

InterConnections 21 and UNESCO ASPnet

International Workshop on

“Teaching and Learning for a Sustainable Future”

Spring Creek Ranch

Jackson Hole, Wyoming, USA

October 25-27, 2002

Report

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I. Background

“Sustainability education” is an interdisciplinary approach to teaching and learning about choices for a safe, peaceful, and just world for this and subsequent generations. Its stance is forward-looking and solution-oriented. It takes into account ecology, economics, and communities. In addition to promoting an integrated approach to curriculum development and school teaching, sustainability education emphasizes the development of practical and relevant performance and leadership skills. It began to gain currency in the late 1980s, and since the early 1990s education for sustainability is becoming more common in K-12 education.

In many places around the world, the evidence of a sustainability crisis has become increasingly visible over the past several decades: challenged ecosystems; rampant disease and declining food security and standards of living in many societies; widening inequality; looming fresh water scarcity; and climate change. Since the UN Conference on the Human Environment in Stockholm in 1972, the international community has periodically addressed these issues, but it wasn't until 1992 and the United Nations Earth Summit (United Nations Conference on Environment and Development) in Rio de Janeiro that it gained widespread attention. 172 governments and 2,400 non-governmental organizations participated in this meeting that produced Agenda 21, the Rio Declaration on Environment and Development, the Statement of Forest Principles, the United Nations Framework Convention on Climate Change, and the United Nations Convention on Biological Diversity.

From August 26—September 6, 2002, the UN convened the World Summit on Sustainable Development in Johannesburg, South Africa to assess progress in implementing the recommendations of the Rio Conference and to develop fresh proposals. The summit addressed the issues set forth in Chapter 36 of Agenda 21, from the Rio Summit in 1992, which promulgated many educational reforms and practices to help advance education for sustainability. Ecological literacy, systems thinking, multiple perspectives, connection to place, sustainable economics, citizenship, equity and justice, peace, and creativity to fashion a more sustainable world are all parts of the content of education for sustainability.

To contribute to the goals of education for sustainability (EFS) InterConnections 21 (IC 21) and UNESCO's Associated Schools Project (ASPnet) organized in Jackson Hole, Wyoming, an International Workshop on Teaching and Learning for a Sustainable Future in October 2002 to diffuse these ideas to a nucleus of educators and students for implementation in schools and communities around the world and particularly in the United States. The workshop drew 47 educators—teachers, policy makers, and non-profit program staff—and student leaders from across the US and from Bulgaria, Canada, the Dominican Republic, Germany, Jordan, and Uganda. (See Annex I for participant list.) Jaimie Cloud, President of the Sustainability Education Center (www.sustainabilityed.org) in New York City and Charles Hopkins, UNESCO Chair at York University in Canada (www.esdtoolkit.org), facilitated the workshop.

Success in the US in fostering sustainability is crucial for the entire world, as US consumption is a substantial factor contributing too much of the planet's environmental,

social and economic damage. On the other hand, US resources—the tangible and the intangible, the financial and the human—could be instrumental in confronting these problems. K-12 education is very influential in shaping the truths, attitudes, ethics, concepts, and behaviors of American society, and by reshaping K-12 education in the US and in other countries so that we effectively foster sustainability, we should be able to make great progress towards the achievement of a sustainable world.

The premise of the workshop was that while our educational systems work to develop many of the discrete skills that future problem-solvers will need to diagnose and solve our global problems, as nations we lack the systemic understanding that explains these complex threats to sustainability. Our educational systems, moreover, are often inappropriately focused on basic literacy and easily testable knowledge, which does not adequately prepare future citizens to understand current world problems and issues and to craft solutions for them. We must prepare teachers to help students engage with the rich, complex, interdisciplinary world in which they live. We must identify and fund the elements needed to support a sustained and nation-wide implementation of educational programs that educate students for sustainability and that connect schools to real-world issues, problems, and social change efforts.

II. Workshop Goal, Objectives, Format and Assessment

The primary goal of the workshop was to explore with participants the rationale, the tools, and the knowledge to begin to teach and learn for a sustainable future. Specifically, it was designed to meet the following objectives:

1. To provide participants with an understanding of the meaning and importance of sustainability education and components of this vision such as relevant indicators, common pool resources, connection to “place”
2. To familiarize participants with curriculum materials and strategies for teaching sustainability
3. To identify elements for developing implementation plans at school and local levels
4. To provide participants with an opportunity for networking and sharing experiences and materials
5. To review the progress and status of the growing world movement promoting sustainability through international conferences such as the Earth Summit in Rio de Janeiro in 1992 and the World Sustainability Summit in Johannesburg in 2002

The basic format of the workshop consisted of presentations combined with hands-on activities and open forum discussions. The workshop was designed to be highly participatory and to combine theory with experiential learning and practical activities in order to promote action in working towards a sustainable future. Of particular note was an activity during which participants explored the workshop premises to see the importance of place as curriculum in promoting sustainable practices. There was also a session during which all participants were invited to share materials and experiences from their programs.

Prior to the opening of the workshop, participants were requested to complete a pre – workshop assessment that asked them to write his /her opinion about the following question: “How can we educate for a sustainable future?” After each day of the workshop, participants were asked to reflect on the day’s proceedings and submit comments. At the end of the workshop, a post-assessment form was distributed with the same question as in the pre-workshop assessment, and participants were encouraged to submit in writing other comments about the workshop.

Judging by the spirit shown by the participants and the assessments submitted throughout and at the conclusion, the workshop proved to be both highly successful and productive. A summary of the assessment and evaluation activities is attached in Annex 3.

III. Summary of Workshop Proceedings

Day One: Friday, October 25

Opening session

Susie Rauch, President of IC 21, welcomed participants to the workshop. She acknowledged sponsors IC 21 and UNESCO, and recognized the countries whose representatives were in attendance. She introduced facilitator Jaimie Cloud, and posed the central workshop question: How can we educate for a sustainable future?

Ms. Rauch then provided an overview of IC 21 and its mission, which is essentially to “promote learning and action in schools and communities across the United States about critical world issues and their local, national, and international dimensions.” She explained that one of the ways this is done is through UNESCO’s Associated Schools Project (ASPnet), as IC 21 coordinates the work of the US chapter of ASPnet. She also recognized the role of UNESCO, the US State Department, the Longview Foundation, the Wiancko Family Foundation, and the Community Foundation of Jackson Hole, as well as the many students, teachers and guests, in making the workshop possible. Ms. Rauch then introduced Jones Kyazze, Director of UNESCO’s New York office and UNESCO representative to the United Nations.

Mr. Kyazze took the floor and expressed his pleasure to be representing UNESCO at the workshop. He explained that UNESCO’s main mission is to construct the foundations of peace through education and that ASPnet is one of the major realizations of this goal. He said that the philosophy behind ASPnet is based on four “pillars.”

1. Learning to know
2. Learning to do
3. Learning to be
4. Learning to live together

“Not only do we need to teach about other cultures,” Mr. Kyazze clarified, “but we need to teach about the future because the world is globalizing, and we need to think about a global environment together.”

Following Mr. Kyazze, Ms. Cloud asked the participants to write down three things that mean the most to them in their lives, to be used in a later activity. She asked that when they were through, they form small groups, introduce themselves and briefly say why they are interested in sustainability. Most participants felt that there is a great need to work towards a future in which human beings take responsibility for their existence, or “over-existence,” on the planet from a social, economic, and environmental standpoint. This mentality was reinforced by the insightful comments of the participating students, which indicates that the efforts of those who support sustainability are reaching future leaders.

Ms. Cloud ended the opening session by going over the weekend agenda (Annex 2) and giving a brief overview of her experience with sustainability.

Interactive Games and Discussion

*Jaimie P. Cloud, President
Sustainability Education Center
New York, NY*

Activity: Fish and Chips

The game, Fish and Chips, (see Annex 6) was designed to model patterns of human consumption with regard to common pool resources (in this case, of swordfish). The goal of the activity was to help participants understand how individual behaviors surrounding the consumption of shared resources can have several different consequences on a global scale. In order to succeed at this game, and yield a sustainable amount of fish, a multi-faceted approach is necessary, with economic, ecological, and ethical components.

The sustainable use of common-pool resources can lead to prosperity without compromising future generations ability to be prosperous.

Some participants reported feeling torn between their conscience and their human instinct to survive in the competition for resources, which consequently strained trust between group members. Participants reported that members of the group resorted to greed in order to “win” the game. Many people were angry and frustrated because they felt that they knew how to prevent depletion of swordfish populations, but they failed to make their case successfully to the other members in their group. Several people began the game by attempting to fish in a sustainable way, but were persuaded to use more short-term techniques in order to yield more fish and compete with others. Participants discovered that through cooperation and smart management of resources, they could maximize their yield over the long term and make it possible to continue to do so.

There was consensus that the game reflected many of the difficulties we face in real life ranging from understanding carrying capacity, to consumption, to ethics involving the management of resources, and to general communication and cooperation among individuals. However, as Ms. Cloud reminded participants, “talk is cheap,” and although a game like this can foster discussion, we need to apply the lessons we learn to

the real world to continue working towards a sustainable future. Some suggestions from the group included:

- Involve children in community issues
- Establish an open relationship to encourage dialogue among teachers and students
- Foster a sense of hope in students
- Ask the difficult questions, such as:
 - How does one control/monitor resources?
 - Who is working to do this?
 - How does/should technology and engineering play into sustainability?
 - What is quality of life and how is it measured?

Indicators

This last question was particularly central to the workshop's theme, because sustainability involves improving quality of life within the means of nature. However, before we can begin to address "quality of life," the term must be defined and accurately measured. Ms. Cloud asked participants to return to the lists they made earlier of the three most important things in their lives. Participants then explained what would indicate achievement of these goals. One example of a response was:

Health—you have health when your heart is beating

Wealth—you have wealth when you have the ability to travel

Freedom—you have freedom when you have the ability to make your own choices at will

As Ms. Cloud explained, "Indicators help you know where you are in relationship to where you want to be," and are therefore an effective tool to track progress towards one's goals. However, indicators can be problematic for the following reasons:

1. Often indicators are emphasized and the goal is disregarded.

Many schools focus on the indicating grades and lose sight of their primary goal to educate students. With an overwhelming emphasis on measurement, the "big picture" is easily lost, and students learn more about the rewards of grades than the underlying concepts of their classes. A similar scenario could result from the fish game described above. If the goal is to maintain healthy swordfish populations, the indicator would be numbers of fish that survive in a given amount of time.

However, when too much emphasis is put on counting fish, that becomes the goal, and the overall objective to keep fish populations healthy becomes secondary.

2. Indicators are frequently inappropriate measurements for the goal.

Ms. Cloud explained that the Gross Domestic Product (GDP) may be an incomplete indicator of our nation's well being. While measuring the total amount of goods and services produced in a country in a given year, it does not distinguish between quantity and quality of goods and services. For instance:

- GDP treats crime, divorce & natural disasters as economic gain
- GDP ignores the non-market economy of household & community
- GDP treats the depletion of natural resources as income
- GDP increases with polluting activities & again with clean-ups
- GDP takes no account of income distribution
- GDP ignores the drawbacks of living on foreign assets

However, GDP is widely used to indicate the economic development of a country, and consequently a nation's health can easily be falsely represented. Clearly there is a need to understand what our indicators measure in order to gain a more accurate evaluation of our situation¹.

Ecological Footprint

The final point that Ms. Cloud made in her presentation concerned the notion of ecological deficits. With respect to natural resources, we need to aim to live on the interest rather than drain our capital. She talked about this in terms of an "Ecological Footprint." The ecological footprint is the measure of the amount biologically productive space or life style uses (sources and sinks). In reviewing the footprint of nations we observed that most countries were using more capacity than they had.

At the end of the session Ms. Cloud grouped participants by five or six. Each group was assigned a topic from the following list: energy, building materials, water, waste, food, green space, and design. She asked each group to evaluate the physical grounds of the conference center focusing on their respective topic to answer the following question: what do the facilities tell us about our relationship to nature? The answers provided a blueprint for teachers to assign the same activity in the classroom. (See Annex 5 for full list.)

Federal and State Perspectives on Global/International Education in the U.S.

Fred Czarra, Director of International Education and Coordinator of the Comprehensive Social Studies Assessment Project

*Council of Chief State School Officers (CCSSO)
Washington, D.C.*

Following the theme of teaching and learning for a sustainable future, Mr. Czarra articulated the need for Global/ International Education in American public schools. He explained that it is critical to prepare our young people to "function in an increasingly interdependent and to understand the complexities of a conflict-prone world." With this preparation he believes that we can make a better future for our children, their children, and all future generations. Mr. Czarra defined Global/International Education as:

1. *Communication*: learning other world languages
2. *Teaching and learning about the world*: through the study of culture, global connections, global issues, world history, world geography, and world literature
3. *Cross national comparisons of educational data*: comparing what students from one country to another have learned and how we compare with what other nations have achieved in learning.
4. *Exchange of educational practices*: looking at how teachers and administrators teach and administer their schools in other nations.
5. *Education for All*: the right of all children to a basic education
6. *International exchanges*: between citizens of the United States and citizens of other nations and forming partnerships between schools around the world

¹ For more information on the GDP go to www.rprogress.org

He then explained the major obstacles facing states to adopting Global/ International Education:

1. After each election, states must adapt to new educational policies when new leadership takes over the federal or state government. This causes inconsistencies within the public education system.
2. The educational philosophy of the current administration in this country is based on the concept of "no child left behind." While it is a well-intentioned concept, it also brings with it certain punishments for schools that do not accomplish this goal. Due to current budget restrictions in many states, there is a lack of funds to carry out this federal program as it is intended.
3. President Bush's educational policy is enforced through a set of educational rules, and the success of schools is measured by standardized testing, which may or may not be consistent with the educational values of individual schools and educators. The emphasis is on tests, not improving instruction.
4. Standardized testing and fixed education standards often inhibit creative and original curriculum development and teaching practices.

Mr. Czarra had several suggestions for educators¹:

- * Go to your school boards and discuss how to incorporate sustainability into the curriculum using the present standards.
- * Be sure that you are teaching a curriculum consistent with your state standards and assessments.
- * Identify basic concepts in sustainability that can be used to teach in all subjects across the school curriculum.
- * Have a clear idea of your educational philosophy and the concepts you want your students to learn, so that they permeate everything you teach.
- * Use assessment tools that promote this caliber of thought, e.g. portfolios and their graded criteria in evidence of student skills, communication and presentation, content knowledge, and conceptual understanding, which set a high standard for students.

Mr. Czarra ended his presentation with a quote from his heroine Helen Keller.

Security Is Mostly A Superstition.
It Does Not Exist In Nature,
Nor Do The Children Of Men As A Whole Experience It.
Avoiding Danger Is No Safer In The Long Run Than Outright Exposure.
Life Is Either A Daring Adventure, Or Nothing.
To Keep Our Faces Toward Change And Behave Like Free Spirits

¹ For more information on Mr. Czarra's work, refer to the following workshop handouts, which can be obtained by contacting Mr. Czarra at Czarra@aol.com:

1. Guidelines for Global and International Studies Education: Challenges, Cultures, And Connections, 1998
2. Global Education Checklist for Teachers, Schools, School Systems and State Education Agencies, 2002

In
The Presence Of Fate Is Strength Undefeatable.

Helen Keller
Let US Have Faith
1940

Place as Curriculum: Exploring Spring Creek Ranch

*Jaimie P. Cloud, President
Sustainability Education Center
New York, NY*

Ms. Cloud opened this session by asking, “Are the physical sites of our school buildings and communities being used as curriculum to teach ecological design, energy efficiency, water conservation and restoration, air quality and environmental health and justice? If not, what are the physical sites of our school buildings and communities teaching our young people? In this session we will explore ‘place as curriculum’ as a model for using “buildings” as curriculum in schools and communities.”

Ms. Cloud grouped participants into the following categories: energy, building materials, water, waste, food, green space, and design, to present their findings on the Spring Creek Ranch facilities and how they reflected our relationship to nature. (See Annex 5 for list of findings.) The activity served as a good teaching model, as participants were able to see firsthand many of the variables that should be considered when evaluating physical sites through a lens of sustainability, and found that positive and negative choices were made in the design of Spring Creek Ranch. An evaluation of this nature can also provide the framework for helping students to initiate action towards making their learning environments reflect the principles of sustainability and minimize their schools’ ecological footprints. As a result of this session, to conserve water and energy, participants staying at the Spring Creek Ranch decided to leave notes for housekeeping saying they did not need their towels and sheets washed, and all participants decided together to shut off the conference room lights during daylight hours in order to conserve energy.

The World Summit on Sustainable Development in Johannesburg: A Report from the Field

*Eva-Maria Hartmann, Coordinator
ASPnet/Germany*

Ms. Hartmann reported on the World Summit on Sustainable Development (WSSD), which was held August 26 to September 6, 2002 in Johannesburg, South Africa. The presentation covered the physical arrangement of the site, the summit’s relationship to the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil (UNCED), the outcomes of the WSSD, and the impact of those outcomes on Education for Sustainable Development (ESD).

The WSSD in Johannesburg involved some 60,000 participants, which included 21,340 delegates from 191 countries, 104 heads of state, 9,000 official delegates of the states, 8,000 delegates from NGO's, 4,000 journalists, and 40,000 other people who came to participate in parallel events. Due to the environmental impacts from such a huge influx of people, "Greening the WSSD" was created in cooperation with the town of Johannesburg, the province of Gauteng, the government of South Africa, the Global Environment Fund, and the International Union for Conservation of Nature and Natural Resources. The project trained and employed some 5,000 locals as guides and waste managers.

In order to situate the WSSD within the context of previous efforts on sustainability, Ms. Hartmann reviewed the outcomes of the UNCED in Rio de Janeiro and assessed the implementation of these objectives over the last ten years.

The Rio conference stressed two major needs:

- The need to protect and manage natural resources
- The need for equity and justice in order for all countries to develop fairly

To address these needs, UNCED agreed to implement the Rio Declaration and Agenda 21, which together form a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment are evident. Most importantly, the conference recognized Sustainable Development as a crucial component of the globalizing future. Ms. Hartmann concluded her report on Rio with the following quote from the WWF (World Wildlife Fund) recommendations for the WSSD:

"In the ten years since Rio, there has been a distinct lack of progress in the implementation of Agenda 21. In turn, many of the world's greatest problems are intensifying- current trends indicate that humans are running at a huge deficit with the Earth, using over 20% more natural resources each year than can be sustainably regenerated. In addition, some two billion people the world over continue to live in extreme poverty without ready access to clean drinking water, sanitation, or reliable, clean and affordable energy."

Ms. Hartmann explained that the WSSD in Johannesburg was an opportunity to reinforce the ideals agreed upon in Rio, thereby making it critical to the future of sustainability. The general outcomes of the Johannesburg summit are to address three critical challenges:

- Eradicating poverty and securing sustainable livelihoods
- Changing consumption and production patterns primarily by industrialized countries
- Protecting and managing natural resources for economic and social development

The implementation plan addresses the three critical challenges of the political declaration in the key areas of Water, Energy, Health, Agriculture, and Biodiversity (WEHAB). The main objectives of the WSSD were to assess the Rio achievements and to promote concrete measures of implementation of the Rio agreements. In particular, the implementation plan was expected to consist of action-oriented decisions and to offer specific time-bound measures. In this respect, Ms. Hartmann considered the

outcomes of the WSSD disappointing. Ms. Hartmann also explained that the summit reaffirmed the commitment to the Rio principles and agreed on three key objectives:

- Halve the proportion of people who do not have access to basic sanitation by the year 2015
- Where possible, maintain or restore depleted fish stocks to levels that can produce the maximum sustainable yield by the year 2015
- Establish marine protected areas by the year 2012

The summit also recognized the role of civil society in attaining these objectives, thereby highlighting the concept of partnerships among governments, businesses and civil society. Although the summit's plan of implementation does not include a separate chapter on education, many parts of the plan emphasize education as critical to a sustainable future. Chapter 36 of Agenda 21 calls for education to be oriented toward sustainable development, with UNESCO given the mandate of a task manager to implement the Rio objectives in the UN framework and to develop national curricula, working together with partners in civil society. Finally, some states like Japan recommended to the WSSD that the United Nations General Assembly be asked to adopt a UN decade of education for sustainable development from 2005-2014.

Incorporating Scientific Principles in Education for a Sustainable Future

*Jaimie P. Cloud, President
Sustainability Education Center
New York, NY*

In this session Ms. Cloud highlighted the importance of following scientific principles in working towards a sustainable future. She opened the session by asking participants to consider whether or not they are law-abiding citizens. She asked them to write down some of the laws and principles they follow on a daily basis. The majority of the responses fell under the category of moral and ethical principles, such as honesty, compassion, and respect for life. Second to this category were legal laws, such as paying taxes and following traffic laws. The fewest responses fell under the category of natural laws and principles, in which the two answers given were gravity and Newton's Law.

This simple activity demonstrates that human beings follow their own laws and principles, and sometimes ignore natural laws and principles in our planning and decision-making. Four basic science principles were discussed:

1. *1st Law of Thermodynamics*: Matter and energy do not appear or disappear on this planet
2. *2nd Law of Thermodynamics*: Matter and energy have a tendency to disperse- the law of entropy
3. *Material quality is in the concentration and structure of matter*: There is value in order- the "available work" in material things is in their high concentration (more concentration = more work = more value)
4. *Photosynthesis generates net increases in material quality*: So while things are "falling apart" because of entropy- the green plant cells can put them "back together"

Ms. Cloud then highlighted four systems conditions for society to move towards sustainability.

1. *Substances from the Earth's crust cannot systematically increase in nature:* Human activities, such as the burning of fossil fuels, which are harmful to the ecosphere, must no longer occur in order for society to be sustainable.
2. *Human made substances cannot systematically increase in nature:* In order for society to be sustainable, humans will need to cease generating systematic increases in harmful contaminants such as DDT, PCB's and Freon.
3. *Biological Productivity = Ecosystem Services = Biological Capacity = Life on the Planet:* In order for society to be sustainable, humans must no longer take more from the biosphere than can be replenished naturally. Humans must also avoid encroaching upon nature by destroying the habitat of other species
4. *The Human Contract: fair/just/equitable and efficient use of resources:* In order for society to be sustainable, we need to achieve greater efficiency in our use of resources and waste generation.

The session ended with three reflection questions, to which sample responses follow.

1. What are some new insights that you gained today?
 - Sustainability is not just about knowing; it is about feeling and taking action
 - The concept of sustainability must be constantly reinforced and permeate all that we teach
 - People must incorporate sustainability into every aspect of their daily lives
 - There is hope, and even the small things do make a difference
 - Teaching sustainability is not only about implementing change in the curriculum, but in teaching for the future
2. What questions do you have?
 - What are the specific things educators can do to incorporate sustainability into the curriculum?
 - How do we move educators towards becoming models for sustainability education?
 - What are the greatest inhibitions to enacting Agenda 21?
 - How do we achieve population control?
 - Why do we have to wait for world summits instead of pushing for changes now?
 - How are the adults going to help us teach our fellow students?
 - How do we make all of this happen?
3. Where could the content of today be integrated into your work and what kinds of skills would it require?
 - Integrate sustainability across all subjects and help students realize its importance
 - Games, intergenerational activities
 - Study of place
 - Give students access to sustainability information

Day Two: Saturday, October 26

Opening

Jaimie Cloud opened the day's activities by going over the desired learning outcomes for the participants of the conference. Participants should be able to:

1. Articulate in their own words what is meant by the term "sustainability"
2. Understand the relationship between a healthy economy and our quality of life
3. Learn what indicators are and how to use them in working towards a sustainable future
4. Understand some basic science principles and how to apply them to their understanding of sustainability
5. Begin to understand the system dynamics of the use of common pool resources
6. Learn about and be able to take steps in implementing a plan of action in their homes, schools and communities

Following this introduction Ms. Cloud reviewed several common themes/questions that surfaced in the reflections from the previous day, and after addressing some of these issues, Ms. Cloud introduced Charles Hopkins.

Agenda 21 and the scope of our mission as educators

*Charles Hopkins, UNESCO Chair
York University
Toronto, Ontario*

Mr. Hopkins outlined his presentation by explaining, “The scope of this session will include a discussion and exploration of public awareness and understanding of sustainability, more and better access to basic education, re-orienting existing education and training where needed, and higher education’s role in providing access to life-long learning.”

Mr. Hopkins began his talk by working towards a definition of sustainability. He differentiated between sustainability and sustainable development by explaining that sustainability is a long-term goal, and sustainable development is a way for people, companies, etc. to get there. He also made the point that education is an effective tool for working towards a sustainable future, and that UNESCO has recognized this concept and is trying to implement sustainable curricula.

There are four major goals of sustainability education:

1. Raising the level of public understanding and support
2. Facilitating sustainable development by improving quality and access to basic and higher education
3. Reorienting existing education
4. Facing obstacles to moving forward in formal education

Mr. Hopkins went through each point and explained how the goals could be reached to spread sustainability education in schools. He noted that curricula should be made “locally relevant and culturally appropriate” in order to increase interest, and that raising education levels will not necessarily ensure sustainability. The most educated nations have the deepest ecological footprints. For instance, 80% of Americans have some form of post-secondary education, and we have the largest ecological footprint in the world. Therefore reorientation of education towards principles of sustainability is essential.

Mr. Hopkins expressed a concern that many conferences/workshops on sustainability result in thought about the issues, but rarely result in action. Therefore, he hoped his presentation would offer more to help people turn their ideas into actions.

World Heritage and United Nations Fund priorities

Ray Wanner, Consultant

UNF & Former UNESCO Desk

U.S. State Department

Mr. Wanner focused on the history and the relationship between the World Heritage Convention (WHC) and the United Nations Fund (UNF) to highlight some of the efforts being undertaken to work toward a sustainable future through the preservation of our worldwide natural and cultural heritage.

The World Heritage Convention

Mr. Wanner began by explaining that the WHC grew out of a controversy surrounding the Aswan Dam. During the Cold War, Russia was contracted to build a dam on the Nile River. They did so, and as the water behind the dam rose, it began to endanger an ancient temple, Abu Simbel, that was carved into a hillside above the quickly forming lake. As the issue of the temple gained worldwide concern, UNESCO took leadership in creating an international fund to move it to safe ground. This discussion concerned preservationists around the world, and consequently the US Government took the lead in creating the World Heritage Trust. This trust was essentially a treaty between various international groups to preserve cultural and natural sites around the world. This action gained respect for the U.S., leaving the Soviet Union with a damaged environmental reputation.

The UNESCO General Conference officially adopted the WHC on November 16, 1972. The United States was the first to ratify the treaty on December 7, 1973, and by 1978 the first sites were inscribed on the world heritage list. The international community nominated sites of “outstanding and universal interest” that they felt were threatened. Yellowstone National Park was the first site designated in the US in 1978.

Over the last thirty years 730 sites have been assigned World Heritage status; 530 are cultural sites and 144 are natural sites. Some sites have well-defined management plans, or they have been inscribed because they contribute to the sustainability of the environment. Many sites are income producing, but many face problems with biodiversity and overexploitation due to war, corruption and calamities. Nevertheless, the WHC is a substantial step forward for a sustainable future, and continues to make progress today.

The United Nations Foundation

The second part of Mr. Wanner’s presentation focused on the United Nations Foundation and its role in supporting the WHC. Mr. Wanner explained that five years ago on UN Day, Ted Turner committed to giving one billion dollars over ten years to the United Nations. The money was only to be used by the UN; however, NGOs would have access to it through the UN. Turner’s foundation, called the United Nations Fund, devised a focused mission:

“We strive to promote a more peaceful and prosperous and just world through the support of the UN and its charters. Through grant making and by building new and innovative public/private partnerships, the

UN Foundation acts to meet the most pressing health, humanitarian, social-economic and environmental challenges of the 21st century.”

Their mission has five main priorities:

1. Children’s health and well-being
2. Women’s reproductive health
3. Climate change and energy
4. Peace, security and human rights
5. Protection of biodiversity and habitat

In order to meet these goals, the UN Fund has looked to cooperate with existing organizations. They have established a partnership with the WHC due to the 144 already well-defined natural sites. The UNF has provided monies to UNESCO, and they in turn have worked through their own teams and NGOs to address target problems.

Over the last three years, the UNF has provided \$25.5 million to UNESCO for various projects. They have pledged \$15 million over the next three years in partnership with Conservation International and The Wildlife Fund, who each donated \$7.5 million dollars, for a total of \$32.5 million over the next three years.

Mr. Wanner concluded by stressing the importance of partnerships to establish sufficient funding for sustainable causes. The WHC and the UNF contribute to ASPnet to support ASPnet’s world heritage initiative for young people. Thus, he encourages schools to link up with UNESCO on this world heritage project.

Marketplace of ideas, materials, and resource exchange

Small groups were gathered to share expertise and materials. The exchanges were more easily carried out in this way, and people were able to move between them and sit in on the various presentations. This session was particularly important for the international participants because it was a chance for them to share their cultures and provide a global perspective on the workshop. The presentations were as follows:

Sylvia Roberts gave a report on the Millbrook School regarding their actions and mission of respecting the natural environment through community service, waste disposal practices, and the curriculum. (www.millbrook.org)

J.B. Bassene gave a presentation on the annual UN International School student conference in New York, as well as a group called Save Today’s Endangered Planet (STEP), which is a student group that dedicates itself to the environment through awareness campaigns and positive environmental actions. (www.UNIS.org)

Yordanka Nenova of ASPnet Bulgaria shared her experience with ASPnet and its relationship to various sustainable development projects. She also helped listeners understand the activities of SAGE (School Association for Global Education).

Tyler Poore, a student representative at the workshop, gave a presentation on how sustainability is integrated at the Journey School in Jackson, Wyoming. (www.tetonscience.org)

Lydia Taylor of Jackson High School gave a presentation on democracy and how it formed in the U.S. versus in Africa in the mid 19th century.

Sally Garrett explained the Sussex School perspective on sustainable development, and highlighted Sussex's goal to "develop each student as an independent and positive member of the community." (www.sussexschool.org).

Gennifer Hartman gave a presentation on the academic overseas program, called The Traveling School, which aims to "enrich the lives of teenage girls with an enduring educational experience focusing on overseas exploration, academic challenges, expanded outdoor skills, and a deeper comprehension of the world we live in." (www.travelingschool.com)

Sylvia Frey gave a presentation on the Trans-Atlantic slave trade, which is an ASPnet sponsored program working to establish regional, national and international learning communities dedicated to disseminating information, and strategies for teaching racial understanding. (www.unesco.org)

Nancy Shea used her experiences at the Murie Center, a non-profit based in Moose, WY, to discuss the values and spiritual elements of sustainability. (www.muriecenter.org)

The presentations were informative and opened new avenues for conversation on the topic of sustainability. Participants were highly engaged during this session and many made useful professional connections. A number of the participants said they thought that this was one of the most valuable parts of the workshop.

Materials review

Jaimie Cloud ended day two with a brief presentation of various materials that could be used for sustainability education, including books, games, curriculum materials, and videos (Annex 6). After a brief overview of each one, the materials were left on display throughout the rest of the workshop for participants to use as resources.

Day Three: Sunday, October 27

Opening

Ms. Cloud began the final day with a request that participants think about what needs to happen over the next two to three years to contribute to sustainability. She highlighted the importance of evaluations and passed out post-program surveys. She also handed back the pre-program surveys so that participants could measure the effects of workshop.

Linking kids to poverty

*Amalia A. Hernandez, Principal
Colegio Santa Teresita
Dominican Republic*

Ms. Hernandez showed a video about a UN Social Assistance Program in the Dominican Republic that was designed to give aid to the less fortunate and also connect privileged students to the harsh realities of poverty. The video showed students visiting poor neighborhoods and providing assistance to impoverished families through hands-on experience. Ms. Hernandez' project exemplified an action-oriented program that successfully worked towards a sustainable future in the Dominican Republic.

The students in the video expressed how their efforts changed their own lives, as well as the lives of those they were helping. It was evident that through this UN program, the students had gained an appreciation for responsibility, dedication, and the importance of helping others.

Ms. Hernandez concluded her presentation with recognition of her students who had sent recommendations into the UN regarding the poor communities they had worked with. She strongly encouraged other students to make the same recommendations if they have projects in mind because the UN will listen. Ms. Cloud added that curriculum is also necessary to help students prepare for such projects, because Model UN activities may not be accessible to all students.

Thoughts on implementing sustainability in schools and educational systems

*Charles Hopkins, UNESCO Chair
York University
Toronto, Ontario*

Mr. Hopkins returned to discuss the idea of a sustainable school; how a school of this nature should be evaluated and ways educators can adopt these criteria. He asked participants to be creative and build on the list of ideas generated earlier for how schools can be improved. He used Ms. Hernandez's school project as an example of a possible sustainable program. A few suggestions were:

- Location and building materials used in schools should reflect the values of sustainability
- Classes should study the ecological footprint of schools to introduce literacy about consumption patterns
- The principles of sustainability should be promoted throughout a curriculum and instructional practices (pre-service and in-service training)
- Curriculum should include antiracism and conflict resolution programs
- Student voices should not only be heard, but implemented when appropriate
- Administrators and teachers should establish global networks where schools partner and exchange ideas and practices
- Parents and professionals should volunteer to educate and provide space for sustainable activities
- Schools that find incorporating sustainability more difficult should start with one day a year devoted to the concept and work up from there

After the brainstorming session, Mr. Hopkins introduced "20 Steps in Infusing Education for Sustainable Development Programming into Schools and Faculties of Education" (Annex 7). The steps offer a framework for how to begin to integrate sustainability into schools. He also informed participants about an online toolkit to assist with sustainable practices in schools at www.esdtoolkit.org. The toolkit follows standards for accepted practice and can lend credibility when initiating programs in schools.

Questions and Answers: Finding Value for the Role of Wilderness

Nancy Shea, Director of the Murie Center

Moose, WY

At the request of Ms. Cloud, Ms. Shea addressed an idea she had introduced earlier concerning the role of wilderness in our society. She explained that wilderness is important for ecological practices such as clean air and water, and that there needs to be a deep respect for wilderness or much will be lost.

Wilderness represents an entity that is beyond human control and therefore is one of the few things that teaches humility. For Ms. Shea, wilderness provides a sense of human justice because we give up pride and our sense of power. Ms. Shea concluded her thoughts by posing the question, “Why is wilderness a critical element for a sustainable future?” Ms. Cloud then asked participants to brainstorm on what they would need in order to address Ms. Shea’s question. Their needs included:

1. Fact finding
2. A concrete definition of wilderness
3. Consideration of whether or not to add the discussion about wilderness on the agenda for sustainability

Closing

Ms. Cloud thanked all the participants for coming, and gave special thanks to Susie Rauch of InterConnections21 for organizing the workshop. Ray Wanner commended all of the students for their participation, and Chuck Hopkins explained to the students that they are pioneers on a long journey of working towards a sustainable future. The workshop ended with a feeling that new knowledge had been gained and that there was much work to be done.

IV. Participant Recommendations and Follow-Up

Several conclusions and recommendations came out of the program surveys distributed to the participants at the workshop. These included the following:

Actions to be undertaken by UNESCO/IC 21

- Organize a on sustainability education workshop for youth facilitators and for teacher educators
- Prepare a summary of the workshop to be distributed to all ASPnet schools
- Seek additional funds and more encouragement for IC 21 and other ASPnet schools
- Get more student representation and be more active in the school district
- Request periodic updates from schools on progress made towards the expansion of sustainability practices
- Involve more local schools and integrate them with other ASPnet schools around the country
- Train more teachers worldwide on sustainability education
- Distribute useful teaching materials
- Create a website with curriculum ideas and lesson plans for teachers to incorporate into their classrooms
- Create a definition of sustainable development that encompasses these ideas and clarifies the definition for others

- Make connections between school and the surrounding community so they can work together more effectively

Possible Actions to be undertaken by *participants*

- Bring discussions to colleges about whether the goal should be sustainability education or environmental education
- Integrate sustainability into planning and curriculum
- Talk to administration about integrating sustainability into the curriculum
- Increase awareness about how personal actions affect sustainability
- Look for ways to implement these ideas at the village or community level
- Address the school board on the use of plastic versus china plates
- Address school club on issues of recycling and composting
- Push for more international exchange programs between schools
- Bring knowledge back to fellow students and talk to principals about student involvement
- Take a semester at the UN International School
- Organize a student/teacher action committee
- Strengthen the work of ASPnet in various countries
- Incorporate more project-based learning into the curriculum
- Seek out IC 21 as a resource for global education on sustainability
- Include a statement about sustainable development in our policy handbook
- Challenge teachers, administrators, family, and friends to think about sustainability and incorporate it into their own lives

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**InterConnections 21 and UNESCO ASPnet
International Workshop on Teaching and Learning for a Sustainable Future**

AGENDA

Our goals are to "meet the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987) and to develop in our children "the capacity and ability to create a remarkably different economy, one that can restore ecosystems and protect the environment while bringing forth innovation, prosperity, meaningful work, and true security" (Hawken, 1993). If we are to move towards these goals, then we must examine current academic and professional research, experience, wisdom and debates across the disciplinary spectrum and compare the knowledge, skills and processes that are being learned and argued in the "real world" with what is being taught in our schools.

We must examine how instruction is delivered and in what physical environments our children are learning so that we can determine the extent to which we are teaching toward or away from sustainability. What is being taught that is congruent with the move toward sustainability, and what is incongruent? Are the instructional strategies being employed congruent with the development of the habits of mind students need to think critically and to think creatively about inventing a future in which their behavior is consistent with their values?

This workshop has been designed to explore with participants the rationale, the tools and the habits of mind to begin to teach and learn for a sustainable future.

Friday, October 25

9:00-10:15 am

Welcome and Opening of Workshop

Susan Rauch, President

InterConnections 21 (IC 21), Jackson Hole, Wyoming

Jones Kyazze, Director UNESCO New York Office and

UNESCO representative to the United Nations

Workshop Overview

Introductions and Expectations

Outcomes and Indicators for Workshop

Facilitated by

Jaimie P. Cloud, President, Sustainability Education Center

(SEC), New York, New York;

10:15-10:25

Break

10:25-12:30

Opening Plenary/Interactive Workshop and Discussions

The Commons: A Role Play Activity

Facilitated by Jaimie P. Cloud

Participants will become familiar with the data and arguments that describe universally acknowledged limitations of typical market structures and that support the view that people and businesses need to adopt accounting mechanisms and practices that foster sustainability. Essential question: Can we have individual rights without the common good?

*An Introduction to the Content of Education for Sustainability
Part I*

Jaimie P. Cloud, Sustainability Education Center, New York, NY

In this session we will examine current academic and professional research, experience, wisdom and debates across the disciplinary spectrum and compare the knowledge, skills and processes that are being learned and argued in the "real world" with what is being taught in our schools.

12:30-2:00pm LUNCH &

Exploring Spring Creek Ranch: "Place as Curriculum"

Jaimie Cloud, President, Sustainability Education Center

Are the physical sites of our school buildings and communities being used as curriculum to teach ecological design, energy efficiency, water conservation and restoration, air quality and environmental health and justice? If not, what are the physical sites of our school buildings and communities teaching our young people? In this session we will explore "this place as curriculum" as a model for using place as curriculum in schools and communities.

2:00-2:45

National and State Perspectives on Global/International Education in the U.S.: How can it promote sustainability?

Dr. Fred Czarra, Director of International Education and Coordinator of the Comprehensive Social Studies Assessment Project, Council of Chief State School Officers, Washington, D.C.

2:45-3:30

Presentations and De-Briefing of "Place" Activity

3:30-3:45

BREAK

3:45-4:30

The World Summit on Sustainable Development in Johannesburg: A Report from the Field

Eva-Maria Hartmann, Coordinator, ASPnet, Germany

4:30-5:30

An Introduction to the Content of Education for Sustainability Part II

Jaimie P. Cloud, Sustainability Education Center

In this session we will continue to examine current academic and professional research, experience, wisdom and debates across the disciplinary spectrum and compare the knowledge, skills and processes that are being learned and argued in the "real world" with what is being taught in our schools.

Saturday, October 26

9:00-11:15

Opening Plenary/Interactive Workshop/Discussions

AGENDA 21 and the Scope of Our Mission as Educators

Charles Hopkins, UNESCO Chair, York University, Toronto, CA

The scope of this session will include a discussion and explorations of public awareness and understanding of sustainability; more and better access to basic education; re-orienting existing education and training where needed, and higher education's role in providing access to life-long learning.

11:15-11:30

BREAK

- 11:30-1:00 *Modeling EFS activities from a variety of sources*
 Education for Sustainable Development TOOL KIT
 Teaching and Learning for a Sustainable Future
 Business and Entrepreneurship for the 21st Century
 From Global Hunger to Sustainable Food Systems
- 1:00-2:00 LUNCH
- 2:00-2:30 *World Heritage and a Sustainable Future: What's the Connection?*
 Ray Wanner, Consultant, UNF
 (Former UNESCO Desk at U.S. State Department)
- 2:30-4:00 *Expert Showcase: A Marketplace of Ideas*
 Participants share their expertise through the materials they brought with them and take time for in depth professional exchanges
Materials and Resources Exchange
- 4:00-5:30 *Reflections thus far*
Next Steps and Action Plans for
Implementing Education for Sustainability
- Sunday, October 27**
- 8:00-9:30 *Model United Nations Commission on Sustainable Development: A Role Play*
- Facilitators:
 Amalia Hernandez, Principal, Collegio Santa Theresita,
 Dominican Republic
 Jaimie Cloud, Sustainability Education Center
- In this session we will model a role play section of the Model United Nations Commission on Sustainable Development materials that prepare students through rigorous, research-based learning opportunities to negotiate a key issue related to consumption patterns and sustainability. Amalia will show a short video on, and lead a discussion about, her students' experience with the Model U.N. CSD in a local community.
- 9:30-11:00 *Affinity Circles/Implementation Strategies*
Program Evaluations and Closing
- DEPART

Evaluation and Assessment Data

Of the on-going workshop participants, not including the facilitators and IC 21 staff, 90% completed an evaluation survey (copy on page 29). The responses were analyzed and yielded the following quantitative and qualitative data.

Workshop usefulness

On a scale of 1-5, 5 representing “very useful” and 1 representing “not very useful”, the participants rated the workshop at 4.5.

Workshop strengths

- Brainstorming brought out many creative ideas and gave a voice to the participants
- There was an appreciation for the students and their capabilities
- The opportunity to exchange ideas on a personal level with people from very diverse backgrounds
- Structured presentations were extremely helpful, as well as the use of visual aids (e.g. PowerPoint)
- The workshop helped to shape a more clear definition of sustainability
- Made a strong connection between theory and reality
- Role play activities provided a practical dimension
- Helped teach communication between peers
- Provided useful implementation strategies for incorporating sustainability into our lives
- There was a diverse group of participants, as well as speakers
- Continuous reflection helped to ingrain the knowledge

Future Recommendations

- More group work time and opportunity to share ideas
- Capitalize on the cultural diversity offered by international participants
- More focus on social issues
- Provide visuals and materials for longer presentations
- Provide better structure and organization for group presentation activities
- Provide more concrete ways to teach sustainability

The overall participant response indicates that the workshop was not only a valuable learning experience, but also a practical one. The participants came from a variety of backgrounds and levels of education, and each gained something different from their experience. A pre-program survey indicated that the workshop participants were a highly informed group; nevertheless, according to their post-program responses, the workshop provided many practical tools for working toward a sustainable future. The vast majority of the participants indicated that they would like to attend future workshops of this kind.

Individual Comments

“I found it a significant learning experience and was energized by the interest and effective participation of the young teachers and students. “The success of the workshop was in large measure due to the professionalism and the confidence of the organizers and the facilitators.”

-Ray Wanner
(Consultant UNF & Former UNESCO Desk U.S. State Department)

“This has been important in strengthening the ASPnet work. We have got American schools coming back into the network of UNESCO and we’re very happy to see so many enthusiastic teachers and students. The participants of the workshop were well selected. There was a nice smattering of articulate people from other countries. There was a rolling up your sleeves and trying to learn about it spirit throughout the weekend that helped move from the broad aspects of sustainability to focus on educators’ roles in sustainability.”

-Chuck Hopkins
(UNESCO Chair, York University, Toronto, Ontario)

“It was really interesting to see what teachers are doing outside of school and what they are doing to better our education and how they enhance the curriculum to better our future.”

-Hadley Hammer
(Student, Jackson High School)

“The involvement of students from Jackson Hole and their sharing of ideas with other teachers and educators was great. It helped to give insight into what students think and feel about education for sustainability.”

-Teddy Juma
(Teacher, City Parents’ School, Uganda)

“This workshop helped me to understand some implementation tools and steps for sustainable education. The contacts I was able to make and the ideas I was able to share will have a direct connection to the work I am doing. I am extremely grateful for the opportunity to have been a part of this conference.”

-Pete Sibley
(Founder and Executive Director, Teton Sustainability Project)

“I am so grateful to have been a part of this workshop. I can’t even begin to express the vast amount of knowledge I gained. I am extremely excited to start teaching people about sustainability and getting everyone involved.”

-Hailey Morton
(Student, Jackson High School)

Fish and Chips

Game Guide

An Exploration of Private Profits and Public Goods

We are going to run a swordfish-fishing industry! Each person in the group will be fishing for swordfish in the same ocean. Assign the envelope to a banker (“nature”) in the group of players. The banker will put 20 fish in the middle of the table, and the fish can be found in the envelope. Each chip is equal to one fish, 20 chips is this ocean’s *carrying capacity* for swordfish.

In each round, each person will fish for a certain number of swordfish. There are three ways to fish for swordfish.

- i. Harpoon fishing: take one chip
- ii. Regulated long-line fishing: take two Chips
- iii. Free-for-all long-line fishing: take three chips

Each turn, each person will take one, two or three chips, depending on the instructions for that game.

After each round when all players have taken their chips, the banker (“nature”) will count the number of swordfish left and add 25% to the pot, up to, but not exceeding 20 chips (round up if you need to).

Example: if there are 12 chips left, 3 chips (25% of 12) will be added to the pot, bringing the total up to 15 (in real life, swordfish produce far fewer than 25% of new offspring each year- they are like humans in that they have few children over the course of their lifetimes).

The added fish represent the number of baby swordfish made by the swordfish that were left after everyone has taken their fish (the ones that were left in the ocean to reproduce).

The object of each game: to have as many chips as possible after playing all ten rounds.

GAME INSTRUCTIONS

We will play the game 4 times, each a different way:

Game 1: Everyone chooses a fishing technique at the beginning of the game and sticks with it until the end of the game.

Game 2: Everyone chooses a fishing technique, but can change technique each turn during the game.

Game 3: Everyone is a harpoon fisher, and takes one chip each round.

Game 4: Participants can choose any fishing technique and can change that technique each turn during the game. At the end of each round, double the pot, instead of adding 25% (you still can't exceed 20 "fish" which is the carrying capacity).

List of Physical Attributes of Spring Creek Ranch Facilities

Energy

Positives

- Shuttle service
- Golf carts
- Bicycles
- Use fireplaces as a heat source

Negatives

- Massive construction (paving, fuel for operation)
- Building construction (high ceilings, north facing windows)
- Location of site (colder temperatures, distance from town- demands driving)
- Need energy to maintain lawns
- Pay airlines to fly planes that are half-full to keep them in Jackson
- All new materials (nothing recycled)

Building Materials

Positives

- Fluorescent lights (energy efficient)
- Good natural light
- Corrugated metal (diffuses light, fire retardant, sound absorbent)
- Earthquake resistant
- Laminated beams (strong)
- Steel (strong, fire retardant)

Negatives

- Flood lights (not energy efficient)
- Incandescent bulbs used throughout
- Fixed windows
- Wood (virgin forested)
- Concrete, steel (energy intensive)
- Rusted steel (chemicals)
- Particle board (glues)
- Variety of paints and stains

Water

Positives

- Have a well with 600,000 gallons of ground water
- Low-flow toilets
- Aeration systems (water pressure)
- Architecture (saved 15 million dollars)
- Waste water goes to town
- Irrigation system (six months only)

Negatives

- Water is free and unregulated to all homeowners
- Use a contract water specialist (supply and maintenance)
- Water is conditioned through ionization (pipe preservation)
- Irrigation
- Houses, hotel, restaurants and equestrian center all tap water supply
- Pool, pond and two hot tubs

Suggestions

- Runoff collection system (snow and rain)
- Using landscape to collect runoff
- Advise guests regarding conservation

Waste

Positives

- None

Negatives

- Exhaust from cars and heavy machinery (pollution)
- Generates a lot of trash
- Uses a lot of natural resources (water, construction materials)
- Excessive energy wasting (inefficient construction)
- Water (wasted on unnecessary washing of towels and sheets)

Food

Positives

- Food is seasonal (use less during off season)

Negatives

- Three restaurants, plus kitchenettes and personal shopping (heavy consumption)
- All food brought in from outside sources, most outside of region (transportation-energy, pollution)
- Expensive (due to import costs and location outside of town)
- Food consumption increases need for energy and water
- Packaging for food also creates waste

Green Space

Positives

- A lot of value placed on aesthetics
- Value placed on total environment

Negatives

- Highest bidder gets best view at others expense (superficial value on the land)
- Waste of space (sprawl)
- Tourists use restrictions
- Mostly for people outside of Jackson

Design

Positives

- Condos (insulated, small windows, roof angle)
- Buildings (natural light, good use of space)
- Added trees for privacy
- Minimal lighting
- Materials blend into landscape
- Spectacular views (communication with nature)
- Tried to preserve natural vegetation

Negatives

- Noxious weed infestation caused by disturbance in the landscape
- Sprawl
- Asphalt sidewalks
- Fireplaces (pollution, inefficient heat source)
- Low interaction with outdoors (no sitting areas)
- Layout is auto-driven

Recommended Sustainability Materials

Below is a list of materials identified by the Sustainability Education Center, with assistance from IC 21, for educating for sustainability. The title, author (when appropriate), publisher, subject, appropriate educational level, and price (not including shipping and handling) are indicated. Please email The Sustainability Education Center (jaimie@sustainabilityed.org) or IC 21 (ic21@compuserve.com) with further suggestions. We also recommend that you check out the Sustainability Education Handbook for K-12 Teachers <http://www.urbanoptions.org/sustainedhandbook/>, which is an excellent clearinghouse for K-12 sustainability education materials.

Art's Guide to Planet Earth by Dr. Art Sussman.

Chelsea Green Publishing Co.

<http://www.chelseagreen.com>

Earth science, environmental science, biology; Middle and high school; \$15

The Big Rock Candy Mountain by Wallace Stegner

Penguin <http://www.penguin.com>

English; High school; \$15

Changing Consumption Patterns

Sustainability Education Center <http://www.sustainabilityed.org>

Social studies; High School; \$25

Chemicals: Choosing Wisely Teachers' Resource Guide

Dale Seymour Publications 1-800-526-9907

Environmental science; 7-9th grade; \$7.50 (students) \$17.95 (teachers)

Community Sustainability Collection

Isaak Walton League of America - <http://www.iwla.org>

Social studies, science, environmental science; High school; \$35

Community Sustainability: A Mini Curriculum for grades 9-12

Isaak Walton League of America - <http://www.iwla.org>

Social studies, science, environmental science; High school; \$2.50

Conserving Earth's Biodiversity (CD - ROM) (Instructor's Edition) by E.O. Wilson

Island Press <http://www.islandpress.org>

Science, environmental science; High school; \$40

A Curriculum for Sustainability Based on the Natural Step

Center for Service Learning Opportunities in Education, Santa Fe NM.

Contact Susan Straight, 505-988-1724

Science, social studies, environmental science; Middle school; free

Finding Solutions to Hunger

Stephanie Kempf, Kids Can Make a Difference <http://www.kids.maine.org>
Social Studies; Middle School; \$23

Fish Banks, Ltd. (computer program)

Institute for Policy and Social Science Research

<http://www.unh.edu/ipssr/>

Environmental science, economics, social studies; Middle and high school; \$200

From Global Hunger to Sustainable Food Systems: Challenges and Choices

Sustainability Education Center <http://www.sustainabilityed.org>

Social studies; Middle School; \$25

Games on Sustainable Development

Institute for Policy and Social Science Research

<http://www.unh.edu/ipssr/>

Social studies, environmental science; Middle and high school; \$7.50

Global Environmental Problems: Implications for U. S. Policy

Choices. <http://www.choices.edu>

Social Studies, Science; High School, \$12

Global Learning

Globalization Research Center - University of Hawai'i

<http://www2.hawaii.edu/~global>

Social studies, environmental science, economics; High school; Free

Green Teacher Magazine

Green Teacher <http://www.greenteacher.com>

Social Studies, environmental science, biology, general science; all grades; \$26

Greening School Grounds

Green Teacher <http://www.greenteacher.com>

Social Studies, environmental science, biology, general science; all grades; \$17

Habitat and Biodiversity: Teachers' Resource Guide

Dale Seymour Publications 1-800-526-9907

Environmental science; 7-9th grade; \$7.50 (students) \$17.95 (teachers)

How Can Biodiversity Be Preserved?

S.P.I.C.E - Stanford program on International and Cross-Cultural Education, 1-800-578-1114, <http://www.spice.stanford.edu>

Environmental science, Biodiversity; High school; \$40

Iterative Algebra and Dynamic Modeling

Kurt Kreith and G. Donald Chakerian, Springer-Verlag Press

<http://www.springer-ny.com>

<<http://www.sustainabilityed.org/%20http://www.springer-ny.com>>

Math; High school; \$60

Lessons for a First Course in System Dynamics Modeling

Diane Fisher - Summer Creek Press <http://summercreek.com>

Math, science, social studies, systems thinking; High school; \$100 (for teacher and student materials together)

The Life Cycle of Everyday Stuff

National Science Teachers Association <<http://www.nsta.org>>

<http://www.nsta.org>, 1-800-722-6782

Science, social studies, environmental science; Middle and high school; \$20

Living in a Material World

Center for Science in the Public Interest, Deane Edelman

<http://www.cspinet.org> (for single copies) cspi@cspinet.org

Sunburst Communications 1-800-338-3457 (for multiple copies)

Social Studies; Middle and High school; \$15

Making Global Connections in the Middle School: Lessons on Development & Equity

Global Learning, Inc. <http://www.globallearningnj.org>

Environmental science, social studies; Middle school; \$12

Modeling the Environment

Andrew Ford - Island Press www.islandpress.org

Environmental science, math; High school, college; \$40

Orion and Orion Afield

Orion Society <http://www.orionsociet.org> <<http://www.orionsociety.org>>

Social studies, civics, philosophy, environmental science; \$35

Our Ecological Footprint

New Society Publisher <http://www.newsociety.com>

Science, social studies, environmental science; Middle and high school; \$15

Our Ecological Footprint Overhead Set

New Society Publisher <http://www.newsociety.com>

Science, social studies, environmental science; Middle and high school; \$15

The Paper Trail: Connecting Economic and Natural Systems

Sustainability Education Center <http://www.sustainabilityed.org>

Economics, social studies, environmental science; High School; \$25

The Poisonwood Bible by Barbara Kingsolver,

Harper Perennial <http://www.harpercollins.com>

English, social studies, environmental science; High school; \$15

Seven Wonders: Everyday Things for a Healthier Planet

Sierra Club Books

<http://www.sierraclub.org/books>

Science, social studies, environmental science; Middle and high school; \$12.95

Stratagem (game)

Institute for Policy and Social Science Research

<http://www.unh.edu/ipssr/>

Environmental science, economics, social studies; High school; \$100

State of the World and Vital Signs, 2002

Worldwatch Institute <http://www.worldwatch.org/>

Science, social studies, environmental science; High school; \$30 + \$5 shipping

STELLA Demo (software)High-Performance Systems <http://www.hps-inc.com/navbar/downloadDemos.htm>

Math, all disciplines; High School; Free (download)

Stuff: The Secret Lives of Every Day Things (Book)

Northwest Environment Watch <http://www.northwestwatch.org>

Science, social studies, environmental science; Middle and high school; \$10

Stuff: The Secret Lives of Every Day Things (Curriculum)

Northwest Environment Watch <http://www.northwestwatch.org>

Science, social studies, environmental science; Middle and high school; Free

A Sustainable Development: Curriculum Framework for World History and Cultures

Global Learning, Inc. <http://www.globallearningnj.org>.

Social Studies (world history); High School, \$25

Sustaining the Future: Activities for Environmental Education in US History

Global Learning, Inc. <http://www.globallearningnj.org>

Social Studies (world history); High School; \$20

The Systems Thinking Playbook, 2002 Edition

Linda Booth Sweeney And Dennis Meadows - Institute for Policy and Social

Science Research <http://www.unh.edu/ipssr/>

Economics, social studies, mathematics; Middle and high school; \$70

Tales from Ovid by Ted Hughes

Faber & Faber Available at www.amazon.com

English; Middle and high school; \$14

Teaching and Learning for a Sustainable Future: A Multimedia Teacher Education Programme

UNESCO. <http://www.unesco.org/education/tlsf>

Teacher Education. Free on Internet.

Waste Reduction: Teachers' Resource Guide

Dale Seymour Publications 1-800-526-9907

Environmental science; 7-9th grade; \$7.50 (students) \$17.95 (teachers)

Water Conservation: Teachers' Resource Guide

Dale Seymour Publications 1-800-526-9907

Environmental science; 7-9th grade; \$7.50 (students) \$17.95 (teachers)

Worldwatch magazine subscription

Worldwatch Institute <http://www.worldwatch.org/>

Science, social studies, environmental science ; \$40

Yes! Magazine

Positive Future Network <http://www.yesmagazine.org>

Social studies, civics, environmental science; \$24 (free for teachers)

Twenty Steps for Infusing Education for Sustainable Development Programming into Schools and Faculties of Education

1. Create Visions and Goals

- State the vision and ultimate objectives of the program clearly and concisely
- Be open to outside recommendations and able to elaborate upon initial plans

2. Enlist Administrative Support

- This will expedite implementation of sustainable programs. If the administration is not responsive, find another way to proceed without them

3. Build Faculty and Student Body Support

- Encourage connections between disciplines and highlight the individual relevance to sustainability
- Outline specific strategies to network and market key ideas

4. Refine Vision and Create Local Relevance

- Focus sustainability curriculum and programs on locally relevant issues

5. Review Existing Programs

- Work with like-minded individuals to eliminate competition
- Share ideas to enhance projects

6. Build the Proposal

- After the vision a concrete agenda is necessary to help others understand the program's objectives
- This also sets a standard for participants and clearly documents responsibilities

7. Market Proposals and Build Acceptance

- Advocate the program to gain acceptance and volunteers

8. Identify Needs

- Know what you need for your proposal (insurance, money, website, etc.)

9. Establish Implementation Teams

- Once you have a proposal, establish a division of labor and assign appropriate responsibilities, highlighting participant's strengths

10. Set Targets and Goals

- Make action-oriented plans to achieve specific, attainable goals

11. Create a Safe Setting for Experimenting

- Explain to co-workers areas in which the program is experimenting
- Take risks with the program—it is a learning experience

12. Discussion & Help Groups

- Educate the community about the program's ideals and goals

13. Monitoring and Reporting Back

- Keep all members involved and informed of progress to avoid confusion about the status of the project

14. Rewards and Celebrations

- Make people feel good about what they are doing

15. Evaluation Schemes

- Monitor progress so growth and improvement is possible

16. Continuous Improvement Schemes

- Take action to implement evaluation results

17. Promotion

- Publicize program events and findings (television, articles, newspapers, etc.)

18. Infuse into Institutional Policy

- Move from theory into the policy of your institution

19. Ingrain into the Ethos and Hegemony

- Let it be the guiding influence of your institution

20. Infect Others

- Continue learning and teaching about sustainability, because knowledge is infectious

Source:

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