



Book The Necessary Revolution

How Individuals and Organisations Are Working Together to Create a Sustainable World

Peter Senge, Bryan Smith, Nina Kruschwitz, Joe Laur and Sara Schley
Nicholas Brealey Publishing, 2008
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Recommendation

The Earth faces grave sustainability problems, including global warming. In this new book, experts Peter Senge, Bryan Smith, Nina Kruschwitz, Joe Laur and Sara Schley discuss how people, organizations and nations are coming together to bring about positive change. The authors demonstrate that sustainability issues are part of an interconnected global dilemma that affects everyone. They urge united action to solve major ecological problems before solutions become impossible. They even note that businesses can save and earn money through environmentally sound products and policies. *BooksInShort* recommends this enlightened book’s informed focus on exactly how to improve the sustainability of life on the planet.

Take-Aways

- The world is in peril because of severe environmental degradation.
- The sustainability crisis represents the interconnected symptoms of an enormous problem: a global system that is dangerously out of whack.
- The Industrial Age, which brought immeasurable benefits, is now creating immeasurably dire problems.
- Humankind cannot continue to ignore these concerns.
- Global warming is today’s major environmental issue.
- The world is quickly reaching a point of no return regarding warming. If people don’t act quickly, it may be impossible to halt.
- Organizations and nations are swiftly working to bring about positive change.
- For example, Australia may ban its entire citrus industry to conserve water. Sweden hopes to eliminate any dependence on fossil fuels by 2020.
- Quick fixes and short-term solutions will only exacerbate serious sustainability problems worldwide.
- Socially and environmentally responsible practices make good business sense.

Summary

Looming Disaster

The world is in horrible, dangerous shape. The existence of life depends on “clean water, breathable air, fertile soil, pollination and a stable climate.” These essentials are under severe attack. Wetlands, grasslands and forests are vanishing. Half of the world’s major rivers are polluted or depleted. Each year, environmental degradation forces 15 million poor people to leave their villages and migrate to cities. As a result, half a billion people live in horrific slums or squatter camps. Such people live bereft of social harmony, a situation sure to result in upheaval.

“The human community has caused a lot of harm to the planet, and things need to change. Doing nothing is no longer an option.”

But the worst of the story is that the world is getting notably hotter. Global climate change, caused by the atmospheric accumulation of carbon dioxide (CO₂) and other greenhouse gases, is a hugely disturbing fact, not a theory. A dangerous side effect of the Industrial Age, global climate change is the most serious looming planetary catastrophe, an insidious nightmare. As fossil fuels deposit excess carbon dioxide in the atmosphere, the gas causes widespread, continuous heating and damage. For instance, as the oceans absorb CO₂, the water's acidity increases, destroying coral reefs critical to marine life. Rising levels of greenhouse gases and CO₂ in the atmosphere eventually will “trigger ‘runaway’ effects,” causing more warming. It will take 30 to 50 years before scientists are even able to register the overall impact of current atmospheric CO₂ levels.

“The time for shifting responsibility to others, or covering up deep problems with simplistic solutions that only make problems ‘go away’ for a short time, is running out.”

Once the world reaches that tipping point, global warming feedback will begin to occur. At that stage, humans may find it impossible to shape the future in any significant way. Scientists estimate that, to make a difference, humanity must enforce a 60% to 80% emissions reduction within the next two decades – that's part of the “80/20 Challenge.” If it doesn't happen, people may soon face global catastrophe. Not scared enough? Consider these grim facts and statistics:

- The “Asian Brown Cloud,” an airborne sheet of industrial particles, “has been blamed” for half a million deaths of respiratory illness each year just in India.
- The developing world dumps 70% of its industrial waste directly into “rivers, lakes, oceans or soil.”
- The atmosphere can safely absorb about three billions tons of CO₂ annually, but people emit about eight billion tons yearly by burning fossil fuels.
- In the U.K., CO₂ emissions rose from almost zero to a million tons annually by the end of the 19th century. By the end of the 20th century, U.S. emissions totaled nearly two billion tons of CO₂ annually – approximately seven tons per person.
- About 90% of used commercial electronics, including computers, PDAs, TVs and audio recorders, end up in landfills.
- People retire 20 to 30 million vehicles a year. In developing nations, most of these trashed cars and trucks go into landfills.
- The U.S. buries more than 90% of its plastic wastes in landfills each year.
- The world is running out of nonrenewable resources, such as oil, copper and zinc. Coal is in strong supply, but it is a major source of air pollution (the U.S.'s biggest source).
- One out of five people lacks access to clean drinking water.
- Groundwater, lakes and rivers are becoming increasingly polluted.
- During the past 50 years, agricultural overproduction has degraded more than 2.5 billion acres of topsoil, an area larger than China and India combined.
- During this time, the globe lost more than 30% of its forests, drastically reducing how much CO₂ it can absorb.
- Overfishing may soon kill off numerous fish species, ruining many coastal economies that depend on fishing for commerce and food.

Taking Action

People around the world are fighting back. In Australia, the government and citizens prioritize water preservation. Billboards warn people to conserve water. The country is considering totally eliminating its citrus crop. Citrus production represents 3% of the nation's GDP, but it requires immense amounts of water. In the 2007 election, the candidate who most emphasized climate change won. The Australian business community, dominated for decades by the mineral and mining industries, now strongly advocates renewable energy solutions.

“The changes needed to avert extreme and possibly uncontrollable climate change will be greater and must happen far more quickly than we imagined even a few years ago.”

Swedes are working to eliminate their nation's dependence on imported oil. Former Prime Minister Göran Persson established a national commission to develop a strategy to eliminate all fossil fuel use in the country by 2020. This follows the work of concerned private citizens who are trying to make northern Sweden the “world's first ‘bioregion’.” The plan is that people in the region eventually will meet all their energy needs with “sustainably produced biofuels.”

“The costs to the world of climate change in the next decade could equal or exceed the costs of World War II.”

DuPont, a venerable U.S. company, is shifting “from petroleum-based to bio-based” feedstock products. It is working to reduce waste, and to develop new products that are not linked to gas and conventional oil. Another U.S. firm, Nike, has cut its carbon footprint by more than three-quarters. It is aiming to “achieve zero waste, zero toxicity and 100% recyclability” by 2020.

Short-Term Solutions Are Not the Answer

Around the world, people are beginning to see that sustainability problems interconnect. They are part of the seriously unbalanced “global system.” Short-term solutions are counterproductive, even self-defeating. They will not fix the planet's “deeper imbalances” and, indeed, may exacerbate them. For example, the U.S.'s attempt in recent years to use more corn-based ethanol is forcing a major increase in world food prices. Plus, as large agricultural companies cut down forests and eliminate grasslands to develop fields for more corn, greenhouse gases may even increase. These are huge prices to pay, especially when corn-based ethanol's emissions almost equal those from standard fuels.

“Corporations are coming under heavy scrutiny from all sides regarding their environmental and social behavior...Today, there is truly nowhere to hide.”

Society now faces truly monumental challenges in three primary areas that are tightly linked: “energy and transportation, food and water, [and] material waste and toxicity.” So what will a “sustainable future” require? Three guiding principles point the way:

1. **Society must consider the generations to come** – Continuing on the current path seriously discounts the future, undermining the lives of today's children, grandchildren and all those who will come later. Humanity needs a sustainable strategy that works without harmful environmental impact or unattainably high costs.

2. **Institutions must work together** – The modern world is completely interconnected. It represents a complex network of governments, businesses and other organizations that affects how people live, and the energy and products they consume. This vast network shares similar, connected sustainability problems and must develop group solutions. Unfortunately, many institutions tend to adopt short-term approaches to their individual operations and goals. As a result, a major gap exists between current piecemeal efforts and the need for all institutions to act in a concerted fashion to develop sustainability.
3. **People must generate new ideas** – Albert Einstein once said, “We can’t solve problems by using the same kind of thinking we used when we created them.” People, governments and institutions must develop novel solutions.

“Producing environmentally friendly goods and services has become as much a brand attribute as quality and price.”

Change is possible, but not easy. People must “see the larger systems” of which all organizations and entities are a part. Then they must develop policies and approaches to ensure the health of these larger systems. Quick-fix solutions and short-term answers will not suffice. People must “collaborate across boundaries” in today’s fully linked world. All nations and organizations face sustainability issues. The cost of failing to work together could be exceedingly dire. Finally, people must look beyond immediate problems – and the reactive mindset that accompanies them – to envision a sustainable future for everyone.

The LEED Certification System

Many people mistakenly believe that vehicles emit the most greenhouse gases. This is incorrect. Residential, industrial and commercial buildings consume far more energy and discharge more greenhouse gases. Indeed, “the built environment” accounts for double the emissions that cars produce worldwide. Thus, if the industrialized world could make buildings more energy efficient, it could reduce greenhouse gases substantially. A few years ago, concerned individuals in the U.S. building community united to address this goal. They established the U.S. Green Building Council (USGBC) and the Leadership in Energy and Environmental Design (LEED) certification system. Today, the USGBC and similar Green Building Councils in other nations work to promote green buildings and environmentally aware construction practices around the planet.

“Businesses need to wake up to the simple fact that the economy is the wholly owned subsidiary of nature, not the other way around.” [– Interface CEO Ray Anderson, quoting U.S. Senator Gaylord Nelson]

From the outset, getting people from every sector of the fragmented building industry to agree to a common set of standards for green buildings was not easy. Establishing the LEED rating system’s guidelines took from 1993 to 2000. By 2007, the LEED program listed more than 7,500 registered buildings. Currently, registration is voluntary, but it is becoming an industry norm. LEED standards address sustainable building sites, water efficiency, materials, energy conservation, pollution control and “indoor environmental quality.” Although LEED requirements are increasingly demanding, the cost of a LEED-certified building averages only 1.8% more than the price of a conventional building. Owners can offset the additional expense with savings on energy and operating costs. USGBC standards cover “retrofitting old buildings, rethinking home construction, commercial building operations” and much more.

Going Green Is Good Business

A survey of 17,000 people in 15 global markets indicated that people place a premium on green brands. More than 50% of the respondents like to buy products from companies that protect the environment. This parallels an increase in “ethical consumerism” in Britain. In the U.S., 45% of the population can be classified as “mainstream activists,” that is, individuals who factor companies’ environmental and social policies into their purchase decisions. Businesses have many good reasons to “embrace leadership in the regenerative economy,” including those that affect the bottom line. These include:

- **Cut costs** – Companies that reduce energy use and waste can realize massive savings, just ask IBM, Alcoa and Wal-Mart.
- **Earn money** – Companies can spend as much as \$100 per ton to get rid of their waste in landfills. General Mills got tired of paying such heavy fees. Now it recycles 86% of its solid waste, earning “more from that than it spent on disposal.”
- **Compete and stand out** – Soon, cooling off servers and large computers will cost more than the actual hardware. IBM’s Project Big Green, established to reduce its computers’ energy consumption, may change that. Through this initiative, IBM hopes to save its customers a substantial amount of money and, thus, increase its market share. Enterprise Rent-a-Car is adding thousands of flexifuel cars and hybrids to its fleet. About 50% of its cars, more than 334,000 vehicles, get better than 28 miles to the gallon.
- **“Shape the future of your industry”** – BMW, Sony Europe, BP and Shell have used “enlightened self-interest” to shape future regulations positively for their industries.
- **“Become a preferred supplier”** – Many large food retailers, such as Costco, now insist that their suppliers meet rigorous social and environmental standards.
- **“Change your image and brand”** – Promoting social and environmental standards is excellent public relations. Wal-Mart is “going green” and, thus, counteracting negative publicity about its treatment of employees and its effect on small businesses.

Make a Contribution

Are you ready to change? Think about the particular sustainability issues that matter most to you. Prioritize them, consider how to act on them and discuss them within your company. Find like-minded colleagues who will support your efforts. Get them to add their contacts to your group. Organize a team and build management support. This is your initial crew for seeking new options and creating “a proposed plan for change.” Prepare a proposal including a plan of action. Secure widespread executive support for your initiative. Do not expect things to be easy, but don’t quit. Your sustainability project may be the most important piece of work you ever undertake.

About the Authors

Peter Senge lectures at MIT. **Bryan Smith** is a faculty member at York University’s Sustainable Enterprise Academy. **Nina Kruschwitz** is manager of the Fifth Discipline Fieldbook Project. Senge, **Joe Laur** and **Sara Schley** co-founded the SoL Sustainability Consortium, which fosters economic, ecological and social sustainability.

