



Sustainable Resources

2003 CONFERENCE

An International Forum Connecting People with Hands-On Solutions to World Poverty

Pre Conference Workshops

September 29–October 1, 2003



Use of Hard and Soft Technology for Sustainable Development

Wednesday, October 1, 2003,
8:00 am – 12:00 noon

Dr. Edwin Shinn and Mimi Shinn,
Co-Founders of Village Earth

Effective use of technology requires that it be appropriate to the resources and goals of the users of the technology and that both hard technologies and the techniques of their use (soft technologies) be packaged and applied together. This short course will illustrate how these concepts have been applied successfully in developing communities and demonstrate how to assemble a complete technology package. A workshop will allow attendees to practice these techniques.

Combining Bucket Kit Irrigation with Relief Food Programs

Wednesday, Oct. 1

Dick Chapin,
Chapin Watermatics

When starvation threatens, the short term solution is food distribution to save lives. The long term solution is to teach the poor to grow their own vegetables when there is not rain. This workshop is an opportunity to learn from one of drip irrigation's pioneers, Dick Chapin and his experience in how improved irrigation can make a huge difference in developing communities as well as in your own back yard.

Dick has been working with drip systems for over 40 years and is the inventor-manufacturer of the patented Turbulent-Water Drip Irrigation Tape.



Hybrid Solar Greenhouse

Monday, Sept. 29 and Tuesday, Sept. 30

Charles Ewing, Director, S.E.A.D.S.,
Columbia, Maine

This workshop is the "hands-on" two day construction of a low cost modular structure which consists of a combination system: photovoltaic and thermal panels combined with a hydroponic grow system, grey water purification and waste treatment cycle.

The concept has been tested in Maine, the Nevada desert, and urban areas in Maryland and New York state. It can be

assembled by the average person. Materials are "off shelf" products modified to provide space for human shelter as well as fish, chicken and rabbits.

The energy sources most commonly used in the Northeastern US, are creating pollution, and keeping many at the poverty level, just to keep warm! Low-cost, do-yourself solar projects, can help lower energy expenses, as well as giving therapeutic effects of growing your own food and the self reliant lifestyle. Due to non-renewable fuel costs and our dependency on fossil fuels, the Northeast is where the payback on solar investments are the quickest.

For more information on these workshops, or to register, please see our website at: www.sustainableresources.org.

Or call us at 303-998-1323 • Tollfree 888-317-1600



Renewable Energy 101

Monday, Sept 29 and Tuesday, Sept. 30

Roger Taylor, Peter Lilienthal, Joe Wenisch
National Renewable Energy Laboratory



Since 1994, the National Renewable Energy Laboratory's Village Power Group has

worked on ways to match renewable energy technologies with international, rural energy needs. With a focus centered on water supply, lighting, communications, recreation, health services, education, food supply, enterprise, ice making, water purification, desalination, battery charging, and water pumping, they developed a multidisciplinary team, an application- and village-need-driven focus, and tested a broad set of in-country activities. They developed applications, testing systems, mapping resources, analyzing options; initiated pilot projects, conducted outreach, training, and information activities. This seminar shares their lessons learned and ways to initiate an integrated approach as a model for rural electrification with renewables.

General Overview of Renewable Energy Technologies and Applications

- Resource Assessment: Solar, Wind, Biomass
- Technologies: Solar Electric (Photovoltaic) Technologies, Concentrating Solar Thermal Power, Solar Water and Air Heating, Biomass Conversion, Geothermal, Wind, Fuel Cells and Hydrogen
- Applications: Wind, Large, Utility Scale, Small, Village Scale and Applications Specific, Hybrid Power Systems
- Buildings: Building Integrated PV, Building Design
- Analysis and Modeling: Energy 10, HOMER
- Policy and Deployment Issues: Training Accreditation and Technology Certification, Climate Change: the UNFCCC and Current State of Affairs
- Policies for Renewable Energy Promotion: a Comparative Overview, Lessons Learned from the Village Power Experience

Worldwide Wind Energy Development

Wednesday, October 1 (1 day)

Paul Gipe, Author of *Wind Power for Home & Business*, *Wind Energy Comes of Age*, *Wind Energy Basics*, and other books on how best to responsibly use wind energy.

The workshop provides a comprehensive introduction to the fundamentals of wind energy, including an overview of wind energy development worldwide especially in North America and Northern Europe, the essentials needed for wind development, applications for wind energy from "off-the-grid" home-steads to utility-scale wind power plants, wind technology today, resource assessment, and wind energy's environmental impacts.

Power in the Wind

Participants learn how to calculate the power in the wind and estimate how much energy wind turbines will typically produce. Participants also learn why rotor diameter is such a critical factor in determining how much energy a wind turbine will produce, and why tall towers are so important for gaining the most from a wind energy investment.



Technology

The workshop discusses the advantages of various wind turbine configurations, why there is so much talk about variable speed machines, the difference between fixed-pitch and variable-pitch turbines, and why wind turbines in 2001 are more than 15 times the size of those installed in the early 1980s.

Siting

Attendees learn about setbacks, land requirements, royalty payments, compatible and incompatible land uses, visual impact and aesthetic design, public and occupational safety, impact on wildlife, and mitigation measures.

Who Should Attend

Anyone considering the use of wind energy, whether a farmer or utility executive, who has little prior experience with the technology.

Renewable Energy for the Developing World

Wednesday, October 1

Laurie Guevara-Stone, Johnny Weiss
Solar Energy International, Carbondale, CO

Renewable energy resources of solar, wind and water can improve the quality of life and promote sustainable development throughout the world. Renewable energy systems are practical, reliable, cost-effective, and healthier for people and the environment. This one-day seminar focuses



on applications for renewable energy technologies in developing countries: how to successfully accomplish



sustainable development projects with renewable energy, effective technology transfer methods as well as setting up

infrastructure and the economics and financing of renewable energy projects. Case studies will be presented on solar cooking, rural household electrification, appropriate building technologies, rural health care, micro-enterprises utilizing renewable energy, and discussions on issues such as being a woman in a traditionally male field. Renewable energies provide an opportunity that can break the chain of gender bias and equip women with the necessary skills to participate in the design, installation and maintenance of systems in their communities.

For more information on these workshops, or to register, please see our website at: www.sustainableresources.org.

Or call us at 303-998-1323 • Tollfree 888-317-1600



Zero Emissions Research and Initiatives (ZERI): Using Nature to Meet Basic Needs

September 29–October 1

David Schaller, Jon Schulz, Jim Gills, George Chan, and Gunter Pauli



ZERI is a systems-based approach to economic and social development that views waste as a resource

which allows communities and businesses to do more with what nature produces rather than forcing nature to produce more. ZERI's emphasis is on meeting society's basic needs for food, clean water, health care, shelter, clean energy while providing a platform that generates jobs and builds a society founded on a high quality of life.

This intensive, three day Workshop will introduce the systems-based ZERI framework and illustrate via detailed case studies how it is being used to implement multiple agendas in over fifty projects around the world on five continents. The workshop will present concrete examples where a systems focus is being used to conceive and design industrial operations, develop new products, and all the while continue to serve a social and ecological agenda.

The first two days of the Workshop will be divided into three major segments: 1) an introduction to systems thinking and the goals, principles, and methodology of the ZERI approach; 2) a focus on specific economic, biological, and technological tools necessary for implementing ZERI projects; and 3) an introduction to the management and collaboration strategies necessary to achieve success using the multiple-agenda ZERI framework.

Day three of the Workshop will feature a half-day seminar by Professor George Chan on the design and implementation of integrated biomass systems, where wastes are converted to biogas energy, and are used support polycrop and fish farming.

The final half-day of the Workshop will feature a presentation by ZERI founder Gunter Pauli. Professor Pauli will describe up-to-the-minute highlights of ZERI project and technology achievements worldwide.

Briquetting: An Answer to Desertification, Health Problems, Unemployment and Reforestation in Developing Communities

Tuesday, Sept. 30, 1:00–5:00 pm

Richard Stanley, *The Legacy Foundation*



Briquette making exemplifies the potential of appropriate technology. It saves trees and prevents

problems like soil erosion and desertification by providing an alternative to burning wood for heating and cooking. It substitutes agricultural waste like hulls, husks, corn stocks, grass, leaves, food and animal garbage for a valuable resource. It improves health by providing a cleaner burning fuel. This is dramatically true in places like Tibet where yak dung is almost constantly burned in small tents. And in these situations, it also improves agriculture by preserving the dung for pastures and gardens instead of letting it all go up in smoke (and into people's lungs and eyes). The briquettes are also designed for holding, growing, and protecting seedlings. It tackles the problem on both ends by giving a

better alternative to firewood (40% more efficient, longer burning, and hotter) as well as helping with reforestation. At the same time as creating the above benefits, Briquetting engenders many microenterprise opportunities: making the presses from locally available materials, supplying materials and making the briquettes, selling and delivering the briquettes.

Needs Are Best Met by Appropriate Solutions

Briquettes can be created from agricultural and paper wastes, making them a renewable source of fuel with little to no recurring materials costs. Briquette presses are inexpensive and easy to produce compared to alternate technological investments. An enterprise making use of briquette production can be very profitable for small businesses and communities consuming other bio-fuels, such as charcoal and fire wood, that are increasingly scarce and expensive in many regions of the world. Briquetting can also be done in your back yard making good use of your junk mail.



Whole-Systems Skills for Community Leaders

Monday, Sept. 29

Michael Kinsley, *Rocky Mountain Institute*

Today's community problems are far more complex, numerous and rapid fire than just a generation ago. Yesterday's simplistic answers are not today's solutions. Recognized as one of the world's most innovative and successful research and consulting organizations, Rocky Mountain Institute is developing today's solutions by bringing whole-systems thinking to businesses and communities worldwide.

RMI's supports creative community leaders with practical tools and creative thinking, developed by applying RMI's extensive experience in local decision-making. RMI's whole-systems problem solving considers all factors simultaneously:

- Reveals interconnections between problems, often permitting one solution to be leveraged to create many more
 - Reveals lasting, frugal solutions with multiple benefits
 - Requires collaboration among people with disparate skills and points of view
 - Transcends ideology
- Participants in these workshops will increase their value to their community and their employers. They'll learn practical ways to:
- Find hidden local opportunities in new ways of thinking about the community and its economy.
 - Apply whole-systems thinking and integrated design to community decisions
 - Anticipate side effects and avoid unintended negative consequences
 - Recognize barriers to creative decisions
 - Collaborate for creative outcomes

For more information on these workshops, or to register, please see our website at: www.sustainableresources.org.

Or call us at 303-998-1323 • Tollfree 888-317-1600



Light Weight Shelters in Acrylic Concrete

Tuesday, Sept. 30 (1 day)

Dr. Albert Knott, Michael Barrett,
Dr. George Nez and Charles Keys

This seminar will present the conceptual design of habitable shelters, utility buildings, water tanks and tank covers utilizing light weight, acrylic modified concrete on stretched fiberglass or cloth membranes. This shell membrane building technique has unique application in settings where technical expertise is limited or non-existent. Thus its most logical application is in rebuilding war torn villages, in housing in under-developed countries, and for human use in rural, native or jungle environments.

Discussions will include analysis, construction, and testing techniques, and the use of locally available materials. The topics covered will be HP shell roofs, arched roof shelters, water tanks and basins, and domed tank and basin covers. The construction materials and strength properties of acrylic concrete will be discussed. Examples of land use planning will be presented in the development of habitable spaces, market areas and town layouts using the acrylic concrete construction technique for housing, water and sanitation, and for water storage for agricultural purposes.

Biodiesel

Monday, Sept. 29, 1:00-5:00

Andrew Azman and Martin Stenflo,
CU Biodiesel

CU Biodiesel founder Andrew Azman will present an overview of establishing a sustainable biodiesel production system. The seminar will highlight the accomplishments and future plans of CU Biodiesel, and address the possibilities of biodiesel implementation in the developing world. The presentation will be followed by a biodiesel production workshop where participants will learn the fundamentals of converting vegetable oil into biodiesel fuel. The CU Biodiesel production facility will be open for tours later that evening and transportation will be provided by The CU Biodiesel Bus.

Low Cost Locally Produced Ceramic Water Filters with Colloidal Silver

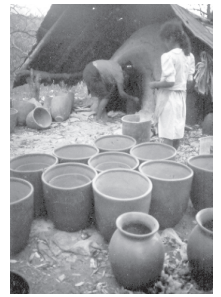
Tuesday, Sept. 30

Ron Rivera and Jennie Koch,
Potters for Peace, Nicaragua

Poor water quality causes severe health problems throughout the world. In many villages, people have never not been sick. In a Mali village where Engineers Without Borders works, half the children die before they're 5 years old. Diarrhea caused by bad water is the world's number one killer of babies. With a little information and training, this can change. People can use the pottery knowledge they already have to make their own inexpensive water purification systems. Since 1988, in many different countries, Potters for Peace has proven this to be the case. They developed a low-tech, low-cost, colloidal silver-enhanced ceramic water filter called the Filtron. Field experience and clinical test results have shown this filter to effectively eliminate approximately 99.88% of

most water born disease agents. The Filtron has been cited by the United Nations' Appropriate Technology Handbook, and is used by the International Red Cross and the Nobel Prize winning medical relief organization Doctors Without Borders. Beyond meeting the urgent demand for safe water in rural and marginalized communities, their work has also created employment and higher standards of living for local potters. Their work includes hygiene training, follow up and evaluation as well as marketing and helping people learn the other skills need for running a successful pottery/water purification business.

This one-day workshop not only documents their experience; it will also show you exactly how these filters are made taking you through the process step-by-step while making your own.



Mudra: The Active Principle of Meditation

Tuesday, September 30 and Wednesday,
October 1

Craig Warren Smith, Ph.D.,
Marpa Center for Business and Economics

A two day workshop on how meditation can lead to engagement.

Many meditation practices focus on letting go or simply tuning into oneness. Meditation can also lead to engagement. Among the teachings of Chogyam Trungpa Rinpoche, the method of achieving total engagement (also called "gesture") is the underlying theme of a series of physical exercises called "Mudra Space Awareness," adapted from traditional monastic dance training in Eastern Tibet. Dr. Smith, who first taught these exercises at Naropa in 1974. In recent years he has considered applications for Mudra for business and social action. He will present intense physical postures, sensory awareness exercises, and other practices involving movement, and design. He will also convey a framework for how practitioners can draw

upon Mudra to develop more fully engaged livelihood.

Craig Warren Smith, Ph.D. has been shaping public/private partnerships for the past 25 years. He has played this role on behalf of some of the most influential organizations in the world.

Craig's non-profit, Digital Partners, is committed to harnessing the unprecedented momentum and potential of information technologies to enfranchise the millions of poor increasingly shut out of an information-driven world economy. He believes that it is possible to use the market dynamics of the explosive Digital Economy to create new opportunities to empower the poor as agents of their own development.

His Social Venture Fund invites members of the Brain Trust, corporations, and angel investors to support the expansion and enhancement of IT-based, anti-poverty efforts around the world.



For more information on these workshops, or to register, please see our website at: www.sustainableresources.org.

Or call us at 303-998-1323 • Tollfree 888-317-1600