of history. Tell a new story about the solutions that can regenerate our planet. (p.24)

Postwar generation—belief in growth as the key to prosperity
Millennials—growth at all costs doesn't work on a planet with finite resources (p. 27)

Mentor—Paul Hawken—must dramatically lower greenhouse gas emissions and sequester or "drawdown" the excess carbon in the atmosphere by storing it in plants and soil

Project Drawdown—completely reframes the narrative around climate change. An opportunity for change with clear solutions and their cost-benefits. Ready-made action plan (p. 30-33)
Top Fifteen Drawdown (DD) solutions: (p. 30-33)
#15—Afforestation; 14—Tropical staple trees; 13—Peatlands; 12—Temperate forest; 11--Regenerative Agriculture; 10--Rooftop solar;9—Silvopasture—integrate trees with pasture of forage crops to raise livestock/close feedlots;8—Solar Farms;*7—Family Planning—6 & 7 combine to be the #1 solution to climate change;*6--Education for Girls
5—Tropical forests—preserve and restore
4—Plant-rich diet—eat less red meat and know where it comes from
3—Food waste
2—Wind Turbines

1—Refrigerant management—phase out hydrofluorocarbons

2040 Handbook Notes: Energy

- "The wealthiest 7% of the world's people are responsible for 50% of emissions." -Brian Tokar,Toward Climate Justice (p.37)
- 42% of all global emissions comes from the production of electricity. In 2018 the unsubsidized cost of wind and solar beat coal as the cheapest form of bulk energy everywhere except Japan—most importantly in China and India where coal is supreme.
- 82% of the costs of global warming (esp. sea level rising) are borne by poorer countries
- Micro grids in Bangladesh—over 5 million solar set-ups (solar cell and battery); individual cells are connected to share and buy/sell energy between homes—SOLshare boxes allow one to buy energy even if they don't have a set-up; money is staying in the local community not going to large companies elsewhere. Before this the people burned kerosene that has toxic fumes and large amounts of CO2 emitted. When it floods, they are not dependent on the government for energy—they are an empowered community!! (p. 38-41)
- By 2040 we will all buy energy from each other, according to Stanford lecturer Tony Seba. Energy will parallel what happened in the publishing industry and the web. Centralized generation is artificial, decentralized energy is how nature operates. Each country and community is different and will adapt to the best renewable source available to them—find out where your energy comes from and if you can purchase energy from renewable sources.** some states have laws against peer to peer energy sharing!! (p.44)
- The Transition: most coal workers care about climate change, but eliminating coal will significantly alter their lives.
- Governments around the world subsidize fossil fuels 5.3 trillion a year! Wonderful opportunity to redirect government funding to assist industries most impacted by the transition. We need honest communication, support and training for coal workers for their future jobs/skills. Solar already employing 5 times as many workers as coal industry
- France closed all coal plants; UK closing by 2025 and Canada by 2030; China recently shut a major Beijing plant and stopped work on 100 new coal plants!!
- What can you do to help? (p. 52-57)
- Solar panels if possible; choose a 100 percent renewable energy company; divest from fossil-fuel supporting companies and banks; renewable energy for schools and community; check political party stance; improve your energy efficiency at home: windows are responsible for 87% of a room's heat gain—use blinds; lower your thermostats in winter and raise them in summer; cool or heat only rooms you use; use fans; insulate; energy rated appliances—run only full dishwashers; wash clothes in cold water; avoid the dryer; LED lights; shut off all devices—standby power accounts for 10% of electricity; flow shower head

- The system: centralization is how our systems work. More power given to corporation since governments were not doing enough in the 70's. However, corporations did NOT trickle down the profits and they reduced environmental protections and workers' rights. CEO's salary in the US have risen by 1000 percent since 1978 while workers' salaries have risen by just 10.9% (p.59)
- WTO oversees trade treaties that allow corporations to sue governments for hindering their ability to make a profit. ISDS--investor-state dispute settlement
- B corporations—very promising—an emerging corporate and legal structure that binds the company to serve society, not just its shareholders; best example is Patagonia!!! (p.61)
- More decentralized approach could in theory be welcomed by those on the right for its ability to empower individual freedoms and those on the left for its ability to lift inequality through the redistribution of wealth.
- The "Doughnut"—Kate Raworth—new economic framework, designed specifically for the environmental and income inequality predicament. Too many people are stuck in the "hole" and not enough enjoying the dough! And, the doughnut itself is being threatened by ecological traumas—climate change. Where will constant growth take us??? Microgrids are a great example of doughnut-based solutions (p. 64-66)
- Global footprint already estimates that we are using 1.7 Earth's worth of resources every year.
- Need to look not only at the size of our economy, but the "shape" of our economy.
- Earth overshoot day—Luxembourg—Feb. 19; United Arab Emirates—Mar. 4; US—Mar 15; China—June 10; Brazil—July 19; Vietnam—Dec. 21
    - We breached the boundary of global resource use back in 2000! (p.67)
- "This is our 21 st century challenge. Economists and policy makers from centuries before us couldn't even see it. It belongs to us alone. We've got to come up with new ideas of how we're going to meet the needs of all within the means of the planet." Kate Raworth (p. 69)

2040 Handbook Notes: Transport

- Road vehicles are 20% of all emissions in U.S. (p. 73)
- The approaching convergence of electric vehicles, autonomous self driving vehicles (Lidar technologies) and the ride-share model of Uber, Lyft are disrupting the existing car industry and transportation as we know it.
- Electric vehicles: getting cheaper; only 20 moving parts as opposed to 2000 parts, will cost 90% less per mile to run (p. 75)
- Ride sharing—in 10 years in the U.S. → UBER has more rides than all taxies
- In 2015, we lost 1.2 million people globally on our roads. Autonomous vehicles should reduce number by 98%
- 96% of time cars are parked or unused—stranded asset (p. 78)

- "Two thirds of LA is parking and roads. That city is going to have to make a choice. Do they want a giant parking lot or do they want the beauty of a green city? More space for urban food growth, improved health from more walkways and bike paths and less air pollution, slowing global warming and increasing income on redesigning cities. (p. 81)
- Need to focus on jobs—just green ones!!
- Transportation is heading toward electrification—ships and planes
- Volvo going all electric cars; India selling only electric cars by 2030; Singapore is using driverless vehicles by 2022
- What can you do to help? We are all hypocrites—don't let guilt shut you down. (p. 86-88)
    - Stay informed
    - Use public transport and walk more
    - Ride Rideshare
    - Reduce air travel
    - Reduce travel footprint with carbon offsetting—Peconic Offsetting Fund; use hotels that are using renewable energy
- Blocks to Progress: vested interests: Libertarian platforms--Koch brothers (p. 90-91)
- The Climate denier's handbook: Seven ways to influence people (p. 92-93)
    1. Spend billions on propaganda
    2. Set up a bunch of organizations that look larger than they are
    3. Meet regularly to discuss tactics—science isn't settled
    4. Cast DOUBT ON EVIDENCE
    5. Attack scientists
    6. Fake experts
    7. Spread misinformation

2040 Handbook Notes: Drawdown & Sequester

- Carbon is the building block of life—carbon cycle; carbon in living organisms and fossil fuels is shrinking, carbon in atmosphere and ocean is rising (p. 98)
- 8 of the top 20 DD solutions are food related (p. 101)
- 5 of the top 20 are energy related WE Can't DO IT without farmers! Agricultural practices—create deforestation, increase methane (factory farming, use pesticides that destroy soil ecosystems, kill between 5-7 billion animals annually Iowa's soil—16 feet to 12 inches! (p. 103)
- Regenerative agriculture—Hawken—"We've all grown up with pictures of farms with rows and rows of food going into infinity—lots of chemicals and plows that emit carbon p. 109). We should pay farmers to put carbon back into their soils (UN believes we have 60 years of harvests left)One third of all crops grown are for feeding animals (p. 113)
- Methane is 21 times stronger than carbon dioxide—lower meat consumption from 110 grams/day to 50-60 grams (p. 113)

- Feedlots are not humane and create enormous methane, Silvopasture—solution number 9—raising livestock on pasture that has trees; “The bottom line or takeaway is that human beings, with animals and the land, can actually create more productive environments with more biodiversity, more pollinators, better soil, more water retention than we do today. So getting rid of animals is not a pathway to reversing global warming.
- FOOD WASTE: Solution number 3 to reversing global warming (p. 118)
- Worldwide—30% of all food is wasted US—40% of all food is wasted
- Landfill methane occurs when food is sent to landfill (if that were factored in, reducing food waste could be number 1 solution (landfills account for 34% of all methane emissions in USA (p.119)
- SEAWEED—SHOULD BE SEAQUEEN! (p. 121)
- 90% OF ALL WORLD’S FISH STOCKS ARE OVERFISHED
- 30% MORE ACIDIC oceans and waters are getting too warm. Marine permaculture—seaweed grown on frames just below the surface of the ocean can drop temperature and restore alkalinity; could feed the world and fertilize it too) and also restore thriving fish ecosystems. Great carbon sequester! NEITHER A PLANT NOR AN ANIMAL—PROTISTS SEQUESTER CARBON (p. 130-131)

1. Restore tropical forests—12-5% of earth’s landmass
2. Plant more tropical staple trees
3. Practice multi-strata agroforestry—coffee, cacao, bananas and macadamias all on small parcels of land at different heights
4. Plant more bamboo—furniture, floors, bikes…
5. Practice afforestation—replant parking lots; use more wood and less concrete
6. Protect peatlands
7. Compost your scraps

Reasons for HOPE: (p132-133)
1. Seaweed as cattle feed can reduce methane emissions
2. Regenerative organic food label has been established in USA—regenorganic.org
3. France (&Italy followed suit) passed law forbidding supermarkets from trashing unsold food
4. Food waste powering a town in UK
5. Food waste turned into leather
6. Amazon deforestation rates reduced by 80% between 2005-2015
7. Alternative meat options are on the rise
8. Regenerative farming practices are increasing around the world
9. Blockchain technology—tracking contents of food and pesticide use

What you can do to help (p. 134-145)

1. Eat for the planet—lower factory-farmed meat, more plant-based food and no sugar cane
2. Choose carbon-sequestering foods: eat more perennial crops that ARE LOCALLY GROWN p.137—asparagus, broccoli, yams…
3. Don't waste food: (landfill methane) buy only what you need, store fresh food to maximize life span, loosely wrap leafy veggies in clean tea-towels and store in crisper; store bread, nuts and seeds in freezer
4. Grow your own food
5. Encourage composting—
6. Embrace seaweed—seaweedbatco.com and Evoware's edible seaweed plastic

2040 Handbook Notes: Consumption and Getting to 2040/Educating Girls

- Endless growth narrative--GDP cannot keep going up and up as economists and politicians believe it should, as there are finite resources on our planet. (p.149)
- 5% of wealth created is making it to 60% of the world's population. 4.2 billion people live onless than $5/day (p.150)
- Growth is driven by the constant demand for the maximum rate of return and politically because governments want higher tax revenues, but no one wants to raise taxes. Addiction to growth—consumerism propaganda makes people believe that the best form of Therapy is retail therapy. (p.153)
- Climate scientists want the opposite—global material consumption must be reduced by 20% (with rich countries leading the way, if we are to avoid serious climate pain."Circular" economy where more of our materials and resources are shared and reused. Carsharing, power tool rentals are two examples.Why do we need more and more? Are we genuine victims of a clever and brilliantly orchestrated advertising paradigm or is it just in our nature? (p. 154)
- We all seek connection—filling our need to consume could be offset by caring for each other, our animals and planet. Organize "face-to-face" meetings to discuss climate change (hard during pandemic but not forever)**The only way we are going to reach a better future is by coming together; preferably in person, to hatch a plan." (p.158)—Carbon CREW PCAP!!!
- Economist Kate Raworth—use taxes to add value to our resources—tax companies for using new resources and sending stuff to the landfill—not payroll tax that discourages hiring
- Another economist, Richard Denniss—encourages people to become true materialists—who savor and appreciate things—Companies like Patagonia encourage repairing instead of replacing items; plastic containers from food waste or seaweed, wall tiles from plastic bottles, containers (p. 159)

- Environmental dashboards—display the energy and water use of buildings. Oberlin College teamed up with the local council to place environmental dashboards throughout the community: Posted in businesses: City electric use (kw), water treatment electricity use, CO2 emissions from electricity per person; and outdoor temp. Schools displayed their electricity use and difference, kids in different schools that do and do not use dashboards exhibit awareness and pride in reducing resource consumption. Resource education! (p. 163)
- EDUCATING GIRLS:
    - The Number ONE solution to reversing global warming is the empowerment of women and girls (by combining solutions number 6 and 7). 98 million girls do not finish an education—average reproduction rates for educated girls drops from 5+ to 2+! Also, need access to health care, reproductive care and decent work opportunities. Educating girls is the best form of non coercive family planning and girls get to be who they want to be! (p. 168)
    - Reasons for hope: 70% of people in US now believe protecting the environment is more important than economic growth;10 rivers in the world have been identified as the source of 90% of all ocean plastic—researching how to stop it; Adidas will only use recycled plastics by 2024; banning single use plastics in Costa Rica (2021) and India (2022) (P. 172-173)
    - What you can do to help: circular economy; no plastic bottles or cups; Sharewear.se; circularfashion.com; environmentally friendly fabrics—lyocell, hemp, linen, silk; reduce hot water in home (25% of all residential energy use); low flush toilets—water must be pumped sothis reduces energy use (p. 174-179)
    - Ecosia—in lieu of google searches; committed to negative energy usage!!
    - Help educate girls! Malala.org most famous (p. 179)
    - Calculate your global footprint: footprintcalculator.org
    - Whatsyour2040.com—check it out
    - Create an environmental dashboard at your school or workplace—environmentaldashboard.org/bringdashboards-to-your-community (p. 181)
    - Wise up on biodegradability especially of plastics—plastic breaks up but remains in soil or water
    - Compostable food facilities—needed everywhere (P. 183)

<u>"The True Cost": Documentary about the world-wide garment and fashion industry</u>
Notes

- The fashion industry is rife with greed, fear, power, and poverty. To study its world-wide scope is to discover just how connected we all are.This film hopes to prompt us to think

more seriously about the things we wear, and the environmental and social impacts of the fashion industry.

- Clothes function as our "second skin" and are aspects of our personal communication. They are vital and important. There has been a shift in the control of fashion to big business interests. As late as the 1960's, 95% of our clothing was made in America, and only 3% was outsourced.
- As prices of clothing go down, related social and environmental costs go up.
- A new phenomenon is the rise of "Fast Fashion", where there are 52 "fashion" seasons a year, instead of one for each of the four seasons.
- To prioritize fashion and value, the making of clothing is out-sourced to low-cost economies, where daily wages hover at around $2 a day. Cutting labor costs results in a disregard for worker safety. In Bangladesh, the Rana Plaza collapse was an infamous case where over 1200 garment workers lost their lives because they were forced to work in a factory building that had existing cracks that were ignored.
- Garment workers are usually from the lowest-paid, most vulnerable populations. The industry ignores peoples' lives, safety, and essential human rights. It is enormously rapacious.
- Sweat-shops are defended as performing a social service in giving people jobs. People choose to work under degrading conditions for little pay because, in their particular environment, their alternatives are worse.
- World Fair Trade Day has been established to correct these injustices. There are 40 million garment workers in the world. 85% of them are women, earning $3 a day on average. One in six workers work in the fashion industry.
- There are 3.6 million acres of cotton grown in South Texas, most of which are sprayed with the weed-killer "Round-Up" which the cotton plant has been "re-engineered" to be resistant to.
- The land is seen as a factory where nature, which naturally heals itself in small pockets, is subsumed with chemical weed-killers and fertilizer, produced by Monsanto, as well as scientifically modified seeds which are sold by Monsanto. This results in a 17,000 % rise in seed costs. The more the special seeds are used, the more they need to be used. Nitrogen fertilizers were developed from the manufacture of war explosives. In the Punjab region of India, the toxicity of all these chemicals has resulted in birth defects, cancer, mental illness, and other physical and mental handicaps. Monsanto also makes the chemicals that go into the medicines that treat these medical conditions.
- In the last 16 years, there have been 250,000 farmer suicides in India.
- Meanwhile, although studies show that rampant materialism brings on cases of depression, we are told by advertising, which is a species of propaganda, that our needs will be satisfied by having a particular item. The way to solve the problems of our lives is through consumption.

- Cheaper clothes are marketed as a consolation for our decreased ability to afford what we need, like housing. 80 billion pieces of clothing are sold every year, an unprecedented increase in consumption.
- Consumptionism: A radical new way to understand the two types of products we buy. In earlier times, there were those items that we used, and those items that we used up. We have now become convinced that all the items that we use are also items that we use up, and so all must be replaced. This results in all fashion being thought of as a disposable product, choking our land-fills. The average American throws away 82 pounds of textiles per year, resulting in 11 million tons of textile waste per year in the U.S. alone.
- The prevalence of careless production and endless consumption means that we need consumers/customers who recognize the impacts of their consumption. To resist the feeling that true happiness depends on bringing new stuff into our lives. We as customers are in charge: if we don't like what is happening, we don't have to buy into it. We can avoid trading practices that undermine what we believe in.
- Up till now, we haven't factored in what the total cost is of runaway consumerism. We need to step back and think about these issues. The fashion industry is the 2nd most polluting industry on earth, 2nd only to the oil industry. It uses a staggering amount of natural resources and creates a huge environmental impact, both of which are not measured. Since the 1950's there has been an exponential growth of the use of natural resources.
- The first economy on which our lives depend is nature's economy—its huge and it is not counted. The GNP only measures what is traded and has become a commodity. Water, land, and chemicals are inputs that have costs, and they give outputs—both good and bad—that have costs as well.
- Many garment workers are forced to travel to urban areas, leaving their families behind in rural areas, so that they see their children only once or twice a year. "The garments are produced by our blood." People like Livia Firth are studying ways to make the mantra of "faster and cheaper" more ethical. We, in the West, are made to think that we are richer because we can afford to buy cheap, fast fashion.
- How can a fair, basic, living wage be defined? The workers should say.
- A proper wage is one where the worker can make a decent living with dignity. Governments in poorer countries are desperate for the business that multi-national countries bring in. This results in a perfectly engineered system to exploit the workers who are trapped inside it. But the exploitation of human resources should not be allowed.
- What's needed are social responsibility and economic justice, not the pushing down of prices just to satisfy the impulse to produce capital, which leads to the impoverishment of 100's of millions of people around the world.
- To avoid legislated laws and standards, companies put in voluntary codes of conduct for the workers, otherwise, they say, laws would restrict free trade. Without cheap female

labor, the fast-fashion industry could not generate the profits that it does. Workers should be rewarded, not exploited by having to operate in a system that only measures profit.

- The "profit-at-all-cost" mandate of major brands and seed and chemical companies is beginning to stand in direct opposition to the values we all share. Prof. Richard Wolf: The U.S. economic system is a sacred cow and can't be criticized. But if you don't criticize something, in 50 years it rots and goes to seed.
- The drive to make a profit, and to make more of a profit than your competitors, drives wages down and down. There are no collective rights, no trade union rights, low minimum wages, no maternity benefits, no pensions in the countries that now produce the clothes.
- The market believes that capital cannot have limits, but the natural world has limits on how much can be sustained. We've overstepped a lot of these limits, which produces stress on the natural world. Let's stop trying to "improve" the existing system. If you don't confront the system, you're just not serious. Consumer capitalism needs consumption at very high levels to sustain itself. This means that our economy is based on materialism—it's the fuel that it needs, and this comes at a very high price.
- "We are spending money we don't have, to buy things we don't need, to give to people we don't like." Stephen Colbert.
- Since agricultural chemicals (like Roundup) are increasingly linked to disease, at this point in time it has not become important to consider organic solutions, it has become imperative. The goal of long-term sustainability means that we have to change.
- We are at a turning point for a new way of doing capitalism. A revolution of values: Land is not a commodity, but the very basis of our life. Mother Earth. Consumers are asking simple, ethical questions, like "Where do my clothes come from? And who and what is involved in their making?"
- We can't just roll over and say, "Do what you like."
- We have been involved in a system that makes us "feel" rich, while leaving our world so desperately poor.
- We can no longer turn a blind eye to the people behind our clothes.
- Everything we wear was touched by human hands.

By Andrew Morgan.

2nd largest polluter only to fossil fuels
Purchase 400% more than 20 years ago
Only 10% of thrift shop clothing is sold