

Key Thinkers on Creating a Life-Sustaining Civilization

by Marianna Grossman Keller

Minerva Consulting

marianna@kellers.org

Where does the term Sustainability originate? The Earth is undergoing drastic changes brought about by human activity. What are the root causes of these changes and how can we transform our economy, culture and every-day living practices in order to sustain life on the planet for the long term? Around the world, people are coming together to address these issues. This paper summarizes the analysis, insights and recommendations of some of the leading proponents of sustainability. Harm to the environment is generated through industrial practices, rampant consumerism and social injustice (extreme poverty). So, any solutions must address economics, social equity and the environment. The fourth dimension of spirit/love is a necessary ingredient to help people generate solutions that honor the wisdom of life itself and help people live together peacefully in a finite world.

Limits to Growth and Sustainable Future, Donella Meadows, Dennis Meadows, et al.

Beyond the Limits: Confronting Global Collapse, Envisioning a Sustainable Future by Donella H. Meadows, Dennis L. Meadows and Jørgen Randers, Chelsea Green Publishing, Vt. 1992

Websites: <http://sustainer.org/> and <http://www.unh.edu/ipssr/>

- Earth is a system characterized by exponential growth with finite resources and long delays in information flows.
- “Human use of many essential resources and generation of many kinds of pollutants have already surpassed rates that are physically sustainable. Without significant reductions in material and energy flows, there will be in the coming decades an uncontrolled decline in per capita food output, energy use and industrial production.”
- “The decline is not inevitable. To avoid it two changes are necessary. The first is a comprehensive revision of policies and practices that perpetuate growth in material consumption and in population. The second is a rapid, drastic increase in the efficiency with which materials and energy are used.”
- “A sustainable society is still technically and economically possible. It could be much more desirable than a society that tries to solve its problems by constant expansion. The transition to a sustainable society requires a careful balance between long-term and short-term goals and an emphasis on sufficiency, equity, and quality of life rather than on quantity of output. It requires more than productivity and more than technology; it also requires maturity, compassion and wisdom.”
- Current patterns of economic and population growth, resource depletion and pollution are leading to overshoot and collapse of natural systems.

- Five elements of the Sustainability Revolution:
 1. Visioning (Vision guides and motivates action. When widely shared, vision brings into being new systems).
 2. Networking (Informal, non-hierarchical groups of people sharing information foster learning and coordinated action).
 3. Truth-telling (A system cannot function if its information stream is distorted. Everyone must speak the truth and counter untruths. For example: material human needs should be met materially and all non-material human needs met non-materially. Not: all growth is good or bad but: What is needed is not growth, but development, which should be equitable, affordable and sustainable. (Equity, Economy, Environment).
 4. Learning and action. (Try out new ways of operating. Follow W. Edwards Deming's advice to Plan Do Check Study or analyze what is needed and plan a solution, implement it, check to see what works and what doesn't and revise for continuous improvement.)
 5. Loving (a global transformation that permits the best of human nature to be expressed and nurtured. Include everyone on the planet.)

Believing Cassandra, Alan AtKisson

Believing Cassandra: An Optimist Looks at a Pessimist's World, by Alan AtKisson, Chelsea Green Publishing, Vt. 1999 Website: www.atkisson.com

- Indicators needed to monitor and predict complex system performance and to assess impact of policy changes.
- Understanding the process of innovation development and diffusion is a key to accelerating the transition to sustainability.
- Communities and businesses can achieve sustainable practices and indicators can help.
- The process of recognizing the possibility of global calamity is emotionally difficult.
- Joy, humor, music and art are needed in the journey towards building a sustainable world.

The Next Industrial Revolution, Paul Hawken, Amory Lovins and L. Hunter Lovins

Natural Capitalism: Creating the Next Industrial Revolution by Paul Hawken, Amory Lovins, L. Hunter Lovins, Little, Brown & Co., Boston, MA, 1999 Website: www.rmi.org

1. Radical resource productivity. Use one-tenth or one hundredth resources by design (e.g., switching from copper to fiber optics to wireless communications). 90% of materials currently extracted from the earth through mining, logging and agriculture are wasted during extraction, transport, manufacture or end use. Lean production techniques and elimination of *muda* (waste) can help change this.
2. Biomimicry. Learning how to solve technical and social problems by studying ways that nature has overcome similar challenges.
3. Service and flow economy. Shift to meeting just the customer's need. Selling services that deliver the value required, not selling products. Cradle to cradle responsibility by the

manufacturer. (E.g. selling washing services, not washers, or floor covering services, not carpet.)

4. Investing in Natural Capital (making sure to enhance not destroy the capacity of natural systems to provide clean air and water, fertile soil, temperate climate patterns, waste disposal, etc.)

Biomimicry, Janine Benyus

Biomimicry: Innovations Inspired by Nature by Janine Benyus, William Morrow, New York, NY 1997 Website: <http://www.biomimicry.org/>

- Organisms exquisitely adapted to their homes and to other organisms while humans are not.
- Nature has already solved the problems that we are trying to solve (struggle for food, water, space and shelter in a finite habitat). Biomimicry occurs where ecology meets agriculture, medicine, materials science, energy, computing and commerce.
- Operating Principles:
 - Nature runs on sunlight.
 - Nature uses only the energy it needs.
 - Nature fits form to function.
 - Nature recycles everything.
 - Nature rewards cooperation.
 - Nature banks on diversity.
 - Nature demands local expertise.
 - Nature curbs excesses from within.
 - Nature taps the power of limits.
- 1. Change of heart needed, humbling us to be attentive to nature's lessons
- 2. Must stop consuming nature's capital.

Organisms in a Mature Ecosystem

1. Use Waste as a Resource.
2. Diversify and Cooperate to Fully Use the Habitat
3. Gather and Use Energy Efficiently.
4. Optimize Rather Than Maximize.
5. Use Materials Sparingly.
6. Don't Foul Their Nests.
7. Don't Draw Down Resources.
8. Remain in Balance with the Biosphere.
9. Run on Information.
10. Shop locally.

Ecological Economics, Lester Brown

Eco-Economy: Building an Economy for the Earth by Lester R. Brown, W.W. Norton & Co., NY 2001 Website: <http://www.earth-policy.org/>

- Reallocate costs to show true ecological costs of economic activity to correctly value nature's services. Tax system needs to be restructured so that the market tells the ecological truth and accounts for the indirect costs associated with a particular product or service.

- Renewable energy will replace climate-disrupting fossil fuels. Shift from fossil fuel to solar/hydrogen era.
- Recycling economy will replace the throwaway economy.
- Building a new economy represents the greatest investment opportunity in history. The companies that have a vision of the new economy and incorporate it into their planning will be the winners. Those that cling to the past risk becoming part of it.

The Great Turning, Joanna Macy

From “The Great Turning: 9/11 and Heart of the World” by Joanna Macy, *EarthLight, the Magazine of Spiritual Ecology*, Fall 2001, Issue 43, Vol. 12, No., 1 pages 16-17

www.earthlight.org

“Promising to ennoble every aspect of our lives, the Great Turning starts with the acknowledgment of two facts. First an economic system dependent on ever-increasing profits – on how fast the Earth can be turned into consumer goods, weapons and waste – is suicidal. And, secondly, our needs cannot be met without destroying our world. We have the technology and resources to produce enough food and energy, ensure clean water and air, and leave a livable world for those that come after.”

The Great Turning includes “three simultaneous, mutually reinforcing dimensions:

- “Resistance and protection slow the damage being inflicted on Earth and its beings. Ranging from legal and political work to blockades, boycotts, [and conservation], work of this kind buys time. It saves lives, and for future generations, it saves ecosystems and some of the gene pool, too.
- “Creation of alternative structures. From wind farms to permaculture to local currencies, ingenious new forms of collaboration are sprouting up, like green shoots through the rubble. Ancestral wisdom is retrieved in healing, birthing, farming, learning.
- “Shift in consciousness. New perspectives from science, together with recovery of ancient spiritual teachings and practices reveal our mutual belonging in the sacred living body of Earth. They grace us with courage and endurance for the work that must be done.”

The Next Industrial Revolution, William McDonough and Michael Baumgart

Cradle to Cradle: Remaking the Way We Make Things, by William McDonough and Michael Baumgart, March 2002 Websites: www.mcdonough.com and www.mbdc.com

- Design is signal of intent. The conditions we currently have are a result of having no plan.
- Revolution in how we think is needed.
 - Love all children of all species for all time.
 - Become native of this place.
 - Growth is good, if what grows is good (health, prosperity, love, well-being).
- Follow Nature’s Operating System.
 - Waste Equals Food (Eliminate the concept of waste).

- Respect diversity.
- Use Current Solar Income.
- Distinguish between Biological (Products of Consumption) and Technical Cycles (Products of Service).
 - Keep elements of each cycle separate.
 - Continually reuse elements in each cycle.

Hannover Principles

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| 1. Insist on rights of humanity and nature to coexist. | 5. Create safe objects of long-term value. |
| 2. Recognize interdependence. | 6. Eliminate the concept of waste. |
| 3. Respect relationships between spirit and matter. | 7. Rely on natural energy flows. |
| 4. Accept responsibility for the consequences of design. | 8. Understand the limitations of design. |
| | 9. Seek constant improvement by the sharing of knowledge |

The Natural Step, Karl-Henrik Robèrt

The Natural Step Story: Seeding a Quiet Revolution by Karl-Henrik Robèrt, New Society Publishers, Canada 2002. *The Natural Step: A Framework for Achieving Sustainability in Our Organizations* by Karl-Henrik Robèrt. Pegasus Communications,. Cambrige, MA, 1997.
<http://www.naturalstep.org/>

Karl-Henrik Robèrt, former head of cancer research at the Karolinska Institute in Sweden, founded the Natural Step – an international federation of associations working toward developing a sustainable society – out of his concern for stopping the root causes of cancer in children. “If you want a large number of people to work together in a coordinated way, they must share an image of the system of which they are a part.” In this case, the “system” is the entirety of the Earth’s ecological structure, with all its attendant natural processes – and the goal is to develop a society in which natural resources are not consumed faster than they can be replaced.

Four Conditions for a Sustainable Society:

1. Substances from the Earth’s crust must not systematically increase in the biosphere.
2. Substances produced by society must not systematically increase in the biosphere.
3. Nature’s functions and diversity must not be systematically impoverished by physical displacement, over-harvesting, or other forms of ecosystem manipulation.
4. Resources must be used fairly and efficiently in order to meet basic human needs globally.

The challenge is helping people work together to realign ourselves with the natural cycles that we used to respect as a species. Robèrt believes that systems thinking, shared mental models and a planning technique called “back-casting” are all tools to help bring about this societal transformation.

The systems conditions together with back-casting are powerful strategic tools for helping companies and organizations shift to becoming restorative.