Education and Action for a Sustainable Future: The Role of the Built Environment
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• Part I  What is sustainability and education for sustainability?
• Part II  What are our opportunities and challenges for sustainability education?
• Part III  Trends and Examples
• Part IV  Resources for you!
Sustainable Development is often defined as:

“meeting the needs of the present without compromising the ability of future generations to meet their own needs”

Sustainable Society

Flourishing Environment

Social Equity and Health

Strong Economy

Triple Bottom Line of Sustainability
The United Nations has declared a Decade of Education for Sustainable Development 2005-2014.

So much has happened in the last few years! Celebrate! Hooray for USGBC!
Green Schools are Springing Up Everywhere

LEED Certified: 118

Registered: 944

As of September 2008

Photo by James Steinkamp
More to be done!

Education for a Sustainable Society:

“enables people to develop the knowledge, values and skills to participate in decisions ..., that will improve the quality of life now without damaging the planet for the future.”
Applied Knowledge/Technological Skills

Private Choices and Behaviors-Habits

Public Choices and Behaviors-Laws

Sustainable Communities

Sustainable Economies

Ecosystem
Part II   What are our opportunities and challenges for sustainability education?

The built environment can help with all of the following opportunities and challenges!
The Greenhouse Effect

Some of the infrared radiation passes through the atmosphere, and some is absorbed and re-emitted in all directions by greenhouse gas molecules. The effect of this is to warm the Earth’s surface and lower atmosphere.

Solar radiation passes through the clear atmosphere.

Infrared radiation is emitted from the Earth’s surface.

Most radiation is absorbed by the Earth’s surface and warms it.

Some solar radiation is reflected by the Earth and the atmosphere.
Effects - Climate Change

- Disruption of food production and the food chain
- More extreme weather events
- Disruptions of ecosystems and the food chain, including water supplies
- Spread of disease e.g. West Nile, Malaria, Dengue Fever
- Submersion of land masses – 1 to 4 foot sea level rise - now up to 80 feet
  50% of world’s population lives on the coasts

= Civilization Disruption

Source: Intergovernmental Panel on Climate Change
Imagine design charrettes on relocating 50% of the world’s population

An Opportunity!
Why is Climate Change Important?

It is outside of the normal variability of climate (we still have to say it).

We are the first generation capable of determining the habitability of the planet for humans and other species.

The decisions of the next couple of years are crucial. The decisions of this generation are crucial.
Why environmental issues are so important

1. Human presence on a global scale
2. All ecosystems are threatened
3. Unprecedented growth in population and consumption

Our decisions will create:
more scarcity and suffering, or a future of greater abundance and higher quality of life
Global Perspective

Life supporting resources declining

Consumption of life supporting resources rising
Why is EFS such a high priority?

1. Much of the public doesn’t know that we are exceeding the carrying capacity of the planet. (www.myfootprint.org)

2. Public doesn’t know we can reduce human suffering, environmental degradation and social ills now while building stronger economies.

3. A rapid shift in mindset is needed and education to action is the key.
The built environment and the professionals involved are the latent professors for students, teachers, staff and the community.
Global Transition – Paradigm Shift

**From**
- Fossil powered
- Take, make, waste
- Living off nature’s capital
- Market as master
- Loss of cultural & biological diversity
- Independence
- Materialism as goal

**To**
- Non-polluting powered
- Cyclical production
- Living off nature’s income
- Market as servant
- Maintain cultural & biological diversity
- Interdependence
- Reduced human suffering and quality of life goal

Thanks to Anthony Cortese for some of these slides
We need to move from an

Old Worldview to an

Updated Worldview of Sustainability
Potentials for Energy Conservation, Renewable Energies and Poverty Reduction

Plan B: Mobilizing to Save Civilization

by Lester Brown

Founder of Worldwatch Institute

Downloadable at www.earth-policy.org
Potentials for Renewable Energies

Can we meet all our needs with renewable energies and energy conservation?

YES

Greenhouse gases are being regulated.
No new coal plants for the next year?!
Celebrate!!!
Students, staff and community members know how to and choose to be more environmentally, socially and economically responsible.

Where? In the personal, business, community and governmental spheres.
Solutions:

• All of us engaged as **effective change agents** in our sustainability challenges

• From apathy ➔ caring involvement.

• Know that our daily decisions affect the quality of life of people around the globe.

• Culture of sustainability – MTV’s Breaking the Addiction to Oil

• Push for appropriate policies
Part III

Trends and Examples
U.S. Partnership for Education for Sustainable Development:

Convene, Catalyze and Communicate

Sector Teams: Business, Higher Education, K-12, Communities, Faith, Youth…
U.S. Partnership for Education for Sustainable Development

- Non-partisan
- Multiple Sector Teams: Business, Higher Ed., K-12, Youth, Faith…
- Convene, Catalyze, Communicate

www.uspartnership.org
www.uspartnership.org
Over 300 partner organizations. Join for free
Participate in a sector or action team
Business principles of sustainability:

- Cradle to Cradle (McDonough)
- Biomimicry (Benyas – Like nature, efficient and not toxic)
- World Business Council for Sustainable Development (www.wbcsd.org)
- Natural Step (Sweden and U.S.)
- Natural Capitalism (Lovins, Harvard Business Review)
- Ethical Markets – Hazel Henderson
Trends in sectors – some examples

• **Business** – LOHAS – Japan, European Union REACH, Global Reporting Initiative, Businesses for Social Responsibility, Shareholders, Investors (e.g. Swiss RE)
• **Communities** - Mayors Climate Protection and Smart Growth, Grand Rapids model
• **Faith** - Religious Partnership and Interfaith Alliance, Regeneration Project
• **Youth** – Climate Challenge, Reduce Your Impact, Action Campaigns…
Higher education is taking a leadership role to prepare students and provide the information and knowledge to achieve a sustainable society.

What does it look like?
For higher education, Sustainable Development is being integrated into:

- Curricula
- Research
- Operations and Facilities
- Community Outreach and Partnerships
- Investments and Purchasing
- Student Life
- Professional Development
- Mission and Planning
- Investments and Purchasing
- Professional Development

plus legislation and public awareness
Internationally, a taste…

- In Sweden, it is a law that all undergraduates be educated about sustainability
- High priority in higher education principles in European Union
- U.N. Decade ESD intnl conferences
- Earth Charter in Costa Rica
- Association of Canadian Community Colleges
- Sustainability Group, World Federation of Colleges and Polytechnics
- Global Sustainability Group out of MIT, Chalmers,…
Association for the Advancement of Sustainability in Higher Education

AASHE

(AY-shee)

www.aashe.org

Sign up for the free bulletin

Search the resources and the digest
GREAT NEWS!!!
Growing National Trend in U.S.:

Seventeen national HE associations and over thirty national disciplinary associations are creating initiatives on Education for Sustainable Development
Engaged National Associations over 4,000 higher education institutions

1. ACE–Am. Council on Ed.–Presidency Magazine W’06
2. AACU – Ass. of American Colleges and Universities
3. AACC – Am. Ass. of Community Colleges
4. AASCU – State Institutions
5. ACUHO – Housing
6. NACAS – Aux. Officers
7. NAEP – Educational Buyers
8. NACA – Campus Activities
9. APPA – Facilities
10. NACUBO – Business
11. SCUP – College and University Planners
12. ACUI – Student Unions
13. ACPA – Student Life
14. NACUFS – Food
15. ACEED-I – Events and Conference Directors
16. NACS – Campus Stores
17. NIRSA – Recreation
18. AGB – Ass. of Governing Boards

AND MORE
Higher Education Associations Sustainability Consortium
www.heasc.net

Some of the links from items in this presentation at
www.heasc.net/sustainablefuture
Higher Education Associations

• Collaboration between higher education associations on:
  – AASHE Rating system - STARS
  – President’s pledge on climate change – over 590 presidents! [Website Link]
  – Team building on campus at VP and other levels for sustainability
  – Learning Outcomes in sustainability for all students
  – Professional development for all higher education staff
  – Business and Facilities Officers developing resources for you!
Disciplinary Associations Network for Sustainability – DANS
www.aashe.org/dans

- American Psychological Association
- Sociology
- Religion
- Philosophy
- Math
- Broadcasting
- Architecture
- Engineering (civil, mechanical, eng. ed.)
- Business

- Ecological Economics
- Chemistry
- Biology
- American Association for the Advancement of Science
- Computer Research
- Humanities
- Women’s Studies
- Political Science
- Anthropology
- More…
DANS – Infusing s.d. into:

1. Curricula
2. Promotion and tenure and accreditation
3. Legislative briefings
4. Informing the public
5. Cross-disciplinary approaches
6. Professional identity as an academic
Imagine a country where all college students get credit for helping to solve our societal problems through their academic assignments.

Play a Greater Part
Healthier Planet, Campuses, Communities, and Economies
Play A Greater Part

Academic learning combined with real life problem solving for sustainability in all disciplines and as degree core.

Building healthier self-concepts. We can change society for the better. Becoming life long change agents.
Sustainable Living Practices – Higher Ed Leading the Way

ACPA Presidential Taskforce on Sustainability

http://www.myacpca.org/task-force/sustainability/, including:

1. overview and student groups poster,
2. learning outcomes,
3. sustainable living campaigns,
4. first year experience and freshman pledge,
5. orientation and campus maps,
6. film series and sustainability media festivals,
7. two pages of campus activities
HE Sustainability Examples
more at www.aashe.org Annual Digest

• Systemic integration
  – University of Florida
  – Georgia Tech
  – University of North Carolina
  – University of British Columbia
  – Arizona State
  – Lane Community College
  – Ball State

• Transportation
  – UC Boulder
HE Sustainability Examples
more at www.aashe.org Annual Digest

• Green Computing
  – Michigan State

• Institutionalization in job descriptions and performance reviews
  – Cornell
  – Arizona State University
HE Sustainability Examples
more at www.aashe.org Annual Digest

• Energy Conservation, Renewable Energies & Climate Change
  – LACCD
  – SUNY Buffalo
  – Carleton
  – University of Minnesota Morris
  – South New Hampshire
  – Middlebury
  – UC Santa Cruz
  – So many others….
HE Sustainability Examples
more at www.aashe.org Annual Digest

• Curriculum
  – Northern Arizona University
  – University of Georgia – Article in ACE Presidency W ‘06
  – Comm. Colleges – Article at AACC site/sustainable

• Food
  – University of Montana
  – Yale
HE Sustainability Examples
more at www.aashe.org Annual Digest

• Green Building
  – University of Washington
  – South Carolina universities
  – Presidents’ Climate Commitment

• Socially and Environmentally Responsible Purchasing
  – Rutgers
  – Stanford
  – OCC
Making sustainability an integral part of planning, operations, facility design, purchasing, investments, community partnerships and curricula.
More Organizations and resources to assist you:

- Second Nature – [www.secondnature.org](http://www.secondnature.org)
- Grey Pinstripes for **business schools** through the World Resources Institute and Aspen Institute - [http://www.beyondgreypinstripes.org/](http://www.beyondgreypinstripes.org/)
- Green Schools Listserv – almost instantaneous answers to your specific questions - send mail to [LISTSERV@LISTSERV.BROWN.EDU](mailto:LISTSERV@LISTSERV.BROWN.EDU) with the command (paste it!): SUBSCRIBE GRNSCH-L
Skills:

1) Teach/learn sustainable development literacy
2) Teach/learn optimism skills (Seligman)
3) Teach/learn efficacy; tell stories of “normal” people making a difference
4) Teach/learn interpersonal and intrapersonal intelligences – e.g. civil discourse, conflict resolution, emotional intelligence
5) Teach/learn systems thinking, futurist skills and change agent skills
Key Places to Place Sustainability:
(Academic Assignments can include this!)

- Mission
- Strategic Plan
- Building Policies
- Building Signage
- Budget
- Orientation
- Campus Map
- Operations and Purchasing Policies

- Student Life
- Residential Living
- Infused throughout curricula
- First Year Experience
- Gen Ed Core
- Curricula Review
- Community Partnerships
- Workforce Development
- Continuing Education
1. Each student will be able to define sustainability.

2. Each student will be able to explain how sustainability relates to their lives and their values, and how their actions impact issues of sustainability.

3. Each student will be able to utilize their knowledge of sustainability to change their daily habits and consumer mentality.

4. Each student will be able to explain how systems are interrelated.
5. Each student will learn change agent skills.

6. Each student will learn how to apply concepts of sustainability to their campus and community by engaging in the challenges and solutions of sustainability on their campus.

7. Each student will learn how to apply concepts of sustainability globally by engaging in the challenges and the solutions of sustainability in a world context.
The higher education community as a living lab for sustainability oriented practices and skill building.

Providing opportunities to practice behavior changes

Building values, behaviors, and identities

A community of learners.
A community of real life problem solvers.
K-12 Sector

• High Performance Schools
• National Assoc. of Independent Schools
• U.S. Partnership K-12 Summit – over 20 national K-12 associations
• Sustainability Standards
• Many stellar programs that need to become the norm:
  – e.g. Facing the Future, Green Schools
Why use green design?

Teach everyone the benefits!

- Save Money
- Improve Health and the Environment
- Reduce Climate Change
- Reduce Financial Risk
- Community Benefits
All disciplines can teach about green design if we help them – examples

- Psychology – changing energy consumption behavior
- Sociology – shifting societal norms re: sustainability
- Anthropology – shifting societal culture around energy
- Political Science – public policy for green policies
- Biology and Chemistry – obvious
- Foreign Languages – built environment trends in other countries
- Philosophy – Ethics of resource consumption and “fair share”

See www.aashe.org/dans for resources
All disciplines can teach about green design if we help them – more examples

- Statistics and Math – Monitoring the impacts of green
- Economics, accounting and finance – Full cost accounting, life cycle costs, accounting for externalities
- Technical programs – Solar/wind/geothermal/conservation/green construction
- Humanities – the arts creating the culture of sustainability
- You don’t even have to have a green building to do the above! Faculty development is key and easy!
- See www.aashe.org/dans for resources
Possibilities

Add an S into the schedule of classes

Add it into the general education core requirements for all degrees

Expand the service learning, internships, and community partnerships to include sustainability
What You Can Do – Political Activities are Crucial!!!

Local Level

*Take it to your community – do a community sustainability plan/ energy audit.*

Federal Level

*Take it to your elected representatives. Engage in energy, climate change, and sustainability policy.*
What is needed?
Civic engagement!! Resources:

Nationalteachin.org

Powervote.org and Powershift

PlayaGreaterPart.org
Possibilities for Next Steps
Commit to:

Signage on every building!

Utilize the media to publicize the positive steps all can take to both teach and model sustainable development.
If you feel overwhelmed or unsure, you are normal. Keep moving forward!!

Doing nothing is a destructive decision.

There are people you can talk to/email about how to create success: Green Schools listserv, K-12 listserv, Community College monthly calls
Additional resources besides www.aashe.org and the links in this presentation and the list at www.heasc.net/sustainablefuture And
Additional Resources

- Building solar air panels – [www.oaklandcc.edu/EST](http://www.oaklandcc.edu/EST)
Additional Resources

1. Greener Buildings News at
   www.greenbiz.com
   http://www.energystar.gov
3. Energy Efficiency and Renewable Energies –
   http://www.eere.energy.gov/
4. The Intergovernmental Panel on Climate Change - http://www.ipcc.ch/
5. Rocky Mountain Institute Lovins -
   www.rmi.org
Careers in Energy and Sustainability

- AASHE – www.aashe.org
- Association of Energy Engineers – www.aeecenter.org
- http://www.sustainablebusiness.com and click on "Green Dream Jobs"
- http://www.homepower.com/resources/jobs.cfm
- http://www.greenbiz.com and click on "Job Link"
- http://www.idealist.org
- www.ecojobs.com
- www.eco.org
- www.greenjobs.com
Education in renewable energies and energy management

   • Online courses
   • Downloadable resources
   • Certificate
   • Professional development

   • Standards and education directory
Challenges and Answers

Challenges
• We need system and societal shifting activities
• Too busy, don’t have time to do the right thing
• Issues complex

Answers
• Don’t have to know all the answers. Just keep asking the sustainability questions. Don’t try to get it perfect first.
• Use resources and learn from others to help you learn, grow and implement
• Sustainability is everyone’s job
• You have an important role to play
Conclusions

1. The public is not educated enough about the energy and sustainability issues before us.
2. We need sustainability literacy for ALL.
3. You are creating the future with your daily decisions.
4. The built environment plays a key role in education for a sustainable future.
5. Climate change is the highest priority with the shortest time line.
The Power of What You Do

- *We can choose a sustainable future*
Congratulations for all you have done.  
Hooray for USGBC!

Congratulations for all you will do in the future!!!

Let your enthusiasm show!

For more information,  
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