Sustainable Communities Review

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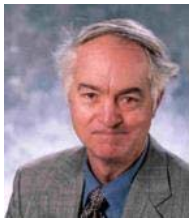

Dr. Stanley R. Ingman
Sustainable Communities Review Editor

Professors Esterchild and Stanely-Stevens set the stage for this issue. These authors deal with one of our key issues in preserving our ecological future – how do we use our land as we try to survive as a species? Ranching is the context – how do you manage those cattle roaming across our land. Landslides in Central America, Philippines or Southern California are typically linked to clearing land for cattle grazing or introducing some new crop.

In the Wyoming story of ecological preservation the authors introduce the issue of gender as a casual factor to improve our chance of addressing land use issues. Do women have a special role in community survival in rural Wyoming? Our authors argue that women, in general, play a more constructive role in the ultimate survivability of local rural communities. Are ranchers able to extract profit and yet preserve "land", that is, its biodiversity and its long-term sustainability? Why is this of more than a story about preserving natural beauty? Deforestation and denigration of the slopes decrease the amount of rainfall penetrating our land, and thus rainfall does not replenish our aquifers as effectively. Now we have legal battles in Colorado about who owns the "rainwater", the owner of the land or a farmer or rancher downstream. The sheep vs. cattle wars of the early 1900s is a past conflict or war to show how "resource" battles capture the psychic of local community members. Once again the land use in the hills or in the valleys or flat lands and water preservation in our streams and in our underground aquifers is key to our survival. Our declining aquifers in the Midwest of North America and under many of the three largest cities of Mexico mean we need to address the issue of land use from several perspectives.

Solutions?

Professor Song Shuwei from Beking Academy of Social Sciences gives us rare glimpse

into the attempts to address their ecological crisis from the macro level. His taskforce envisions the engagement of the corporation, the government and the consumers. To USA eyes and various environmental warriors around the globe, while the goals in the document seem to be commendable, the details on methods will seem weak. As one reviews environmental issues in China more recently, the periodic ecological crises that confront daily urban and rural Chinese are creating an enormous pressure for the authorities to act. Decentralization of action does seem to be part of their thinking even in this historically very centralized society. His taskforce seems to worry about "top-down" programs. One indication of local action to address problem is the work of our colleague in Israel, Rannan Katzir in China. A retired extension agent, Rannan travels to China twice a year, for the last four years or more to bring the message of sustainable agriculture to the remote area of China. Someone in China pays for the visits and arrange to the visits and audiences!

Professor Elsen from Germany sets a broad context for dealing with ecological and economic challenges in front of us. She make an argument for us to focus upon the local communities, local economies or "human economy" – as defined by Aristotle, that is, an economy that satisfies the young and the old, the healthy and the sick, of the living and future generations as well as the non-human world. A shift toward local economic self-organization and local civil society is a method, in part, to protect us from "top-down" programs. She asks whether this is a call for going "back to our roots"? What is possible new is the concept of "professional community work". Professional community work defends the human, social and economic rights of individuals.

Various examples like the Montragon, the industrial cooperative in Balboa, the alternative currency movement like the "Bon-Netz-Bon" in Basel or paying bus tickets for litter collection and sorting in Cuntiba, Brazil are noted. Repressive forces from the "State" and local hopelessness or more complacency seem to make this approach tor protecting our planet necessary. The hard work of creating alternative socio-economic approach are necessary if there is any hope to challenging the passive faith in the dominant belief that the market forces or fair trade will solve all of our future sustainability concerns.

Professor Salazar Diaz reviews an alternative land use – ecotourism – as it has grown up around the world. The assumption is that cattle raising or crop production can be reduced especially on hillsides that are inappropriate or likely to erode. Is this alternative way to also make a living? Of course, attracting tourists to a fragile ecosystem is not always easy to assess. We always need to determine what is real ecotourism and fake ecotourism. Determining the ecological footprint of all tourism activities is not too simple or easy to control. Mazamitla, Mexico, where we operate, is having a major issue of concern with the four wheel vehicles terrorizing the village streets and the country side.

Professor Paul Hudak etal deal with water access and management issues which confronts us after we deal with proper or improper land use. Their analysis focuses our attention on the lovely island of Jamaica with some of the best quality water in the Caribbean. However, the delivery system as in many lands is problematic. We need to worry about the details about water ownership and management so that public health is preserved. As local government fail to maintain infrastructure, the idea of private ownership enters the picture more and more.

As contaminated pipes and storage units at each home plague cities like Guadalajara, bottled water and private business solution grow and expand. Often the poor may end up with limited access to water. In a tourist town like Mazamitla, Mexico with abundant water resources nearby, weak infrastructure and weak investments have meant that rotating water access each week is needed. Water conservation is required on a daily basis. The whole tourist industry is threatened. Similarly, Jamaica may face the same economic treat in time. Of course, local access will decline faster that any restriction on the cruise ships who regularly drop by to secure fresh water in the ports of Jamaica. I am less confident that private solution to water access in rural Jamaica will "manage water as a social good, to meet the needs of humans and the ecosystems" in an equitable manner.

Our final paper by Kaplan, Liu, and Steinig describes and reviews various grass root programs that operate with the local context. These programs are essentially intergenerational in their approach. While it is difficult to muster up older volunteers for one more community service in our aging industrial societies, the idea of locating older volunteers in our poorer third

world communities and societies even seem more problematic. Senior citizens are just emerging as a volunteer workforce for environmental reform or educational efforts. We need more experiments in societies like Mexico to learn how intergenerational models can be effectively organized. Many senior citizens are still tied to child care and the habit to take on ecological reform is not ingrained.

Our book review section is especially rich in the variety of ideas, data and reflection presented in the literature reviewed. Sustainability literature has grown in the last years dramatically, and many corporations and foundations claim to all be working toward the sustainability of our little planet. Fake sustainability claims or green washing is spreading fast and needs to be checked when necessary.

Locally in **Denton, Texas** we have some significant steps forward, even as the still seems to be too little too late. The new biodiesel plant established in partnership with the City of Denton and DFW Biodiesel Industries is the most dramatic (www.FryOakToFuel.com). By winter of 2007, we should have fourteen affordable energy-efficient homes constructed by Denton Affordable Housing Corporation on Mockingbird Avenue in northeast Denton. Another five acres of affordable "green" housing awaits development. Our new College of Engineering has taken the first steps toward building a high performance "green" demo-house for students to evaluate new technologies. Our Denton Independent School District will soon complete its new vocational school which will have a "green" building curriculum.

Our Center for US/Mexico Alliances for Community Renewal is in partnership with colleagues in Mexico is pushing the sustainable communities agenda forward in Mexico (www.usmexicoalliances.org). Most notable are the small scale textile factory (10 women) in Flor de Campo, the electric systems for ten homes in San Martin and more recently the two trade fairs for small producers in the State of Jalisco. Under the conference banner of "Future without Poverty" we have attracted faculty and students from UT-Austin, Northern Kentucky, Texas Womans University, and Brown University. Soon students from Germany and Switzerland may join our community school in Mazamitla.

More recently, governmental officials, university colleagues and migrants all from Zacatecas have visited us in Denton. Our students and faculty have now presented the story of Mazamitla in Zacatecas. One of the driving themes linking Denton and Zacatecas is the biodiesel plant and the hope of locating a plant in Zacatecas. How to establish sustainable agricultural practices in Denton County and in the State of Zacatecas (or Jalisco) to provide oils for the biodiesel fuel for our vehicles, as we attempt to clean this air and create employment, is our challenge. Can we establish a new biodiesel plant in Zacatecas? Workshops in Denton and in Zacatecas will explore this topic of sustainable agriculture to support biodiesel production in May 2006.

In our target community of Mazamitla, Mexico progress is moving forward. Where the women have cleaning the street every morning with their brooms for many years, citizens now are recycling of plastics, glass and organics. The State of Jalisco provided funding to move the existing dump and bu8ild a new lined modern dump outside the cities, even with some traditional opposition. This project is complete. Plastics and glass are being sold to Guadalajara handlers.

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GENDER, LAND USE, AND THE SUSTAINABILITY OF A CONTEMPORARY RANCHING COMMUNITY*

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GENDER, LAND USE, AND THE SUSTAINABILITY OF A CONTEMPORARY RANCHING COMMUNITY

The small western community of Ten Sleep, Wyoming, sees itself as one of the last vestiges of the "Old West." In order to retain its identity as a ranching community steeped in historic battles over land use, Ten Sleep (TS) must make workable population, economic, and socio-political arrangements. To keep ranching viable requires surviving the tax hikes and increased property costs created by the influx of well-to-do leisure ranchers. Townspeople must find ways to maximize profits from a growing procession of tourists who see the village and its surrounding mountains as picturesque but only a pit stop on the way to somewhere else. They must continue to incorporate a sizable number of retirees while retaining the traditions and values that have prevailed over the years. Keeping some of the young people who leave to look for excitement and a new life away from their beautiful but economically challenged home would be beneficial, especially as so many are the sons and daughters of current ranchers. Gender, interwoven with land use issues, figures prominently in all these requirements.

Ecofeminism, Gender and the Environment

Unfortunately, no general theories of sustainability exist against which one could evaluate the wealth of contemporary and historical data gathered on the Ten Sleep com-munity. Eco-feminism provides the merest starting point for considering how women and men might react differently to land use issues in the community's struggle to survive.

Ecofeminists merge environmental concerns with concerns for the well-being of people, especially women and children. They try to explain gender-differentiated attitudes toward land use within a quasi-biological perspective. This view holds that women's child-bearing, feeding, rearing and protecting activities place women closer to the earth and its natural workings than men. Men are seen as taking an instrumental stance toward the land; if they don't want to dominate and exploit it, they at least want to use the land for recreational purposes such as hunting and fishing. Women are pictured as being in harmony with or as equivalent to the natural environment, so in this view, men see women as needing to be conquered and dominated.

However, people who were raised and choose to stay in a ranching community hold different views. To be a successful rancher depends on respecting the fragility of the land and carefully protecting it so its bounty can be a source of livelihood for future generations. Ranchers see extracting a profit and preserving the natural beauty of the land as highly compatible goals. Further, the ecofeminist view partially ignores the variety of different roles that both women and men play. These roles mediate between individuals and the environment, thereby conditioning their views toward it. In the pages that follow, we argue that having been reared in this mountain region and having been heavily dependent on the land and its products erases some of the differences in attitudes ecofeminists might expect women and men to hold. As well, we argue that gender *sifted through* the roles women and men play in the *economic system* are the most important precursors of attitudes toward land use and the ultimate survivability of the community.

Gender and Settlement Patterns

Like many rural communities in the western United States, Ten Sleep citizens pride themselves on having a unique place in history and contemporary life. The community was built along a 40 mile stretch of the Nowood River at the western base of the Big Horn Mountains. The area was initially used for hunting by different bands of Native Americans—including Arapahoes, Crows and Shoshones (Pendergraft). Military forces removed them in the 1870s. A few large ranchers and a few lone men—all of European-American origin--trickled in during the early 1880s. Married couples with children and a torrent of single men came soon after. New homesteaders and settlers continued arriving well into the first three decades of the 1900s. The population grew from about 400 in 1900 to more than 600 in 1920.

The settlers must have wondered about life in this relatively unknown place. The harsh, livestock-killing winter of 1886-87 devastated many of the large cattle ranches throughout the West (Larson). Food supplies ran extremely low and snow-filled mountain passes prevented getting more until spring. Women were concerned about taking care of their children, especially as executing these important tasks was hampered by the lack of schools, churches and medical care.

The Gender Based Division of Labor and Land Use

Whatever the hardships involved, women worked hard to build successful ranches, and the tradition of women being committed without complaining continues today. Historically, only a few could contribute their own capital to the ranch business; but hired hands clearly preferred to work on ranches where a woman did the cooking! The women in Ten Sleep rarely worked directly with cattle or sheep, but they bore and raised children who began contributing to the ranch work at very young ages. Most often it was women's work in their own assigned sphere which allowed a ranch to grow and become profitable.

Women's labor in gardens, with dairy cows (real cowboys never did the milking!), "bum" lambs, and chickens provided much needed sustenance for growing families. Many women were charged with the tasks of hunting small game when their husbands were away, and dressing and preserving the meat from large game animals when the men killed them. Sewing clothing and making other items with use value saved many dollars of expenditures. Some women sold their hard won goods, thereby contributing badly-needed cash to support the ranch (Ainsworth; Almquist; Bell; Riley). Occasionally wives and daughters took up homestead land in their own name to add to the family's holdings. Then, as now, women got credit for sacrificing for the good of the ranch, and appreciation for cooking and child bearing. But rarely was their work recognized as being indispensable or deserving of special rewards (Garceau; Jensen).

A relatively strict division of labor by sex emerged early in Ten Sleep history. From the beginning, men did the income and profit producing work of raising cattle or sheep—rarely both—and appropriated the decision-making power associated with the activity. Women were assigned the private sphere, the work which occurred in and around the household. They were excluded from those activities and places—such as cow camp at roundup time—where men gathered in groups. This division of labor was asymmetrical. Women might help with cattle or putting up hay when needed, but men rarely crossed the gender boundary to help with women's work. Today, while their husbands sleep, women "help" by tending cows or sheep that are giving birth. This is cold, lonesome work, often done in the middle of the night, and almost always in the late winter months. Years ago, when women were giving birth, neighbor women

were called in and the husbands waited outside. These patterns add special meaning to the idea that "Man works from sun to sun, but woman's work is never done."

This division of labor might have softened and mellowed earlier in Ten Sleep history were it not for two factors. First, single men outnumbered single women about five to one. This extreme scarcity of marriageable women meant that women were valued much more for their wife, mother and household roles than for their ability to perform outdoor work. Second, the extreme emphasis on getting land and keeping it in the hands of an individual male head of the family strengthens the traditional patrilineal system, so that even today, daughters almost never inherit a controlling share of the ranch. Without ownership and without working in the daily tasks of raising sheep or cattle, women were and are prevented from gaining authority over ranch affairs.

Today ranch daughters are almost as likely as their brothers to grow up participating routinely in outdoor ranch work. But the patrilineal system is still in force and residence patterns remain patrilocal. When a woman marries, she goes to live with her husband's family. Despite whatever skills in riding, working cattle, and handling machinery she might have acquired at home, as the daughter-in-law, she has to fit into traditional patterns rather than challenge them. So men remain the primary owners and operators of ranches, and women are stuck in the asymmetrical pattern of being viewed as helpmates rather than real ranchers. (See the description of Jay and Paula below.)

Land Use in a Ranching Community

The lives of men who came to Ten Sleep were different and more varied than the lives of women. The men ran the gamut from singularly unrepentant horse thieves to solidly respectable citizens. Some hoped to exchange the tedium of life at home for adventure in the West. Most sought to build a small empire. Whether as cattle owners or ranch hands, the men focused heavily on cattle, horses and open range grazing as their source of livelihood. They came to gain *space*, and in the process developed a strong sense of *place* (Frison; Starrs). The new ranchers and farmers viewed the land instrumentally, and believed that for both land and water, the rule of "first come, first served," should operate (Woods).

Controversy over land use developed early. Cattle owners who were the first in the area bitterly resented the intrusions of sheep owners. The cattle owners and cowboys —many of the latter hoped to become owners themselves—reacted vigorously, harassing sheep owners, shutting them off from sources of water, killing sheep and sometimes their herders (O'Neill). In what is arguably the most dramatic of these cattle sheep wars, in 1909 near Ten Sleep, cattlemen attacked a sheep camp, killing three men and hundreds of sheep. This happened late in the history of the cattle-sheep wars. As the perpetrators were caught and prosecuted, it marked the end of the open range era. This raid is regarded as the last of the great cattle-sheep battles (Davis).

These events might seem inconsequential or small in scope compared to Hollywood's images of range wars, yet the raid looms large in both the written and oral history of the community. The local museum focuses on this raid, and would keep it alive even if local talk did not. Eventually ranchers came to realize that sheep and cattle can be profitably mixed in the same operation, with sheep grazing on rockier, more barren parts of the land and cattle requiring grassier slopes.

Further conflict over land use occurred after the federal government adopted the Taylor Grazing Act in 1934. The Act placed management of vast tracts of public land in the hands of the federal Bureau of Land Management (BLM) (Woods). Initially, ranchers were to be allotted use of an amount of government land proportionate to the amount of property they actually owned. But local Boards charged with dividing and allocating these lands acted or were perceived as having acted contrary to the regulations. Even today in Ten Sleep, some ranchers say "Yeah, well the main reason 'so and so' is successful is because his dad was on the Allocation Board."

Since its inception, the number of BLM employees has grown dramatically. Ranchers express strong negative attitudes toward BLM workers, seeing them as lazy, ignorant if not downright dumb, and inefficient. Hovering over all the activities in this community, federal policy places restraints and conditions on how ranchers can proceed on their own turf. One wife remarked:

> "The BLM practically drove us out of sheep ranching. They said we had to put our sheep in a certain location and we did. A terrible storm came up and the sheep piled up on each other in a canyon there. We lost three fourths of them. We could have put them in another place, and no-one would have noticed. But

no, we had to obey the regulations and look where it got us."

Notably, this woman blames BLM regulations rather than the terrible storm. This woman then mortgaged her own property in order to restock the ranch with more sheep.

Competing Interests in Running Doe

As powerful as the BLM is perceived to be, it is only one element vying for control in Ten Sleep. Today individuals and families own and operate about 35 of the ranches in the community. Corporations, developers, and wealthy leisured people own another dozen. Outsiders who purchase ranches are the first group who worry the local people. Ranchers see them as not committed to making a profit or even just making a living from the ranch, and therefore as something of a threat.

Second, developers are buying up swatches of land and perching cabins and houses on some of the most beautiful spots in the county. The local people wouldn't mind these intrusions were it not for the demands the newcomers make. One former rancher put the matter this way:

> "Well those Californians come in here and they build those big houses, and that isn't so bad. Then they want a real road built to their mansions and that seems reasonable. Then they want a paved road, and that isn't. When in the world is it all going to end?"

These comments allude to a very important set of problems: the rise in taxes and in land values mean that no-one with an ordinary income can even dream of starting a ranch and many who inherited a ranch have difficulty keeping it.

Environmentalists comprise the third group that makes ranchers feel mildly to thoroughly uneasy. Some environmentalists have argued that cattle in particular and livestock in general are an abomination on the earth. The much more numerous moderate environmentalists assault ranchers' pride if not their pocketbook. As one rancher cried out plaintively:

> "What do they think we do? Deliberately tear up the land? No, we cherish it because its our livelihood. More than that, it's come down to us and it's our job to take care of it. No one else can do it so well."

The business owners in town also keep an alert eye on community developments. They vary along a continuum from those whose operations—such as the two motel owners—depend almost exclusively on tourists to those—such as the grocery store owners—whose well being is almost entirely determined by trade with locals, including ranchers. Most businesses operate between these extremes. So their owners and employees exhibit respect for ranchers and the other residents, and women business owners exhibit the same attitudes that men owners do. Meanwhile, they have a vested interest in bringing in more residents and more tourists, ideas that do not please all the ranchers. Ten Sleep businesses change hands frequently, further highlighting the generally precarious economic situation in Ten Sleep.

Population and Community Organization

Soon there simply may not be enough people in the community to support the businesses. In 2000, only three hundred people lived in the town and another 400 were scattered along the river and mountain streams (U.S. Census Bureau). For Ten Sleep, the issue of having enough people may be complicated by who the people are. As more and more of the ranchers retire and as more sons and daughters leave the community to look for work, the skills required for ranching may be lost.

In a small community, the sex composition and the size of each age cohort can easily vary in quite random ways. Ten Sleep's unusual demography amply illustrates this point. For instance, in 2000, the community's population aged five and younger was 61 children with three times as many boys as girls. Imagine what will happen when this cohort reaches marriageable age! If the sex composition doesn't change, women will be nearly as scarce as they were in 1900, with the implication that when women are scarce they are valued only for their domestic and sexual roles (Guttentag and Secord). In 2000 as well, Ten Sleep had fewer residents aged 20-24 years than in any other five year age category up to age 80. There were no men aged 20-24 and only 11 women. Other young people may have been away at college, out on a Mormon mission, or in the armed services and may return to Ten Sleep to live. Still, the fact that many high school graduates simply leave for greener pastures seems a likely reason for the gap.

The town population is concentrated at the other end of the age spectrum. Fully one-third of the adults are 65 years old or older. A sizable number of the older people grew up in this community, went "outside" to earn a living and came back to retire. They aren't very rich, but their retirement income infuses some badly needed cash into the local economy and their loyalty bolsters pride in the community. Other retirees chose Ten Sleep simply because they liked it. They, too, bring cash into the community, but long time residents are rarely charmed by their presence. The dwindling of the number of "native" sons and daughters who return to TS to retire and the increase in the number of "others" poses a serious threat to the place's identity as a ranching community.

Economic Prospects in the Community

One-third of men workers are employed in ranching, even though mechanization has greatly reduced the number of hired hands needed, especially in the hay fields. During sheep shearing, branding and vaccinating, and pregnancy testing cattle, when extra help is needed, a host of "wannabe" and "usedtabe" ranch people—including quite a few women—help out.

Ranch women do an enormous amount of work, yet seldom list themselves as employed, even as unpaid family workers. In recent years only one woman was a full time sheepherder and only one other woman tried, unsuccessfully, to make a living as a cowhand. In farming communities, both women and men are likely to work off the farm to round out the living they can earn from it. But in the land rich-cash poor economy here, women take jobs off the ranch while men do not. Women's paid jobs are typically seasonal, part time, and low-paying. Their work boosts the couple's predictable income, but it also takes women away from the ranch, thereby strengthening men's near mono-poly on ranch decision making. Meanwhile, taxes, machinery, winter feed—all increase ranch expenses so women's paid work continues to be needed.

Ideological Supports for Ranching

Given the difficulties inherent in modern day livestock ranching, what keeps these women and men on the ranch? Two strong ideological influences, both ignored by ecofeminists, support ranching as a life style. The first is a non-sectarian *ranching fundamentalism* (Starrs) which includes the belief that ranching is far superior to other ways of making a living—despite its hardships—and places enormous value on the ranch as the best place to live and raise children. The second is the *religious support* for ranching as a way of life. About half of the community churchgoers are Mormons, whose tenets complement ranching ideals. They emphasize being prepared because the future (on earth) is uncertain and fraught with danger. Therefore good housewives raise and preserve a large volume of fruits and vegetables just as good husbands raise plenty of livestock and have money put away to tide them over any sort of emergency. Mormon beliefs stress the need for men to have a large number of children, so that child bearing and rearing occupy a large portion of women's reproductive years. An important feature of Mormonism is its extreme patriarchal structure. The church hierarchy is steep and women are excluded from holding positions that carry authority. This exclusion spills over into family life as well.

These two factors—ranching fundamentalism and Mormonism—are primary supports for retaining the community's identity. One outstanding couple illustrates both these components, as well as their patriarchal legacy quite clearly. Jay and Paula own their own ranch and are joined in a ranching corporation with his brothers and brother-in-law (men are considered the head of the family and in charge of decision making). Jay is twelve years older than Paula; their wedding took place the day after she graduated from high school. When they married, Paula's skill at working cattle from horseback was well known. The horse Paula brought into the marriage soon became lame. Years later, Paula recalled being very nervous when she had to go before the corporation board—all men—and ask for a new one. Women were simply not supposed to be mingling in these important affairs; perhaps they are still not.<2> Years later as well, Paula choked back a few tears as she regretfully summed up the impact of childbearing on her life and interests. "With seven children, I counted up once and found out that I'd lost thirteen years of riding."

On one Monday in the early fall, Paula taught an early morning religious class to high school students, canned tomatoes from her elaborate garden, sewed on a wedding dress she was being paid to make, hurried to town to get repair pieces for machinery, and phone calls about

ranch matters. All this before noon! When commenting on the possibility of ever giving up ranching, she said, "Oh we couldn't ever sell the ranch. Why, I just wouldn't hurt that little boy (her youngest son—daughters were not mentioned) like that!" In a separate interview, Jay said,

> "Sure we could sell this ranch for more than a million dollars, but then where would we be? We'd be doing nothing, we wouldn't be contributing anything. No, I'll never sell."

It seems women and men arrive at the same conclusion by slightly different routes.

Socio-political Institutions

Strong social institutions which tie a community together are necessary for its maintenance as are political methods for resolving disputes. Ten Sleep stars in the former and is not organized to accomplish the latter.

Several informal groups create strong cross-cutting social networks in the community. There are "coffee klatch" groups among both sexes, commuters who share the 50 mile round trip to work in another town, relatives with whom people visit and work, organizations affiliated with the churches, numerous activities at the Senior Citizen/Community Center, and several other small, special interest groupings. Slightly more formal groupings include the volunteer fire and ambulance service, the rodeo association, the library benefit association, the parent teacher association, the museum board and the town's cemetery association. The web of affiliations and contacts is vast for so small a community. Their frequent meetings cement relationships among people, and create commitment to the well-being of each other and of the community.

A number of community-wide celebrations strengthen traditions and bring former members back to the area to visiting and renew acquaintances. Independence Day features a great ceremonial gathering, with a rodeo, fireworks and dancing in the streets at night. One or more class reunions are held at the same time. Later in the summer, during "Ten Sleep Days," people celebrate historical events of local interest, honoring their pioneer origins and reaffirming their self image as a hard-working, ranching community. These events, together with senior citizen picnics, church events to which the whole community is invited, and a now successful summer music festival, socialize newcomers to local traditions and lead them to psychologically invest in this community. Interestingly, women who have married into the community seem

more eager to know about its people and its history than long-time residents. Their husbands exhibit quiet pride in the local knowledge the newcomer wives—the informal sociologists—have developed. The social networks and the community-wide celebrations are two of the strongest forces buttressing Ten Sleep's continuing identity as a ranching community.

The only formal political institution is the town council, in which many townspeople but few ranchers participate actively. In addition to acquiring federal funds to build a new fire station, the council handles quite a few matters of strong practical import: spraying for mosquitoes, keeping an adequate water supply, and coordinating the local music festival which attracts a lot of tourist business during the hottest, somewhat slack part of the summer. A local newspaper, published every two weeks, faithfully reports the meetings of the council, revealing a gender based division of labor. In Ten Sleep, women pay more attention to expressive areas: the community/senior center, the library, the museum, the festivals and money for beautification projects. Men oversee more instrumental activities: building the new fire station, maintaining sewer and water lines, speaking up in the few disputes over building and grounds issues in the town. The council meetings are sometimes the setting in which conflict among various newcomers and between newcomers and old timers erupt. These conflicts have not become open warfare because the semi-formal conduct of the meetings operates to restrain outbursts, and the general spirit of cooperation helps keep people focused on common goals. Unfortunately, the council is not set up to handle disputes over land use, so does little or nothing to resolve the issues confronting ranchers.

Coping with Other Threats to Ranching

Active ranchers are reluctant to admit that here, as elsewhere, ranching appears to be under siege from a number of external forces. One force the ranchers observe is the continuing interference of federal government policies. The reintroduction of wolves to Yellowstone National Park epitomizes this interference. With good reason, ranchers think the wolves have spread far from park boundaries and that they threaten to wreak havoc on lamb crops. Few people are willing or able to work as sheepherders any more, so the owners can no longer hire people to close-herd the sheep around the clock. This leaves the flocks at the mercy of predators,

including wolves. Some ranchers have joined a fledgling association formed to combat the wolf threat, but it has had little influence other than persuading people to be wary of wolves.

The rising cost of machinery, feed, land and taxes, and constant fluctuations in prices for beef, lamb and wool keep most ranchers operating on a very thin margin of profit. Ranchers are accustomed to coping with having two or three lean years followed by at least one "fatter" year. However, today they say that the siege of lean years seems to last longer and the "fat" years do not really tide them over all the lean ones.

Increasingly, some ranchers lack sons (ranch sons, because daughters are not seen as potential ranchers) to take on the daily grind and risky business of earning their living from a ranch. In other families, there are too many sons who wish to inherit the ranch and it is too small to support more than one family. One possibility that seems unlikely to happen around Ten Sleep because of the large distance to the next town, is for brothers and sisters to form a corporation with each doing some of the ranch work and working at non-ranch jobs as well. This maintains a working ranch intact for one generation, but the next generation may not be amenable to cooperating in this way. Ten Sleep ranchers cling to the patrilineal tradition of sons and not daughters inheriting, despite considerable evidence of the conflicts between brothers which emerge after the land is unevenly divided or given to one brother alone. And women and men alike continue to refer to places as "his ranch," even in those very rare cases in which the woman has inherited a substantial portion of it.

Around the country, ranchers work hard at improving ranching methods. They use more veterinary help, take courses in range management, cross breed new strains of cattle, rely on artificial insemination, use computers to keep records and consult carefully with others about ranching methods. Others introduce new types of livestock such as buffalo, ostriches or llamas. Buffalo, especially, are seen as using the land in a more ecologically sound way than cattle. Ten Sleep ranchers have not invested heavily in new crops or "scientific" methods, but they do expect their sons to go to college to learn about technological advances even when they didn't attend college themselves.

To cope with increasing costs, a few local ranchers tried to expand their work as fishing, hunting and scenic guides. But by far the most common option is to have ranch wives go to work off the ranch in order to bring in more cash. Unfortunately, most of the jobs the women get are seasonal so that for part of the year at least, most wives are away from the daily activities of

the ranch. Husbands rarely take a job off the ranch and spend considerable time in all-male groups. These arrangements continue to hamper women's involvement in ranch decision making, as all-male groups reinforce male dominance and women's earnings are insufficient for them to gain much "say-so" in ranch affairs.

Will the women rebel in order to change these circumstances? Probably not, for several reasons. First, rebelling is typically an individual rather than a collective act; women who rebel usually get a divorce and move away. Second, at the same time that the contemporary feminist movement (1970s) was gaining ground elsewhere, Mormonism with its conservative influence on gender roles was becoming a solid force in Ten Sleep. Third, many wives are newcomers to the community and more concerned with "fitting in" than with rebelling against its strictures. Other wives were raised on cattle ranches and strongly imbued with love for the mountains and the living creatures which exist there. Finally, virtually all of them are immersed in ranching fundamen-talism, which puts the ranch first and makes all else secondary.

Conclusion: Ecofeminism, Gender and Land Use Issues

Ecofeminism provided a useful starting point but falls far short of predicting the attitudes and approaches of ranch holders or business owners, because it neglects to take into account the economic roles people play. It is true that the economic roles are conditioned by gender, but they extend much beyond simple differences in attitudes toward the land. The ecofeminist approach also closes off further investigation of differences between ranchers and urban dwellers in attitudes toward the land. It does not lead us to delve into the many reasons why ranch men greatly respect the land even in a strongly patriarchal and traditionally violent setting. Nor does this approach take into account many social and political factors which affect the views people hold, and a number of issues which affect the survivability of ranching.

However the strong alert to possible gender related differences led us to explore attitudes, and we do find moderate to strong differences in the way women and men approach the community. Men ranchers are rarely newcomers to the community, but women newcomers become very alert to organizations and activities in the community at large. Women and men pay attention to different topics and areas at town council meetings. Both women and men want

ranching to survive, but women stress the emotional aspects, the possible feelings of loss their sons might experience if they are not able to take up ranching for themselves. Men want their sons to inherit, too, but this is more a matter of masculine pride in themselves and a patriarchal legacy than it is a response to the emotional issues. Econfeminism did start us down a path toward trying to understand the survivability of the community. To that issue we now turn.

Conclusion: The Survival of the Ranching Community

Many ranching communities in the American West continue to struggle to survive or have already died out, which leaves Ten Sleep's prospects for survival looking a bit dismal. Economic issues continue to be at the forefront for ranchers and community business owners alike. It is difficult to imagine that many Ten Sleep ranchers will plunge into the tourist industry in the foreseeable future, as they lack the background and resources to do so. One new business—a community owned water bottling plant created to give people a "stake" in the community—exists as a mere drop in the bucket of economic need. Otherwise, in the great tradition of individualism, Ten Sleep ranchers continue to meet their challenges mostly alone. These ranchers come from a long line of people who have exhibited hard work, "true grit" and ingenuity, so most contemporary ranchers optimistically believe that they can continue along that path. Simultaneously, given the strength of the impinging external forces—the influx of newcomers and wealthy ranchers, increasing land costs, severe storms and droughts—ranchers continue to share ranch work with each other and help others in time of need. For these reasons, traditional style ranches with limited modifications will continue to exist for the next 20 or 30 years, but the number ranches will undoubtedly dwindle until almost none are left.

The fate of the small town of Ten Sleep is perhaps more hopeful. For one thing, Ten Sleep is a long distance from any larger town and for that reason attracts tourists who who stop for a meal or to spend the night. It will survive well into the future if it can continue to attract retirees; expand and advertise the town features which attract tourists and leisure seekers; and make the twenty or small businesses more profitable. In this process, the town may survive but utterly lose its current definition as the headquarters of a ranching community.

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Letter of Intent in Appeal for Cooperative Development of *Monitoring System for Responsibility of Environmental Protection by Enterprises*

I. Grim situation of continuous deterioration of global environment

In the second half of the twentith century, with the fast development of economy accompanying the globalization, the environment problem is getting worse. The news titled " Environment Day : Mankind Fails to Stop the Environment from Deterioration"of AFP from Paris revealed, "According to the statistics from the IUPN, 1/4 of the mammals, 1/8 of birds, and 1/3 of fish, reptiles and amphibians on the earth are at the brink of extinction, and 5,500 kinds of animals and 34,000 kinds of plants in total are threatened. This organization calls this 'Serious Crisis of Extinction'."Scientists have already warned the mankind : A new grand extinction of living things is about to happen.

II. The continuous deterioration of the environment demands reflection and innovation with respect to the earlier concepts and measures of environmental protection.

In reply to the appeal of the UN to the world that the basic relationships of the nature, society, ecology and economy must be studied, while conducting the State key project of Mode of Social Structure in Modern China, Professor Song Shuwei from Sociology Institute, Beijing Academy of Social Sciences published the Theory for Mode of Modern Social Structure (in English) in 1988 in the 3rd issue of Review of International Sociology, magazine of the Society of International Sociology. He initiated the theory of three levels in the modern society. Level 1 comprises the parent system of harmonous relationship between human and nature. Level 2 is a daughter system of person-to-person relationship involving economy, science and technology, administration, culture, education and the like. Level 3 addresses that individuals with quality of modern civilization form the basic elements of the overall structure. This has broken the viewpoint that economy, science and technology and the like are set parallel and opposite to the nature and ecology. The theory of three levels for modern social structure consists in thinking

with the uniform law of the universe and the nature dominating the conceptions and behaviors of all activities by human and seeking for harmonous and coordinated development between human and the nature and between people.

In 1990s, after further systematic investigation and study, Professor Song Shuwei published in January of 1999 a monograph of Theory for Coordinated and Sustainable Development and Development Road for China at the China Economic Science Press, which, according to the academic community, is the theoretical preparation for the scientific viewpoint of development from the national decision in the 21st century.

At the 36th convention of global sociology that took place in July of 2004, Professor Song Shuwei presented another paper titled In 21st Century, the Mankind is Facing a Great Revolution of Its Existence Mode—Brandnew Era of Civilization for the Sustainable Development of Human Society.

III. Recent Establishment of Monitoring System for Responsibility of Environmental Protection by Enterprises, Its Structure and Function

Over the past 2 years, Professor Song Shuwei has invited Professor Dai Jianzhong from Sociology Institute, Beijing Academy of Social Sciences and Mr. Zhu Tao, Chief Technical Officer of Hengchang Technology Group to conduct the theory study. In that study and in the cooperative investigation and study along with the State Academy of Environmental Sciences, they have found that the policy of Pollution before Control long practiced in the world is outdated. The so called control never meets the needs for pollution removal and some pollution can never be solved by control. Moreover, the clean production proposed by American people, which is introduced in the world, the recirculating production and the ISO14000 authentification system remain at the level of controlling over objects as opposed to coming to the deeper level of controlling over human. After all, pollution and control are acts of human.

Through the theoretical method combining social science with natural science, Professor Song Shuwei et al have worked out the Monitoring System for Responsibility of Environmental Protection by Enterprises. This is based on the theory of the three levels for modern social structure initiated by Professor Song. Professor Dai helped Professor Song with the preparation of a partial differential equation for the coordinated development in the relationship of human and nature. Based on the above two aspects, Mr. Zhu has planned a set of system software for the Monitoring System for Responsibility of Environmental Protection by Enterprises, of which the architecture and functions include :

The architecture of the monitoring system consists of four parts :

1. Related modules of system ;
2. Modules for corporate application ;
3. Modules for government application ; and
4. Modules for consumers.

The monitoring system monitors the enterprises from many aspects primarily through its data and information base, the management and page modules and the like. In addition, it provides reliable information to the environmental protection authority to facilitate its examination of the compliance by an enterprise with the overall responsibility for environmental protection along with representatives from all walks of life in the society and the issuance of the certificates. This allows the enterprise and its products to be accepted by the domestic and global markets and allows the enterprise to enjoy high reputation and approval from the administrative and legal departments. Otherwise, it will face relevant economical, administrative and criminal penalties. By following this, enterprises begin to accept it instead of the earlier reluctance as habit is second nature. They will conscientiously and voluntarily assume the responsibility for the environmental protection gradually, and thus assume the fundamental social responsibility.

The monitoring system also provides all comsumers with various kinds of information on environmental protection products so that the customers are able to supervise in an expanded time and space mix if an enterprise is fulfilling its duty in the environmental protection.

IV. Breakthrough in five aspects by Monitoring System for Responsibility of Environmental Protection by Enterprises and advantages

1. Changing from pollution before control to control before pollution ;
2. Changing from controlling of pollutants to in-depth investigation of the persons generating the pollutants ;
3. Changing from earlier partial efforts that were decentralized in the environmental protection to the present overall environmental protection efforts for the entire system (networking) ;
4. Changing from temporary efforts in an individual control to continuous efforts in environmental protection.
5. Changing from minority of people for environmental protection to the whole society to provide environmental protection.

V. Environmental protection specialists give positive appraisal to the Monitoring System for Responsibility of Environmental Protection by Enterprises

According to a number of environmental protection specialists, the Monitoring System for Responsibility of Environmental Protection by Enterprises is a new mechanism to predict and supervise the environmental behavior of an enterprise through an approach combining the social science with the natural science. It is an advanced study and enjoys directive strategic significance and value.

According to a professor in the central university in Lyon, France, the successful preparation of the Monitoring System for Responsibility of Environmental Protection by Enterprises is a boundless beneficence to the environmental protection undertakings in the world.

VI. Further research, time schedule, funds required and conditions for cooperation

For the Monitoring System for Responsibility of Environmental Protection by Enterprises, on the basis of the rationale, partial differential equation and planning of software system, concentrated time, efforts and funds are necessary in the next step to employ a group of IT

talents as soon as possible and properly perform the development by tackling some key technologies: 1) metaprogram programming of software system; 2) design of scientific operation of partial differential equation; 3) providing interface for video/audio monitoring networking of production flow and pollution control process; 4) development of complete "prototype" of software system; 5) development of pollution tester and study of authentication system; investigation and establishment of data and information base; 7) repeating experiments; and 8) organizing monitoring center and popularizing in the society.

To complete all the preparation of the system in about a year, we appeal to entrepreneurs and personage in scientific and technological circles with strategic insight for the joint development of the hitech product of the Monitoring System for Responsibility of Environmental Protection by Enterprises through investment of USD $40,000.

When the system is launched, during the popularization and application in localities and the State, 20-30% of monitoring fee charged by the monitoring center from the enterprises will be paid back to the investors.

We invite all respectful friends to join us in the efforts to opening up a new horizon of global environmental protection and greeting the brandnew era of sustainable development of the human society.

Professor Song Shuwei, leading person for task group of Monitoring System for Responsibility of Environmental Protection by Enterprises.

Prepared on Jan. 28, 2005

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Economic Selforganisation and Civil Society

Local Economy and Sustainable Community Development[1]

Prof. Dr. Susanne Elsen, München European IUCISD Conference:
Face of Research in European Social Development: Aims, Results. Impact
23. – 25. 9. Graz, Austria

Introduction

Ecological destruction, unemployment, marginalization and the poverty of people and communities are spreading, while world capitalism takes its course, submitting more and more of the natural, social and human resources and the common good.
The vagaries of free trade and the unimpeded movement of capital pose a threat not just to job security but to basic needs and resources.

It will neither be the market mechanism nor the political power of states alone, which will have the capacity, to solve these problems.
Social and economical selforganization of people in local communities is one of the most important tasks for post-industrial and developing societies in our times.

It is necessary to find future oriented answers to the following issues:

- Guarantees for a basic subsistence and a life perspective for more and more people in a society which continues to be oriented around wage labour;
- The social integration of people who, without work and basic subsistence have no life perspective; the maintenance of human and social capital and, ultimately, of the civilizing activity of the community;

[1] Elsen, Susanne/Wallimann, Isidor: Social economy: community action towards social integration and the prevention of unemployment and poverty. In: European Journal of Social Work. Vol. 1, No. 2 pp. 151-164 1998

- Ways to meet the needs of the community, which are already at stake in spite of its affluence as a result of the de-industrialization and the concentration of capital;
- Maintaining responsible management and use of natural resources for sake both the next generation and the biosphere by means of sustainable economy

The most evident step to sustainable development is to preserve and use resources and human capacity within local boundaries in order to satisfy basic needs and to preserve the common good.

Sustainable Development and Community Economy

Now, that market economy no longer has territorial boundaries, the spheres of life within the limits of local communities are gaining new importance in terms of autonomous problem solving and sustained patterns of development.

This broadening meaning of local community as a place for mastering the challenges of life and as a framework for developing future-oriented solutions to social, ecological and economic problems, corresponds to the broadening meaning of community-based social work as an effort to shape social life and effect social change.

Community-economy follows the original sense of human economy, defined by Aristoteles. It's the idea of the "oikos", an economy for the satisfaction of needs of the "whole house" – of the young and the old, the healthy and sick, of the living and future generations and the not-human world.

Global market economy follows its own rules guided by the major idea of monetary profit while community economy primarily is concerned with guaranteeing subsistence and meeting the needs of people in a specific community and takes in account the limits of our natural resources.

A basic local economy sector, which follows the original economic idea, is the aim of many activists and social movements around the world. This basic local sector organizes human work primarily in low-tech and low- capital economy in order to supply community needs and the everyday demand of local people. Food and other basic goods, services and local infrastructure, housing, sustainable ways of production and trading in regional boundaries, education, culture, health and care, ecological projects – all these fields have to be cultivated in local boundaries.

Not only critical activists and scientists, but also of the OECD[2] and the EU[3] focus on civic selforganization in the economic sector because its obvious, that the globalised economy is not able to satisfy basic needs. The political forces focus a new approach to create jobs and to find innovative ways of local development based on civil society and the supply of local demands by using activating tools of professional community development.
"Top-down" programs do not intend the development of an alternative economic culture. However, they cannot ignore any more, that many urban and rural regions have been virtually unplugged from mainstream economy, and that a major commitment to reconstruction is necessary.

Back to the roots?

Community work is a comprehensive approach to creating, reinstating or redesigning social, political and economic bonds within the community.
Promoting options for selforganization within the locality by the development of a community-oriented basis and enabling people to re-establish or maintain their ability to be socially productive - to preserve and develop their natural, cultural and economic capital - is the central task of professional community work. This interpretation of community-based social work is a

[2] OECD: Local Economy and Employment Development. Paris 2002
[3] European Commission: Local Development and Employment Initaitives. Luxembourg 1995 and:
KOMMISSION DER EUROPÄISCHEN GEMEINSCHAFTEN, Brüssel, 23.2.2004
KOM(2004) 18 MITTEILUNG DER KOMMISSION AN DEN RAT, DAS EUROPÄISCHE PARLAMENT, DER EUROPÄISCHE WIRTSCHAFTS UND SOZIALAUSSCHUSS,
UND DER AUSSCHUSS DER REGIONEN über die Förderung der Genossenschaften in Europa

reflection of its original roots, which were first developed in the USA to cope with the economic, cultural and social consequences of urban industrialization. Now, just as at the beginning of the industrial age, social gaps are becoming very evident.

The autonomy of this position can – in contrast to community work in the tradition of Germany, Swizzerland or Austria - also be explained by the fact, that the American brand of capitalism was not, or only to a lesser degree, flanked by social policy and that self-help was always an essential requisite within society. Is it the decline of social security against the main risks in the life of people which gives new importance to civil-society- based local approaches ?

The most impressive example – and one still highly relevant to the problems being confronted today – is the work of Jane Addams (*1860) and other activists of the settlement Hull House in Chicago towards the end of the nineteenth century. Hull House was an impetus for socially-oriented urban development and civil society-based social work. It focused on public surveys on poverty and public health, assisting the political participation of the unempowered and forcing the implementation of social reforms. It was a centre for intercultural learning and socio-cultural development, and last but not least, it created community enterprises as a basis for economic self-help. Economic self-help in this tradition means: solving social problems with economic activities within the community.

Economic selforganization in civil society today is more than wishfull thinking.

The Canadian author Robert Campfens discusses new approaches in his international study of the community development approach:
„Another trend witnessed in recent years is the spectacular rise of social and co-operative movements, many of them serve as agents of CD. Among the most numerous of these movements (…) are the myriads of apparently spontaneous, self managing local rural and urban organizations that seek to ensure their members´ survival through co-operative production, distribution, and consumption.

(….) these „defensive“ social movements do not explain the rise of all those social and co-operative movements, that exist to create change (….) These latter movements are often driven by the search for alternatives to the capitalist industrial models, to the state-controlled social programs, and to the centralized, hierarchical, top-down, institutionalized structures of decision-making.
The alternatives these groups apply may take the form of redirecting the economy toward the community, the environment, and a sustainable future.”[4]

Democratic community-development has its roots in social movement and is actor of social change. We have to remember that when professional community- work is searching for coalition-partners in our days. The struggle against unemployment, poverty, ecological destruction and against the new forms of robbery[5] by acquiring biological and cultural life, has built a big coalition of citizens and institutions around the world. Social movements, small local initiatives as well as pro-active alternative actors cooperate in the World Social Forum and the attac-movement. Together they build a mighty power against the destructive neoliberal ideology and practice of globalization. Professional Work to defend human, social and economic rights needs the power and the independence of these partners. Its obvious, that community development in this meaning has to remember the tradition of professional conflict- and powerstrategies – for example the Alinsky legacy – and the link between conflict and social change.

Actually we can identify different fields of economic selforganization in several world regions:

- Cooperative selforganization of citizens to preserve control of and access to net-dependent “lifegoods” like water and energy. The fact, that the GATS-agreement makes it possible to transform these goods into profitable market ware and that transnational corporations buy these nets to makre business, is a serious danger for communities. Actually there are several citizens initiatives to preserve the access to and the control of

[4] Campfens, Robert: Community-Development around teh world. Toronto, Buffalo, London. 1999, S. 5
[5] The names of the contracts which legalise this new kind of global robbery are “TRIPS” and “GATS”

lifegoods within the community. The most important example is that of the citizens of Cochabamba.

- In the same way, citizens try to find ways to preserve infrastructure, education, social- and healthsystems for all citizens. Japan and Finland for example are the two countries that, during the last five years transferred public institutions – especially hospitals and schools – to citizen-controlled cooperatives.
- Cooperative and sustainable rural production of people in third-world countries, to defend their rights and biological resources against transnational corporations and the TRIPS-agreement.
- Italy is a special case: Cooperative selforganization has a long tradition and the movement is strong and innovative. In the constitution of 1947 the state was obliged to support co-operative forms of economic activities. In 1991 a law for the regulation of social co-operatives was passed. The sector is sustained by a widespread acceptance among social forces.[6]
- Cooperative selforganization of work as an alternative to unemployment, poverty, exploitation and repressive social-policy (primarily labor intensive sector). The best example is "Mondragon", the industrial cooperative next to Bilbao with more than 50.000 members. (Now also in the capital intensive sector).
- The take over of entreprises as cooperatives by the employees to save the work for the region. The most famous example is the coalmine of Hirwaun, next to Cardiff.
- Cooperative organization of work in the academic and high-tech-sector by people, who loose their well-payed jobs or whose potential is not demanded any more by the global market or by public institutions.
- Cooperative entreprises founded by users of social- and care-services. In Germany for example we find several new cooperatives for personal assistence run by handicaped people.
- Selforganization of elder people in search of selfcontrolled housing, living and service-supply.

[6] Elsen, Susanne/Wallimann, Isidor: a.a.O. S. 162

- Alternative and complementary currency – like the "Chiemgauer" in Bavaria or the "bon-netz-bon" in Basel, Switzerland - to initiate and strengthen local economy circuits or as a medium against deflation. (www.rivia.ch/netzbon) .
- Alternative currency serves also as a social-policy-medium. The best example we can find in Curitiba, where – in the 1980s – citizens in the slums solved their litter-problems by paying those with bus-tickets, who collect and sort litter. Curitiba in our days is one of the cities in the world with a strong and widespread alternative-currency-practice.
- Systems of "time currency" and other forms of direct exchange like LETS. The most famous example is the "Furei-Kippu-System" in Japan, an elaborated time currency-system in order to organize neighbourhood services especially for elder people. The movement was initiated by the Japanese womens-movement
- Community credit unions and community development loan fund espacially in Canada but also in USA and UK "have made lending available to individuals, normally shut out of the financial market for the start-up or expansion of business, the purchase or remodeling of homes, or for education."[7] The most famous example is that of "South-Shore-Bank" in Chicago. In every case, a cooperative effort is needed to start a democratically-controlled local financial institution that could and would respond to particular credit and banking needs of low-income communities.[8]

These examples are not only defensive reactions to unemployment and the growing knowledge, that waiting for new jobs in the global market-economy is like waiting for Godot. It's also more than a simple reaction to the decline of social security. It's a remarkable step to political, social and economic citizenship. Citizens do not wait for solutions offered by the state or by market. They engage in the central problem-producing sector and bring civic values into economy, which is dominated by the shareholder value and monetary profit making.

Rebuilding basic community-economy brick by brick

[7] Kretzmann, John, P./McKnight, John L.: a.a.O. S. 295
[8] Kretzmann, John, P./McKnight, John L.: a.a.O. S. 295

The key to rebuilding disadvantaged communities is in developing a local capital base – human, social and financial. In some instances this capital has to be rebuilt brick by brick.

Revitalizing such neighbourhoods requires recognition that disinvestment is itself a market phenomenon[9] and, consequently, will only be reserved by fundamentally reinvigorating local economic cicuits. Neighbourhoods of the poor are economically and socially dependent regions from which wealth has been extracted and little returned.

When capital flows out of the area "people cease upgrading their homes, and landlords fail to maintain their buildings; property values fall; store owners quit investing in their business and close or move; and neighbourhood residents lose hope, stop investing effort in education and developing work skills, and fall into unemployment. Building locally controlled assets becomes a community goal.[10] These assets are nessessary for self-sustained development processes.

In economically devasted communities, professionals have to locate and mobilize every possible local ressource espacially those of an economic potential.
"Non-economic" institutions and the local population have to be actively involved in this process. Community enterprises have to be constructed as multi-stakeholder- coopertives in the responsibility of different individual and collective acteurs.

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[9] Douthwaite, Richard: short circuit. Dublin 1996, S. 150f.
[10] Rubin, Herbert J.: There arent´t going to be any bakeries here if there is no money to afford jellyrolls: The organic theory of community based development. In: Social Problems, Vol. 41, No. 3, August 1994, 411

ALMA PATRICIA SALAZAR DÍAZ
En un primer momento se intenta responder a una pregunta central sobre el ecoturismo: ¿esta actividad debe o no ser un negocio? En seguida, se analizan las características esenciales que deben reunir los:
DESARROLLO RURAL Y TURISMO. (2005) Editores: Alfredo César Dachary, Javier Orozco Alvarado, Stella M. Arnaiz Burne. Universidad de Guadalajara. Universidad de Buenos Aires. Puerto Vallarta, Jalisco; MEXICO.

Mercadotecnia del ecoturismo

Libro

ALMA PATRICIA SALAZAR DÍAZ

Introducción

productos ecoturísticos para ser aceptados en el mercado, así como el perfil del consumidor de ecoturismo, sus expectativas y los países del mundo emisores de ecoturistas. Para terminar, se presenta el caso de una empresa que ha tenido éxito en la operación internacional del ecoturismo.

Parte importante de este trabajo se deriva de información recabada durante la Cumbre Mundial del Ecoturismo, organizada por la Organización Mundial del Turismo y efectuada en la ciudad de Quebec, Canadá, durante el mes de mayo de 2002. A la reunión asistieron representantes de más de cien países de todo el mundo, entre los que se encontraban autoridades turísticas, académicos, investigadores y operadores turísticos.

¿Es o no un negocio el ecoturismo?

Ésta es la primera pregunta que salta cuando se mencionan los aspectos económicos del ecoturismo. Los ambientalistas más radicales afirman que el ecoturismo no debe ser un negocio sino un medio para ayudar a conservar la naturaleza. Sin embargo, dada la dificultad que representa mantenerse en el punto de equilibrio, es de cualquier punto deseable que el ecoturismo resulte un negocio. De otra manera, estaremos hablando de actividades subsidiadas o financiadas por el gobierno o por organizaciones de beneficencia.

Por otra parte, también es importante mencionar que parte fundamental de la sustentabilidad es el aspecto económico, es decir, que la actividad que se realiza no opere con pérdidas o con base en dádivas o subsidios. La forma como se utilicen los excedentes obtenidos ya dependerá, como sucede en todos los casos, de los propietarios de la operación. Si los propietarios deciden utilizar los excedentes para fines de conservación del ecosistema, apoyo a las comunidades locales, expansión del negocio o consumo personal incrementado, es algo que ya depende de ellos.

Sí resulta importante destacar que, en términos generales, las empresas dedicadas al ecoturismo son por lo general micro, pequeñas y, cuando mucho, medianas. Actualmente, resulta realmente difícil encontrar una empresa operadora de eco turismo que sea grande o transnacional.

De acuerdo con Raúl Arias, operador de ecoturismo de Panamá, las características más necesarias del eco turismo son la rentabilidad, la satisfacción del cliente y la utilización de la mercadotecnia interna. Hoy día, los operadores de actividades eco turísticas enfrentan enormes desafíos, lo cual se ilustra en el hecho de que demasiados productos fracasan porque resulta difícil para empresas pequeñas o comunitarias alcanzar los mercados, además de que la calidad de la experiencia turística y el manejo ambiental con frecuencia resultan inconsistentes.

Otros desafío es lograr que los visitantes a áreas naturales protegidas contribuyan más a la conservación y para con las comunidades locales, aunque en términos generales el público es inconsciente o irresponsable en lo que se refiere a asuntos relacionados con la sustentabilidad.

Entre las prioridades que deben atender actualmente las empresas operadoras de eco turismo, podemos mencionar que se necesita la creación de estructuras necesarias para trabajar en forma organizada, relacionar la oferta con la demanda, poner atención a todos los aspectos de la calidad, proporcionar apoyo verdadero a las comunidades, fortalecer la promoción de productos y mensajes de ecoturismo y, por último, posicionar firmemente el producto.

Entre las principales recomendaciones que actualmente se hacen para este tipo de turismo, está el fomento del espíritu empresarial, de las empresas comunitarias y de las oportunidades de empleo para personas de la localidad; reconocer el papel clave que desempeña el sector privado;

fortalecer la estructura de redes entre pequeñas empresas y proyectos (organizaciones "sombrilla", *cluster* s, empresas integradoras y marcas regionales); reconocer áreas protegidas como puntos focales para producttos ecoturísticos y mercadotecnia y, por último, incrementar el apoyo de los gobiernos nacionales y locales.

En la actualidad hay muy poca investigación sobre aspectos económicos y mercado1ógicos del ecoturismo. De acuerdo con la OMT, son siete los países con mayor afluencia de turismo egresivo; aunque el nicho de mercado del ecoturismo es bastante reducido, crece con intensidad. Si bien existen *tour* operadores especializados en ecoturismo, la mayoría de los ecoturistas son viajeros individuales que hacen sus propios arreglos.

Empresas de ecoturismo han manifestado que atraen a diferentes tipos de consumidores, pues además del nicho de mercado especializado en el turismo de la naturaleza, atienden a clientes que disfrutan de una experiencia ecoturística como parte de unas vacaciones tradicionales, así como a turistas domésticos y grupos escolares. El estudio de los diversos segmentos del mercado permitirá adecuar el servicio a diversas expectativas y requerimientos.

Los componentes clave del ecoturismo son el énfasis en la calidad, autenticidad y seguridad; por supuesto, aclarando que por calidad no se entiende lujo, sino atención a los detalles y comprensión de las necesidades de los clientes. El componente esencial del producto ecoturístico es la calidad inherente del paisaje y la vida silvestre.

Los estudios de la OMT han confirmado que la calidad del paisaje y la vida silvestre son la principal motivación del visitante, seguida de cerca por la oportunidad de conocer personas de la comunidad visitada y de experimentar estilos de vida y tradiciones culturales locales. El ecoturismo también se distingue por proporcionar una experiencia que, a la vez que se disfruta, es educativa, por 10 cual debe darse prioridad máxima a la interpretación de la naturaleza y la cultura, 10 cual nos lleva a la necesidad de contar con guías locales suficientemente capacitados.

Tanto las instalaciones de servicio *(eco lodges)* como el equipo utilizado para la operación de actividades ecoturísticas deben ser diseñados y administrados para maximizar la sustentabi1idad, tomando en cuenta no sólo los productos ecoturísticos sino el destino como un todo, teniendo en consideración aspectos tales como infraestructura, manejo ambiental y servicios para visitantes y, por último, complementar el eco turismo con otras actividades

recreativas y deportivas como el senderismo, el montañismo, los deportes acuáticos, la bicicleta de montaña, etcétera.

Pero para poder realizar todo 10 expresado, 10 primero que debemos hacer es promocionar el concepto del ecoturismo y aprovechar los beneficios que Internet nos ofrece y, por supuesto, utilizar una variedad de recursos, socios y técnicas (sin olvidar a los *tour* operadores). &tas actividades las podemos realizar proporcionando información suficiente y formativa en todas las etapas, utilizando la publicidad de persona a persona
y promoviéndolo como oportunidad de educación ambiental para todos.

En Alemania, 122 *tour* operadores se especializan en ecoturismo, lo cual representa entre 6 y 8% de los *tour* operadores. Estos operadores son pequeños o muy pequeños. La proporción de los viajes de ecoturismo vendidos en Alemania representa menos de 1 % del total de todos los viajes vendidos. En España, entre 5 y 6% de los viajes vendidos al exterior pueden considerarse viajes de naturaleza.

Cuadro 1

Turismo emisor en los siete países con más salidas internacionales

Núnj ~	*Pqís ~*	'" *Cantidad de..turístasemitidos*
1	Alemania	73'400,000
2	EU	58'386,000
3	Reino Unido	53'881,000
4	Italia	18'962,000
5	Canadá	18'368,000
6	Francia	16'709,000
7	España	4'794,000

Fuente: Investigación de mercado efectuada por la OMT, 1999

Estos países representan el 37.6% de las llegadas internacionales de turistas de todo el mundo.

En Estados Unidos, 62 de los 1,200 *tour* operadores registrados en la National Tour Association ofrecen viajes de ecoturismo, lo cual representa 5% del total. Es importante

considerar que una encuesta entre pasajeros de aerolíneas realizada en Estados Unidos, reveló que sólo un tercio de los ecoturistas consume paquetes organizados; esto es, la mayor parte de los ecoturistas son viajeros independientes.

Los elementos más importantes de un viaje de ecoturismo son "estar en un enclave natural" y "observar especies silvestres". También son elementos importantes la calidad del paisaje, la conservación del entorno, la existencia de parques nacionales y áreas protegidas. El componente cultural reviste una importancia extrema: "conocer a gente del lugar",

"acercarse a sus tradiciones culturales y a sus estilos de vida", "descubrir la gastronomía y los productos locales", forman parte esencial de unas vacaciones ecoturísticas y se sitúan en segundo lugar.

Además, las actividades deportivas y el senderismo son otras de las motivaciones mencionadas para emprender viajes de turismo de naturaleza. El apoyo a la conservación de la naturaleza y la experiencia educativa son factores importantes para los ecoturistas y están dispuestos a pagar más por ello. Por ejemplo, en Canadá las personas que practican ecoturismo están dispuestas a pagar hasta un 15% por viajes que apoyan la sostenibilidad del destino. En el Reino Unido, 45% de los turistas encuestados manifestaron estar dispuestos a pagar un precio más elevado en beneficio del medio ambiente.

En la comercialización de productos ecoturísticos, hoy día revisten especial importancia las certificaciones o "ecoetiquetas", esto es, certificaciones emitidas por parte de organismos de protección al medio ambiente que dan fe de que una operación turística determinada es sustentable. Estos galardones tienen un enorme peso en la imagen de las empresas ecoturísticas, tanto frente a los consumidores como ante los intermediarios.

En cuanto a las expectativas de calidad del ecoturismo, existe una elevada expectativa de calidad en lo que se refiere a la experiencia ecoturística en su conjunto. Por ejemplo, en Estados Unidos las expectativas de los ecoturistas se priorizan de la siguiente manera:

1. Excelentes guías locales.
2. Viajar en grupos reducidos.
3. Que la experiencia resulte educativa. 4. Alimentos de alta calidad.

5. Zonas poco frecuentadas.
6. Alojamiento de alta calidad.
7. Conservación.

Turistas y preferencias

La mayoría de los ecoturistas en el mundo se encuentran entre los 35 años o más (aunque en Italia son un poco más jóvenes, entre los 20 y 39 años y sus ingresos son inferiores); hay ligeramente más mujeres que hombres, tienen ingresos superiores a la media y pertenecen a las clases sociales más altas y cultas.

De entre los destinos más frecuentados por los viajeros, encontramos que los españoles prefieren América Latina; los franceses visitan África; los británicos mencionan Nepal, Perú y Ecuador como los tres principales destinos de ecoturismo; los alemanes prefieren destinos europeos y, entre los destinos de ultramar, eligen Costa Rica, Canadá y Ecuador; los italianos prefieren América Latina.

Para los ecoturistas estadounidenses México es el destino predominante (lo cual representa una excelente oportunidad de negocios), seguido en preferencia por Australia; para los canadienses, su propio país es el principal destino ecoturístico, seguido de Estados Unidos y de países europeos. El interés por los viajes de larga distancia para fines de ecoturismo está creciendo con mayor rapidez que para otros tipos de vacaciones.

Aunque la oferta de viajes es muy variada, la gran mayoría son viajes de montañismo o senderismo, seguidos por los viajes de observación de la flora y fauna silvestres. Generalmente, los viajes de ecoturismo se basan en un programa mixto en el que se ofrecen actividades deportivas y culturales junto con el disfrute de la naturaleza. Además, existen otros segmentos especializados, como la ornitología en el Reino Unido y Alemania, el agroturismo en Italia y el turismo rural en España.

De acuerdo con los resultados de una encuesta realizada, para comercializar sus servicios los operadores de ecoturismo emplean los mismos medios y técnicas de mercadotecnia que todos

los demás operadores de servicios turísticos. Los *tour* operadores se concentran en vías de promoción dirigidas a un público específico, como ferias, exposiciones y revistas especializadas. Los grupos de afinidad, como organizaciones en pro de la conservación de la naturaleza, tienen un papel promotor secundario.

Así, las reservaciones para la compra de servicios se realizan principalmente mediante agencias de *tour* operadores especializados en ecoturismo y por medio de sus catálogos. Por otra parte, las ventas a través de Internet aumentan en forma extraordinaria, ya que los *tour* operadores especializados en el eco turismo basan sus actividades en un firme compromiso con la conservación de la naturaleza y con el apoyo a las comunidades de los destinos, compromiso que hacen llegar a sus clientes mediante sus actividades de mercadotecnia y promoción.

GAP (The Great Adventure People), es un *tour* operador de ecoturismo con sede en Toronto, Canadá, cuyos compromisos de operación son los siguientes: el uso de transporte de propiedad local es promovido y monitoreado; reducir, reutilizar y reciclar en la medida de lo posible; hacer una contribución anual mínima de 10 mil dólares anuales para ONG locales e internacionales dedicadas a la conservación y al desarrollo de la comunidad; que los materiales usados para la mercadotecnia (folletos) contengan por lo menos un 20% de papel reciclado; que en la operación de recorridos se visite por lo menos un área protegida oficialmente, proporcionando información sobre dichas áreas a los clientes.

GAP y sus socios también se comprometen a proporcionar empleos y oportunidades de negocios a la población local, motivando a los proveedores para que mejoren sus prácticas ambientales y sociales. En todos los recorridos GAP, el tamaño máximo del grupo es de 12 personas y, de ser posible, el grupo deberá dividirse al visitar áreas protegidas. No se contratará a proveedores que realicen prácticas explotadoras.

Los guías de los recorridos contratados por GAP reciben entrenamiento especial sobre grupos de bajo impacto, tanto social como ambiental, así como en temas relacionados con proyectos de conservación regional. Estos conductores de grupos son seleccionados considerando su conocimiento, conciencia y compromiso con los viajes sustentables.

En lo que toca al hospedaje, todos los hoteles contratados deberán tener menos de 40 cuartos, excepto en los puntos de reunión y de partida, en donde podrán tener hasta menos de

100. En la medida de lo posible, los establecimientos de hospedaje utilizados deberán de ser de propiedad local. También se realizan monitoreos de las operaciones a nivel local para evaluar los niveles de manejo de recursos y residuos, así como las políticas de empleo seguidas por todos los proveedores de GAP. Finalmente, la empresa canadiense selecciona a sus proveedores en función de los resultados obtenidos después de ser evaluados con los criterios arriba mencionados.

Conclusión

Para concluir podemos decir que, más que constituir un negocio turístico tradicional, las empresas eco turísticas están interesadas en la conservación del medio ambiente y en la solidaridad con los habitantes de las regiones donde realizan sus operaciones. La clientela del ecoturismo, más que estar interesada únicamente en el disfrute, el descanso, los placeres y la recreación, busca contribuir activamente a la conservación de los espacios naturales y experimentar los usos y costumbres de la población de las regiones que visita.

Si bien en la actualidad el mercado del ecoturismo registra proporciones reducidas, considerando lo acelerado de su crecimiento y la creciente preocupación por la conservación del medio ambiente a nivel mundial, es de esperar que en el mediano plazo constituya una de las tendencias centrales en la actividad turística global.

Los requisitos de sustentabilidad ecológica, económica y social que implican las actividades ecoturísticas, hacen que su instrumentación y operación resulte compleja, lo cual nos lleva a reflexionar sobre la cantidad de esfuerzos, apoyos y recursos que se requiere aportar para poner en marcha una operación sustancial de este tipo en nuestro país y, sobre todo, decidir si todas las instancias involucradas están dispuestas a asumir los compromisos que ello conlleva.

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DEVELOPING WATER RESOURCES IN RURAL JAMAICA: A CASE STUDY IN SOUTHERN TRELAWNY

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Abstract

Jamaica has an abundance of freshwater resources; however, a lack of infrastructure makes treated, piped water inaccessible in many areas. Many rural Jamaicans obtain water from rooftop catchments, or by filling containers at public standpipes or springs. Potentially, piped water would be more convenient and reliable, both in quantity and quality, than existing water systems in parts of rural Jamaica. This study investigated water sources and delivery systems, public perceptions, and potential for piped water in rural southern Trelawny, Jamaica. Based upon a community survey, people generally desired piped water systems. By and large, they preferred private rather than public providers of this service — a choice related to lacking trust in government functioning. However, in the near term, private service may become problematic due to high infrastructure costs and limited capability of communities to pay for the service. With adequate commitment for maintenance and monitoring, projects run by local governments and communities may offer short-term solutions to bringing piped water to rural Jamaicans.

Key Words: Jamaica, water systems, water resources

Introduction

Jamaica has abundant water, yet many regions of the island lack adequate water delivery systems. Nearly 30% of the island's 2.7 million people lack piped water (Tomlinson 2005). Rural areas of Jamaica in particular lack infrastructure for piped water. Sporadic and poorly functioning community water systems make people vulnerable to water shortages and inadequate water quality. This study investigates water delivery systems in part of rural Jamaica, local people's perceptions of the water situation, and possible options for delivering piped water to one community.

Study Area

Southern Trelawny exemplifies some of the water problems faced by rural Jamaicans (Figure 1). Throughout this region of cockpit karst, complex fissures and caves absorb and transmit abundant rainfall (Sweeting 1956). The water moves through the subsurface, ultimately discharging to springs and rivers. Steep terrain, characterized by nearly conical hills and depressions, supports a rich biodiversity and sparse human settlement (STEA 2002). Many residents are farmers earning low incomes. The region lacks improved roads, sewage treatment, and piped water systems.

A fragmented network of community water systems serves Southern Trelawny. Residents fill water at entombed springs or tanks filled by water trucks, springs, or rooftop catchments. Local or national government agencies operate many of these water systems; however, they often lack adequate provisions for water quality, such as chlorination and filtering (Southern Trelawny Environmental Agency, personal communication).

Thompson Town Survey

In June 2005, the lead author of this report and the Southern Trelawny Environmental Agency (STEA), a privately-funded regional planning organization, surveyed adults from 77

households in Thompson Town (Figure 1). Approximately 423 people, or 77% of the town's population, live in the surveyed households.

Nearly half (48%) of the respondents were farmers. Other occupations included housekeeping (11%), shopkeeping (4%), construction (2.5%), masonry (2.5%), and teaching (2.5%), among various others (12.5%). The remaining respondents were students (8%) or unemployed (9%).

Surveyed households obtained water from different sources. More than half (58%) of those surveyed acquired water from rooftop catchments. An additional 35% of respondents used springs. The remaining 7% used some combination of springs, rooftop catchments, or public storage tanks equipped with standpipes for water. Almost everyone using rooftop catchments relied on alternate water sources in the dry season, such as springs, rivers, and standpipes. Approximately one-third (34%) of respondents did not treat their water for drinking. The remainder used a combination of chlorination or boiling, although at an inconsistent frequency.

The vast majority of respondents (87%) said that they would like to have treated water piped to their property and that they would be willing to be accountable for associated charges. However, only 33% of surveyed households had plumbing and faucets, which generally conveyed water from a rooftop catchment. Those not desiring piped water were content to continue obtaining water from springs or rooftop catchments.

Given piped water, approximately 65% of respondents preferred that a water meter determine their monthly bill, whereas 21% preferred a flat monthly rate. Others did not have an opinion or did not respond to this question. On average, respondents were willing to pay $2,220 JA ($37 US) for the connection fee and $1,170 JA ($20 US) per month for their water bill.

Most respondents preferred that a private company rather than government agency provide piped water service: slightly over half (53%) of surveyed households preferred a private water provider, 34% would rather have government service, and 13% had no opinion or gave no response. Generally, people who wanted a private water company understood that rates would be higher. However, they were willing to pay more because they thought a private company would develop infrastructure faster and would provide better service than the government would.

Respondents favoring private service expressed a general distrust of the government for its historic lack of interest in infrastructure improvements in the area. Those who preferred

public water service were primarily concerned about keeping costs down, or simply felt that it was the government's responsibility to provide this service.

A final survey component asked whether people in Thompson Town were missing out on economic advancement without piped water. Approximately half of survey respondents (48%) said they could not make more money even if they had piped water. However, almost everyone agreed that his or her quality of life would be drastically improved by having piped water. Approximately 20% of respondents said they would grow more crops, such as carrots and peppers, if they had easier access to water. Given more water, another 10% of respondents would raise chickens, 6% would sell ice or juice, and 8% had other plans to make money, such as opening a restaurant or bar. Of the remaining 8% of respondents, 3% gave no specific plans for increasing their income with piped water, but said they could be more productive by not carrying and preparing water, and 5% gave no response.

Collectively, responses suggest Thompson Town could benefit from piped water, though developing and effectively maintaining the infrastructure for piped water could be a challenging endeavor. Respondents were divided over prospects for government or private water service, reflecting perceived tradeoffs between cost and quality of service. To better assess these tradeoffs, we consider the outcomes of an earlier water project for the Spring Garden community in southern Trelawney.

Spring Garden Project

In 1998, STEA sponsored a project in Spring Garden (Figure 1), a town located approximately 4 km northwest of Thompson Town, with approximately 700 people living in 122 houses. Before 1999, residents of this community received water from sources similar to Thomson Town. Through a series of public forums from 1997 to 1999, residents of Spring Garden expressed that their existing water systems were inconvenient, unreliable, and not adequately maintained, often producing rusty or turbid water. Thus, the community desired a piped water system.

STEA, the local community, and Trelawny Parish Council proposed to upgrade and increase storage capacity, and maintain water quality by installing filters and chlorinators at two local springs. Additionally, they would run approximately 4,900 m of PVC pipe along a major roadway, in close proximity to most of the homes in the community. From that main line, they would pipe water to houses requesting and willing to pay for the service. Furthermore, supplies would be metered so that the local government agency (Trelawny Parish Council) could collect revenue for water delivery. The proposed project cost $5,022,020 JA ($83,700 US).

Project participants applied to the Jamaican Social Investment Fund (JSIF) for a social infrastructure improvement grant. JSIF is a public funding agency that distributes grant money from the World Bank and other national and international sources. JSIF approved the project, covering 90% of its cost. STEA, the Trelawny Parish Council, and the local community covered the remaining 10% of project costs. JSIF requires that communities invest in projects, thus encouraging them to maintain infrastructure over time. In this case, STEA provided the technical inputs (drawings, specifications, and bills of quantities). The Trelawny Parish Council was to maintain the system, and the community agreed to monitor and protect public standpipes. Construction began in 1998, and residents of Spring Garden had access to piped water in 1999.

A field examination of the Spring Garden area in 2005 revealed that the spring infrastructure was still in place and functioning. However, upon questioning by the lead author, people living in the area expressed dissatisfaction with the water system, claiming the availability and quality of water was inconsistent. Often the water was not running from pipes, and it was frequently muddy and undrinkable. Residents said it cost $3000 JA ($50 US) for an initial hookup to the main line, and they were charged a flat rate of $300 JA ($5 US) per month for water service. They were discontent paying for this service when it was so unreliable.

Implications for the Future

Outcomes of the Spring Garden project suggest potential problems with water systems serviced by local governments and communities in rural Jamaica. Such strategies reduce costs relative to private service, but may yield unsatisfactory results. Given adequate delivery, people in Thompson Town are willing to pay approximately four times what people in Spring Garden

are paying for monthly water service. However, they lack the ability or desire to substantially invest in water hookups. On average, residents of Thompson Town were not willing to pay the hookup fees paid by Spring Garden water customers.

If residents of Thompson Town were willing to pay slightly more for a water hookup fee, they could potentially pursue the funding mechanism used for Spring Garden. However, the end result could be a local government and community operated system that was unreliable. Thompson Town seems to anticipate this outcome, given the sentiment for private service expressed in the household survey.

Over the last two decades, the Jamaican government has been turning over ownership and operating responsibilities of a variety of institutions to private companies (Hughes 2004). For example, the sale of Jamaica's electric company to a private company has resulted in slightly higher rates, but also increased the quality and distribution of service. Similarly, Jamaica's recently adopted Water Sector Policy strongly promotes privatization (Ministry of Water 1999). The Jamaican government encourages privatizing water to improve efficiency in operations and investment, gain technical and managerial expertise, access to new technology, and injection of investment capital (to reduce public investment) (Ministry of Water 1999).

Worldwide, one sees a shift towards an increasing role of the private sector in delivering basic utilities. Even though 95% of the water services are still provided by public water companies, private management has grown substantially. In 1990, there were 51 million people serviced by private companies; by 2002, that number had increased nearly six-fold to 300 million (Gleick 2004). This trend will only intensify, as both the World Bank and International Monetary Fund have an active policy towards privatization of water services, making it a condition for debt relief in many Third World countries (Barlow and Clarke 2002). However, the track record of privatization is mixed and has in many cases not delivered the desired results of revitalizing the water system through better quality and reliable service (Rothfeder 2001; Gleick 2004; Olivera 2004;).

Prospects for private water service to rural Jamaicans face certain challenges and could only be successful by adhering to sound management principles (Gleick 2004). These principles include: (1) managing water as a social good, to meet the needs of humans and ecosystems; (2) maintaining public ownership and strong government regulation of water resources, including

water quality standards; and (3) adopting pricing structures fair to both the consumer and water service provider.

Fair pricing ensures affordability for customers, while ensuring adequate function of delivery systems and capability for expanding service. Currently, Jamaica's National Water Commission is not recovering enough tariffs to cover basic operating costs, much less to make improvements or expand service. The rate structure (www.nwcjamaica.com) is highly subsidized and does not reflect the true cost of providing water service.

Despite a mindset among government and many residents for privatization of water delivery, this prospect is especially difficult in rural parts of the country. As exemplified in the above case studies, these regions lack the population and financial resources for substantial infrastructure costs. Companies are reluctant to invest in such infrastructure, given the prospect of long recovery periods. Prospects for private water delivery are much better in urban areas, with more customers and higher incomes. Requiring that private providers service large regions, comprising both urban and rural areas, and providing them incentives to service rural areas may promote broader access to piped water.

In order to privatize, a great deal of regulatory framework must be in place to issue permits and collect tariffs, establish rate structures, and establish procedures for operating water systems. Given the uncertain timing of privatizing water resources in Jamaica, and whether or not this will address the needs of rural Jamaicans, pursuing a funding mechanism similar to that used in Spring Garden may be the best short-term solution for Thomson Town. A commitment from the local government and community toward operating and maintaining the system would foster its sustainability. Should the government transfer water delivery to private companies, a piped infrastructure would be in place in Thompson Town to ensure continued service.

Like Spring Garden, Thompson Town has local springs to source a piped water delivery system. Some of these springs have capability for delivering water via gravity down main lines along major roads, thus saving the expense of pumping stations. Springs could be excavated, entombed, and equipped with a storage tank, filtering mechanism, and chlorination device.

Conclusion

Although Jamaica has abundant freshwater resources, many of its people lack convenient and reliable piped water. As exemplified by southern Trelawny, rural areas of the island especially are short of adequate water service. Historically, water systems run by local governments and monitored by communities lack the maintenance and reliability desired by paying customers. The Jamaican government supports privatization of water delivery. With sound management, privatization may ultimately promote effective water delivery to rural Jamaicans. High startup costs and low incomes in rural areas are significant hurdles to short-term privatization of water delivery. Local projects sponsored by such groups as STEA and funded by such sources as JSIF may provide water infrastructure and delivery ultimately transferable to private providers if the public delivery does not live up to the promise of safe and sufficient water for its citizens.

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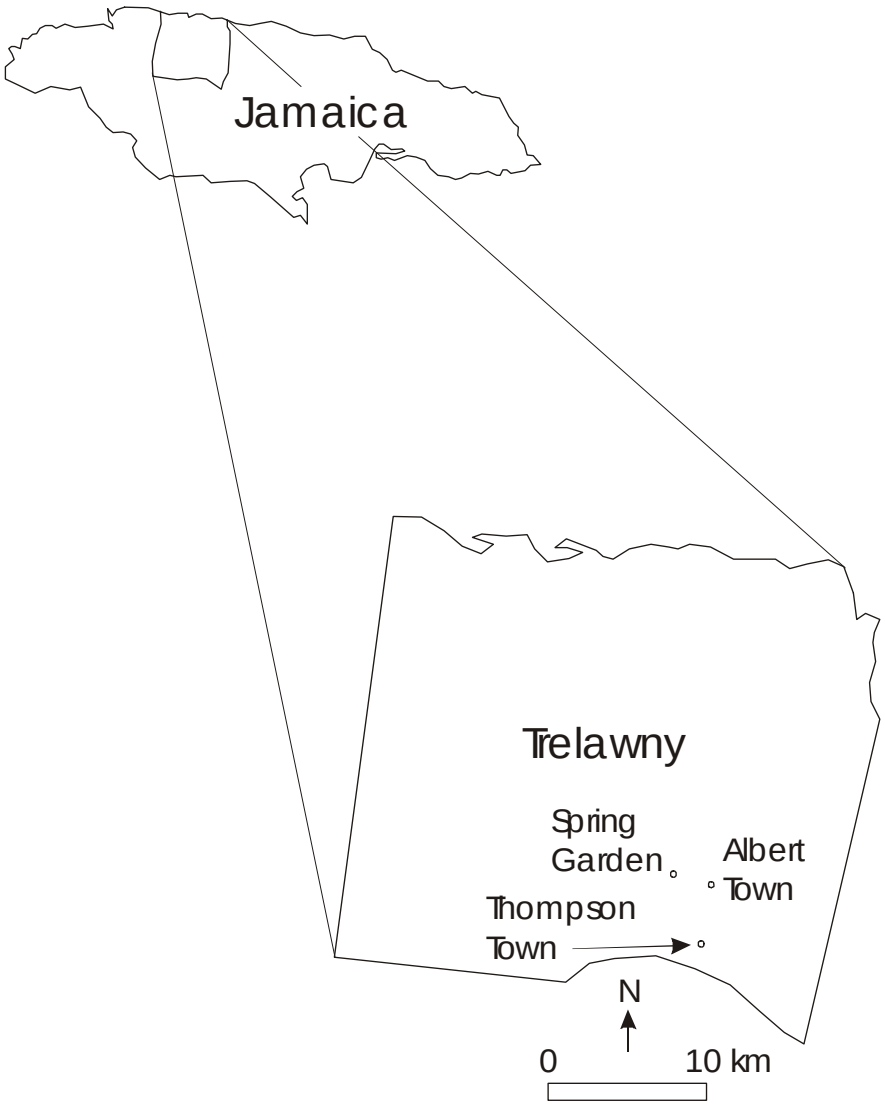
Figure Captions

Figure 1. Location of study area.



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Intergenerational Approaches for Environmental Education and Action

By Matthew Kaplan, Ph.D., Shih-Tsen Liu, Ph.D., & Sheri Steinig, M.S.W.

Abstract:

This article describes some promising strategies for bringing children, youth, and older adults together as partners to explore, study, and work to improve the natural environment. At the root of these intergenerational environmental initiatives is a two-part rationale. From the environmental perspective, inclusion of an intergenerational component helps to broaden the pool of people who care and are knowledgeable about the natural environment and have the skills to take effective action to improve it. At the same time, providing opportunities for intergenerational collaboration, study, and action centered on the shared environment helps to promote intergenerational understanding and unity. Results are presented from a survey conducted with eight professionals who run innovative intergenerational environmental education initiatives. Discussion centers on issues related to finding strategic partners, recruiting senior volunteers, and planning and facilitating activities.

Intergenerational Approaches for Environmental Education and Action[11]

Introduction

Environmental educators are continuously challenged to find ways to broaden and diversify the pool of people who care about the environment, feel a sense of responsibility to improve it, and have the skills to take effective action. Yet current patterns of funding, research, and program design tend to treat young people as the primary audience for environmental education endeavors. Considering the growth in the older adult segment of the population,[12] and other trends such as the growing emphasis placed on senior adult volunteerism and civic involvement, it can be argued that the environmental education agenda should be anchored not only in school learning but also across settings and across the lifespan.

[11] This article highlights findings obtained from a collaborative research and outreach initiative conducted by Generations United and Penn State Cooperative Extension. Preliminary funding was provided through a cooperative agreement between Generations United and the U.S. Environmental Protection Agency.

[12] Nearly 13 percent of the population, 35 million people, is 65 or over (Federal Interagency Forum on Aging-Related Statistics, 2000).

The initiatives highlighted in this article go beyond the goal of *multi-generational* inclusion or simply just including members of different generations. A common thread is the articulation of an *intergenerational imperative*, which calls for the intentional creation of opportunities for people of different age groups to learn about each other's knowledge, experiences, skills, and perceptions in regard to the natural environment. As participants learn more about the impact of the environment in each other's lives, they gain an awareness of common concerns and experiences. This contributes to a deeper understanding of the interrelationship between people and the environment and a better sense of how to work collaboratively to influence prevailing environmental policies and practices. When young and old stand together as environmental stewards and activists, all generations benefit, including those yet to be born. Hence, the environment can be seen as the perennial intergenerational issue.

From an environmental education perspective, adding an intergenerational engagement component to programs that traditionally target children and youth is a way to enrich and extend the learning process for both generations. There is already a tremendous amount of environmental health data readily available to the public. For example, the National Library of Medicine puts out impressive "user-friendly" websites on environmental health risks such as "Tox Town" (National Library of Medicine, 2002). However, if the goal is to promote learning and behavior change, the means needs to go beyond providing people with *access to* information. Intergenerational *dialogue* is one vehicle to help people discover how the environment is of vital importance not only to their own well-being, but also to the well-being of all of their family members and neighbors.

Though the concept of involving older adults and young people in collaborative environmental exploration and action endeavors is compelling on several fronts, there is no body of evidence to draw upon, nor is there a blueprint to guide efforts to translate this general goal into practice. Hence, this article aims to:

- highlight innovative and effective intergenerational environmental education program models and approaches.
- articulate a set of core program development principles that cuts across these initiatives.
- present challenges and forward recommendations for conducting work in this area.

In this article, the phrase "intergenerational environmental education" refers to environmental projects that are action-oriented as well as education-oriented, and includes a broad range of environmental initiatives, including those focused on environmental health, monitoring, appreciation, and restoration; pollution prevention; and energy conservation. Reference to the "natural environment," as noted by Wright, Caserta, and Lund (2003), "includes not only wilderness areas, but also the biotic (e.g., flora and fauna) and abiotic (e.g., topography, geology, geography, climate) landscape ecology or bioregion in which humans are considered a part of the ecological community" (p. 154).

Methods:

In developing the conceptual framework and body of information presented in this article, the primary data source was a survey conducted with eight professionals who run innovative intergenerational environmental education initiatives. The survey included basic questions about goals and objectives, participants, staffing, setting, location, and activities. Respondents were also asked to share lessons learned regarding effective ways to promote intergenerational engagement and enrich participants' environmental learning and action experiences.

Respondents and their programs were identified through a search on the Internet, a review of the intergenerational studies and environmental education literatures, and informal discussions with environmental educators and intergenerational specialists.[13] These other methods, particularly the literature review, also provided useful information on the phenomena of interest.

Representatives from seven organizations turned in surveys.[14] The seven programs are identified and described briefly in Appendix 1. This sample of programs is not meant to represent an exhaustive list of intergenerational environmental education initiatives, but rather to obtain a sense of the diversity of such initiatives in terms of program approaches, organizational frameworks, types of settings, and the ages of the youth involved. All programs were assessed

[13] Additional input on conceptual framework and issues related to program form and function was provided by the 25 participants of a special seminar conducted by Generations United (GU) and the U.S. Environmental Protection Agency Office of Children's Health Protection, which took place as a pre-conference to GU's biennial conference in Alexandria, Virginia in 2003. The title chosen for that seminar also encapsulates the focus of this article – "Intergenerational Approaches for Creating an Environmentally Aware and Active Community."

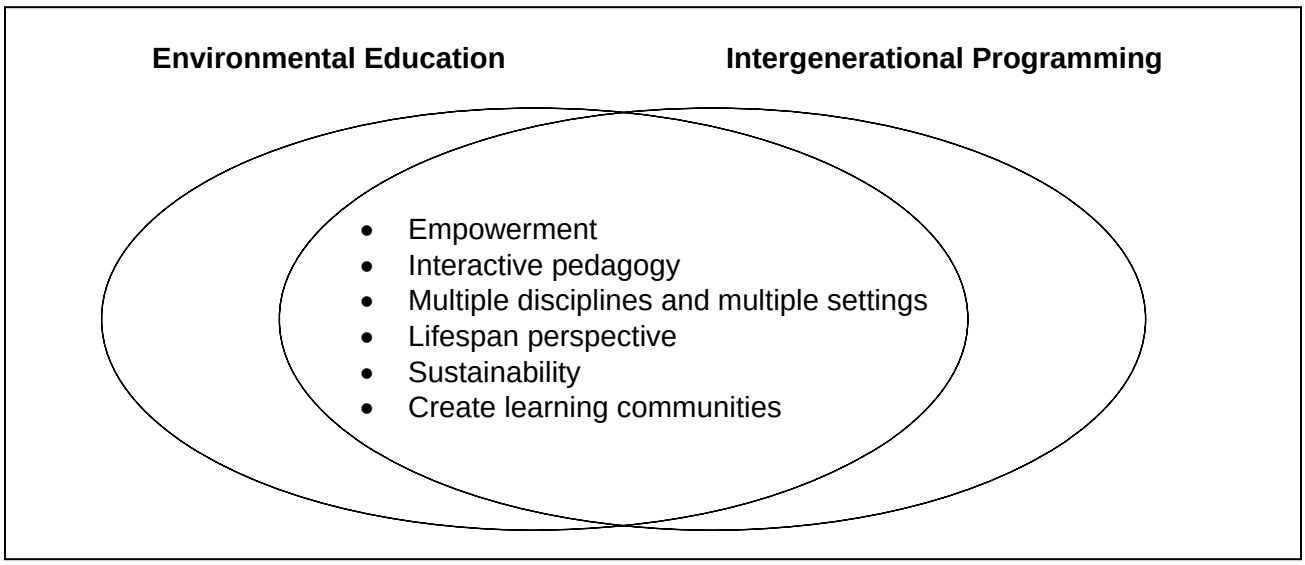
[14] For the survey component, originally, 10 programs were contacted and directors were asked to complete surveys on their programs. One organization had two senior administrators fill out surveys; hence there are eight survey respondents and seven highlighted programs.

as being innovative, ongoing initiatives. More detailed information about these program models, including how to implement them, is presented elsewhere (Kaplan and Liu, 2004).

Theoretical Underpinnings:

This section aims to provide a conceptual framework for charting the intersection between environmental education and intergenerational programming. Key concepts and propositions are presented in Figure 1 and the following text.

Figure 1. The intersection between environmental education and intergenerational programming.



[Empowerment Framework]

The act of coming together with others for the purpose of amplifying one's ability to affect/improve the environment fits in nicely with "empowerment" ideology. Rappaport (1984) viewed empowerment "as a process: the mechanism by which people, organizations, and communities gain mastery over their lives" (p.3). To be an effective agent for environmental advocacy and change, a person needs to have both a value system that emphasizes his or her right to work for environmental improvement and the necessary skills to enact that change. Hence, in various places throughout this article, reference is made to the values and skills that contribute to an

intergenerational group's level of success in enacting desired environmental change. As people gain knowledge about environmental issues, gain skills to affect community change, and find others with similar concerns to work with, they become "empowered."

[Interactive Pedagogical Framework]

Use of an intergenerational framework for educating people about the environment can enliven and extend the experience of learning. The level of "discovery" afforded by environmental educational experience is compounded when participants, as co-learners, actively share their knowledge, experience, and perspectives with one another. As an example of an intergenerational application of this framework for learning, Marianne Krasny and colleagues from Cornell University have developed an environmental science education program that frames scientific exploration as a dialogue between young people, older adults, and the scientific community.

[Multiple Disciplines and Multiple Settings]

One guiding principle for the practice of environmental education is to be interdisciplinary (UNESCO, 1978) – it draws upon scientific facts tied to the environmental sciences, but is readily taught using all subject areas, such as economics, politics, and history. Environmental education is also presented here as being more than an educational process tied to one type of setting or target audience. A "comprehensive environmental education" framework, as an ideal to aim for, involves:

(1) a progressional education continuum, with sustained and varied learning opportunities for people of all age groups and ability levels.

(2) the involvement of many organizations, including schools and community-based organizations, that provide educational experiences for the public, such as nature centers, museums, farms, and zoos.

[Lifespan Perspective]

With a lifespan perspective, people view their immediate lives in the context of the quality of the environment and their lifestyle behaviors over the full course of their lives (Filho, 1997; Orr, 1994; and Smith and Williams, 1999.) When addressing environmental health issues, for example, rather than focus solely on the environmental hazards that pose health risks for certain age groups in the population, e.g., how air pollution can trigger children's asthma, a lifespan perspective looks

at environmental health risks across the age continuum and identifies similarities and differences between generations. It becomes clearer how that exposure to some toxic chemicals can have lifelong and even intergenerational effects on human reproduction and development (as noted by Schettler, Solomon, Valenti, and Huddle, 1999).

[Emphasis on "Sustainability"]

Sustainability is an intergenerational concept. According to Meadows, Meadows, and Randers' (1993), as quoted in Ingman, Benjamin, and Lusky (1998/99, p. 69), a "sustainable society is one that can persist over generations; one that is far-seeing enough, flexible enough, and wise enough not to undermine either its physical or its social system of support." When considering how natural resources are used/misused over time, and in developing strategies to preserve and enhance the environment, it is important to engage in long-term thinking and longer term strategic policy making (Environment Canada, 2003). Intergenerational dialogue can be readily structured to nurture such a long-term perspective of the environment. (See Wright and Lund, 2000, for further discussion.)

[Creating "Learning Communities"]

A number of researchers claim that most learning occurs through social interactions (Wenger, McDermott, and Snyder, 2002). Thus one way to facilitate learning is to create "learning communities" of people with various backgrounds and points of view, who share their perspectives and experiences in informal settings. Environmental education, by lending itself to informal, outdoor activities, creates opportunities to bring youth and adults together to form such communities. Providing such opportunities for youth could create an alternative to the learning that occurs in their peer communities, which, because they generally include only those of the same age, may provide youth with limited perspectives and in some cases, even be detrimental to positive youth development.

What Do Intergenerational Environmental Initiatives Look Like?

There is great diversity in how intergenerational environmental programs are structured. School-based initiatives often incorporate a service-learning component in which the service part is sandwiched between preliminary training in an academic discipline, and intensive post-service discussion and reflection of program experiences. Initiatives with environmental agencies as partners generally focus on environmental health issues such as asthma and lead poisoning or issues tied to the quest to protect local ecological resources. Programs also vary on the basis of availability of community and environmental resources, characteristics of the participants (e.g., cultural backgrounds), the needs of the communities in which they are implemented, and the leadership skills of the participants.

Against such a backdrop of diversity in the form and function of intergenerational environmental programs, activities fall into three broad general categories: promoting (environmental) awareness, conducting research on environmental issues, and taking action to preserve/improve the environment. Table 1 provides examples of activities fitting into each of these categories.

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Table 1: A sampling of intergenerational environmental program activities.

Promoting awareness: • Outdoor discovery and adventure (e.g., eco-tourism activities, intergenerational Elderhostel activities). • Environment-themed celebrations. • Stories and conversations about the environment. • Alerting people to their level of "environmental literacy."
Conducting Research: • Natural resource mapping (includes efforts to track environmental changes). • Water quality monitoring. • Photo/video-documentation of local resources. • Oral history initiatives. • Measuring soil pH and drainage of community gardens. • Bug collection (catch, identify, and count). • Gathering facts from meetings, hearings, and interviews with public officials. • Interviewing environmental activists and community stakeholders.

Taking Action:

- Use of the performing arts (skits, puppetry, rap songs, etc.) to educate the public about an issue.
- Service-learning/community service projects (e.g., trail restoration, urban gardens, stream clean-ups).
- Organize special events: can be local or national in origin (e.g., Earth Day Celebrations)
- Advocacy/organizing (e.g., hold "intergenerational citizens' action forums," conduct petition drives, draft and promote legislation, and write letters to the editor).
- Creation of new habitats (e.g., for endangered butterflies)
- Rallies, demonstrations, and other public events.

Although presented separately for explanatory purposes, all three domains of activity – promoting awareness, conducting research, and taking action – feed into one another. The process of becoming aware and concerned about environmental issues helps to drive the research agenda. And, research results help to inform action. For example, water quality monitoring leads to the identification of problems areas, and this helps in setting forth priorities for remedial action and water quality protection.

Many intergenerational environmental education programs share the following characteristics:

[Learning is "information rich," "experience rich" and "reflection rich"]

The age diversity of the groups of participants contributes to the depth and diversity of the information and issues presented for discussion and debate.

[Makes the environment seem more relevant]

These projects help participants learn how the environment can influence them on a personal level. For example, a child might see and get to know somebody who suffers from an ailment caused by cumulative exposure to the same environmental toxins to which the child is exposed.

[Teaches important values]

Intergenerational environmental education projects can help to instill a sense of "environmental stewardship," a lifelong ethic of community service, and the concept of working hard now (e.g., during planting time) results in being able to cultivate/collect the fruits of their labor later.

[Teaches how environments change over time]

The physical environment changes over time; so does the way people interact with the environment. Such changes are very difficult to see during a short term program, unless there are participants who have lived through landscape changes and they are called upon to bear witness to such changes. Through intensive intergenerational dialogue, program participants piece together a long-term view of the environment, one that includes a reach into the future as well as an examination of the social changes and legacies of the past that have transformed local and national landscapes.

[Promotes inclusiveness and collaboration in local environmental improvement efforts]

Intergenerational environmental education initiatives serve to help define local environmental priorities, stimulate locally conceived projects, promote local involvement in all stages of project development, and build trust and communication between federal agencies such as the U.S. Environmental Protection Agency and the public.

Program Development

The level of success of an intergenerational environmental education program depends on many factors, including how partnerships are formed, recruitment strategies for senior adult volunteers, program and activity development strategies, and program facilitation strategies.

Strategic Partnerships:

The older, more sustainable programs tend to reflect strategic partnerships and effective integration of the intergenerational component into existing curricula. Here are some themes that emerged from the surveys as to factors that contribute to successful partnerships:

- *Organizations have complementary goals and objectives*: For example, a senior center with a community service mission and a school that requires students to do community

service projects are likely to be good partners for conducting an environmental improvement project.

- *There are multiple partners*:
    - The Environmental Alliance of Senior Involvement (EASI) program alone lists over 350 national, state and local public and private organizations which with they have partnered. This includes community organizations, academic institutions, corporations, local government agencies, Soil Conservation Districts, Retired and Senior Volunteer Program (RSVP), senior centers, schools, religious organizations. Reflecting the notion that the environment is everyone's business, they look beyond connecting only with agencies to which older adults and young people belong and those dealing explicitly with environmental issues.
- *Emphasis on "creative networking"*: In defining environmental priorities and forging opportunities for collaborative action, it helps to pursue a process of "creative networking." In their advice to new Senior Environmental Corps groups, Benjamin and Knight (2000) state,

> "Some linkages might not be immediately apparent. For instance: You may contact the Juvenile Justice system and offer senior mentoring to youthful offenders for a community garden project or to repair stream bank erosion. Perhaps local housing officials need help in inspecting buildings they suspect may contain lead-based paint or old plumbing that could lead to lead poisoning… Transportation officials in your community may appreciate your adopting roadsides to maintain so they are free of litter and protect local waterways from runoff" (p. 10).

In terms of how partnerships function, when assigning responsibilities and forming committees, where feasible, it helps to form intergenerational groups. This contributes to a sense of equality among participants, and it also fosters strong relationships among those who work closely together (Close Up Foundation, 1989).

Recruiting Older Adults:

Recruiting seniors for intergenerational programs turns out to be far more difficult than most practitioners anticipate at the onset of new programs. The following recruitment strategies have been proven to be effective in various settings:

- *Multi-media*: Use of multiple outreach devices, including, for example, fliers, press releases sent to news media outlets, posters, brochures, recorded testimonies from volunteers, volunteer drives with cash or prize rewards, and presentations conducted with senior citizen centers and groups.
- *Multi-step*: A sequential approach, where recruitment is treated as a multi-step process. For example, the first step might involve inviting senior adults to an informational meeting and then inviting those who are interested to a program orientation meeting on site where they can get the chance to meet the program's young participants. The next step might involve providing prospective volunteers with opportunities to sign up for a longer term commitment. (For more information on this strategy, see Kaplan, 1993).
- *Selective recruitment*: Some programs require participants with specialized skills and knowledge, e.g., farmers or master gardeners, seniors who are knowledgeable of an area's historical and cultural heritage.
- *Empower senior recruits to choose/design their roles*: This might involve presenting senior volunteers with multiple role possibilities (e.g., as mentor, advisor, coach, evaluator, etc.) and a range of senior-child ratios (e.g., working with children on a one-to-one basis, in small groups, or in large groups) to choose from. Seniors are likely to select roles which match their interests and skills.
- *Peer recruitment*: A recent study by Civic Ventures and Temple University's Center for Intergenerational Learning revealed that older people seek volunteer opportunities that are meaningful, clearly give back to the community, and encourage older volunteers to work as a team or as part of a larger coordinated movement (Civic Ventures, 2002). Taking into account this latter point, which emphasizes the importance of the relationships between senior volunteers, more attention should be paid to peer recruitment strategies.

It is noteworthy that there is an upswing in older adult involvement in environmental improvement initiatives. There are various factors contributing to this trend, including the emergence of an "Aging Initiative" at the U.S. Environmental Protection Agency, the creation of successful templates for promoting senior environment-focused volunteerism (such as EASI's Senior Environment Corps model; see Benjamin and Knight, 2000), an upswing in social marketing campaigns geared toward promoting lifelong learning and "productive aging"

opportunities (Freedman, 2002), and a trend in higher education to establish gerontology-environment links in aging education (Ekstrom and Ingman, 1999). Such trends, in promoting a normative framework in which aging is viewed as a time of activity and contribution, bode well for future efforts to promote senior adult civic engagement of all kinds.

Key Principles for Developing and Conducting Activities:

An intergenerational component can enrich and enhance the educational enterprise, particularly when employing certain principles for effective program development. Some such principles are listed below:

[Make it fun]

An effective way to teach environmental concepts and to help ensure retention of participants is to weave in fun activities such as creating rap songs, skits, puppetry, poetry, videotaping, and photography. Intergenerational program specialists often invent their own games, such as "Pin the Nebulizer on the Asthma Trigger" and "Cigarette Poisons Grab Bag" (these examples are from the Family Friends Environmental Health Project, Temple University).

[Promote dialogue and sharing between program participants]

Here are some dialogue-enhancing concepts and strategies:

- *Use of questions to stimulate discussion*: Effective facilitators use leading questions to spark discussion and further learning. These questions enable participants to share their views, experience, and knowledge in relation to the environmental topic at hand. For example, the use of "discussion stimulator" questions was a central component of the Intergenerational Outdoor Education initiative (Liu, 2004).
- *Present intergenerational groups with environmental science information and challenge them to discuss the information which is relevant to participants' lives and surroundings*: Intergenerational teams can surf the Internet together, where there is accessible information on topics such as environmental triggers of asthma, hazardous chemicals and occupational diseases, and the science of gardening.
- *Work to broaden the dimensions of conversation*: Issues tied to the social ecology of an area, including problems such as high crime rate, homelessness, and isolated or socially vulnerable older adults, have an important place in discussions about ways to protect natural resources and reduce risk to environmental hazards (Wright, 2003). Participants

may also want to discuss community development policies and practices; decisions made regarding housing, economic activity, and transportation all have "ecological footprints." Community development is a relevant line of discussion, particularly when considering trends such as suburban sprawl which often have a deleterious affect on local natural resources and environmental quality.

[Explore the human dimension of the environment]

Many intergenerational environmental education programs aim to encourage participants to become more aware of the human dimensions of local ecosystems. Here are some techniques for highlighting the human-environment interrelationship:

- *Use of personal photos and pictures*: One way used to encourage participants to discuss their feelings about the environment is to have them bring in personal photos and pictures from magazines and other sources of images of landscapes that have sentimental value for them. These images have been found to be useful for stimulating and extending dialogue taking place during intergenerational interviews.
- *Landscape autobiography interviews*: This is an activity designed to help participants of intergenerational gardening projects discover the personal meanings that participants from other generations attribute to gardens and landscapes (see Kaplan and Hanhardt, 2003, pp. 52-53).
- *Using the environment as a metaphor for making points about human development*: In conversations about the natural environment, themes can be worked in related to topics of age and aging, family, care giving, friendship, and human values. For example, Doris Stahl, horticultural extension educator for Penn State Cooperative Extension at Philadelphia County, introduced a discussion about human-butterfly comparisons when working with an intergenerational group to create a butterfly habitat garden. One point that came up was how a butterfly's development involves dramatic metamorphoses as it goes from caterpillar to butterfly, whereas a human's development is more gradual.

[Provide meaningful opportunities for taking action]

The idea of making a positive difference in one's immediate environment is compelling for many people. So that older and younger volunteers recognize that their contribution is valuable and necessary, activities should clearly be designed to address a real environmental/

community need. Motivation is highest when participants have a sense that they are dealing with important, real issues which demand public attention and action (Generations United, 2002).

[Focus on the relationship as well as the task]

When conducting environmental study and service projects, an overemphasis on work-related tasks can overshadow the relationship-building potential of the interaction. Inserting structured and unstructured opportunities for intergenerational communication helps to establish a positive, productive group dynamic.

Facilitation Principles:

Skilled facilitators of intergenerational environmental education initiatives tend to have distinctive facilitation styles that draw on the following guiding principles:

- Promote a balance in learning, with a dual focus on environmental science and intergenerational understanding. They work to convert technical/scientific information into experiential learning and convivial learning (where participants teach each other).
- Promote question asking, formal and informal, and from young participant to older participant and vice versa. The facilitator is in a good position to observe and point out similarities and differences in participants' answers.
- Display readiness to step back and allow the participants to figure out the best ways to share their knowledge, insights, and engaging personalities.
- Turn learners into teachers. In several of the intergenerational environmental education models that were reviewed, opportunities are provided for project participants to pass on what they learned to others. Making the point that project participants themselves receive some benefit from passing what they have learned to others, Adam Brunner, from the Center for Intergenerational Learning at Temple University, noted, "As participants convey what they have learned to others, they are met with alert, intelligent students who ask questions and this in turn helps them (the presenters) realize what they know as well as what more they need to find out."
- Help participants translate discovery about others into discovery about self. When a teenager conducts an interview with an older adult, not only does the teen gain insight into the older adult's life: the experience often encourages the youth to reflect upon and re-evaluate his/her own assumptions about issues related to age and aging (McGowan, 1997).

The facilitator has a major role to play in encouraging participants of all ages to be cognizant about how they make assumptions and draw conclusions about people on the basis of age.

- Work through a progression of activities, from program orientation, to warm-up activities, to more intensive activities. "Warm-up" activities give way to additional activities designed to yield more intensive, in-depth communication.[15]
- Keep the agenda reality-based and community driven. There is no need to fabricate or simulate environmental action scenarios. Participants are likely to have environment-related interests and concerns in common and this can provide a focal point for converting environmental learning into action planning.

Other Considerations:

There are various other considerations to take into account, such as program setting (good intergenerational settings are "youth friendly," "senior friendly," and provide opportunities for intergenerational engagement), conducting background checks for volunteers, arranging transportation for volunteers needing assistance, creating program schedules that accommodate travel plans of seniors (e.g., many travel to places with warmer weather during the winter months), transcending cultural and language differences that may exist between participants (Krasny and Doyle, 2002), and obtaining "informed consent" from participants and minors' parents for any formal research initiative.

Recommendations

Here are several recommendations for strengthening intergenerational environmental education work:

Use existing resources:

[15] Angelis (1996), in drawing from communications theory, notes that intergenerational communication is a sequential process that most naturally begins with the type of superficial contact that is generated by "ice-breakers" (or "warm-ups"), where interaction occurs in a scripted manner. Once program participants start feeling more comfortable with each other, the notion of deeper levels of involvement in the project will seem more natural and comfortable.

A lot of good work has already been done in the areas of participatory planning, community needs assessment, service-learning, teacher education, curriculum development, community organizing, and intergenerational program development. It therefore makes sense to build on what is known and the resources developed in these areas.

Provide training and technical assistance:

In a survey conducted with environmental educators in Pennsylvania, the primary type of assistance respondents felt was needed to help them establish intergenerational programs in their organizations was information on training senior volunteers and staff (Liu, 2004). It is likely that there is a high demand for this kind of assistance in other states as well. One way to meet this need is to enlist individuals and organizations with expertise in this area to develop resources and conduct training sessions. The involvement of peer educators and mentors is another effective way to disseminate information on effective program development procedures.

***Promote information exchange*:**

There needs to be a mechanism, such as a database of existing intergenerational environmental programs, through which practitioners in this area can find and learn from each other. One a more ambitious note, we recommend the formation of a consortium of organizations that would work together to establish a clearinghouse for such information. This clearinghouse can also serve as a repository of program evaluation tools and resources.

Build a body of evidence:

The little research that exists on intergenerational environmental education initiatives can be characterized as a series of disconnected, small evaluation studies. We feel there is a need for longer-term programs of research that reflect broader "lines of inquiry," e.g., aimed at finding answers to larger questions such as how to effectively recruit and engage senior adult volunteers.

Program replication:

More needs to be done in terms of publicizing and replicating successful models. As groups find out that there are effective intergenerational environmental education models, and as

they gain access to a suite of resources and training opportunities, they will be able to select and adapt models that are most appropriate for their sites and circumstances.

Establish a leadership team:

For making progress in many of the functions noted above, there needs to be some sort of centralized leadership body. Though this can take various forms, we envision a major role for Generations United, some of the organizations highlighted in this article, and the U.S. Environmental Protection Agency.

Conclusion

If we had to choose one word for communicating the essence of the work highlighted in this article, it would be "connectiveness." It is about nurturing the human-environment connection as well as fostering connections between people. The focus is on ways to bring young people and older adults together to learn about the natural environment and to gain insight into each other's lives. Participants gain a greater sense not only about how the environment is relevant and of vital importance to their own well-being, but how it contributes to the well-being of others. They learn that the environmental realities that affect them on a personal level also affect other individuals.

While we are heartened by the fact that there is so much interest and promising work being done in developing intergenerational approaches for preserving natural resources and ensuring a healthy environment, we also realize that this is only a beginning. Hopefully, as intergenerational approaches to environmental education gain more attention, more environmental educators and intergenerational practitioners will be encouraged to try proven models and experiment with new ones. And, with this kind of work gaining traction in communities across the country (and beyond), we envision great strides in creating an environmentally informed, active, engaged, and united citizenry.

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Appendix 1: Intergenerational environmental education programs included in research project.

Name of program (and (& primary sponsor/partner)	Prominent focus or activities	Age of children/ youth	Location	Description
Senior Environment Corps (SEC)/ Environmental Alliance of Senior Involvement (EASI)	Streamside monitoring and restoration. Also, planting trees, stenciling storm drains, etc.	All	National/ International	Older adult volunteers as mentors, facilitators, & leaders for various environmental education/ improvement activities. EASI partners with over 350 national, state and local public and private organizations to provide older adults with environmental volunteer opportunities. SECs are locally-based and community run.
Intergenerational Outdoor School (Penn State University)	Natural environment & wildlife/ natural history/ civic development	4^{th}-6^{th} grades	Central Pennsylvania	Senior volunteers join students for outdoor education activities delivered over a 4-day period, including discovery walks, historical site visits, and discussion about community development concerns and possibilities.
Family Friends Environmental Health (Temple University)	Environmental health	Up to 12 years of age	Pennsylvania	Senior volunteers and children with special needs learn and educate others about environmental health issues such as those tied to asthma, lead poisoning, and second hand smoke. Use of skits, art projects, and life-sized puppetry shows.
Intergenerational Citizens Action Forums (Miami-Dade County Public Schools)	Civic development	High school ages	Miami, Florida	Older adult volunteers and high school youth organize "intergenerational citizen action forums." Together, they define and prioritize critical environmental issues to study and address through community organizing/ advocacy campaigns. Teachers introduce legislative, intergenerational and service-learning themes into the curriculum.
Habitat Intergenerational Program (HIP) (Habitat Education Center & Wildlife Sanctuary, Belmont, MA)	Environmental community service and learning program	All ages; primarily seniors & middle school aged children	Belmont, Massachusetts	Multi-aged groups conduct community service and educational activities at the Mass. Audubon's Habitat 84-acre Wildlife Sanctuary and at local schools, senior centers, and surrounding communities. Projects include rejuvenating a pond, restoring walking trails, and creating a native plant garden.
Garden Mosaics (Cornell University)	Plants and planting practices	Ages 10-18	National	A science education and community action program; 10-18 year olds learn about plants and planting practices from elder gardeners, and post information to electronic databases documenting food growing practices of ethnic and traditional gardeners and the role of community gardens in urban neighborhoods.
Intergenerational Landed Learning	Environmental concerns and care of lands	Youth in the 7^{th} grade	Vancouver, B.C. (Canada)	Students learn about the history and challenges of farming from retired farmers. Together, they plan, cultivate, plant and maintain plants in raised beds at a local farm. Science, technology, & social studies teachers integrate the farm experience into the curriculum.

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BOOK REVIEWS

INTRODUCTION

Hiram Friedsam
Book Review Editor

Books reviewed in this issue:

Exploring Sustainable Development: Geographical Perspective

Wetland and Riparian Areas of the Intermountain West: Ecology and Management

Scientists Debate Gaia

Inventing for the Environment

The Triple Bottom Line

Environmental Governance Reconsidered: Challenges, Choices and Opportunities

Confronting Environments: Local Understanding in a Global World

Citizen's Primer for Conservation Activism: How to Fight Development in your Community

Unequal Health: How Inequality Contributes to Health or Illness

On the Edge of Scarcity: Environment, Resources, Population, Sustainability, and Conflict

Beginning with a two-book review that emphasizes the role of geography, the ten books reviewed in this issue illustrate the importance of a multidisciplinary approach to sustainability. The first book calls attention to the application of traditional geo-ingraphic perspectives to understanding various dimensions of sustainability, while the second virtually illustrates the application of those perspectives to a specified geographic area of the U.S., the Intermountain West. The next review is likely to introduce many readers to the Gaia theory, which is relatively new in the earth sciences. As the title suggests, its thesis, that the earth, including life, is self-regulating, is debatable but could prove to be of tremendous significance.

Those who believe that the solution to many of our environmental problems lies in further technological development will find succor in Inventing for the Environment. It is followed by reviews of two books that have at least a tangential relationship to that historically Western idea. One examines how corporations, among the major consumers of technological development, might measure their impact on sustainability over time; the other also considers measurement, but in the context of environmental policy. What does or does not work? Why and when?

Among the remaining books reviewed the relation of local societies to a globalizing world, a theme explored in several recent books, is approached here through an anthropological perspective that places emphasis on socio-cultural settings and change. How to produce local change on behalf of conservation through activism is offered in the book that follows, but the

difficulty of producing change is illustrated in two books that examine persistent problems, one at a local level and the other at the national level.

The final review is devoted to a book that challenges the inherent and sometimes explicit optimism of most of the other books reviewed. It describes past and present practices that have brought a sustainable world to the edge of an abyss and suggests the dramatic changes that must be made to allow us to step back before it is too late.

♦ ♦ ♦

***Exploring Sustainable Development: Geographical Perspectives*, edited by Martin Purvis & Alan Granger, Earthscan Publications, London & Sterling VA, 2004. 401pp.**

***Wetland and Riparian Areas of the Intermountain West: Ecology and Management*, edited by Mark C. McKinstry, Wayne A. Hubert, and Stanley H. Anderson. University of Texas Press, Austin, TX, 2004. 319pp.**

Exploring Sustainable Development documents the role of geographers in developing Earth's resources to sustain present and future populations. Understanding, planning for, and ultimately implementing practices of sustainable development requires interdisciplinary perspectives and multiple spatial analytical scales. Routinely integrating elements of social and natural sciences in spatial problem solving, geographers should play important roles in the pursuit of sustainable development.

The text is especially thorough in its coverage of political, economic, and geographic theories related to implementing practices of sustainable development. It is well written, insightful, critical yet constructive, and forward thinking. The authors offer excellent international perspectives. Several interesting case studies, for example, from Sri Lanka, Nepal, Japan, and Russia, show practical dimensions of spatial development and provide grassroots context.

Several recurring themes are apparent in this compilation. (1) Sustainable development has different meanings to different groups, for example, rural versus urban communities, or developed versus developing nations. (2) A holistic view of sustainable development requires consideration of different spatial scales (local, regional, national, and international) and their interdependence. Participation of citizens at local scales is not enough to effect sustainable development. We must combine participatory approaches with traditional top-down planning to ensure spatial coherence. (3) Policies and practices of sustainable development should not be cast in isolation. Sustainable development in one territory is affected by its interactions with other territories, as in trade and pollutant flows.

The book comprises 13 chapters. Chapter 1 introduces the concept of sustainable development, discusses the ambiguity of the term, and lists key questions framing discussions in the remainder of the text. These questions cover current strategies of sustainable development, its spatial character, political influences, societal change, existing theories, and practical relevance.

Chapter 2 and 3 examine spatial dimensions of sustainable development and describe the role of geographers in addressing this problem. Examples include links between sustainable development and equity issues in relation to specific places and populations, and linking human welfare to spatial forms of settlements. Chapter 4 describes sustainable development in practice and the role of state and national organizations in supporting local participation.

The next two chapters cover sustainable development in urban settings, emphasizing their connection to wider systems of trade and exchange. Business and environment, including local trade and productivity, and inadequacies of eco-efficiency models of business, are key discussion topics of Chapter 7, and in chapters 8 and 9, the authors consider sustainable development in the contexts of agriculture and waterways. They evaluate agricultural strategies, from traditional to technological, related environmental impacts, and how wider contexts shape practices of individual farmers. In the context of waterways, the authors discuss indigenous versus imported ideas of environmental management and sustainable development.

Chapter 10 includes an interesting discussion of sustainable development in the Arctic North. The authors show that traditional cultures are best able to sustain the environment, but disintegrate under pressures of outside intervention and extractive industries. The final three chapters consider climate and energy, ramifications of global climate change, national and international policies and relations, and future perspectives.

This book may be considered a transitional text, in that it illustrates the complexity of sustainable development and poses important questions. It does not propose new theory, but examines the viability and extensions of existing ideas. It should be an excellent resource for planners and policymakers at all levels and for educators and college students.

Wetland and Riparian Areas of the Intermountain West is virtually a case study of a specific geographic area that touches on many of the ideas and issues in *Exploring Sustainable Development*, particularly those in Chapters 8 and 9 on agriculture and waterways. Wetlands of the intermountain western U.S. provide habitat for numerous wildlife species while simultaneously serving the water needs of rural communities and cities. The editors of this book estimate that wetlands account for 2% of the total land, yet provide habitat for more than 80% of wildlife species in the study area. Clearly, understanding and protecting these systems is crucial to sustaining both wildlife and people in the intermountain west. The book provides a wealth of information pertinent to achieving these goals.

The book is a superb reference on the character, function, and management of riverine and palustrine wetlands in the western U.S. It is one of the most authoritative and comprehensive texts yet written on the subject. In particular, the book excels in (1) its interdisciplinary perspective, synthesizing information from several disciplines, including geology, chemistry, biology, ecology, and policy science, and (2) its in-depth coverage of a wide range of wetland issues pertinent to the western U.S.

Twelve well-written and thoroughly researched articles cover such wetland topics as (1) laws and regulations, (2) morphology, hydrology, and soils, (3) support for plant, animal, and human communities, (4) impacts and associated management options, and (5) classification, monitoring, and evaluation methods. Authors discuss several wetland impacts and ways to address them, including land development, timber harvesting, irrigation, livestock grazing, mining, and recreation. A chapter on created wetlands considers management strategies for grazing, prescribed fire, maintaining water levels, emergent vegetation, transplanting, enlarging wetlands, and bird nesting structures. Articles examine riverine, natural palustrine, and created palustrine wetlands.

The articles seam together smoothly, effectively building upon and complementing one another. This book does not suffer from abrupt transitions or lack of organization, problems often plaguing edited volumes of articles from numerous contributors.

Other than the cover, the book contains no photographs. However, tables and occasional figures effectively supplement the text. The relatively few figures are black and white, and of good quality, but photographs and additional figures would strengthen any future edition of this already outstanding book.

An appendix lists common and scientific names of numerous animals and plants mentioned in the text. A subsequent index adds further reference value to the text. This book should be a valuable resource for wetland scientists, regulators, conservationists, and policy makers.

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♦ ♦ ♦

***Scientists Debate Gaia: The Next* Century, edited by Stephen H. Schneider, James R. Miller, Elleen Crist, and Penelope J. Boston, The MIT Press, Cambridge, MA & London, 2004. 377pp.**

Gaia is the Greek goddess of the earth. The Gaia Hypothesis is, nonetheless, intended as a scientific theory. Introduced in the 1970's by English atmospheric chemist James Lovelock and American biologist Lynn Margulis, the Gaia Hypothesis teaches that the earth's physical and biological processes are linked to form a single complex, self-regulating system. Not only is the earth self-regulating; on this view, life itself has taken part in this global interaction and has significantly reshaped the earth. It is thus possible to think of the Earth as a whole whose parts transform together and produce relative stability (homeostasis).

The Gaia hypothesis has had more than its share of critics. Some have objected to the term "Gaia", which, they insist, wraps science in the flimsy garb of mythology. Darwinians have been uncomfortable with any theory which emphasizes large-scale planetary processes as factors in the evolution of life instead of minor genetic changes with short term consequences. The present volume is a twofold response to such criticisms.

James Lovelock's introductory essay, "Reflections on Gaia," is an account of the history and growing acceptance of the Gaia hypothesis. This acceptance can be justified, he shows, by its very focus: it brings us to investigate the planet from a new interdisciplinary standpoint, to understand its capacity for self-regulation. In "Gaia by Any Other Name" Lynn Margulis amplifies Lovelock's contentions. Gaia theory, which began with an emphasis on atmosphere and soil alkalinity-acidity, now involves living beings and their interrelations with the rest of the lithosphere. If a "good" hypothesis is one which generates new experimental and theoretical work, the heuristic value of the Gaia hypothesis "is unprecedented in modern times."

Margolis' views of evolution are unorthodox. Though she does not deny the reality of point mutations and natural selection, she argues that many turning-points in evolution are occasioned by "gene capture," the fusion of the genomes of two otherwise distinct organisms which have come to live in common. This thesis is not mentioned in Scientists Debate Gaia. It is interesting, however, that the Gaia hypothesis, with its supportive confluence of interacting

forces, is congenial with Margolis' belief in "the inheritance of acquired genomes." Cooperation, not competition, becomes a fundamental factor in the development of life.

The bulk of Scientists Debate Gaia consists of explorations of the Gaia hypothesis from a wide variety of viewpoints. Some articles are partly or highly critical. As is to be expected, most attempt to expand or otherwise support Lovelock's and Margolis' ideas. Section I (Principles and Processes) contains essays relating Gaia to natural selection, to suitable models for interpreting planetary process, and inevitably, to thermodynamics. Section II (Earth History and Cycles), Section III (Philosophy, History, and Human Dimensions of Gaia), Section IV (Quantifying Data) , and Section V (Life Forms and Gaia: Microbes to Extraterrestrials) deal with planetary chemistry, with the possible human and philosophical implications of the Gaian standpoint, with the problems involved in describing planetary interrelatedness mathematically, and with the structure of Gaian systems as a whole, including possible extraterrestrial life.

It is not possible in a review of this length to survey in depth the rich insights and substantial contributions of the contributors to this volume. With their broad scope they constitute effective subversion of the disciplinary isolations which stand in the way of planetary science. Second, they clearly stand as additional corroboration of the power of the Gaia hypothesis to generate valid theoretical and empirical research.

Thus: Gaia lives.

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♦ ♦ ♦

***Inventing for the Environment,* edited by Arthur Molella and Joyce Bedi. The MIT Press. Cambridge, MA, in Association with the Lemelson Center, Smithsonian Institution, Washington, D.C., 2003, 398pp.**

The theme of this book is that "…most of all, the integration of nature and technology widens the field of play for the creative imagination, encouraging inventive solutions that view technological society in the broadest ecological terms…" (p.xviv). Each of its seven parts considers different inventive solutions to environmental problems. Each, except the first, has an essay by a historian, a "hands on" practitioner, and a "Portrait of Innovation" about a person who has made significant changes and improvements in the environment. Supplementing the text are more than fifty charts, diagrams, drawings, engravings, maps, photographs and reproductions of paintings.

In Part I "On Nature and Technology" it is shown that humans live in a hybrid not a pure environment. When attempting to solve an environmental problem, people do better through considering its history. This provides a sense of context through telling us what is going on, how it got that way, what the rules are, how we fit into the situation and a feeling for contingency. (pp. 3-10). This is illustrated by Stephen J. Pyne who in his article on fire states "…fire is among the oldest of human technologies, probably the most pervasive, and likely the most enduring . . .Everything humans have touched fire has touched as well."(p.11)

Part II "What Role Does Innovation Play in Urban Landscapes" shows that often admiring observers of urban harmony and green space fail to recognize that they are as much the result of human design and construction as are the skyscrapers. This is demonstrated in an article describing the growth of the Washington, D.C. park system including the guiding and changing social theories, the political disputes and how the work was actually done. Similar information appears in the article on bioparks. Bioparks can provide great educational richness and by creating the proper environment help preserve life forms threatened with extinction.

In Part III "How Do Innovations in City Planning Shape the Environment?" the focus is on practical and theoretical efforts to improve and create cities a vital part of civilization but in need of improvement. Some of the improvement efforts were conducted by "powerful activist

regimes" including Germany, Italy, the Soviet Union and the United States of America. These efforts had a tendency to create the future by emphasizing modern science and technology, combined with decentralization and aspects of the pre-industrial era to create the future. Particular cities and the theoretical positions, including a statement contributed to the book by Paolo Soleri, of those who worked with them are also reviewed as Norris Tennessee, Salzgitter, Germany, the Bauhaus and others.

In Part IV "How Do Innovations in Architecture Affect the Environment?" the focus is upon the rediscovery and new use of old technology or the combinations of contemporary technology in new ways. The history and invention of straw bale building in Nebraska in the late 1800's is described. It was rediscovered and put to use in the 1970's. The people in favor of straw bale building took on some of the characteristics of a social movement and there was conflict between those who favored and disapproved of its use. A description of the Wimberly House of Healing in Wimberly, Texas is presented as an example of how good straw bale building can be. "The home has arisen to become a 'living architecture' a breathing, moving, dancing thing that wraps and plays about its occupant like a mother or lover, with caring open hands lifting through layer upon layer of overlapping spaces, fields of energy and conscious thought." (pp. 212-213)

Another example is provided in a discussion of David Hertz's invention of Syndecrete which grew from his experiments combining old techniques and new materials with concrete in various ways. It is composed of 40% recycled material and makes a strong light fiber that can be shaped with woodworking tools. When it is used in construction it lasts longer than wood, brick, steel and is an alternative to many renewal and non-renewal resources. (p. 224)

The question raised in Part V "How Are Technological Innovation, Public Health and the Environment Related" is answered with a history of the growth of the theory and technology of providing clean water in urban areas in the Western world in and article by Martin V. Melosi "How Bad Theory Can Lead to Good Technology: Water Supply and Sewage in the Age of Miasmas." At first the theory of miasma, that infectious diseases are caused by breathing rotten vapors of decaying sewage and filth, provided guidance for the construction of urban drainage systems, which were successful in reducing epidemic diseases like cholera. Gradually the germ

theory of disease replaced the miasma approach while the original methods of sewage treatment continued in use with extensive improvements.

There is also a description, "Clean Water for the World," (pp.257-263) of a more recent innovation, the UV Waterworker, invented and put into production by Ashok Gadgil and a graduate student from 1993 to 1995. It may solve much of the world-wide problem of providing clean water for human consumption. It is simple, light weight, low maintenance, high reliability, and effective at disinfecting water. It is thought that these machines will spread rapidly over the world and solve much of the problem of impure water.

The question raised in Part VI "How Can Innovations in Alternative Energy Sources Affect the Environment?" is partially answered with a history of how people in the United States, especially in Southern California become aware of the 1940's of smog, its production, the problems it was causing and the possibility of reducing it through the control of auto emissions.

There is also a discussion of the "Hyper Car" that can be built with today's technology and that would get almost 200 miles to a gallon of gasoline. Such machines are one of today's major topics of discussion and production efforts. It is argued that the primary obstacles to the use of alternative energy sources are cultural and political rather than technical or economic. Very often there is struggle to continue to use old pollution systems rather than change.

In Part VII "How Are the Principles of Industrial Ecology Applied to Benefit the Environment?" it is observed that until recently business historians had little interest or concern with the impact of industrial development upon the environment. But beginning in the 1960's, says Christine Meisner Rosen in her article "Industrial Ecology and the Transformation of Corporate Environmental Management: A Business Historian's Perspective" the industrial ecology view that "business and nature are inseparable parts of a single interactive 'industrial ecosystem'" (p. 320) began to gain in interest and popularity. The fundamental premises of industrial ecology is not about the environment, it is about technology and the evolution of human culture and economic systems."(p. 339) Also there are two lists of the basic principles of industrial ecology; one with eleven principles (pp. 354-355) and the other, by Robert Socolow of Princeton University, with six principles. (pp.356-357) in Braden Allenby's article "Industrial Ecology"(pp. 339-372)

In the last part "Conclusion: The New Environmentalism" by Roderick Nash and Martha Davidson who suggest that a new definition of environmentalism is emerging is is "being linked with the human capacity to imagine, to invent, to innovate and to shape the future." (p.383) We can look back 1000 years and think and learn from it. Then we can look forward 1000 years and think about Roderick Nash's and Martha Davidson's dream of creating an island civilization a reversal of the way we are going now that would require setting new goals of which they suggest three. "…1.reduce the human population of the earth from 6 to 1.5 billion by the year 3000."(p.385) "…2. a concentration of the human population in small area, rather than the explosion and sprawl that characterize our cities today" (p.385) "…3. redefine progress away from growth…and toward sustainability and justice for all Earth's creatures." (p. 386)

The book ends with the reprinting of an advertisement published in the personals column of a local newspaper by some of Professor Roderick Nash's students which said "Temperate but endangered planet, enjoys weather, photosynthesis, evolution, continental drift. Seeks caring relationship with caring life form."(p.389) Roderick Nash's response "Maybe that intelligent life form could be us, the sapient primate. Maybe our capacity to think, to invent, to imagine, to innovate, could truly be an asset rather than the liability it has become without ethical restraints. Maybe we could create a higher and gentler technology. Maybe we could prove to be that intelligent life form, in a caring relationship with a finite planet." (p.389)

This book is a fine challenge to ordinary thinking about the environment. As its influence spreads, as it surely will, it will become more and more difficult for those who attempt to apply ordinary theory and methods to the solution of environmental problems to escape serious questions and resistance from those who have adopted the industrial ecology approach. I would like to see another book by the same group that considers the obstacles and means of overcoming them that stand in the way of the application of the industrial ecology approach and the creation of the island civilization.

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***The Triple Bottom Line*, edited by Adrian Henriques and Julie Richardson, Earthscan Publications, London & Sterling, VA, 2004. 186pp.**

This book is a collection of essays by proponents on how corporate entities may measure and report on a concept of sustainability. Sustainability is the idea that the value added by an entity's activity should also include measures of their social responsibility and whether or not they have delivered a good environmental performance. Sustainability is the concept that qa corporate entity should be able to sustain its activity on a continuing basis without decreasing the financial capital, natural and human resources available to it. This is a very simple definition of a very complex concept. Overall the series of essays are conceptual, thought provoking and in a developmental stage in an effort to measure overall sustainability of corporate activity.

The title, The Triple Bottom Line, or TBL results from adding two new measures of performance to profit or income which is known as "the bottom line." Hicks' classical definition of income (profit) is the entity's monetary measure of economic performance which can be consumed (distributed) and leaves the entity as well off at the end of the period as it was at the beginning of the period. The addition of a measure for environmental performance and social performance becomes the Triple Bottom Line.

The quantification of these two additional measures into a common measurement unit is difficult if not impossible. The use of money to measure economic value has not been solved as yet. The value of money changes over time. It is well recognized that a 1940 dollar is not equal to a 2005 dollar. To quantify social and environmental changes that consider the past, present and future is much more difficult. Money as the unit of measure of environment and social changes may not be appropriate. Other units of measure for value whether it is economic, environmental or social do not currently exist. Although the concept of sustainability is worth, its implementation and measurement is at best in the embryonic stage. This is not to say that attempts to measure and report the cost and benefits of corporate impact on the environment and social interaction should not be continuted. The entities impact is substantially limited to internal current activities. The impact on the external environment and social structure is limited to the entities power over external forces such as local, national and global culture and structure. Environmental and social standards for their sustainability and improvement are presently weak.

For example, the global warn theory has scientific supports but it is not universally accepted. The concept of acceptable work environment for people is not applied in many nations.

A major problem is the ability of entities to shift cost to other stakeholders. A shift of labor cost from one nation to another because of lower payrolls and limited human rights consideration may improve the economic bottom line but have an adverse effect on global social performance. Another example is the shifting of the cost of restoring and/or protecting the environment and natural resources from the producing entity to the public or governmental activity. The allocation of costs and benefits among stakeholders currently has few if any standards except through the accepted power structure. To the extent that sustainability measures, such as TBL identify inequities, standards for environment measures and social performance they may be useful. Improvements in these standards are primarily limited to the public acceptance and the government's ability to enact them. The corporation's interest in increasing profits/income annually requires that their measures of environmental and social performance be more self-serving than a major improvement in performance measurements.

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♦ ♦ ♦

***Environmental Governance Reconsidered: Challenges, Choices, and Opportunities*, edited by Robert F. Durant, Daniel J. Fiorino, and Rosemary O'Leary. MIT Press, Cambridge, MA, 2004, 560 pp.**

Environmental Governance Reconsidered ***is an ambitious book designed for use as both an undergraduate and graduate textbook and as a guide for researchers, citizens, and policymakers. That ambition is a bit overreaching, and the book will probably find most of its audience among graduate students and researchers looking for a convenient synthesis of literature on environmental policy and its implementation. The jargon and extensive references may prove daunting for undergraduates and lay people.***

The concern of the editors is to examine what policy arrangements have worked and why and what shifts—of policy, mind, or institution—will be necessary to emulate the successes. Additionally, the book seeks to lay out an analytical technique that will most meaningfully measure success. A recurring theme is the maturation of environmental policy and the need to recognize that early solutions and implementation arrangements often need reworking. The perspective, though slightly weighted toward North America, is global.

Overall, the book seeks to fulfill three needs: "to reconceptualize purpose, reconnect with stakeholders, and redefine administrative rationality" (p. xi) and to provide numerous examples of successes as well as comparisons to environmental policies with more limited achievement. The organization of the book follows its three broad purposes. The book is an anthology with 13 chapters written by different authors. Rather than commenting on each of the chapters, this review addresses the three broad purposes of the book.

Reconceptualizing purpose centers on the importance of planning as a key to overcome obstacles in achieving sustainable development, on creative regime arrangements with clear purposes to make things happen, and on invoking the "precautionary principle" that addresses probable risks, not already proven ones. The final chapter of this section addresses how common interests ("common-pool resource theory") can facilitate arrangements for sustainability but also points to how easily the common perceptions can be threatened.

The second section analyzes efforts to connect to stakeholders. Efforts to establish deliberative democracy—broad coalitions of interested parties—are contextual; no one approach always works, but a failure to connect to stakeholders will almost inevitably result in policy failure. One interesting notion is "civic environmentalism," which involves custom-designed solutions to fit local situations (p. 219). Another is the contention that recent case law and statutes have diminished a sense of common good, placing a considerable burden on environmental bureaucrats "to establish mechanisms . . . to track the outcomes of the application of various regulations" (p. 315) if results are to be achieved.

That discussion leads to the last section of the book, the one of greatest interest to someone in the reviewer's field, namely redefining administrative rationality. The idea is that old arrangements and institutions have lacked success and that flexibility is needed to make arrangements that work as solutions to particular problems. "Inspiration"—both vision and ambition-- is needed for effective results to occur. The book concludes with a series of paradoxes that must be addressed to achieve a sustainable environment.

Charldean Newell
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***Confronting Environments: Local Understanding in a Global World*, edited by James G. Carrier. AltaMira Press, Walnut Creek, CA, 2004. 198 pp.**

Drawing upon their extensive research experience in environmental anthropology, Carrier and his colleagues present a conceptually rich account of peoples' understandings of their environments. The book illustrates how peoples' sociocultural backgrounds shape how they think and act toward their surroundings. In the introduction, Carrier sets the stage for understanding local, national, and global environmental interplay by linking the various chapters and central themes together.

In the first chapter, MacLeod describes a power relationship that favors the interests of tourists over the interests of villagers on the south coast of the Dominican Republic. Under the guise of developing hotel and tourist industry, economic power led to a transformation of natural resources for food and wood for local villagers to a resource for aesthetic appreciation and recreation by tourists and hotel. Chapter 2, by Theodossopoulos, discusses diverse views of the environment held by villagers and conservationists. The villagers must overcome the problem of translation as they confront the conservationists, who set the terms of the debate. But the debate is complicated by the heterogeneity of different sets of indigenous people. Chapter 3, by MacDonald, exemplifies the agendas of global conservation organizations shown throughout the book.

In the case of Northern Pakistan, MacDonald makes bare conservationists' deceptive goal of controlling local people through inducements. This discussion helps us understand how species like the ibex and other local wildlife become globally important. Perhaps his strongest point is that the process of domination can be subtle as when wildlife is identified as a global resource, making it worthy of protection in the interest of global citizenry. Chapter 4, by Kirby, shows how Japanese urbanites translated highly personal experiences into "legitimate" and more instrumental terms of the technoscientific discourse. Protesters adept with highly scientific methods of inquiry claimed that a waste facility produced toxic and ecological damage to their community. Their scientific skills and the hard evidence they generated put them near the top of what Loseke (2003) calls the "hierarchy of credibility" in claims making. What follows is a transformation of nature or a discursive shift from something negatively valued to something

positively valued and worth protecting. A problem with Kirby's discussion is that it falls short of integrating Ingold's framework, which he purports to be following. Carrier's discussion, in Chapter 5, shows how people's personal engagement with marine environment led them to become environmental activists, but this single view of the environment and surroundings gives way to a multidimensional understanding. Pressured by financial needs and institutional structures and power, the local interest succumbs to national interest. Activists' personal histories and deep fundamental meanings of their surroundings are translated into a modernist model of thinking, that is, to think of coastal waters as an economic resource to be exploited. Hence, a new understanding is that "an expansion of tourism served the nation's economic interest" (p.21).

In Chapter 6, Berglund discusses the national proprietorship and commercial use of Finland's forests. To Finnish people, "forests" invoke no clear line of demarcation between a purely personal and local and a purely global and public invocation (p. 22). Additionally, the use of the concept of nation makes it less clear that in these debates the national is opposed to the local. Milton's discussion, in Chapter 7, is about landscapes under threat and how environmental activism enlisted the support of national and international attachment to, and involvement in, the local landscape. An expanding sense of place facilitated wider support. Here, as in other chapters, the reader gets an understanding of environmental anthropology and a sense of activism regarding the interaction between human and environment. In his comprehensive and coherent summary, Heyman reiterates, and perhaps makes clearer, the central theme of the book, "the way that we understand our surroundings really does matter" (p.193).

A major strength of the book lies in the incorporation of the points of view of the local people themselves. This ethnographic approach helps the reader to "share" peoples' meanings of their surroundings. The book is anchored in an abundance of data and current references, but given its critical tone, considerable depth of analysis, and jargon-loaded language, I recommend it for mature audiences only. One notable problem, in my opinion, is that the book falls short on policy recommendations. This is particularly important because of the national scope and the social importance of the subject matter.

References

Loseke, Donileen R. 2003. Thinking About Social Problems: An Introduction to Constructionist Perspectives. New York: Aldine de Gruyter.

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***Citizen's Primer for Conservation Activism: How to Fight Development in Your Community,* by Judith Perlman, University of Texas Press, Austin, TX, 2004. 259pp.**

Judith Perlman has created a practical handbook detailing the process of organizing, funding, and managing a grass-roots campaign to preserve open space. Her recommendations range from identifying the issues to building coalitions and influencing government.

Perlman escaped a pressure-cooker career by moving to rural Wisconsin. Within weeks, she was using her skills as an attorney and businesswoman to help her new neighbors fight commercial development threatening a nearby pristine area on the shore of Lake Michigan.

As is usually the case, the little coalition of unschooled citizens had to quickly learn a great deal as they opposed local politicians and powerful developers. Against all odds, they stopped the annexation and succeeded in creating a State Conservation Area. A few years later, Perlman used her experience in another similar battle and succeeded again. In the meantime, she helped create a groundbreaking commission which allows two townships to work together on comprehensive land-use plans. Her efforts helped create a permanent group of informed citizens who anticipate threats to open space instead of always reacting to an emergency situation.

This little book is packed with details about devising a strategy, fund-raising, understanding governmental policy and dealing with the media. The nuts and bolts of a campaign are discussed in straightforward language with occasional wry wit. Perlman warns of common pitfalls, discusses how codes are created and enforced, where to find help and how to manage the process.

Both beginners and experienced activists will find this handbook extremely useful in their efforts to protect open space in their communities.

Peggy B. LaPoint
Chair, Cross Timbers Group
Lone Star Chapter of the Sierra Club

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***Unequal Health: How Inequality Contributes to Health or Illness*, by Grace Budrys, Rowman & Littlefield Publishers, Inc., Lanham, MD, 2003. 271pp.**

I recommend *Unequal Health* both for the lay reader and for lower-division college courses. I disliked the Preface, finding it too wordy, nonprofessional, and elementary. Luckily, I read on and found the book to address the complexities of a complicated health system and convolutions of health status in an easily-understandable manner. Half way through, I was willing to recommend it to lower-division courses in health or healthcare systems, perhaps high-school honors classes, and perhaps many of the brighter legislators. Certainly members of the general public could benefit from the book.

Budrys tackles difficult material, whether public health epidemiology, multiple-gene inheritance, or the interactions of race, poverty, and education; and she renders it in a manner understandable to the average college student willing to work at it. In twelve chapters, she outlines methodology, risk factors, social determinants, social structural factors, and policy, ending each chapter with a brief but enlightening summary. (Many students assigned the book will undoubtedly skim the summaries; but they will miss much enlightening detail.)

How can one not like a book that tackles "The relationship of genes, age, sex, and race" in two pages and does a credible job of it? Budrys uses simple comparisons to argue against single-cause explanations, without overwhelming the reader. She, reasonably, lingers over age, sex, class, and race/ethnicity, but does not slight other factors, including socio-structural ones. She in fact makes all such factors come alive in her discussion of their influences on health status. In particular, Budrys emphasizes the dynamics that have changed causes of diseases, as well as disease incidence, prevalence, and steady risk factors.

An illustrative quote has Budrys' preparing to sum up the chapter on "Lifestyle and health behavior" with: "We need to consider more carefully whether we are ready to conclude that individuals are primarily responsible for their own health or that social structural differences have something to do with it. We need to know this in order to determine whether we should support health policy addressed to changing the behavior of individuals or policy aimed at altering social structural features" (p. 104). A very simple statement, but one the reflective reader may find to undermine entrenched assumptions, and perhaps be willing to examine in the light of available data. One even hopes that some will consider both health-policy targets to be worthwhile.

Not everyone will be happy with Budrys. In her policy prescriptions, she focuses on 'upstream' social interventions rather than 'downstream' efforts, whether to influence behavior to prevent disease or to cure disease or ameliorate its effects. In the prior chapters, she has laid out ample evidence for the socio-structural causes of disease and how they shape the effects of such individual factors such as race and class. In particular, she outlines powerful effects of social inequality on ill health. Some would likely accuse Budrys of special pleading to support favored, radical, social interventions. Nevertheless, Budrys lays out ample evidence for her position. If it is special pleading, it is nonetheless comprehensive and well-documented pleading.

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***On the Edge of Scarcity: Environment, Resources, Population, Sustainability, and Conflict,* edited by Michael N. Dobkowski and Isidor Wallimann. Syracuse University Press, 2002. 204pp.**

On the Edge of Scarcity, a collection of articles edited by Michael Dobkowski and Isidor Wallimann, forces readers to ponder how population growth coupled with our excessive use of natural resources (land, energy, and environment) is leading to a global disaster. The articles in this book show how important it is for us to change our lifestyles and attitudes because we are on the verge of scarcity, as the title of the book suggests. They offer several solutions that they believe will help avoid global catastrophe.

The book shows the multi-faceted aspects of scarcity engendered by human behaviors. It discusses the causes of scarcity – rapid population growth, global industrialization, capitalist market system, and insatiable material possession – and details the consequences of scarcity – unemployment, migration, conflict, mass death, and genocide.

On the Edge of Scarcity is organized into three parts: (1) Statement of the Problem, (2) Scarcity and Conflict, and (3) Case studies of Scarcity and Mass Death. Part I discusses how globalization of the world economy has created an increasing inequality between the haves (mostly found in developed countries) and the have-nots (mostly found in developing countries) while pressing the ecological system to its collapse. The authors argue that the global economic development with its profit driven policies are creating economic and political disaster which will soon destroy the earth. They suggest that we change our ways of life and thinking and ask that we either reject or revose some of the traditional economic measures such as the GDP and total well-being. They also urge us to support endeavors that are environment friendly in order to restore the environment.

The book elaborates how unprecedented population growth has made human activities unsustainable and created a degraded environment. It shows how since the beginning of time, through innovation, human population has grown along with a growth in the use of environmental resources leading to environmental depletion. It also examines how the market system creates and sustains inequality between rich countries and poor ones, how European

imperialism destroyed, divided, and ruined cultures and created grounds for many of the contemporary ethnic conflicts in the world, and how in the name of economic growth, our production and consumption are depleting the earth. This section also links the social disintegration in present-day America to population growth shich is creating scarcity. Scarcity is believed to create conflict within nations and ultimately threaten democracy.

The last section of this book give a repertoire of cases where resource scarcity in its different forms (psychological, political, and material) contributes to violence, conflict, mass death, and genocide. The section also examines the history of Rwanda and the different forces that propelled Rwandans into genocide. The impact of scarcity on women and children is also emphasized.

On the Edge of Scarcity is an evocative book that leaves readers with depressing feelings. However, the authors give a list of ways to avoid global catastrophe. Although some of the ways may seem less realistic, at least, the show that we are not doomed if we change our ways, and the sooner, the better.

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University of North Texas

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Energy Efficient Green Building Institute
Cedar Valley College, Lancaster, Texas

The Energy Efficient Green Building Institute is a partnership between Cedar Valley College, one of the Dallas County Community Colleges, and the U.S. Department of Energy, Building America Program.

The Energy Efficient Green Building Institute will develop training programs, awareness activities, and resources that will promote the national agenda for the conservation of energy use in buildings, the use of environmentally responsible building technologies as well as the development of sustainable communities.

For more information, contact David Eishen (deishen@dcccd.edu), Director, Energy Efficient Green Building Institute at (972) 860-2984, or Cedar Valley College, 3030 Noth Dallas Avenue, Lancaster, Texas, 75134.

Energy Efficient Green Building Institute
A Complex of Residential Net Zero Energy Green Buildings

The Energy Efficient Green Building Institute (EEGBI) complex will be composed of four residential net zero energy green buildings. These buildings will serve as a living demonstration of a variety of architectural designs, construction systems, environmental practices, and advanced energy technologies.

The use of each of the buildings will be dedicated to different goals of the EEGBI. One building will be dedicated to each of the following:

1. Facility for online instruction
2. Classrooms for local credit instruction and community outreach courses
3. Learning center for K-12 school children
4. Resource center for business and government

A park-like atmosphere would be developed around and between the buildings including a playground, and picnic area. These grounds would serve as a demonstration of the environmentally responsible landscaping used in an enticing and practical application.

The complex as a whole would combine the nostalgia of older neighborhoods, sustainable practices, and state of the art technologies to serve as a living laboratory well into the future.

Each building would be built by a different team of professionals. Separate builders, architects, designers, and suppliers would be selected for each building. The buildings would have rooms permanently dedicated to display the contributions and products of each of the teams. The

energy technologies in the buildings would be installed in a manner conducive to upgrading the buildings as new technologies become available.
By breaking up the complex into four separate buildings the project can be funded in stages. Each building can begin when funding for that building has been secured.

The Energy Efficient Green Building Institute complex of buildings will serve as a national showcase of energy efficient green building technologies. Students, teachers, building professionals, and many others will come from across the nation and perhaps from around the world to visit the Energy Efficient Green Building Institute at Cedar Valley College.

Yale University School of Forestry & Environmental Studies

Special Issue of Yale Journal Analyzes Environmental Impact of Consumption

The environmental impact of what we buy and use is increasingly drawing the attention of business, governments, and consumers. The connection between consumption and environmental impact is analyzed in new and important ways in a special issue of Yale's Journal of Industrial Ecology, available for free access in full text at: http://mitpress.mit.edu/jie/consumption .

Articles in the JIE special issue analyze the environmental impact of consumption and:

- diet change
- time use
- U.S. house size
- worktime reduction
- product life spans
- quality of life

The special issue also examines consumption at the household, city, and national levels.

"This special issue demonstrates the power of industrial ecology," says Reid Lifset, editor-in-chief of the Journal of Industrial Ecology. "Techniques that lie at the core of this field, such as materials flow analysis, life-cycle assessment, and input-output analysis, help us to understand much better the pivotal role consumption plays in shaping the quality of our environment."

The research published in this special issue includes evaluation of water use in China, energy use in Sweden, the "export" of environmental impacts via Dutch consumption, and risks from exposure to scented consumer products. Articles consider the strategies advocacy groups use to influence global production and consumption, and explore the role of the "rebound effect"—the possibility that reduced purchase of one set of products can, by saving the consumer money, lead to increased consumption of other goods and services (with their attendant environmental effects).

Industrial ecology is a rapidly growing field that examines local, regional, and global uses and flows of materials and energy in products, processes, industrial sectors, and economies. The

Journal of Industrial Ecology is an international, peer-reviewed quarterly on industry and the environment, owned by Yale University, published by the MIT Press and headquartered at the Yale School of Forestry & Environmental Studies.

DON HENLEY OF THE EAGLES – AT UNT

In the Fall, 2005, Don Henley, musician and conservationist, gave a lecture at UNT on his work to save Caddo Lake in Northeast Texas. Mr. Henley helped create the Caddo Lake Institute. From 1967 to 1969 he studied English at UNT.

The conflict involves the classic struggle between business interests and ecological preservation. A business group wants to develop an industrial park near a biological refuge for animals at Caddo Lake. There is also the continual problem in controlling agricultural run-off – which leads to the pollution of the Lake. Population needs for more water in the Marshall area provide additional threats to the Caddo Lake.

VIOLENCE PREVENTION AND INTERVENTION AT CDC

The College of Public Affairs and Community Service invited Dr. John Lutzker to a forum: "Violence Prevention and Interventions at the Center for Disease Control". He estimated that 906,000 children were victims of abuse and neglect in 2003. Homicide was the second cause of death for youths aged 15-24 in the United States.

UNT's Behavioral Analysis Resource Center's Texas Child Welfare Project is working with Texas Department of Family and Protective Services and Child Protective Services to conduct training and set curriculum for adults about positive parenting. One focus is foster parents.

TCEQ NAMES STATE'S TOP ENVIRONMENTAL ACHIEVERS FOR 2005

Environmental truck stops. Recycled glass terrazzo. A new place for migrating chimney swifts to call home. These are just three of the winning environmental efforts that will receive a 2005 Texas Environmental Excellance Award from Governor Rick Perry and the Texas Commission on Environmental Quality (TCEQ).

In all, ten winners from across the state of Texas will be recognized at a banquet in their honor on May 3. Short videos will tell each winner's story and award recipients will be present to share their experiences with others. It's all part of the networking and educational opportunities

offered at the annual TCEQ Environmental Trade Fair and Conference May 2-4 at the Austin Convention Center.

The 2005 winners are listed below. For a complete list of finalists, visit <a href-"http:// href=http://tceqteea.c.topica.com/maadnVFabfSmfbORWtVe/ www.teea.org/winners/winners.htm. For more information on the Texas Environmental Excellence Awards banquet or to register online, visit www.teea.org/contactus/banquet.htm.

For more information, visit <ahref-http://tceqteea.c.topica.com/maadnVFabfSmbORWtVe/>www.teea.org or call Dana Macomb at the Texas Commission on Environmental Quality, (512) 239-4745.

2005 AWARD WINNERS

Innivative Technology
IdleAire Technologies Corporation – Advanced Travel Center Electrification

Large Business/Technical
Cargill Meat Solutions Corporation, Friona – Bio-Gas Recovery for Use as A Fuel Source

Large Business/Nontechnical
H-E-B Grocery Company – Environmental, Educational and Outreach Initiatives

Government
University of Texas Medical Branch, Galveston – Resource Conservation Initiative

Small Business
EnviroGLAS Products Inc., Plano – Terrazzo Flooring

Agriculture
Tom Green County Water Control & Improvement District #1 – An Integrated System for Remote Control and Monitoring of Irrigation Canals

Education
City of Laredo – Environmental Awareness for Elementary Level School Children

Civic/Nonprofit
Clear Creek Environmental Foundation, League City – Clear Creek Cleanup Program

Youth
Highland Lakes Elementary School, Granite Shoals – Project LIFE (Leading Investigators for the Environment)

Individual
Hannah Marie Greer – Van Alstyne ISD Recycles!

Update Your Profile:
http://tceqteea.f.topica.com/f/?b1drRN.bORWtV.aW5nbWFu

Unsubscribe:
http://tceqteea.f.topica.com/f/?b1drRn.bORWtV.aW5nbWFu.u

Confirm your Subscription:
http://tceqteea.f.topica.com/f/?b1drRn.bORWtV.aW5nbWFu.c

Report Unsolicited Email:
http://topica.com/f/abuse/html?WnULkQIBAQAL550ABwAAAAAEZvThOw

Delivered by Topica:
http://www.topica.com/?p=T3FOOTER

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China's Pollution Pushes Peasants to Action**

Lindsay Beck, Reuters, outlines how pollution is finally becoming a concern of the peasants in China.

"After an industrial park housing several chemical plants went up on the outskirts of her town in China's wealthy, coastal province of Zhejiang the water became undrinkable. Then crops began producing vegetables that were unfit to eat. Residents say rates of cancer sky-rocketed and Song says her 5-year-old son is prone to frequent lung infections."

"We're just regular people and don't understand other issues. But this affected us personally, our lives," said Song.

She asked that her real name not be used for fear of trouble with authorities, and spoke with a group of other residents in a nearby town to avoid the attention of local officials.
After authorities had turned a deaf ear to years of petitions to stop the chemical factories, residents of Huashui took action, blockading the road to the factory complex to halt production.

When two elderly women were killed as police struggled to disperse the crowd, the blockade turned into a riot involving up to 30,000 people and requiring thousands of police to quell it.

After decades of all-out economic growth, China now has 20 of the world's 30 most polluted cities, the World Bank says. An estimated 300 million nationwide have no access to clean water.

But as the Zhejiang protest and others like it show, China's environmental woes are no longer just a matter of poisoned rivers and smoggy skies – they are becoming a trigger for the kind of social unrest the Communist government is at pains to avoid.

**Truthout Environment

A Copper Canyon Native Tarahumara Community Joins With Canyon Travel to Woo Growing Eco-Tourism Market

Copper Canyon's Tarahumara Indians of San Alonso, who own more than 60,000 acres in the Western Sierra Madre wilderness of Chihuahua, Mexico, are working with Canyon Travel to develop a model for eco-tourism, with community-owned facilities and private enterprise. The

partnership provides the only outlet in Copper Canyon for private eco-lodges and naturalist-trained native guides who offer remote, intimate adventures.

The alliance began with approval from Baja Tarahumara Governor Nicolas Moreno, who recognized deforestation threats and the need for profitable eco-tourism to protect Mexico's natural wonders.

"Mexico is one of the world's most bio-diverse countries," say Canyon Travel President Emilio Kifuri. "Given Mexico's variety of fauna and flora, there is economic potential through eco-tourism that could exceed the logging and mining industries, and the mass-tourism beach resort business." See www.canyontravel.com/unolodge.htm .

Previously inaccessible areas held by the community of Tarahumara are now the location of upgraded lodged, "Uno y Dos," owned by these Tarahumara people and operated by Canyon Travel. Originally built in 1999 with Chihuahua State funding, the structures were meant to develop community involvement in tourism and be a sustainable alternative to logging. Due to lack of tourism expertise and operating capital, the efforts had limited success and needed help.

Lakes Drying Up

David White in The Wall Street Journal on February 5, 2005, reported that Lake Chad is receding. As they wrote, regional cooperation has so far failed to manage a vital and shrinking resource. "For decades Lake Chad, on the semi-desert region where Chad joins Niger, Nigeria and Cameroon, has been retreating into itself, a geographic backwater on the frontier between West and Central Africa" . . .

Some 30 million people live in its drainage basin. The Aral Sea in Central Asia is now a tenth of its size of 40 years ago. The largest lake of Mexico, Lake Chapala, has gone down to roughly 20% its normal size and more recently has gone up to 70% of capacity.

The Lake Chad Basin Commission is taking steps to improve the in-flow of water. Some funds have been raised to support a new scheme; although it may take another 10 or 20 years to materialize.

As many have noted, fresh water will become a more crucial issue for our sustainability than energy sources.

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