



Worker Education and Training Program

Implications for Safety and Health Training in a Green Economy

Report from
Fall Technical Workshop
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Chapel Hill, NC

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Implications for Safety and Health Training in a Green Economy

Introduction

The National Institute of Environmental Health Sciences (NIEHS) Worker Education and Training Program (WETP) strives to use innovative approaches to educate those working with hazardous materials or responding to emergencies involving hazardous materials. For the past 18 years the WETP, in conjunction with its awardees, supported the development of curricula and the initiation of training programs throughout the United States. These programs have helped employers meet the Occupational Safety and Health Administration's (OSHA) requirements under CFR 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER) and made significant contributions toward ensuring protections of public health and the environment.

The WETP's program model focuses on educating and training difficult-to-reach populations by addressing issues, such as literacy, appropriate adult education techniques, training quality improvement, and other areas not addressed by the private sector. WETP enhances, rather than replaces, the private sector's training responsibility by demonstrating new and cost-effective training techniques and materials.

The WETP held their annual fall conference, October 16-17, 2008. The conference, "Implications for Safety and Health Training in a Green Economy," confirmed that the WETP is taking the correct course of action, which is, developing training that prepares workers for green-collar jobs.

In the current state of affairs, green job training, including teaching principles such as green chemistry, is important because of the toxicity that is present in our work places, communities, and homes—toxicity that we never consider or notice until it begins to make us sick. Green job training is a public health imperative, if we want to avoid what could potentially become an epidemic of cancer. The next step for the proactive WETP is to fortify the green job training program by continuing to develop more curricula specifically addressing green chemistry and the health and safety risks associated with specific green jobs.

The fall meeting defined why and how green job training is important, and how these green-collar jobs will be significant in developing the nation's new green economy. The result puts the WETP in a unique position, that is, with the organization's current capacity, curricula, and infrastructure, WETP can bridge the gap between protecting the environment and protecting workers as the number of green jobs grow. There is no better organization to undertake the challenge of developing additional curricula and training programs for green jobs because many of today and tomorrow's green jobs are the same jobs from yesterday, i.e., today's terminology is the only difference.

Since the inception of the WETP's training program, the group has provided effective and accountable structures for training workers who handle hazardous materials, hazardous waste and those responding to emergencies involving these materials. This work is recognized as protecting the environment and health of surrounding communities; as a result the WETP can point to documented models of effective training interventions.

An Occupational and Public Health Imperative

WETP's effective measures in green training go back to their advocacy of HAZWOPER training (CFR 1910.120), one of the very first green initiatives related to the work place. This training requires workers who could potentially come in contact with hazardous materials to receive off-site training and demonstrate the required minimum competencies in three primary categories of work covered by regulation: hazardous waste clean-up operations, RCRA/TSD, and emergency response. HAZWOPER training also requires the employer to reduce employee exposure to hazardous materials.

Unfortunately, a green job is not necessarily a safe job. But proper training can assure that green jobs are safe. With its mission to fund non-profit organizations with a demonstrated track record of providing occupational safety and health education in developing and delivering high quality training to workers who are involved in handling hazardous waste or in responding to emergency releases of hazardous materials, NIEHS can fill the need to ensure that workers preparing for green jobs are getting both the skills and the safety and health training they need.

The WETP's foresight to recognize this paradigm puts them in a prime position to incorporate curricula for green skills into its existing curricula. WETP safety and health training will need to ensure that workers preparing for green occupations are getting the hard and soft skills needed to get the job done. Greener Pathways (2008) reports that "creating" green jobs really just involves the transformation of the industries that already exist, i.e., "less focus on creating courses of study and curricula from scratch, and more on embedding green curricula ... in existing programs."

Of the training offered by WETP, thus far, 95% of it is appropriate and useful for most green jobs. The remaining content, 5%, is technical information pertaining to specific green jobs and the health and safety information specific to the hazards associated with those jobs. In retrospect, WETP has consistently prepared workers for green jobs because environmental health and safety has always focused on "green training." For instance, the majority of reports related to the now designated green jobs include environmental/hazardous material clean-up services – the jobs for which the program has traditionally prepared workers.

Good and Green Jobs

A green career-oriented program should be developed within the context of other social and health needs of the community. The program should provide pre-employment job training, including literacy, life skills, environmental preparation and other related courses; construction skills training; environmental worker training including hazardous waste, asbestos and lead abatement training; and safety and health training. Some training should also include enrollment in apprenticeship programs for green construction and environmental remediation worker training. In addition, particular focus should be placed on establishing a program of mentoring. All of these pieces working in concert will help to enhance the participants' problem solving skills, increase their self-esteem, their understanding of team work and the application of technical knowledge to environmental and related problems.

In order to begin educating workers on existing environmental hazards, there is a necessity to understand the concept(s) of green chemistry, green construction, and green remediation.

Green Chemistry

Understanding green chemistry may be the most vital of the three to which workers need to be introduced. Based on the presentations at the fall meeting, green chemistry and worker health and safety training are highly correlated because of their toxicity and ecotoxicity. Humans are very vulnerable to the impacts of chemicals in the environment. For example, chemicals can interact with our DNA and cause mutations that could, potentially, lead to cancer.

Green chemistry is the design of chemical products and processes that reduce or eliminate the use and generation of hazardous substances (Paul Anastas). It is in the “design” phase, where scientists have the opportunity to prevent damage to humans and the environment. This concept of green design via the route of chemistry is a science of how to invent and make a molecule environmentally friendly, or safe, through green engineering. For a typical product seventy percent of the cost of development, manufacture and use is determined in its design phase. Green chemists need to direct more of this money toward research on the inherent hazardous properties of the materials; this would help move the design/engineering criteria of function, cost, quality, and safety to include chemical performance related to environment, human health, and social well-being.

To make this program comprehensive and enduring, the WETP will need to partner with organizations that are working to increase the number of safe, living wage, career-track jobs that directly contribute to preserving and/or enhancing environmental quality.

Green Remediation and Construction

Common definitions of green construction pertain to the materials being used in the building, the construction site itself, and to occupant health (indoor air quality). However, NIEHS has a role to play in ensuring that as we move forward, green construction is defined to include worker safety and health, and not just occupant health.

NIEHS can lead the way in showing that there does not need to be a tradeoff between impacts on workers and environmental benefits.

Serious safety and health issues do need to be considered and risks mitigated. For instance, what are the safety impacts of CO₂ reduction and green building? Impacts of going green can inadvertently make the work environment more hazardous.

NIEHS has an opportunity to develop and provide courses that graduate workers who understand green concepts, allowing them to work more productively on green construction sites.

“Green construction” was defined at the workshop as the way to build the new green economy (next energy sources). “Green in construction” is the way to think about how to implement green concepts into current construction projects.

A green building, also known as a sustainable building, is a structure that is designed, built, renovated, operated, or reused in an ecological and resource-efficient manner. Green buildings

are designed to meet certain objectives such as protecting occupant health; improving employee productivity; using energy, water, and other resources more efficiently; and reducing the overall impact to the environment. (from <http://www.ciwmb.ca.gov/GREENBUILDING/Basics.htm>)

Green remediation is the practice of considering all environmental effects of a cleanup during each phase of the process and incorporating strategies to maximize net environmental benefit of the cleanup. The focus of green remediation is on remedy implementation and not on remedy selection. From the workers' perspective:

- Worker health and safety remain the top priority, along with remedy protectiveness;
- We are not seeing green remediation technologies, we're seeing green remediation best practices;
- Best practices are often identified on the ground, at the site level – this highlights the importance of worker training and empowerment; and
- Companies with strong sustainability principles often have robust environmental management systems (EMS) systems and safety health and environmental (SHE) policies.

Action Items for NIEHS

- Find ways to document that a green economy improves public health;
- Continue to foster the links between environmental justice and construction unions;
- Research the impacts of green work on worker safety and health;
- Think about pushing government to include green principals in health and safety plans;
- Perform a green impact assessment on NIEHS training; and
- Develop a baseline green course.

WETP's goal should be to increase the number of safe, living-wage, career-track jobs that contribute directly to preserving or enhancing environmental quality.

NIEHS has a role to play in determining how the world of green jobs connects with the cause of a green environment and to help ensure that the green economy is in fact different than the polluting economy.

While we know the polluting economy will not disappear overnight, the ultimate goal is cleaner production. Cleaner production can be achieved through green chemistry. Workers who understand green chemistry understand that safe substitutes are available and can be achieved and that legislation or regulations can help facilitate the process. For example, in New Jersey the Inherently Safer Technology Act has begun to reduce the amount of a hazardous substance stored on site and has encouraged the substitution of less hazardous chemicals.

Conclusion

NIEHS can lead the way in showing that there does not need to be a tradeoff between impacts on workers and environmental benefits. Moreover, the WETP has the opportunity to develop and provide more courses that graduate workers who understand green concepts, which, in turn, will allow them to work more safely, productively, efficiently, and effectively in their green jobs.

As the United States invests money in up-and-coming green jobs and programs, the WETP needs to continue to play an on-going role because it has:

- mechanisms for getting funding and resources out to the community and into the field;
- a process in place for evaluating its efforts (including its effectiveness in training);
- partnerships with local, state, and federal agencies, contractor, academia, and labor organizations; and
- years of success in demonstrating the program's responsiveness in meeting national priorities.



Appendix

Notes from October 16-17, 2008

NIEHS Worker Education and Training Program Fall Technical Workshop

Implications for Safety and Health Training in a Green Economy

Thursday, October 16, 2008

9:00am

Welcome and Overview

Joseph “Chip” Hughes, NIEHS

- Appreciate attendees participating in Fall workshop
- Exploring ideas for sustainability in a “green” economy

Sam Wilson, NIEHS

- Want to emphasize how important the WETP program is to NIH
- Important that we have an emphasis on the translational aspect of our work
- Been a fan of the innovative and original communication materials – example: hurricane booklet

Key Note

Dave Foster, Blue-Green Alliance

- Mentioned DeNora incident in PA in the 1950s
- Recalled the history of the labor movement
- Clean energy economy will make way for new work, new unions, new social agenda
- We face the most serious economic crisis of our generation
- We have to construct a new economy, new regulations, and new definition of values in this country
- What is the green economy and green jobs?
- Green job is a blue collar job with a green purpose
- Doing the jobs we already have to clean up the environment
- BG Alliance is founded on the premise that the environmental challenges in the 21st century will create the jobs of the future
- Foster was brought up on the thought that it was old jobs vs. the environment
- Environmental investments create jobs
- Every piece of equipment needs operators and maintenance crews
- Environmental regulation was the stimulus to creating new processes that save electricity and increase productivity
- Energy, environment, economy problems can be solved
- \$100B investment over the next 2 years will create 2M new jobs
- 6 strategies to stop global warming
 - Wind energy
 - Solar energy
 - Advanced biofuels
 - Retrofitting our buildings
 - Expanding our railways
 - Smart grid transmission

- Global warming is the most important economic issue of our time
- Global warming and discharge of harmful chemicals are related
- FDR, if he were alive today, would call the initiative a “New Deal for a Green Economy”
- A poisonous job is no job at all
- Role of training and education of workers is absolutely central to the transformation of today’s toxic sites to the green job sites of the 21st century
- February 4-6, 2009, Good Jobs, Green Jobs Conference in Washington, DC

9:40am

Plenary I: Key Policy Drivers for Green Initiatives

Moderator: Chip Hughes, NIEHS

J. Phillip Thompson, MIT

- Have a group at MIT who think about the consequences of transforming to a green economy
- Discussed policy issues related to green jobs
- American Planning Association, US Green Building Council, have lists for “greening” towns and cities
- Miami may build a new nuclear reactor or institute initiatives that reduce energy consumption – don’t know which one will be chosen
- The political will must be there in order to transform to a green economy
- At state and local level – NYC and Chicago want to retrofit buildings
- Storm water runoff management must be done because our ocean is in worse shape than our air
- Materials purchasing – where are these products going to be built?
- Manufactured housing - can’t build for the future with stick built housing
- We need to work together in a global economy

Jason Walsh, Green for All

- Green for All is based on Oakland, CA and started September 27, 2008 to deal with poverty and corollary poverty, and environmental destruction and climate change
- Poor communities have bore the brunt of toxic waste
- Single solution to both problems (poverty and environmental contamination) – build a green economy that is strong enough and inclusive enough to lift the community out of it
- Green jobs are at the heart of the solution
- The Green Jobs Act was signed in 2007 through the Energy Independence and Security Act
- Authorized \$125M per year – challenge is to get funding
- Creates an Energy Efficiency and Renewable Energy Worker Training Program
- Energy Efficiency and Conservation Block Grant Program
- New program within DOE, authorized at \$2B per year
- Impressive piece of legislation
- Money used for “greening” cities, counties and towns

John Warner, The Warner Babcock Institute for Green Chemistry

- Come to a point in our society where we must reevaluate whom to believe when talking to those who understand science (designers), and those who don't
- The manufacturing process to create most chemical sensors emit more chemicals than the sensors can ever sense
- The manufacturing process to create solar panels uses so much energy that it takes years to save the energy of the solar panels

Question

Have people developed a public awareness campaign to help understand issues with the chemistry processes that develop the materials?

Answer

In San Diego there is a 40 acre brownfield that was turned into a market plaza. An afterschool science center was created through donations from CalTech and companies.

Question

How can we ask how to turn on the funding stream?

Answer

December 12, 2008 MA Governor Patrick will be talking about how to spend the \$1B funding. A lot of opportunities are at the state and local level.

Question

Thoughts on the kind of job displacement this agenda will create?

Answer

Particular communities will be hard hit. We need to think about community development and make the investments necessary.

11:10am

Plenary 2: Green Chemistry

Moderator: Paul Renner, Labor Institute

Terrence Collins, Institute for Green Science, Carnegie Mellon University

- Discussed Green Chemistry, and Worker Health and Safety Training
- Wrote counter viewpoint to a colleague article saying that scientists should focus on more than just the science
- Green chemistry is most related to toxicity and ecotoxicity
- Must focus on education, takes 10 or 15 years
- Fascinated by entrepreneurs
- Investment
- Business
- Advocacy
- Research
- Internationalism
- Environment
- We are more complicated and vulnerable to impacts of chemicals in the environment
- Chemicals can interact with DNA causing mutations that may lead on to cancer
- Endocrine Disrupting Chemicals (EDCs) are to the chemical enterprise what subprime mortgages are to the financial sector – if we persist in not acknowledging and addressing them, they will bring the enterprise down

John Warner, The Warner Babcock Institute for Green Chemistry

- In the 1980s, he went to Michigan to determine whether a chemical was an endocrine disruptor
- Green chemistry gets into the “design” moment – where scientists have the greatest opportunity to prevent harm
- In the 1990s, talking about pollution prevention and created Non-Covalent Derivatization (NCD), went to EPA for approval, and they denied the process
- Far safer, far more environmentally friendly
- There was no science for making safer materials
- Created 12 principles of green chemistry
- Green chemistry is not a policy, it’s a science of how to invent and make a molecule in an environmentally friendly way (safe materials)
- Consider the entire lifecycle of all the materials in the environment, there is something wrong with more than 90 percent

Evan Beach, Center for Green Chemistry & Green Engineering, Yale University

- Green engineering has much in common with green chemistry because of the importance of design
- For a typical product, 70% of the cost of development, manufacture and use is determined in its design phase

- Want to get away from design and work more with the inherent hazardous properties of a material
- Performance must evolve from function, cost, quality, safety to include environment, human health and social wellbeing
- Design
 - Inherently benign, resiliency, life cycle, systems thinking, intended lifetime
- Innovation
- Provide service without physical entity
- Redefine the problem, ex: getting caffeine out of coffee beans
- Instead of extracting the caffeine, engineer plants that grow caffeine-free coffee beans
- 12 principles of green engineering
- Problem involves bringing conservative industries onboard

Denise Patel, New Jersey Work Environment Council (WEC)

- In US, for chemicals, it's innocent until proven guilty
- WEC has plans to develop a NJ state green chemistry policy
- Last year NJ passed the Inherently Safer Technology (IST) Act
- Many aspects are like green technology
- All 49 chemical plants in NJ have implemented aspects of IST
- Set up training about what IST is, what it means for workplace health and safety, and how we can all make NJ safer and more secure
- Now IST covers electricity facilities and oil refineries too
- In Summer 2008, WEC piloted the first ever green chemistry training, Tony Mazzocchi Center created the content

Question/Comment

When you are doing your brainstorming phases, consider the effects on the end user

Question

37 million chemicals listed, not 8,300 – why the discrepancy?

Answer

37 million is the different compositions of matter. There are problems with the 8,300 that we need to focus on.

Question

Any intersection between nanotechnology and green chemistry?

Answer

Problem with the toxicity of nanoparticles
 Nanoparticles sometimes change the toxicity of other particles
 University of Oregon has a center for Green Nanotechnology

Plenary 3 - Environmental Justice & Good/Green Jobs for All

Moderator: Sharon D. Beard, NIEHS

Donele Wilkins, Detroiters Working for Environmental Justice
Transcending the Movement: The Case for Change

Detroiters Working for Environmental Justice

- raising awareness
- focus: clean air

Lead (Pb) poisoning: widespread Pb found in soil

- 22% of African Americans are exposed to Pb poisoning

Brownfields Projects – downtown Detroit area

History of the region: 40,000-65,000 contaminated properties

Environmental Justice Activists → focused around industry in neighborhoods

Activists work with the EPA and other agencies to yield equal protection for everyone under the law

Opportunity → Fighting against Pollution & Vision Creation

-look at the community

-leverage resources

-revitalization

-share the wealth

NIEHS with DWEJ → green jobs specialization courses

Green Jobs

-skills and ability to develop skills

-address legacy

-make available skill sets with course specialization

Sustainable Vision –Green Vision

Solutions:

-promote civic engagement

-educate

-multi-disciplinary collaboration

-encourage sustainable development

For More Information:

<http://www.dwej.org>

Michele DePass, Ford Foundation Minority Workers

Ford Foundation is known as “The Third Sector”

- Second largest foundation in the world
- \$750-850 million given away each year
- \$12 billion, endowments

Seed innovation and support many environmental justice organizations

How to use foundation in leveraging?

Ad hoc group → Just Green → funding

“E” Cubed D:

Economic

Environmental Justice

Environment

Democratic Parties (Participation: bring people to the table)

Example Org:

1.) Tides, New World, etc.

Needs – Cost-benefit analysis (linkages and connections)

2.) Living Cities Collaboration (www.livingcities.org)

Collaborators: Second largest corporation section

Green working group on green cities; economies; building

Green Economy, what it means?

-Potential investment

-Funding feasibility

-Trade unions get involved and move toward their agenda

-Banks, foundation

3.) Collaboration → Health & Environmental Funders Network

Funders: Social change strategy

-green chemistry

-seed innovation in green chemistry

-healthy: people, ecosystems, and communities

-work to protect particular populations

Jason Walsh, Green For All Role of work force development:

-good green jobs for all

Workforce development for green jobs:

Work on the best → best practices

- 1) Green work force development => cohesion and development
- 2) Build green jobs to scale – build on existing training systems out there
- 3) Creating a green economy – new industries too; workforce development – embedding green curricula in courses
- 4) Don't isolate green jobs from other industries
- 5) Certifications and credentials
- 6) Make transition as an opportunity to make jobs that work:
 - education connected with skill train
 - policy drivers, environmental factors -> job training, good new jobs

Kirk Laflin, Partnership for Environmental Technology Education (PETE), Executive Director

Community Colleges Preparing Green Jobs

-national non-profit

-work with 400 community colleges

US Environmental Programs

What's Driving Business and Industry?

-triple bottom line

-Sustainability Reporting

-Green Collar Worker- employed in environmental sectors of the economy
(As defined in Wikipedia) and includes professionals

-Community Colleges serve as access points

Sustainability

-impact on Earth

-the BIG picture

-smart growth development

-low impact development (LID)

-green roofs

Zero net housing- producing energy on site

“Triple Bottom Line”

-community colleges incorporate it into their programs

-solar science technology

-PETE instructor conferences (two times a year)

Defining Energy Technology and Services

-community colleges: what they are doing, planning to be there more to meet commercial industry needs.

Thursday, October 16, 2008: Breakout Sessions

Green Chemistry breakout session

Facilitator: Paul Renner

OSHA 1910 Standard

Green work all along...the mantle of green

120 31.34 geared toward crafts

Emergency Response Program:

- recognition and prevention
 - hazardous materials
- **All of the above:**
- *Grounding of standard*
 - *Green certification*
 - *Thought stimulators*

Green Chemistry: Refinery (prevention of exposure; safer chemicals to use)

- Firefighting (Green Chemical Policy)
1. Chemicals firefighters are exposed to (use PPE)
 2. Look at chemicals for Firefighter protection
 3. Chemicals firefighters use to fight fires

Substitutions made, less hazardous—more problems

-statewide environmental issues
-rep. chemical workers
-substitution

Carbonox, a cleaner with a pH 13...hazardous when people do not know how to handle correctly, or are not instructed on its use

-design phase: what and how you use products
-industrial hygiene
-waste management covered in a 40 hour class
-green concepts with people protecting self
-great technologies now → problems later

-yes, to some extent principles must be taught

Incorporate Bigger Picture Analysis, Get People to Think More about the Concept

- how to prevent
- how to change policies fundamentally

1) Larger Discussions, Bigger Picture:

- how/what programs can incorporate Green?
- preserving jobs is conserving, creating new jobs

REACH → Ahead or Behind Curve – Green technology

- new technology
- new non-toxic chemicals

2) Social Unionism: language used to talk about things

- everyone should be taught chemistry—we can all learn it, and we learn it in different ways—people are just not good at teaching it

Green Certificate Program:

- standardized program, make core certification
- preserving concept of green; don't force it to match and then have it mean something different

Green Building Alliance

LEED Certificate → rigorous is the procedure—the Certifying Body—criteria for certification!

Chemical Industry: should set policy

- worker participation
- understanding concepts

What new technology should be used?

- how to use it?
- discuss it?
- how can changes be input?

Is greener safer???

- less hazardous
- greener can still be unsafe, even though it is less toxic
- this needs to be defined: the context and the worker

New technology, looking back at past discussions

Green Chemistry: getting rid of hazards

Environmental Justice and Good/Green Jobs breakout session

Facilitators: Amanda Allen, Jerry Repka II

What are we currently doing in our training and work that could be considered green?

- Solar Panel installation job training – Palo Alto – Solar Panel Institute is doing the training (CPWR) in conjunction with BMWTP. 6 weeks for this component. Willing to share this curriculum.
- Energy Audits – consultants are providing 24 hr training w/ DWEJ (EPA has congregation conservation – reducing energy costs and carbon footprints in churches.) There are curricula available. Wright College in Chicago provides [Home Energy Rating Services \(HERS\) certification](#) (24 hrs of classroom + 6 audited auditing sessions). Chicago weatherizing homes – installs installation, window caulking. OAI looking into T-the-T course.
- Hazardous waste cleanup
- Carpentry – green building and materials reuse
- Build institution in New Orleans, starting in 2010. [Prince's \(of Wales\) Foundation For the Built Environment](#).
- Emergency Response
- Weatherization – not necessarily trained in hazardous waste remediation (confined space training; lead, mold and asbestos - OAI doing already)
- COSH groups
- Bio-brick – air pockets – create insulation, uses thin layer of adhesive.
- [Future Proof](#) – in New Orleans
- School of Architecture at MIT – Phil works with a guy that can help us.

We're making things green, but are they safe for the workers?

Solar panel installation and wind turbines – are we seeing more falls? Is that really green?

We have to play the role of advocate for health and safety.

If you are a LEED certified building, you must have H&S.

Smart Growth Coalition for Livable communities – green bldg policy meetings week of 10/20/08

Apollo alliances

Green Jobs Act and federal funding – we need collaboration and ensure health and safety training and language is in the Act. (Amend it). True also for housing and transportation bills. We need to fight for health and safety.

Green for some, not green for all.

Less sprawl. Building everything you need close by so you can walk there.

Funding Options

OAI's Green Corps Program gets funding from city of Chicago and EPA. Put together a patchwork of funding to create their programs.

Clinton Climate folks have partnered with lots of organizations.

Community Development Block Grants funding. Put in an on-the-job training.

DWEJ is creating the work and DOING the work that they train for so they don't have to wait on someone else to hire their staff.

Program Related Investments (PRI). Foundation assumes the risk and gives a low rate loan. Not a grant. Terms are different from a bank. More flexibility and options. Foundations are doing these. Ford, MasterCard, Kellogg, Gates all have PRIs. Recoverable Grant (RG) – a grant that is to be recovered. But that is also high risk. Grants are seen as investments. At Ford Foundation the PRI and RGs are combined; other Foundations may do it differently. RGs are basically not expected to come back and are much less money. PRI is major funding and is recoverable.

Missing: discussion on policy. Public sector (not the private sector) needs to fund infrastructure improvements.

We're giving corporations subsidies, but not making them change their ways and forcing them to come up with new technologies and practices.

Habitat For Humanity – great partner for all of this. They are receptive to working with job training programs for real-world experiences. But they don't seem to be interested in the H&S discussion. Also interested in going green.

Citrus based cleaners are so much harder to use so H&S is not being taken into account. Chemical cleaners were used to eliminate workers (strong cleaning solutions = fewer workers).

Deconstruction vs. Decommissioning

Involve the students. Involve the local communities.

Upcoming RFP suggestions – include curriculum development around green jobs.

Green Remediation and Construction breakout session

Facilitator: Tim Fields, MDB, Inc.

What is Green Construction?

Jim Platner, CPWR

- So far we have taken a very broad view of green, to include social justice
- Green Construction includes mostly materials, construction site, occupant health and safety (indoor air quality)
- It does not look at construction worker safety
- We have to work to make it include these issues
- Recycled content
- Client is the driver for LEED certification – whatever the end user wants

Gary Gustafson, LIUNA

- Looking to put “green” into a construction site
- Construction projects need to tap the local workforce in order to train the next generation of workers
- Educating workers to let them know what their carbon footprint is

Examples of Green Construction

- City Center in Las Vegas
- All built to LEED certification
- Impact of being green could make the work environment more hazardous
- LIUNA gets calls from NYC construction companies asking for “green” training
- Need to train the workforce to reduce, reuse and recycle
- University of Oregon study says that nonfatal injuries at green construction sites are higher than regular construction sites because people are performing tasks that machines would normally handle

EPA Green Remediation Primer

Voluntary Examples of Green Remediation

- Achieve Energy Efficiencies
- Reduce Air Emissions
- Minimize Water Use/Maximize Water Reuse
- Minimize Land/Ecosystem Impacts
- Minimize Waste Generation and Reuse Materials
- Reduce Greenhouse Gas Emissions
- EPA Developing guidance for contractors, put language in contracts to consider how to achieve the six examples of green remediation

- EPA has training program for on scene coordinators on how to consider green principles during environmental remediation
- U.S. Green Building Council's LEED – Leadership in Energy and Environmental Design certification
- LEED provides a scoring system for both new construction and retrofitting
- American Federation of Teachers (AFT) is pushing Collaborative High Performance Schools (CHPS) in CA which takes into account green designs in schools
- Biggest problem is the upfront costs
- Would like to emphasize the long-term benefits of green building, including the fact that children will be spending 8+ hours a day there

Actions

- Need for public outreach Education Programs (focusing on building life cycle)
- Need for state and local government coordination and support

What are the implications of Green Remediation/Green Construction for worker health and safety? For worker training?

- Worried that the government will do less than they do now to enforce the worker safety and health regulations
- Mindset rather than a skill set that we need to focus on – worker needs to understand the impacts
- We need to incorporate green safety and health modules into the current training
- There is a need for research on worker impacts
- There is a need to perform training on health and safety trainers (train the trainer) for GR and GC
- Would OSHA classify green vs. non-green jobs to see which are more hazardous? Probably not
- There is trade-off between impacts on worker and environmental benefits
- We must consider the impact on NIEHS training programs
- Add modules to the training
- Problem with Superfund training is that the worker is not educated about the physical hazards

Benefits of Green Remediation and Green Construction

- Benefits will be that the new economy will dictate mandatory “green” policies
- Greater public health protection
- Increased employability
- Higher productivity
- Healthier workers
- More reuse

Implications of Green Remediation and Green Construction for NIEHS WETP and Awardees

- Be the bridge between protecting the environment and protecting the worker
- Perform a “green” impact assessment on NIEHS training
- WETP wants to do a new RFA by July 2009, complete assessment by then
- Need to develop a baseline “green” course

Friday, October 17, 2008

9:00am

Welcome

Chip Hughes, NIEHS

Key Note Address

Raquel Pinderhughes, San Francisco State University
Pathways Out of Poverty through Green Collar Jobs

- Barriers to Employment include:
- Not having a HS degree or GED
- Out of the labor market for a long time
- Limited labor market skills
- Having a criminal record
- Green collar jobs are manual labor jobs that lead to improvement in environmental quality
- Pinderhughes has identified 22 green collar job sectors
- Criminals that are released and stay in the labor market for 1 year, their recidivism rate drops by 30%; 2 years in the labor market, drops by 50%

Research Findings:

- Green collar jobs can lead to pathways out of poverty
- Surveyed San Francisco people that have barriers to employment, and 97% were interested in green collar jobs

Pinderhughes Green Collar Job Training & Placement Model

- Target Population: 18-35 year old men and women with barriers to employment
- Training: 3-6 month training that utilizes both classroom and on-the-job training
- Partners: Job training programs, green employers, city and county government

Aspects of the model:

- Soft skills training (hardest piece of the program)
- Hard skills training
- Financial literacy
- Environmental literacy
- Internship with case management services
- Green Business Council
- In some ways it is the same training program, in other ways it is not
- Trade apprenticeship programs do not serve the needs of these candidates
- Pinderhughes study can be found at: <http://www.bss.sfsu.edu/raquelrp>
- Trash pickup can be reconstituted as recycling, which will lead into other sectors of the economy
- Best training programs in construction have done a great job connecting with the trade unions

10:00am

Plenary 4: Green Remediation and Construction

Moderator: Tim Fields, National Clearinghouse/MDB, Inc.

Jim Platner, CPWR – The Center for Construction Research and Training

BCTD Energy Statement

- Humans cause global warming
- Improve efficiency and conservation
- Modernization of existing power plants first
- Diverse technologies: clean coal, nuclear, renewable
- Improve energy infrastructure & oil refinery capacity
- CO2 cap & trade to reduce emissions by mid-century
- Similar requirements in China & India
- Access US Oil & Gas with environmental restoration
- Green Buildings – green construction & worker training
- Davis Bacon wages for contracts with federal support

Draft OSHA Project Scoring

- Emphasis on pre-project planning
- Design for safety / constructability
- Scheduling & no stacking of subs
- Pre-qualify safer contractors / subs
- Site traffic and materials flow plan
- Workforce sustainability plan (to be added)
- Safety program implementation

Construction Safety Score

- Project Team (6.6 pts)
- Safety & Health in Contracts (5.5 pts)
- Safety & Health Professionals (8.1 pts)
- Safety Commitment (4.3 pts)
- Safety Accountability & Performance Measurement (8 pts)
- Industrial Hygiene Practices
- Drug & Alcohol Program
- Accident Investigation & Reporting
- Employee Involvement

Training and Outreach

- Train LEED Auditors with Activist Perspectives
- Participate in local development planning
- Increase worker / community awareness

Research & Policy Issues

- Expanding Green: Social Responsibility/Sustainability
- Workforce Surge Capacity & Sustainability
- Life-Cycle: Technology, Task & Skill Assessments
- Safety Impacts of CO2 Reduction & Green Building
- Verification/Validation of LEED Process

Gary Gustafson, Laborers AGC Training Fund Green Construction

Laborers AGC is the training arm of LIUNA

Two types of green:

- Green construction – building the new green economy (next energy sources)
- Green in construction – how to implement green into current construction
- Many construction companies are not interested in green employees, they want employees who understand green concepts
- Training typically occurs between projects or when they are out of work – a “green” course would not be attractive to these candidates
- Developed an introduction to green course – works to change the mindset of workers
- Older workers are resistant to learning
- Looked at teaching workers how to recycle – change the old adage of “when in doubt throw it out”
- There is tremendous waste generated in constructing a building

Carolos Pachon, EPA Office of Superfund Remediation and Technology Innovation (OSRTI) Green Remediation: Maximizing the Benefit of Site Cleanups

The practice of considering all environmental effects of a cleanup during each phase of the process, and incorporating strategies to maximize net environmental benefit of the cleanup

Focus is on remedy implementation vs. remedy selection

Core Elements: Land and Ecosystems

- Plan for minimizing soil and habitat disturbance, and recycle topsoil where possible
- Identify and clear site of sensitive/endangered species
- Pursue revegetation with native species and integration with local habitats
- Reduce noise and lighting disturbance

Core Elements: Long-Term Stewardship

- Reduced emission of CO2, methane, and other greenhouse gases
- Integrate remedial decisions with reuse decisions
- Renewable energy systems for long-term cleanup and future economic benefit
- Leverage of remedy infrastructure for reuse

Core Elements: Energy Requirements

- Energy efficient equipment operating at peak performance
- Periodic evaluation and optimization of equipment with high energy demand
- Renewable energy systems to replace or offset grid electricity
- Managed demand to leverage low peak capacity and rates
- EPA has a series of internal and external tools on green remediation

Green Remediation (GR): A Workers' Perspective

- Worker health and safety remain the top priority, along with remedy protectiveness
- We are not seeing "GR" technologies, we're seeing GR best practices
- Best practices often identified on the ground, at the site level – importance of worker training and empowerment
- Companies with strong sustainability principles often have robust environmental management systems (EMS) systems and safety health and environmental (SHE) policies

Question

How can certifying in LEED push a social justice system?

Answer

If you are outside the system, it is difficult to influence it

Question

Is there a training program to alert people about how dangerous PVC is?

Answer

There are other contaminants of concern also
LEED looks at planning issues too

11:15am

Summary Panel: Insights and Future Directions

Moderator: Donald Elisburg, National Clearinghouse

How does this world of green jobs connect with the new cause of the green environment?

Craig Slatin, University of Massachusetts Lowell
Environmental Justice and Good/Green Jobs

- Focus on looking at whether the green economy will look different than the polluting economy
- Process of finding a way to create social and economic transformation along with the greening
- Making green jobs an environmental justice initiative, we have to help WETP to push the effort

Gary Gustafson, Laborers – AGC
Green Remediation/Green Construction

- Green is still being defined – we need to be at the table during these discussions
- Worker health and safety is sometimes not being considered
- We must remember the lessons learned the past 3 days and take those back with us

Paul Renner, Labor Institute
Green Chemistry

- Green Chemistry is the process of modifying substances on the molecular level
- Exciting because it has the possibility to become real because of REACH



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