

Education, Action and Career Pathways: Creating a Better Future



Debra Rowe, Ph.D

President

U.S. Partnership for Education for Sustainable Development

Professor

Sustainable Energy Technologies and Behavioral Sciences

Oakland Community College



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!

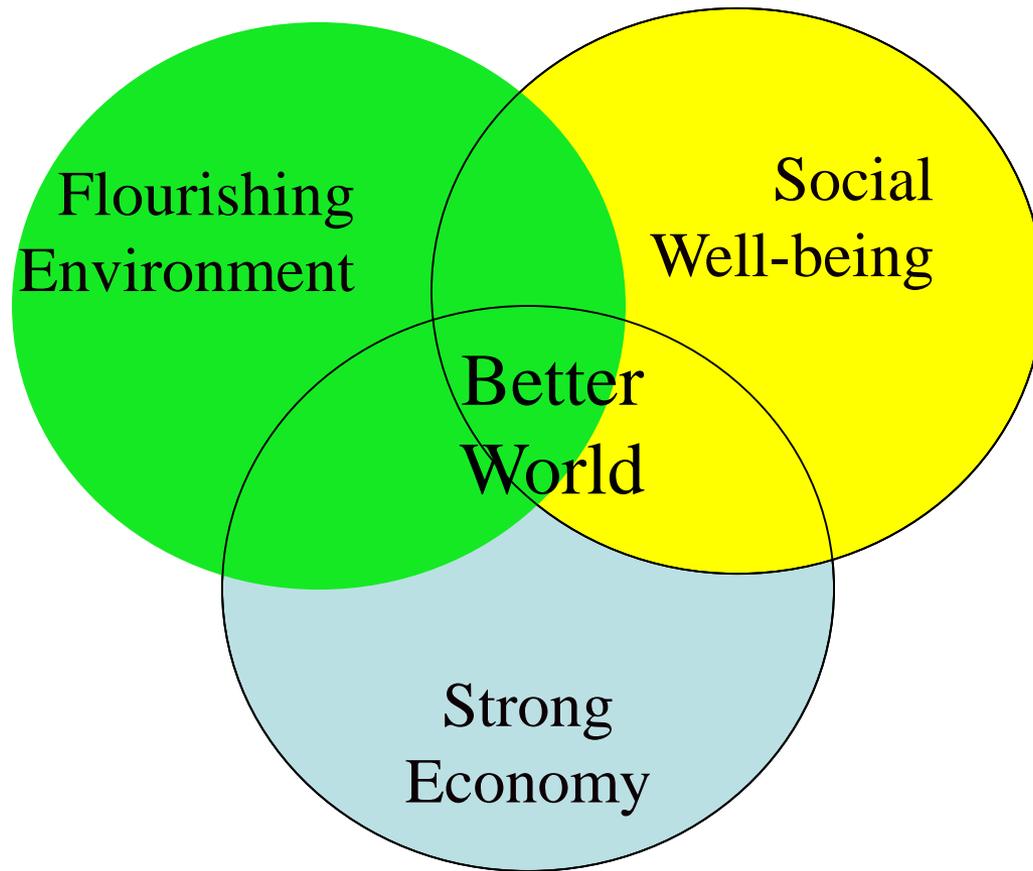


Where are you stuck?

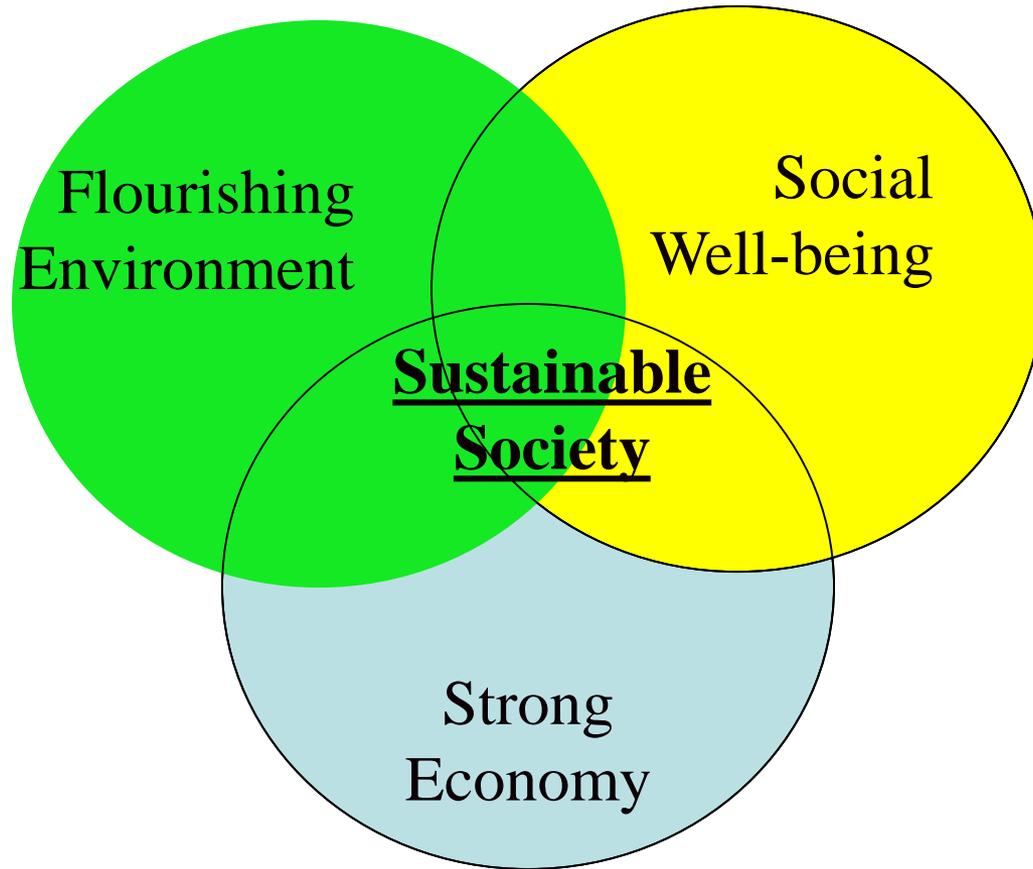
What questions do you have?

What are you worried about?

Hand them forward.



Triple Bottom Line =
Social, Environmental, and Economic Responsibility



Triple Bottom Line of Sustainability



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)**
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.**



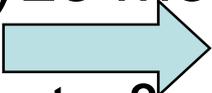
focus on the problems and engage people
in building solutions – not doom and gloom

life supporting resources
declining

consumption of
life supporting resources
rising



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  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>



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.”

Ecosystem

Ecosystem

Sustainable Communities

**Public Choices and
Behaviors-Laws**

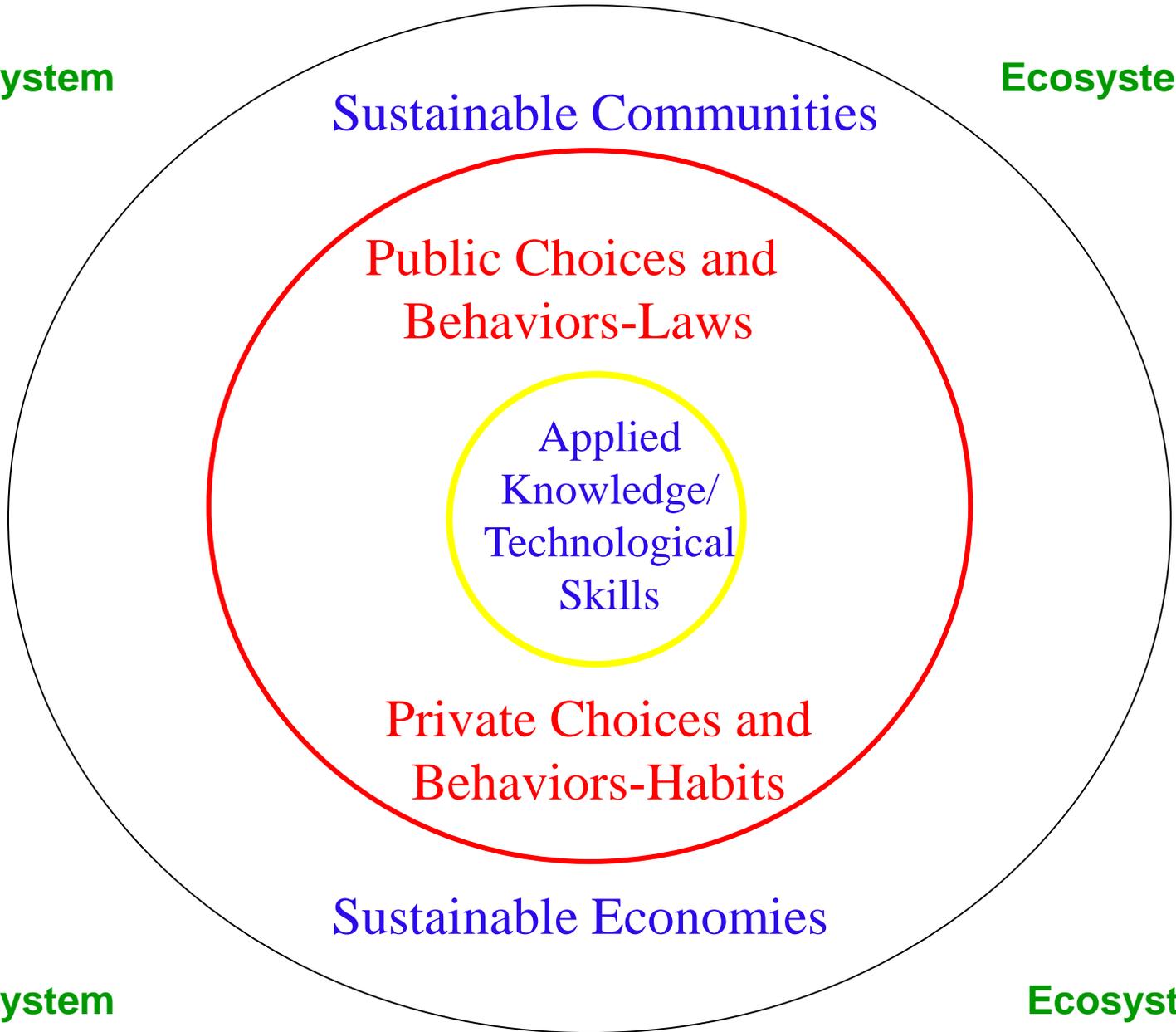
**Applied
Knowledge/
Technological
Skills**

**Private Choices and
Behaviors-Habits**

Sustainable Economies

Ecosystem

Ecosystem





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> .
- 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/healthy organizer)

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

D G McCullough

theguardian.com, Friday 25 April 2014 09.33 EDT

 Jump to comments (3)



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

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 Pin it

 Share 29

 Email





Designing cities and factories with urban agriculture in mind
The Netherlands offers inspiration for designers looking to create environments that harvest water, energy and nutrients

 5 comments



Framing natural capital: economy and ecology

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Sustainable fashion

From Guardian Sustainable Business

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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

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+1 3

Share 23

Email

Laura Paddison and Hannah Gould

theguardian.com, Thursday 24 April 2014 12.12 EDT



Jump to comments (3)

DON'T LET FASHION GO TO WASTE. BRING IT BACK TO YOUR LOCAL H&M STORE.

[▶ READ MORE](#)

H&M CONSCIOUS
For a more sustainable fashion future



Join the network

Receive weekly newsletters, exclusive content previews, monthly roundups, jobs alerts, VIP event invitations and much more.



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[Click here for more from our fashion hub sponsor, H&M](#)

Garment workers make a human chain demanding proper compensation of the dead and injured workers



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

Twelfth Edition

EFFECTIVE HUMAN RELATIONS

Interpersonal and
Organizational
Applications

BARRY L. REECE



AFFIRMATIONS



FOR
THE

INNER CHILD

Rokelle Lerner

Author of the bestselling

Daily Affirmations for Adult Children of Alcoholics



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



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:





US PARTNERSHIP

DECADE OF EDUCATION FOR SUSTAINABLE DEVELOPMENT
UNITED NATIONS DECADE (2005-2014)

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



US PARTNERSHIP

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UNITED NATIONS DECADE (2005-2014)

Vision: Sustainable development integrated into education and learning in the United States

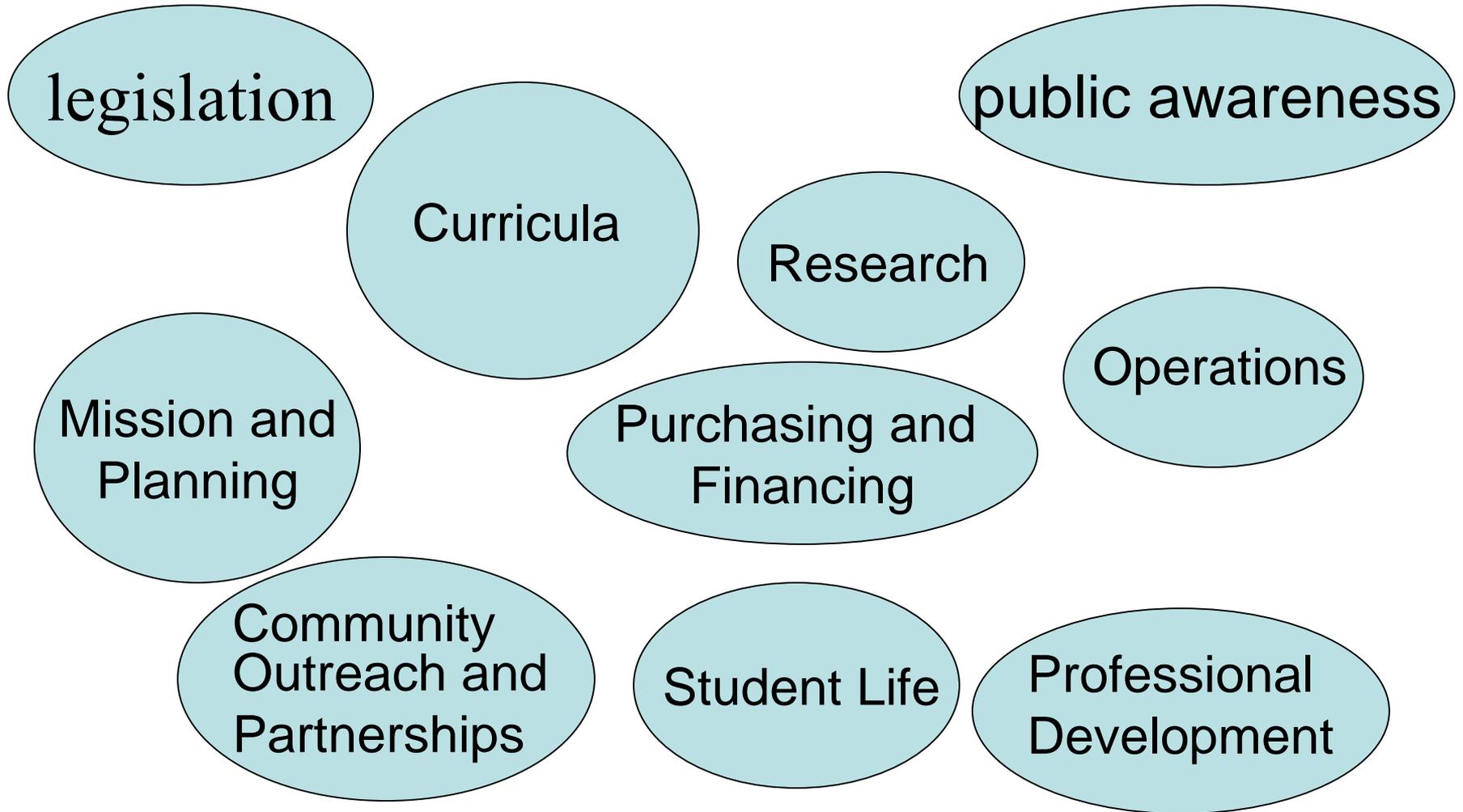
- Non-partisan, multi-sector partnership of over 360 registered organizations
- The Partnership's current Sector Teams are:
 - Communities
 - Business
 - Faith Based Organizations
 - **Higher Education**
 - **K-12 and Teacher Education**
 - Youth



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:



Thanks to Wynn Calder for this diagram



Higher Education Associations Sustainability
Consortium 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...



US PARTNERSHIP

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UNITED NATIONS DECADE (2005-2014)

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



More Key Sites about activities

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
2. American Association of Community Colleges and its members colleges – a leader in greening the curricula and the community – visit their **Sustainability Education and Economic Development Resource Center** at www.TheSeedCenter.org



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
- www.nrdc.org
- www.aceee.org
- www.350.org
- Youth Energy Solution

Resource Center

▼ Solar

Curricula

Curricular Materials

Certifications & Industry
CredentialsEmployment Industry
ProjectionsInnovative Practices &
PartnershipsSkill sets, Competencies &
Career PathwaysProfessional Development
ResourcesSelect Funding
Opportunities

▶ Wind

▶ Green Building

▶ Energy Efficiency

▶ Sustainability Education

Additional Sectors **COMING**

Home → Resources → Resource Center

Resource Center



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

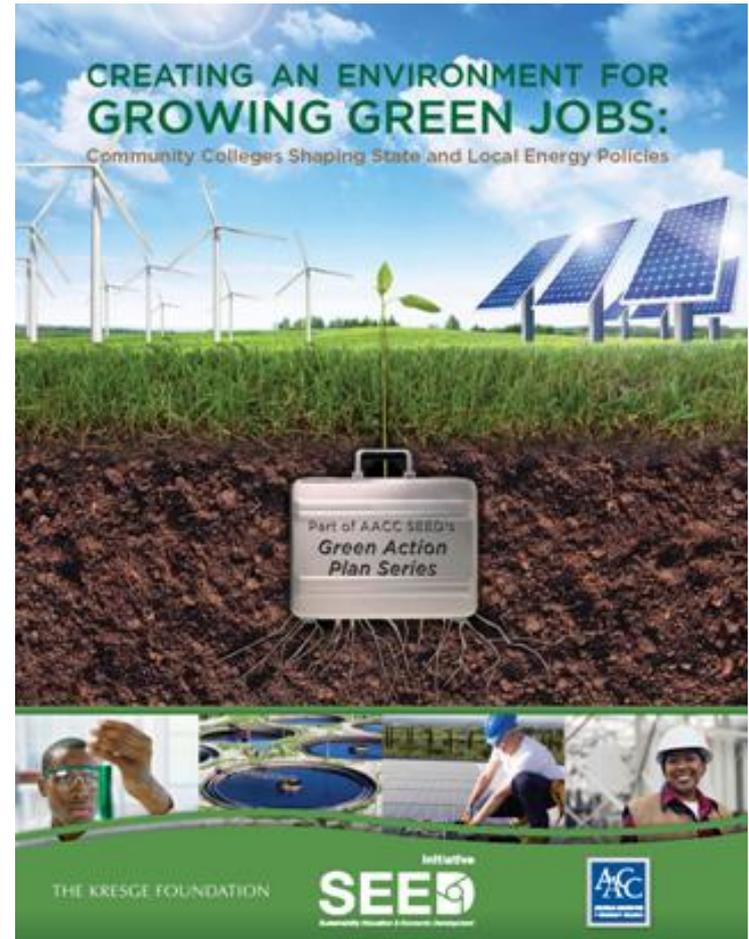
Center on Wisconsin Strategies (COWS) Greener Skills - How Credentials Create Value in the Clean Green Economy

Paper discusses the value of developing a national skill credentialing system for the new energy economy. It outlines an American skills needs and the need for a better, stronger, greener workforce system to support it. It describes



•AACC's SEED Policy Action Plan Toolkit!

» <http://www.theseedcenter.org/Resources/SEED-Resources/SEED-Toolkits/AACC-s-SEED-Green-Action-Plan-Series>



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

Ask for help - Build Support Systems - Celebrate the Baby Steps of Success

Dream big! - Eliminate Griping & Move to Problem Solving

Foster Self-care, Physical & Mental Health

Get Flexible and Take a Multi-pronged Long-term Approach

Humor those who participate - Involve everyone affected by decisions

Jazz up meetings with creativity - Keep on keepin' on to get energy

Laugh a lot - Make light of problems - Nature is renewing: connect with it!

Open your eyes and heart to the beauty around you

Picture your joy when the tide starts to turn

Quit worrying! - Re-live past successes to renew commitment

Say the kind things every time you think of one - Thank all who helped

Understand that slow beats stop - Visualize the joy of success

Wait with confidence that your ship will come in

Xerox a joke of the day with your logo to hand out (email to save paper)

Yell a little, just for fun

Zealously 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.
9. Proactive participation in own self-healing.
10. Investigate and employ holistic healing combination of methods

Source: O'Connell, Choice and Change, Prentice-Hall



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

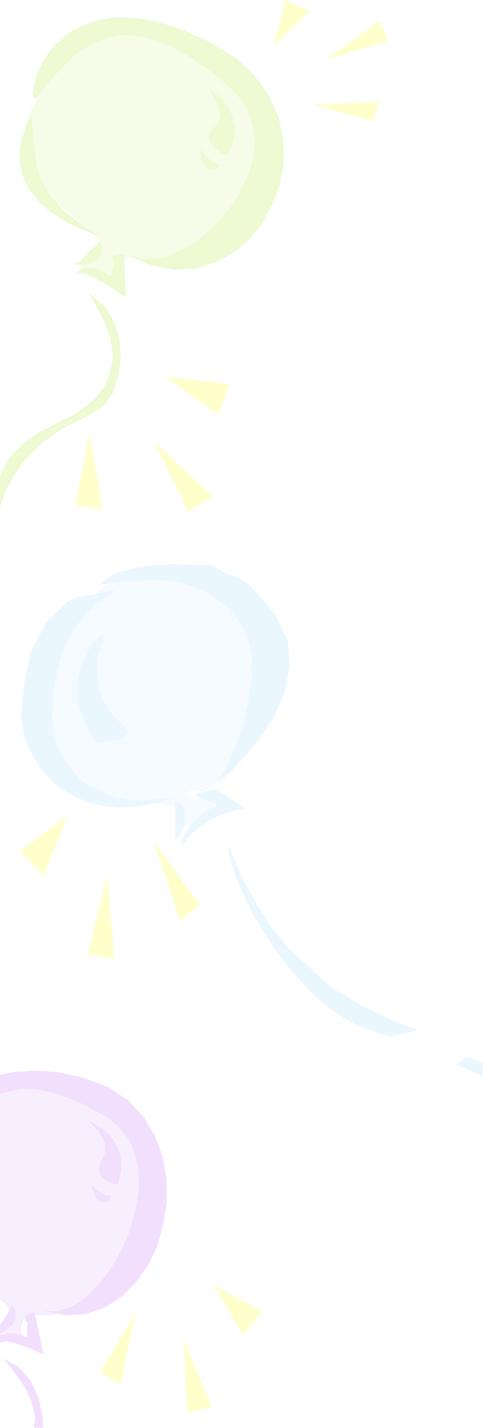




Change Agent Abilities Required to Help Create a Sustainable Future

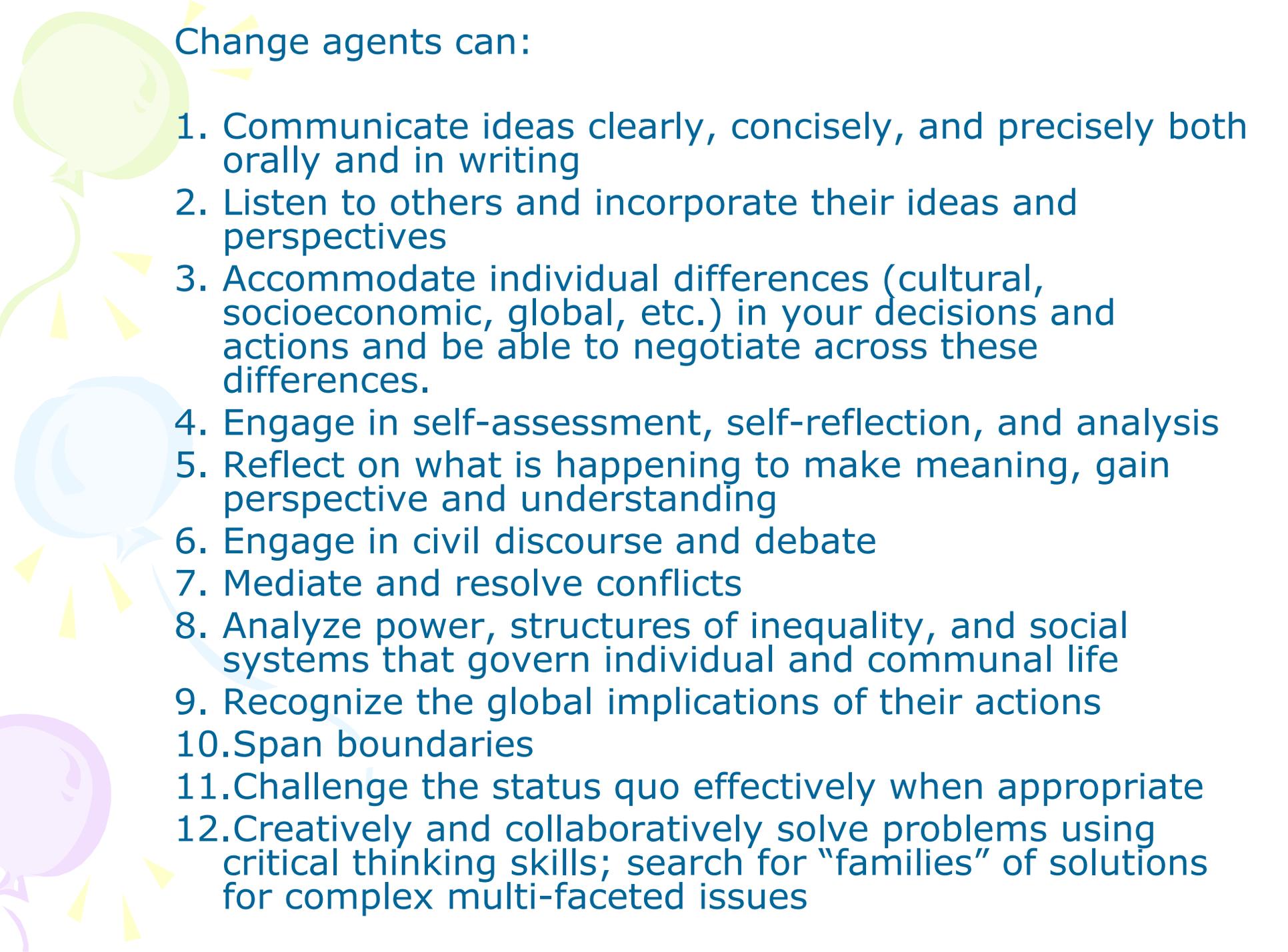
In order to be a successful sustainability change agent, an individual must have the following:

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 under gird 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)



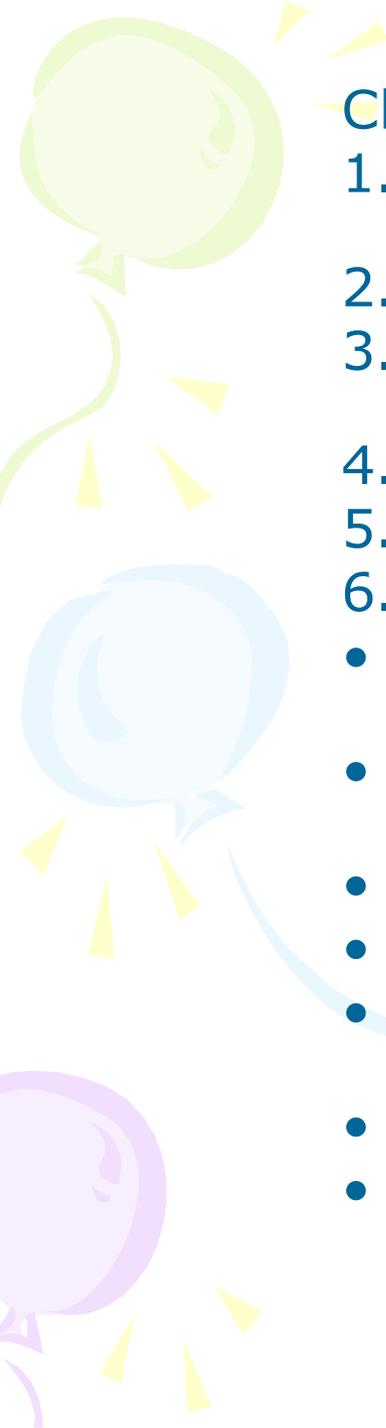
Change agents can:

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**
 - “A Social Change Model of Leadership Development” (1996)
 - “Systemic Leadership” (Allen & Cherrey, 2000)
 - “Reframing Organizations...” (Bolman & Deal, 2003)
 - “Relational Leadership” (Komives, S. R., Lucas, N., & McMahon, T. R., 1998)
 - “Social Entrepreneurship”
 - “Servant Leadership”