Creating Sustainable Business

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“the economy is the wholly owned subsidiary of nature, not the other way around”

Ray Anderson
CEO of Interface
Interface

- **1992** – Interface, a petroleum based carpet manufacturer, announces its sustainability goal – “to take nothing from the earth that couldn’t be replaced by the earth.”

- **16 years later**
  - GHG cut by 82%
  - Fossil fuel consumption by 60%
  - Waste by 66%
  - Water use by 75%

- **And the company?**
  - Sales increased 66%
  - Doubled earning and raising profit margins
  - Invented and patented new machines, materials and manufacturing processes
Innovation

- Global Warming
  - Airtricity – Ireland – wind power
- Oil Dependency
  - Westport Innovations – US – high pressure direct injection (liquid nat gas)
- Hunger/Nutrition
  - Nutriset – French – Plumpynut – 500 cal in 3 oz
- Dirty Air
  - Sun Ovens – US – solar ovens
- Dirty Water
  - WaterHealth International – mini H₂O treatment plants
- Overfishing
  - Kona Blue – US – deepwater aquaculture
- Epidemics
  - Vovixia – remote epidemic tracking system

What’s wrong with this picture?
Earth Institute – Columbia University

- Physical scientists, ecologists, engineers, economists, political scientists, management experts, public health specialists, and medical doctors
- Common search for solutions to global challenges of sustainable development
- Jeff Sachs – Common Wealth – “the defining Challenge of the 21st Century will be to face the reality that humanity shares a common fate on a crowded planet . . . requiring new forms of global cooperation.

Solving the paradox of a unified global economy and a divided global society
Facts

- Wealth of the 200 richest people on earth > the poorest 2.5 billion
- Half the world lives on $2/day, average American lives on $130
- It takes 400 gallons of water to produce a liter of Coca-Cola
- Next two decades water use by humans ↑40%, agriculture ↑17%
- In 20 years, 50% of the global population will live in severely water stressed areas
- 79 million additional people are at the table to be fed each year
- 1° Celcius = 10% ↓ in crop yield
- International Center for Technology Assessment estimates the indirect costs at $12 per gallon, yielding a cost at the pump of $15 per gallon ($3 covers cost of finding, capture, refining, and distribution)
- Absent the environmental subsidy, cost/kWh = 3-4X today’s price
How Much CO$_2$ Is Too Much?

- Present level 380 ppm
- Estimated 425 ppm in next ten to twenty years
- Business as usual would lead to a level of 550 ppm by 2050, twice as high as the historic maximum over the past 650,000 years
- Argument over how high is too high is academic, since simply stabilizing at current levels requires extraordinary and dramatic reductions in business as usual worldwide
- CO$_2$ isn’t an isolated problem - one of several interdependent problems

$\uparrow$CO$_2$ $\Rightarrow$ $\uparrow$Waste $\Rightarrow$ $\downarrow$ Resources $\Rightarrow$ $\downarrow$ Ecosystems $\Rightarrow$ $\uparrow$ Societal Unrest $\Rightarrow$ $\uparrow$ Poverty

1 Glass of OJ = 2 glasses of oil

Global distribution = 10% annual CO$_2$
Burning Platforms

- Typically business as usual is highly resistant to change unless there is a burning platform – metaphorically, one does not jump from the platform into the tank of sharks unless it is burning

- Burning platforms for the movement to a sustainable economy
  - Failed states (population, poverty, bi-modalism, food, basic services)
  - Food Security (population, climate, waste, overfishing, ecology)
  - Water Supply (climate, overpumping, agriculture)
  - Climate (warming, water, agricultural productivity, health)

- The Case of Australia
  - Water at 30% of 1997 levels
  - Program for rainwater harvesting, change citizen behavior (30 v 250), 4 min shower (v 7min), desalination
  - Water=Security, other sustainable efforts
Core Competencies for Achieving Sustainable Solutions

Chunking Up/Seeing Patterns

SEEING SYSTEMS

COLLABORATING ACROSS BOUNDARIES

CREATING DESIRED FUTURES

Creating vs Problem Solving

Core Competencies
Sustainable Revolution
Presuppositions for Sustainability

Industrial Revolution

- Energy is infinite and cheap
- There will always be enough room to dispose of all our waste
- Humans can’t possibly alter the global environment
- Humans are the primary species on earth - others unimportant or irrelevant
- Basic resources - water, topsoil and air - are unlimited (free goods)
- Productivity and standardization are the keys to economic progress
- Economic growth and rising GDP are the best way to reduce social inequities

Sustainable Revolution

- Surf the flux - live within our energy income by relying solely on renewables
- Zero to landfill - everything made for our use can be recycled, remanufactured, or composted
- We are borrowing the future from our children; we have to pay it back
- We are only one of natures wonders
- Value the earth’s services; they come free of charge to those who treasure them
- Embrace variety; build community
- Global interdependence - mutual security and well-being depend on respect and concern for all

What would a way of thinking, a way of living, and ultimately an economic system look like that worked on the principles of the larger natural world and how do we create it?
What is a Sustainable Business?

- A sustainable business is one whose people and processes respect and support standards for achieving and maintaining a sustainable balance between current resource use and the quantity and quality of resources available to future generations.

- A process is sustainable when it can be carried out over and over again without negative environmental effects or impossibly high costs to anyone involved.
Creating a Sustainable Business

- To the extent possible, a sustainable business will support directly and indirectly
  - The development of a sustainable system of energy
  - Land and resource use that averts the destruction of ecosystems
  - Conservation of water and maintenance of water quality
  - Global food and economic security (elimination of poverty)
  - Stability of the unified global economy
  - Stabilization of global population
  - Elimination of waste and recyclability
Leadership of the Revolution

*It’s not where you think it is*

- Look to the periphery - where hearts and minds are most open to the new (young people, women, emerging scholars, people changing/crossing disciplines, new companies, new social entrepreneurs, different geographic areas, people and places no one expects)

- Visible leadership will be increasingly dependent on invisible leadership (ACTIVE AGENTS?)
  - Who is Muhammad Yunus?
  - Who is Mwalimu Musheshe?
  - Who is Per Carstadt?
“At no time in our nation’s history have the challenges associated with securing America’s energy future been so paramount and the need to develop systems solutions so critical if we are to find effective solutions to address the energy-climate nexus. To assure this future we must find more effective approaches to fully couple the energy policy community with the science and technology community to provide informed policy decisions that will benefit the global community.”

Les Shepard, VP Energy, Sandia NL