

A Paradox No More

“A Paradox. A Paradox!” exclaims the chorus of Gilbert and Sullivan’s “The Pirates of Penzance.” “A most intriguing paradox!” They are responding, in full voice, to the dilemma of the upright young hero whose calendar age, having been born on February 29th, did not free him from bondage to the pirate band. I thought until recently that this description applied equally if, less musically, to attempts to align business interests with environmental concerns. Such a prospect seemed to me to be not only an intriguing but a most unlikely paradox. Too many discrepancies in values for a start. And priorities. I did, of course, know of a few exceptions to the general rule. But by far the majority of businesses still write off the concerns of environmentalists as externalities. Diminishing natural resources, pollution, and impoverished prospects for the generations to follow do not loom large on the average bottom line. That notwithstanding, a few months ago, when I was offered a position on a team planning a course that combined ecological design and sustainable business, thinking I might learn something, I said yes. And I have to admit, I learned a great deal.

I might as well become even more confessional and state out right that the course was to be held in January in Costa Rica. The degree to which the locale influenced my own bottom line just as winter was setting in here in earnest, I too did not examine with rigorous criticism. But, as the course was subsequently deemed a success by all involved, I have been persuaded to re-evaluate my previously skeptical assessment as to business being able to do well while doing good – in both an ecological and a humanitarian sense.

Most of us involved in the course left New England as the benign weather of the holiday season was beginning to change and winter was gearing up to this year’s full potential. Our plane took off predawn on a cold, gray January morning and that afternoon landed in Costa Rica’s western province of Guanacaste. Disembarking we were instantly engulfed in the dazzling sunlight and the persistent warm winds of the dry season there. We spent the rest of that day acclimatizing -- not an unduly challenging assignment.

The course was held at a small hotel a few hundred feet from the shore where the great waves of the vast blue Pacific roll in to crest, shatter, and hiss on the wide sandy beach. Overhead wheeled pelicans, kites, and the occasional black and white crane.

Inland there were still enough trees, some huge and splendid, to offer welcome shade and nurture a still green landscape. In the forests, among the trees, and along the riverbeds, darted innumerable birds of wildly varying sizes, colors, and musicality. Bright butterflies danced everywhere. Large iguanas crashed through the underbrush and basked in the baking sun. Dark shapes amidst the leaves could be vultures resting between bouts of soaring and scavenging or a band of howler monkeys observing a few moments of uncharacteristic quiet.

We were based not far from the little town of Paraiso. The surrounding area was, until recently, made up of self-sufficient agricultural communities. In addition to growing or hunting their own foods, the local people exported grains, livestock and timber. The integrity of the rural life began to be undermined in the late sixties by the construction of a passable road. Elsewhere in Costa Rica massive deforestation began in the 1940s. Gradually much of the land was given over to cattle raising. Over time pastures were invaded by persistent African grasses like juagara, which bleach to a tawny gold in the dry season and are the last buffer against desertification. The most heedless deforestation culminated – hopefully – in the eighties. By the mid-nineties, in some places, more enlightened policies were beginning to show noticeable results in restoring the, dry land, cloud, and rain forests.

A major force in this reversal has been the Herculean efforts of Americans Dan Jansen and Winnie Hallwachs who, with their Costa Rican colleagues, have worked tirelessly to establish the vast Guanacaste Conservation Area. This preserve, now comprised four hundred and sixty-three square miles of land and another two hundred and ninety of marine area, is home to over two hundred and thirty thousand species of plants and animals. Such an unprecedented recovery has disproved the once widely held theory that tropical forests, once lost, are gone forever and has been called one of the greatest environmental success stories of our time. Now Costa Ricans in Guanacaste and throughout the country rightly take great pride in their numerous national parks and biological and wildlife reserves. In terms of both flora and fauna, the biodiversity is extraordinary.

In spite of the novelty and distraction proffered by our new environment, the class assembled at seven thirty on the morning, ready to set to work. Most of the students were

majoring in environmental studies and natural resources or in business at the University of Vermont. A few were taking their masters in business administration. Their first session was led by Will Raap; the founder of Gardener's Supply Company and an acknowledged leader of the growing socially responsible business movement in this country. Our challenge, we were told, was assess the potential for sustainable economic land development in the Guanacaste lowlands. As we had seen from our drive from the airport, the previous day, there is no question that the area is on the brink of major development. The once sleepy little airport in Liberia has been expanded and is handling jets from North America daily. Tourists are discovering Guanacaste and development is inevitable. Construction and work in the resorts have replaced agriculture as a source of employment. Few of the young people are interested in farming. Most of the food is now imported.

Our mission was to create a model of how development could be at once as environmentally benign and economically sustainable as possible. As a yardstick we were to employ the triple bottom line, a concept fundamental to Will Raap's philosophy for socially responsible business. The triple bottom line emphasizes not only profit but both the well being of the people to be affected by a given project, as well as their environment; in short, people, planet, and profit. The immediate focus of the course, intended to be viewed as a microcosm of the province, was a two hundred-acre spread of land nearby. This focus proved an extremely effective technique for applying the usually disparate principles of ecology and business to an immediate, existing situation. At the same time it provided a crash course in learning more about the applicability of our accustomed standards and values in the cultural context of a developing country. `

The land in question, tentatively called Tierra Pacifica, had been bought by an American, a surfing enthusiast who hoped to develop it with the twin goals of retrieving a reasonable return on his investment and preserving or restoring its ecological integrity. Tierra Pacifica is fairly typical of much of Guanacaste and, though somewhat ill-used over the years, enchantingly beautiful. Hilly and overgrazed near the road with breathtaking views of the distant sea, it also has forested areas with a few magnificent, giant trees. A small river, mostly dry at that time of year, cuts through the southeast corner on its way to a wetland and, farther along, a mangrove swamp along the shore. The eastern

boundary of the land borders the *parcelas*; a government sponsored project that allots a few hectares to local families to work the land. The farmers raise cattle and subsistence crops.

In addition to and in marked contrast to Tierra, we had another piece of land available for our study. El Centro Verde is a permaculture farm that is a testimony to the potential of Guanacaste in terms of sustainable land management. It is equally a testimony to one man's ability to learn, adapt, and listen to the land. El Centro's founder and owner, Tom Peifer, is an engaging and idealistic ex-pat American who was an instructor for the course as well as, more informally, guide, philosopher, and interpreter for much of our stay. Unlike the majority of foreigners in the area, he has not chosen a lifestyle noticeably different from that of his neighbors. He does not have a car. His mode of transport, like most of theirs, is a dilapidated bicycle -- walking and horseback riding are the other most reliable options. Tom Peifer's house and workspaces, situated and designed to weather the prevailing winds and sometimes torrential rains, are modest and simple.

One of the plants Tom is currently testing is vetiver grass, *Vetiveria zizanioides*, a clumping grass native to India that holds the soil in place. He has reported, "It's perfect for Guanacaste, withstands drought, fire, flooding, grazing and it's not worth stealing. Around culverts it can prevent the all-too-common sight in Guanacaste of roads washing out. Vetiver is perfect around seasonal ponds and streams because it can remain alive even with months of inundation. Vetiver doesn't spread by seed or underground shoots, so it won't take over the landscape like (the intensive African) jaragua. It can be cut regularly for mulching your garden, or you can use it for thatching a roof." With vetiver as only one of the hundreds of plants being tested, it was clear that, in terms of ecological design, El Centro provided an ideal model for our purposes. Our only challenge there was to envision additional entrepreneurial enterprises that might expand its economic base.

The schedule for the course was divided between lectures and site visits. Will Raap and Karel Samsom, a professor of entrepreneurship and innovation at Nyenrode University in the Netherlands and at the Bren School of Environmental Sciences at the University of California were the principle speakers on sustainable business. John Todd outlined the basics of ecological design and its relevance to the land we were studying.

We learned more about the geology, flora, and fauna of Costa Rica and the policies for conservation and restoration being implemented from biologists Carlos and Alberto Morrera. We also heard from one of the men on the local water board, which is struggling under pressure comparable to local authorities worldwide to maintain local control over that vital and disputed resource.

Our excursions included one or two destinations as to how not to develop – typical tacky resorts Costa Rican style, designed with utter disregard for environmental impact. One of these featured at its entrance an immense fake Meso-Indian sculpture in ill-cast cement. This object was apparently hollow as it was lit from within by blue light bulbs, kept on day and night. Surrounding it lay scruffy turf, maintained an unseasonable green by the feeble efforts of rotating sprinklers. Most of our other stops were characterized by higher if varying levels of ecological understanding or some aspects of the environmental and business attributes we were in seeking. Among these were the parcelas, a mangrove swamp, a women’s cooperative that made and served tortillas, an organic farm that specialized in pineapple production, and a carefully tended reforested area called Pura Jungla. One evening many of us braved excruciating roads in a local bus to attend a fiesta in the town of Santa Cruz, about an hour’s jolt from Paraiso. There we joined crowds of Guanacastans and swarmed festive streets, feasting on food being sold along the roadsides. We danced to marimba bands, attended our first, decidedly casual bullfight, and watched fireworks from a proximity closer than our more safety conscious North American standards would recommend.

Equally memorable was a dinner that Tom Peifer arranged so that we could meet and talk with some of the elders of the community. We gathered in an open-sided restaurant called Las Tucas to eat more of the local food and drink Costa Rican beer. In the soft night we sat for hours at long tables, listening spellbound as the Spanish translators spaced among us struggled to interpret the stories we were hearing and the questions they inspired. As Tom Peifer later reported, we “heard first-hand from people who used to make salt by hand, export agricultural products by launch to Puntarenas, own vast farms that produced most of their own food and enjoy bathing in clear streams in the heat of the dry season—streams which now dry up much sooner due to deforestation and cattle raising.”

I was beside the local midwife, Cecelia, who was clearly one of the community matriarchs. Until the hospital was built she had delivered most of the babies in the area. She herself had had eleven children, only two of them girls. She said that both the mothers and the babies had been healthier in the old days. She felt that everything had changed with the building of the road. That made it possible to come to cut the trees and to truck them away. Then the water started to dry up and the season between the rains grew longer and hotter. With time outsiders arrived. Now drugs have invaded the area, followed inevitably by crime. The young people have started to drift away. Yet, unaccountably, for all these changes, which were corroborated by the other elders, Cecelia was one of the most genuinely warm and happy people I have ever met. We parted only after innumerable hugs. The best thing for Guanacaste, the elders told us, would be to bring back the trees.

It was a struggle to assimilate all we were being exposed to. It was better, at least according to some of the elders, in the old days. Alastair McIntosh, in his book *Soil and Soul*, corroborated this claim from his own experience in Scotland, “When we used to do things right we never questioned why we did them. It had to go wrong before we could understand why the old folk’s ways were right. The challenge of today is become ecologists once again, but this time to be so consciously. We have to understand the ‘why’ and not just the ‘how’ of ecology.” In spite of this, as was apparent there as everywhere, development is inevitable. Another paradox. And not only in Guanacaste. It is a global dynamic and, perhaps saddest of all, before long there will be almost no one who remembers those not-so-long-ago times. Generating what the course outline termed “sustainably based, new ways to integrate the past land based economy with the future second home and tourism economy “was not a simple assignment. Yet a model or prototype could prove invaluable, here and elsewhere. We persisted.

It fell to Karel Samsom to help us to brush on the basics of sustainable economics. Entrepreneurship, he held, is the process of creating value through new ventures using innovation. That far he had the environmentalists with him. We do not, as a rule, lack vision when it comes to what could be done but to date, in spite of a number of successes, the destructive dynamic is still dominant. Business as usual is trashing both people and

planet. It is hard to argue with the fact that the time is right for fresh and creative thinking and strategies and – well – innovation.

In the context of sustainability innovation embraces the precautionary principle; stressing fairness, in terms of standards of minimum health, safety, and human rights as well as environmental preservation. In discussing innovation Dr. Samson gave us the equation: Innovation = Invention + Application. To achieve application -- an area in which we environmentalists tend to fall short -- requires a team that collectively represents characteristics essential to success. Stressing that it is the entrepreneurial team that is most critical to the venture, he presented an example he referred to as the PAIE model of task orientation for launching and subsequently sustaining a venture. It involves paying attention in equal measure to the Productive, Administrative, Integrative, and Entrepreneurial parts of a given undertaking. Neglect of any one of these is likely to lead to eventual failure in any venture. On reflection this model provided one of the Aha! moments for those of us better versed in environmental issues than entrepreneurial enterprises. What it did in essence was to show some of the missing links, like attention to sound financial planning and management in so many well-intentioned and often urgently needed environmental ventures.

There was not surprisingly, remarkable continuity between the presentations of Karel Samsom representing the academic -- albeit sustainable -- view of economics and those of Will Raap from the hands-on world of business -- albeit socially responsible business. Will Raap holds firmly to the view that business is the most powerful driving engine in the world and not to use it to achieve economic stability and a restored environment is self-defeating. He agrees that it is individual entrepreneurs who both embody vision and drive innovation. He summarizes his own philosophy as one of enlightened self-interest and readily admits the faults in the prevailing dominant economic model. Nonetheless, as he points out realistically, “Without money, you’re dead!” He believes that: “A socially, environmentally, and financially sustainable global economy is dependent on sustainable local economies. Yet tragically, from American ‘Main Streets’ to villages in developing countries, corporate globalization is causing the decline of local communities, local businesses, family farms and natural habitats.”

Even at the local level, Will Raap maintains that moving an economy towards long term sustainability, like building a successful business, is a dynamic process that must remain adaptive. He has seen local market places become nurseries for growing successful businesses that reach into broader markets. Sustainable development emphasizes the means used to achieve its goals as much as the ends and, equally, the interrelatedness of the individual, community, and family. Describing his experience with the very successful Vermont Sustainable Jobs Fund, he delineated five principles that define the functioning of a sustainable economy, namely it: runs efficiently; creates new wealth; operates within the limits of natural systems; is highly adaptive; and is globally competitive.

Will Raap sees many areas for innovation in local businesses that will eventually create the building blocks for what he calls “living economies.” He includes the local food system, sustainable energy, alternative transportation and fuels, locally designed and made clothing, recycling and reuse, green building, independent retailers, local arts and culture, neighborhood tourism, crafts, holistic health care, eco-friendly cleaning products, and independent media. Growth in these areas can be measured, he argues, through markers other than physical. He lists expanding creativity, knowledge, consciousness, deepening relationships, and increasing happiness and well being as equally valid criteria of success.

Launching the discussion on the ecological design side of the equation, John Todd prefaced his ideas for the local area with a brief history of Ocean Arks’ work in water restoration and in creating economies from materials frequently discarded as waste. Business students got a crash course in redesigning human support systems to replicate or imitate the biological systems that have calibrated over almost four billion years of evolution. He described some of the systems, familiar to Annals readers, which he has designed for treating human and industrial wastes using microorganisms and higher plants and animals in contained ecosystems.

His systems having proved themselves in restoring water, Dr. Todd described how he had turned his attention to utilizing them to create saleable products. For example, the wastes of a local Vermont brewery being treated in Ocean Arks’ South Burlington experimental plant consisted naturally enough, of high strength liquids and

spent grains. These, he believed, could serve as the basis of an ecological food web. Not only could the spent grains be fed to the yellow perch and tilapia we were raising, they could also serve as the starting point of such a food web. He and his colleagues began by blending the grains with straw, then pasteurized the mix. They then inoculated this material with the spawn of oyster mushrooms. Within weeks they had produced beautiful oyster mushrooms that were snapped up by local restaurants. But the material in which they had been grown still had not exhausted its potential. At this stage it was not only a nutritional animal feed, it was an ideal substrate for introducing the kind of worms used in worm composting. The worms obligingly went to work, manufacturing a rich, dark compost that represented a second commercial product. The worms themselves could also be sold as workers for another round of composting duty, or be fed to the fish, which we also sold to restaurants. The remaining worm compost we used to grow salad greens, another item welcomed by local restaurants and stores. This was the most comprehensive model of integration the class had examined to date of how an ecologically based system, with its multiple processes of integration, can prove the foundation for local food production.

Once the ramifications of the Vermont model were more generally understood, course participants began to brainstorm about adapting it to the local area in Guanacaste. As the fisheries there, as everywhere, are being rapidly depleted, the aquaculture production in Burlington inspired the idea of building simple bamboo rafts to create floating microhabitats. These could be anchored in protected estuaries where they would attract organisms that would evolve into food chains where fish like mullet could be grown. Another project would be to use the fast growing trees necessary to the early stages of reforestation to start a local boat or surfboard building industry. Yet another idea, one eagerly endorsed by Tom Peifer for El Centro Verde, was to design a shrimp raising facility based on one of the small, four tank Ocean Arks systems in Burlington. No one needed to be told how popular shrimp would be as a crop, nor the economic boon of local production for restaurants in the area. As the environmental damage and dislocation of local peoples that are the by-products of industrial shrimp installations becomes better understood, the importance of a small-scale local production will be obvious.

As the days passed a crossover understanding between business and environmental priorities came more readily. We were beginning to be able to think together. Initially we had been more polarized. Standing around a sun-parched field, for example, awaiting translation of the farmer's explanation of his various crops, some of the business students were hard pressed to disguise their boredom. On the other hand, while many of us were content to wonder around El Centro absorbing the richness of botanical information, the business students plunged into an analysis of its business potential with helpful enthusiasm.

As a result of this pooling of paradigms, when the time came for us to concentrate single-mindedly on the development of Tierra Pacifica, we were fairly well equipped for the job. Course consultant William Turley, a California veteran of the solar energy business, had brought us up to speed on the low costs of the existing regional hydro-electric power and the potential for solar and possibly wind conversion. John Todd had worked intensively on the possibilities for water management with several of the natural resources students, who became known as the water boys. They familiarized themselves with the ramifications of what Tom Peifer had defined as "Water, water everywhere (the rainy season) but not a drop to drink (the dry). Unfortunately, we did not know, for example, the carrying capacity of the aquifer and neither, as far as we could ascertain, did anyone else. We were, we realized still working with many unknowns.

But by second last day of the course our time for information gathering and assimilation had run out. Divided into four teams, with crude topographic maps, pads, and pens in hand we got down to the actual business of designing. We based our organizing principles around the constraints of land and water use and energy delivery. Our specific assignment was to create a design, or menu of designs, that responded to the owner/ developer's need for a reasonable return on his investment and, within that context, to strive to conserve the local watershed and the bioregion to which it is essential.

Not surprisingly, when the four teams reassembled to report on their designs, there was considerable overlap. All advised identifying the sensitive areas on the land in terms of biodiversity of flora and fauna, waterways, wildlife corridors. One group suggested making an inventory of all the natural features including soil types before

finalizing any design. All urged conservation and restoration of the natural systems. We further agreed that the road and houses should be appropriate to the contours of the land and situated so as to avoid erosion and storm run-off. The visual impact of the development should be minimal and designed by a green architect, using local materials whenever possible. During the rainy season water was to be collected in rooftop or ground-based systems and stored for use when needed. Constructed wetlands should be installed to treat wastewater at source. Solar hot water heating was an obvious choice and solar and wind electrical generation urged. If these were not acceptable in terms of cost to prospective buyers then, according to William Turley, the appropriate infrastructure should be installed at the outset so that conversion would be less expensive as renewables become more cost effective.

There was an additional congruence when it came to economic and social issues. Everyone agreed that although Tom Peifer's example of living much as his neighbors do was ideal, it was unrealistic to expect people buying what would likely be vacation or second houses to do so. Seeing there was no guarantee, however, that the eventual owners of the houses would be in complete accord on these issues, some form of homeowner's agreement was considered essential. One group suggested it be regarded as a covenant, which others liked as indicative of commitment to place and community. Toward that end, it was suggested that areas with better soil be offered to interested local people. Some form of community supported agriculture involving the resorts was thought a sound possibility, as was a relationship similar to that of the government sponsored *parcelas*.

To bolster the developer's need for a return on his investment and generate some income from the property prompted the idea of a bed and breakfast and a restaurant or café that emphasized regional and environmental themes. There was great entrepreneurial enthusiasm for the prospects of a local brewery. Space to be allocated for a farmer's market was another favorite, as was a structure that could serve as a meeting place and educational center. This would provide a venue for events, like our dinner with the elders, at which newcomers and local people alike could inform each other in areas of mutual concern. Although the residents' needs for privacy and protection were acknowledged, building an infrastructure that would minimize and bridge social and economic

differences was considered by far the most effective measure for security. A genuine bond of understanding with the people of the community seemed most likely to involve them in the long-term stewardship of the land.

We do not as yet know whether our Costa Rican experiment will prove more than an interesting exercise that served to expand the conceptual horizons of a group of North Americans. But we are optimistic. As our bus lurched past the land on the way back to the airport we spotted the landscape architect for the development who had also taken part in the course, marking out the route for the road as we had suggested. Before we left he had shown us his early drawings, which already incorporated many of the conservation features we had hoped for. If this continues one day, like El Centro Verde and Pura Jungla, the land itself could begin to speak for the ideas. The absurdity of the ineffectual sprinklers and the garish buildings elsewhere would become all the more apparent in contrast to houses that are harmonious and contiguous with the landscape. As more of the forest and then perhaps the streams begin to return, Tierra Pacifica could become an area worthy of its name. If the local economy improves and more food and energy are produced in the area and jobs are created, the perceived incongruities between business and environmental essentials will begin to erode – one of the few forms of erosion that would be uniformly applauded.

Daniel Jansen's formula for success in Costa Rica, according to an article in *Science* magazine for January 1988 is: "Choose an appropriate site, obtain it, and hire some of the former users as live-in managers. Sort through the habitat remnants to see which can recover. Stop the biotic and physical challenges to those that remain. The challenge is to turn the farmer's skills at biomanipulation to work for the conservation of biodiversity." Without having consciously used this dictum as a guide, we too seemed to have moved in that direction.

As the catastrophic blunder in Iraq continues to unfold, it is worth noting that Costa Rica is a small relatively stable democracy without an army." As William Allen pointed out in *Green Phoenix*, his book about the struggle to establish the Guanacaste Conservation Area, "Conservation was a high priority because the national budget was not burdened by having to support a standing army." He quotes a Costa Rican biologist as claiming, "you can't build anything with that kind of lodestone around your neck."

About the same time as we were working at our appointed task in Costa Rica, across the world in Mumbai in India another gathering was under way. At the World Social Forum up to a hundred thousand of people, equally intolerant of the military and corporate lodestone, rallied to oppose it. The ruined ecologies and human tragedies of disaster areas like Iraq testify to the erroneous and ruinous presumptions that undergird the corporate global model.

As Will Raap pointed out, “Large corporations historically have used militaries to protect their ability to exploit natural resources and cheap labor in less developed countries, which is often the underlying cause for war. Through equitable and sustainable use of natural resources, local food, and energy security, decentralized power and control, and celebration and understanding of cultural differences, local living economies will gradually build the foundation for lasting world peace.”

For me, and I think for all of us from the course, the inextricable interrelatedness of vital environments, healthy local and bioregional economies, and a more peaceful world is no longer a paradox. As was said at the World Social Forum, “a better world is possible.” Our time in Costa Rica gave us glimpse of that world.

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