Making Social Sustainability Sustainable

Rachelle Peterson, Research Associate, National Association of Scholars
Gordon Evans, Environmental Manager, The Texas A&M University System
Sustainable

Environmental

Economic

Social
“Social sustainability” aims to enable people to satisfy:

- Subsistence
- Protection
- Affection
- Understanding
- Participation
- Leisure
- Creation
- Identity
- Freedom
“Social sustainability” aims to enable all people to satisfy:

- Subsistence
- Protection
- Affection
- Understanding
- Participation
- Leisure
- Creation
- Identity
- Freedom
Social Sustainability: The Importance of Understanding
With Case Study from Yale University

Rachelle Peterson, Research Associate, National Association of Scholars
Gordon Evans, Environmental Manager, The Texas A&M University System
Understanding

Nudge
Improving Decisions about Health, Wealth, and Happiness
Richard H. Thaler and Cass R. Sunstein
...with a new afterword

“One of the few books I’ve read recently that fundamentally changes the way I think about the world.” —Steven Levitt, coauthor of Freakonomics
Social Sustainability:
The Importance of Participation

With Experiences from
The Texas A&M University System

Rachelle Peterson, Research Associate, National Association of Scholars
Gordon Evans, Environmental Manager, The Texas A&M University System
Early Sustainability – What Have We learned?

• Biblical Reference
  – Abraham and Lot: “And the land could not sustain them while dwelling together, for their possessions were so great that they were not able to remain together.” (Genesis 13:6)

• Scientific sustainable forestry & agriculture began >200 yrs ago

• What have we learned?
  1. Solutions are largely local or regional, not global
  2. Must involve **both** ecological limits **and** social dynamics.
  3. Must integrate operational experience in a concrete context.
     (i.e., an agreed need & practicable targets)
Who Should Participate?
People of: Leadership, Vision, Expertise and Action

- EHS Department
  - Stewardship and compliance – Their full-time jobs
- Facilities Management / Utilities
  - Driven by pragmatism to save on energy and water costs (GHGs an afterthought, if even considered)
- Faculty and students
  - Emphasis on being “green” and altering the curriculum and student life
- Administration
  - Hold the “bully pulpit,” but often yield to outside pressures, “herd mentality,” and “branding”
As Sustainability is Practiced, is Everyone at the Table?

- Clash of Worldviews / Politics
  - Can create a THEM vs. US atmosphere or
  - An unwelcoming, narrow “group-think”
    - Romantic notions vs. Operational experience
    - Activism vs. Performance
    - Redressing wrongs vs. Capitalizing on rights
    - Half-empty vs. Half-full
    - Urbanized vs. Rural
    - Symbolic vs. Utilitarian or market-driven
    - Environmental ½-truth vs. Verifiable truth
How to Ensure that **NOT** Everyone is at the Table

- Don’t invite them in the 1\textsuperscript{st} place
- Hyperbole – use apocalyptic language
- Repeat the sustainability “grand narrative”
  - **Fear of Change** – How the earth is *supposed* to be
    - Global climate has reached its ultimate, optimum state of “now.”
    - Change from the optimized “now” challenges our survival.
    - The new standard >> “NO CHANGE”
  - **Fear of Failure** – Paint a dark picture of humans and the environment.
  - **Belief in the System** – List a “parade of horribles” and _claim_ a consensus (“The science is settled”)
    - IPCC predicts droughts, floods, storms, melting ice caps, rising sea levels, death, disease, starvation.
    - Evils of capitalism, “big food” and GMOs
    - Evils of fossil fuel and nuclear power and virtues of renewables
- Stifle debate through lack of civility
A Lesson in Participation:
1. Find Common Ground & 2. Challenge Assumptions

1. Common Ground - Broad premises accepted as true by most people (scientists or laypersons)
   - Earth and nonrenewable resources are finite
   - Human carrying capacity is finite
   - Climate *does* change and *is* affected by human activity
     - (“climate-change deniers” are almost non-existent)
   - Ice melts above 32°F (0°C)
   - Meteors strike the earth

If we stop there, we could paralyzed with fear
2. Challenge Assumptions – The hard part is discernment:
– The sign (±), rate, magnitude and of change (depletion, warming/cooling, ice loss, probability and frequency of a catastrophic event)
– The reliability or truthfulness of predictions/projections/calculators and
– That much change is for the better as well as the worse.

• What if things are changing for the better?
  – Bjorn Lomborg Ted Talk
  [http://www.youtube.com/watch?v=uU-LTKOJY9M](http://www.youtube.com/watch?v=uU-LTKOJY9M)
Let’s Play a Game of **WHAT IF?**
How would your world change IF:

→ The “science” is *not* settled and there is *no* consensus?
→ Climate change is partly or mostly natural and not “unprecedented”?
→ Moderate warming is beneficial and there is no crisis?
→ Renewable energy is expensive, destructive, and inadequate?
→ Nuclear power is clean, safe, efficient, and inexpensive?
→ Fossil fuels can meet transitional demand with little harm?
→ Carbon is the wrong “currency?”
→ Food is best grown at whatever distance is best for productivity, efficiency, and seasonality?
→ There is a law of unintended consequences?
Environment in
The Texas A&M University System

• Environmental policy (2006) – Members establish environmental management systems (EMSs)
  – Emphasis on “stewardship” in practice
  – All-encompassing stewardship, not just end-of-pipe compliance
  – Patterned after ISO14001
  – Environmental advisory councils
    • A study in worldviews and attitudes
    • Safe forums for open discussion and debate
A&M Environmental Stewardship

Our Policy

- Key ISO 14001 policy elements (Must be in policy). Commitments to:
  - Pollution prevention
  - Continual improvement
  - Compliance
- A&M System Policy – December 2005
  - Environmental Management Systems
  - Endorsements and assigned duties
- Each Member has their own “policy statement,” unique to their mission

Our Focus – Environmental Stewardship

- Being “Servant leaders”
- Sustained stewardship of the environment
  - In teaching, research, and extension
  - In facilities planning, design, and operations
- We are NOT aiming for
  - Pop culture environmentalism
  - Alarmism

The colors of Texas ...

... more than just green!

A&M System Policy Defines Staffing/Structure

- Environmental contact
- Environmental Advisory Council
  - “High Altitude View”
  - Made up of faculty, staff, & students
- EMS “Core Teams” – operational / EMS administration
- Departmental Liaisons

The EPA and ISO 14001 “Environmental Management System” (EMS) Lifecycle

Plan > Do > Check > Act

Your “Real” Environment in A Scalable Box Model

Sort It Out?

Typical University Environmental Management Organization

Physical Plant / Utilities
Facility Operations
Ancillary Ops
Sports / Athletics
Physical Plant / Utilities
Facility Operations
Ancillary Ops
Sports / Athletics

Environmental Planning

1. ASPECTS & IMPACTS

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<th>Environmental Activities</th>
<th>Significance Score</th>
<th>Cost</th>
<th>Benefits</th>
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The Texas 2-Step

2. OBJECTIVES & TARGETS

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<th>Target</th>
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The Value of Energy – South Korea looks like an island in the Yellow Sea
If U.S.-style land use were practiced worldwide, CO$_2$ increases would almost stop.
Social Sustainability

Concluding Case Study: Conservation at Texas A&M University

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Energy: A Microcosm of Environmental Stewardship / Sustainability Issues

- Needs to be informed by open, healthy debate / discussion, NOT agenda-driven
- Needs openness to technology changes
- Must include COST:BENEFIT analysis
- Not to be done in an academic/CU bubble
  - “What’s good for the goose, …”
  - If it’s bad/unattainable/uncontrollable for Jane Doe down the street, then it isn’t good for CUs
Energy at TAMU

Campus:
- 750+ buildings, 24 million gross square feet (GSF)
- 19 million GSF conditioned space (cooled & heated)

Electrical power:
- 50 megawatt on-site generation capacity (3 generators)
- 120 megawatt grid power capacity (138 kV transmission)
- 75 megawatt peak load
Conservation – Texas A&M University Energy Program

Seven focal areas:
1. Energy efficient (LEED) construction
2. Building Automation Systems
3. Campus Metering
4. Lighting Retrofit
5. Campus Temperature Std (Set Points)
6. Residence Hall Energy Challenge
7. Building Retro Commissioning
On-Line in 2011: Combined Heat & Power


Typical off-site power generation
– Delivered on-site efficiency → 30%

Modern gas-fired CHP plant
– 75 to 80% efficient
Coming 2016: Thermal Energy Storage

Size and Performance
- 3 million gallons chilled water (90 ft D x 70 ft H)
- Charged at night

Projected benefits
- Shifts load to off-peak (Δ up to 4¢/KW-hr)
- Avoided costs ≈ $500,000 / yr (8-10 yr ROI)
TAMU Energy Chart (as of 2013)

- Energy Use Index (MMBtu/GSF) dropped from 364 to 214 (40%) in 10 yrs
- $140 million in cost avoidance
- Goal by 2015 EUI = 190

For more information: [https://utilities.tamu.edu/news](https://utilities.tamu.edu/news)
TAMU Energy Stewardship

- Objectives
  - Reliably meet needs
  - Improve efficiency & optimization and
  - Reduce/avoid costs

- There was no need to invoke
  - Climate change or Sustainability

- After efficiency gains, what next, if anything?
  - Fuel switching? To what and why?
    - Climate? Cost? Next steps depend on your views