Education, Action and Career Pathways: Creating a Better Future

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What I will cover

• What is a better future?
• What are green/sustainable jobs?
• Skills to create a career for a better world
• National Trends
• Solutions and Resources for you!
Where are you stuck?

What questions do you have?
What are you worried about?
Hand them forward.
Triple Bottom Line =
Social, Environmental, and Economic Responsibility
Tribe Bottom Line of Sustainability

- Sustainable Society
- Social Well-being
- Strong Economy
- Flourishing Environment
Sustainability is...

“meeting the needs of the present without comprising the ability of future generations to meet their needs” ~ “Our Common Future,” Brundtland Report, 1987
Another way to think about Sustainability is: the shared responsibility for improving the quality of life for all—economically, socially, and environmentally—now and for future generations.
Why is green/sustainability such a high priority? It is urgent!

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

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

3. Core pedagogy. Education to action is the key. Do real world projects, ask for independent studies, sculpt your education.
focus on the problems and engage people in building solutions – not doom and gloom
The essential instructional approach: real world problem solving for sustainability

1. All of us engaged as **effective change agents** to create a sustainable future – include as professional/personal development focus, work and pro bono

2. World as a living lab and open to the public – use the media

3. Catalyze movement from apathy/fearful/obedient to caring, effective involvement (healthy self-concepts & emotional/interpersonal intelligence)

4. Sustainability literacy and engagement in solutions for all students – 21st century core competency – in all jobs

* Change agent skills list - [http://www2.aashe.org/heasc/resources.php#ACPA](http://www2.aashe.org/heasc/resources.php#ACPA)
Can we reduce human suffering?

YES
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.”
www.skepticalscience.com
Green jobs: the obvious choices

Traditionally, community college, career and technical education, and even the National Science Foundation focus on technicians:

- Energy auditor
- Wind energy technician
- Insulation and weatherization technician
- Photovoltaics (solar electricity) installer
- Thermal solar installer (hot water and space heating and pool heating)
- Green designer/builder/architect/engineer/consultant
Upstream green jobs: the other jobs needed so technicians get employed

- Less toxic, energy efficient and clean energy products
  - Financiers and Manufacturers and Distributors and Salespeople
- Policy Analyst and Legislators
- Employee in state and local energy/environmental/commerce related offices
- HVAC and other types of contractors with energy efficiency and renewables expertise/product line
- Energy Service Company (ESCO)
- Corporate Social Responsibility Officer
- Sustainability Oriented Purchasing Agent and Business VP
- Energy/Human Resources/Office Manager
- Facilities/Production Director
Partial list of green jobs: the less obvious choices?

- Resource Conservation/Efficiency Manager
- Measurement and Verification Technician
- Material Scientist
- Environmental Engineer Technician
- Biomass Plant Designer, Manager, Technician…
- Utility Plant Operatives
- HVAC/ Building Automation Technician Controls Specialist
- Refuse & Recycling Worker
- Sustainable Agriculture Specialist
- Groundwater heat pump contractor/installer
- Wave power system designer/installer
- Forestry & Wildlife Manager
Partial list of green jobs: the less obvious choices?

- Hydrogen, batteries and other energy storage specialists
- Water Reservoir and watershed engineer
- Green Interior Building Design Specialist
- Green Building Materials Designer, Distributor…
- Heating/Cooling/Ventilation Scientist and Engineer
- Construction Worker with Green Materials Installation Expertise
- Electrical Technician
- Energy Statistician
- Recycling Director
- Environmental Maintenance Worker
- Greenhouse Gas Analyst/Broker…
Partial list of green jobs: the less obvious choices???

- Industrial Engineer
- Engineering Manager
- Green products distribution designer/manager
- Sales & Marketing Staff for Sustainable Products
- Brownfields Real Estate Developer
- Sustainable Business Process Designer
- Corporate Recycling Manager
- Environmental Economist
- Sustainability Entrepreneur
- Environment, Health and Safety Director
- Sustainability Quality Certification Specialist
- Geographic Information Systems Specialist
Partial list of green jobs: the less obvious choices?

- Hazardous Materials Handler
- Sustainable Operation Manager/consultant
- Socially Responsible Investment Advisor
- Sustainability Officer
- Trainer/Educator for Green Jobs
- Sustainability Communications
- Fostering Sustainable Neighborhoods Community Organizer
- Green Design Journalist
- Permaculture Designer and Contractor
- Sustainable Landscape Architect
- Sustainable Products Specialist for Interior Design
- Sustainable Communities Planner
Partial list of green jobs: the less obvious choices

• Sustainable Development Policy Analyst
• Product Standards Developer
• Corporate Social Responsibility officer/director
• Groundwater professional
• Restoration Ecologist
• Climate Change Risk Assessor and Mitigation Expert
• Sustainable Transportation Planner
• Water Pollution Control Technician
• Watershed Manager
• Green Product Designer
• Environmental Communications Specialist
• Environmental Conflict Manager
What is a green job?
A limited but still helpful view below

- The Department of Labor recently tagged over 100 occupations in the O*NET database as being green occupations. [http://online.onetcenter.org/find/green](http://online.onetcenter.org/find/green).
- Browse by the 12 identified green economy sectors:
  - Agriculture and Forestry;
  - Energy and Carbon Capture and Storage;
  - Energy Efficiency; Energy Storage; Environment Protection;
  - Government and Regulatory Administration;
  - Green Construction; Manufacturing;
  - Recycling and Waste Reduction;
  - Renewable Energy Generation;
  - Research, Design and Consulting Services;
  - Transportation.
What is a green job? The Department of Labor categorizes green jobs into one of the following:

- **Green increased demand occupations**: increase in the employment demand for an existing occupation. 64 occupations meet this definition.

- **Green enhanced skills occupations**: significant change to the work and worker requirements of an existing occupation. 60 occupations meet this definition.

- **Green new and emerging occupations**: generation of a new occupation relative to the O*NET taxonomy. This new occupation could be entirely novel or “born” from an existing occupation. 45 occupations qualify with another 46 occupations identified as candidates.

- The O*NET green center has a wealth of “green” resources.
The Pervasiveness of Green

- SOC listings are incomplete
- The market is changing dramatically, driven by some policies that are removing market barriers, by increased market demand and proven examples of how green and sustainability makes sense, plus
  - it’s the right thing to do, and
- you can create a business case that it is the business smart thing to do
- If fashion and interior design businesses aren’t sustainable, they carry a reputational risk
Every Job Has Potential to..

- Make the world better, since energy waste, toxins, food chain disruption and ecosystem destruction will be costly and unacceptable, IF we pay attention!
- Bring a sustainability lens to all jobs you have
- Change behaviors and policies - make it easy for consumers and investors to make better choices by providing convenient and useful information
- Ex – Nike, Gap, Furniture standards/certifications, Supply chain analysis, greenhouse gas action plan

- Don’t just look for the job – create the job!! (e.g. AET, EM, green/healty organizer)
Trends toward sustainability

• Deforestation for fashion: getting unsustainable fabrics out of the closet

Stella McCartney, H&M, Zara and others are developing viscose and rayon fabrics that don't endanger forests.

30% of the rayon and viscose used in clothing comes from endangered and ancient forests.

An Indonesian forest that has been devastated by logging. 30% of the rayon and viscose used in clothing comes from endangered and ancient forests. Photograph: Rainforest Alliance Network
Garment workers make a human chain demanding proper compensation of the dead and injured workers of the Rana Plaza building collapse, in Dhaka, Bangladesh, 11 April 2014. Photograph: ABIR ABDULLAH/EPA

Copenhagen fashion summit - live blog
Leading voices in fashion and business discuss the industry's social and environmental responsibility and solutions on the first anniversary of the Rana Plaza factory collapse in Bangladesh

Laura Paddison and Hannah Gould
theguardian.com, Thursday 24 April 2014 12.12 EDT
Jump to comments (3)
Getting the career you want

1. Perseverance – reliability, selling yourself, numbers game, working lots of angles, making connections, handling rejection,
Getting the career you want

2. Beyond emotional coping, sculpting and optimizing - emotional intelligence, self-appreciation and acceptance, joy all the way through

3. Joy of creativity, beauty, connection, impact, giggles
Getting the career you want

4. Keep designing

5. Get internships/jobs at systemic levels:
   – Associations of companies reducing pollution and advocating for policy
   – Sustainability directors network
   – National/Intl associations/organizations

6. www.tinyurl.com/SustainabilityAndGreenJobs
   >60 websites for green/sustainability jobs
<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>Organization</td>
<td>URL</td>
<td>Job Listing/Career Pathway Resource</td>
<td>Description</td>
</tr>
<tr>
<td>Association for the Advancement of Sustainability in Higher Education</td>
<td><a href="http://www.aashe.org/connect/enewsletters/bulletin">http://www.aashe.org/connect/enewsletters/bulletin</a></td>
<td>Job Listing/Career Resource</td>
<td>A collection of sustainability-related job listings and resources.</td>
</tr>
<tr>
<td>Association of Energy Engineers (AEE)</td>
<td><a href="http://www.energyvortex.com/careercenter/">http://www.energyvortex.com/careercenter/</a></td>
<td>Job Listing</td>
<td>Energy engineer job postings.</td>
</tr>
<tr>
<td>CleanTechies</td>
<td><a href="http://cleantechnichjobs.cleantechnichjobs.c/a/jobs/find-job">http://cleantechnichjobs.cleantechnichjobs.c/a/jobs/find-job</a></td>
<td>Job Listing</td>
<td>SimplyHired-powered job search engine that pulls sustainability job postings from around the web.</td>
</tr>
<tr>
<td>Colorado State University Jobs and Internships</td>
<td><a href="http://warnercnr.colostate.edu/jobs-and-internships">http://warnercnr.colostate.edu/jobs-and-internships</a></td>
<td>Job Listing</td>
<td>Natural resource job postings.</td>
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<tr>
<td>Commongood Careers</td>
<td><a href="http://commongoodcareers.org/find-a-job">http://commongoodcareers.org/find-a-job</a></td>
<td>Job Listing</td>
<td>Commongood Careers is a search firm, committed to supporting organizations in the environmental, social, and community development sectors.</td>
</tr>
<tr>
<td>Community College Sustainability Collaborative</td>
<td><a href="http://ccsustain.wordpress.com/2013/10/22/findings">http://ccsustain.wordpress.com/2013/10/22/findings</a></td>
<td>Job Listing</td>
<td>Comprehensive inventory of job listing sites for a wide spectrum of careers.</td>
</tr>
<tr>
<td>CoolWorks.com</td>
<td><a href="http://www.coolworks.com">www.coolworks.com</a></td>
<td>Job Listing</td>
<td>Job opportunities in the outdoors and national parks.</td>
</tr>
<tr>
<td>Cyber-Sierra's Natural Resources Job Search</td>
<td><a href="http://www.cyber-sierra.com/nrjobs/">www.cyber-sierra.com/nrjobs/</a></td>
<td>Career Resource</td>
<td>Resources and information on jobs in natural resource conservation.</td>
</tr>
<tr>
<td>Eco Employ</td>
<td><a href="http://www.ecoemploy.com">http://www.ecoemploy.com</a></td>
<td>Job Listing</td>
<td>Job listings in environmental fields.</td>
</tr>
<tr>
<td>EcoClub Ecotourism</td>
<td><a href="http://www.ecoclub.com/jobs">www.ecoclub.com/jobs</a></td>
<td>Job Listing</td>
<td>International ecotourism job listing (membership required).</td>
</tr>
<tr>
<td>EHSCareers.com</td>
<td><a href="http://www.ehscareers.com">www.ehscareers.com</a></td>
<td>Job Listing</td>
<td>Job listings in environmental fields.</td>
</tr>
<tr>
<td>ENDS Job Search</td>
<td><a href="http://www.endsjobsearch.co.uk/">www.endsjobsearch.co.uk/</a></td>
<td>Job Listing</td>
<td>Job listings in energy and environmental fields.</td>
</tr>
<tr>
<td>EnviroEducation Job Centre</td>
<td><a href="http://www.enviroeducation.com">www.enviroeducation.com</a></td>
<td>Career Resource</td>
<td>Environmental management education resources and articles.</td>
</tr>
<tr>
<td>Environmental Career Opportunities</td>
<td><a href="http://www.ecojobs.com">http://www.ecojobs.com</a></td>
<td>Job Listing</td>
<td>Job listing in environmental fields.</td>
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Helping to make “creating a better world” the norm

Get involved at the national level to help your career!!!

• Funds from multiple federal agencies in energy/environment/climate change – NOAA, EPA, NSF, USDA – Higher Ed

• Mayors, governors, scientists, fashion designers, material designers, interior designers etc. – all have national associations working on sustainability
U.S. Partnership for Education for Sustainable Development:
What we are doing, and you can be part of the “we”:

• Convening mainstream national leaders
• Catalyst their national initiatives in sustainability
• Communicate their efforts
• Build collaborative partnerships
Vision: Sustainable development integrated into education and learning in the United States

- Non-partisan, multi-sector partnership of over 360 registered organizations
- The Partnership’s current Sector Teams are:
  - Communities
  - Business
  - Faith Based Organizations
  - Higher Education
  - K-12 and Teacher Education
  - Youth
Higher education is taking a leadership role to prepare students and provide the information, skills and knowledge to achieve a sustainable society.

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

- Curricula
- Research
- Operations
- Community Outreach and Partnerships
- Student Life
- Professional Development
- Purchasing and Financing
- Legislation
- Public awareness

Mission and Planning

Thanks to Wynn Calder for this diagram
Higher Education Associations Sustainability Consortium [www.aashe.org/heasc](www.aashe.org/heasc) Professional Associations for:

1. Presidents
2. Academic Officers
3. Student Affairs
4. Campus Activities
5. Facilities
6. Business Officers
7. Planners
8. Recreation Directors
9. Purchasers
10. More… All Working on Sustainability
Resources

• HEASC Resource Center - Socially, economically and environmentally responsible procurement, operations, planning, leadership, learning outcomes and more!!
• www.aashe.org/heasc
DANS – the Disciplinary Associations Network for Sustainability – Participating Associations

• 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
• STEM disciplines
• Political Science
• Anthropology
• More…
DANS – the Disciplinary Associations Network for Sustainability

www.aashe.org/dans

click on Resources page

Consider being a pro bono Sustainability Fellow at U.S. Partnership, HEASC and DANS
1. U.S. - Association for the Advancement of Sustainability in Higher Education – www.aashe.org
   Sign up for the free bulletin and search the extensive resources and share what you are doing, STARS

Skills

Greenhouse gas analysis and action plan
Lifecycle and supply chain analyses
  Literacy re: Story of Stuff, Biomimicry and Cradle to Cradle
Sustainability reports (Global Reporting Initiative, ISO 26000)
Know how to use energy efficiency and include renewable energies

Persuasion and Assertiveness

Change management - strategies for change
  1. change from within – work within the business
  2. agitate from without
  3. create alternatives (sustainable living systems)
Beyond LEED

- Net Zero Buildings
- Living Building Challenge
- European Green Building
- 2030 districts
- Eco districts
- Sustainable Communities
- Genuine Progress Indicator
- STAR community indicators
Engagement in policy is crucial

- [www.usgbc.org/advocacy/campaigns](http://www.usgbc.org/advocacy/campaigns)
- [www.nrdc.org](http://www.nrdc.org)
- [www.aceee.org](http://www.aceee.org)
- [www.350.org](http://www.350.org)
- Youth Energy Solution
Resource Center

Solar

The solar industry is expected to show steady growth over the coming decade largely due to rising energy prices, advances in technology through public/private partnerships and investments, and continued enactment of federal and state policies and financial incentives. more >>

Sector: Solar

Topic: Any

Featured Resources

Center on Wisconsin Strategies (COWS) Greener Skills - How Credentials Create Value in the Clean Green Economy

Paper discusses the value of developing a national skill credentialing system for the new energy economy. It outlines an American skills agenda and the need for a better, stronger, greener workforce system to support it. It describes
• AACC’s SEED Policy Action Plan Toolkit!

Community of Action: Policy and Civic Engagement to Grow Green Jobs and Sustainable Communities
The Power of What You Do

• We can choose a sustainable future
Worrying is a waste of time!

Congratulations for all you will do in the future.

Let your enthusiasm show – welcome others to join in!

You have a unique and important role…

For more information, contact Debra Rowe at dgrowe@oaklandcc.edu
Change agent skills
• Bill McDonough’s definition.
• “Sustainability is about loving the children of all species everywhere for all time.”
Futuring - Using the 4 P’s

1) **Possibilities**
Getting initial participation & broad ownership through brainstorming

Positive Possibilities

2) **Probabilities**
Building the Need for Change - Environmental Scanning

3) **Preferabilities**
Creating and choosing a positive vision

4) **Preparations**
Planning Implementation
After understanding the formal and informal power structure

Managing the Power Relationships

4 D’s of Doing

1) Desire
   Identify Project Champions
   Get access to authority
   Reframe your project to match the authority’s agenda

2) Direction
   Create a good multi-pronged plan, including continuous communication of the vision and the need for change

3) Discipline
   Get good facilitators, doers, and detail people
   Take and give away the credit.

4) Determination
   Manage the Emotional Climate—maintain optimism
   Connect between the meetings
   Build the new norm
Preventing Burnout - The ABCs

Ask for help

Build Support Systems

Celebrate the Baby Steps of Success

Diffusion of Innovation - Use It

Eliminate Griping/Move to Problem Solving

Foster Self-care, Physical & Mental Health

Get Flexible - Taking a Multi-pronged Long-term Approach

Humor
Preventing Burnout - The ABCs

A sk for help - B uild Support Systems - C elebrate the Baby Steps of Success
D ream big! - E liminate Gripping & Move to Problem Solving
F ost er Self-care, Physical & Mental Health
G et Flexible and Take a Multi-pronged Long-term Approach
H umor those who participate - I nvolve everyone affected by decisions
J azz up meetings with creativity - K eep on keepin’ on to get energy
L augh a lot - M ake light of problems - N ature is renewing: connect with it!
O pen your eyes and heart to the beauty around you
P icture your joy when the tide starts to turn
Q uit worrying! - R e-live past successes to renew commitment
S ay the kind things every time you think of one - T hank all who helped
U nderstand that slow beats stop - V isualize the joy of success
W ait with confidence that your ship will come in
X erox a joke of the day with your logo to hand out (email to save paper)
Y ell a little, just for fun
Z ealously assure yourself a good night’s rest every night!

Thanks to Norma T Bauer
Hardiness and Resilience

1. Positive self-esteem and self-concept – don’t blame themselves and are self-loving and encouraging (best friend approach)
2. Internal locus of control
3. Believe they engage in useful and creative work
4. Have strong emotional/social support system – be part of the national sustainability “family”
5. Aggressive pursuit of health
Hardiness and Resilience

6. Regard problematic situations as interesting challenges.
7. Can discuss their problems with openness
8. Have a purpose and meaning to life.
10. Investigate and employ holistic healing combination of methods

Hardiness and Resilience

- **3 components to effectively manage stress**
  - Problem solve the stressor so it goes away
  - Reframe the stressor into an opportunity
  - Manage the stress response (General adaptation syndrome/fight or flight response)

- **ABCs of breaking a bad habit**
  - Awareness
  - Brainstorm alternative ways of behaving/thinking
  - Choose what you want
  - Practice, practice, practice
Human relations for a sustainable future

• Based on assertiveness skills (not passive or aggressive)
• Atmospheres of kindness and respect – codes of conduct
• 4 step process for conflict resolution:
  1) listening,
  2) speaking with emotional intelligence (variations on I messages without blame/guilt, proactive empathy),
  3) brainstorming until you find win/win solutions you can agree to try
  4) try it and, if it doesn’t work, go back to #1
Change Agent Abilities Required to Help Create a Sustainable Future

In order to be a successful sustainability change agent, an individual must have the following:

1. Knowledge of the environmental, economic, and social issues related to sustainability (understanding); NOT AN EXPERT

2. A value system and self-concept to support and undergird the actions of a change agent (motivation); and

3. Change agent abilities (skills).
Change agents are:

1. Resilient, not cynics
2. Optimistic
3. Tenacious
4. Committed
5. Passionate
6. Patient, or at least able to act it
7. Emotionally intelligent
8. Assertive
9. Persuasive
10. Empathetic
11. Authentic
12. Ethical
13. Self-Aware
14. Competent
15. Curious

Which ones are you? (check) Which ones do you want to nurture more? (circle)
Change agents can:

1. Communicate ideas clearly, concisely, and precisely both orally and in writing
2. Listen to others and incorporate their ideas and perspectives
3. Accommodate individual differences (cultural, socioeconomic, global, etc.) in your decisions and actions and be able to negotiate across these differences.
4. Engage in self-assessment, self-reflection, and analysis
5. Reflect on what is happening to make meaning, gain perspective and understanding
6. Engage in civil discourse and debate
7. Mediate and resolve conflicts
8. Analyze power, structures of inequality, and social systems that govern individual and communal life
9. Recognize the global implications of their actions
10. Span boundaries
11. Challenge the status quo effectively when appropriate
12. Creatively and collaboratively solve problems using critical thinking skills; search for “families” of solutions for complex multi-faceted issues
Change agents can:

13. Collaborate, network, develop alliances and coalitions, build teams
14. Involve others, inspire and excite participants, engender support and commitment
15. See the big picture and the larger goal and understand the need for systemic change
16. Adjust to the diverse and changing needs of both individuals and society as a whole
17. Set realistic and clearly defined goals and objectives
18. Be both a leader and a follower, as necessary
19. Analyze and influence group dynamics
20. Make ethical decisions which incorporate responsibility to self, community, and society
21. Help envision, articulate and create positive scenarios for the future of society
22. See the paths, small steps, for changes needed for a more sustainable future, convert it into a tasklist and timeline, and follow through effectively
23. Tolerate ambiguity and cope effectively with change
24. Run meetings effectively
Change agents have:
1. Insights into the functioning and interconnectedness of systems
2. A commitment to finding solutions to societal problems
3. Political efficacy, a belief that what they think and do civically and politically matters
4. Integrity
5. Courage
6. An understanding of “organic” change
   - Useful Theoretical Models: ask others at your campus what are the related models
   - “Systemic Leadership” (Allen & Cherrey, 2000)
   - “Reframing Organizations...” (Bolman & Deal, 2003)
   - “Social Entrepreneurship”
   - “Servant Leadership”