

BY PAUL HAWKEN AND WILLIAM MCDONOUGH

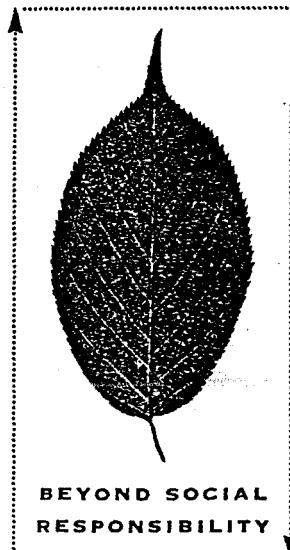
Seven STEPS TO DOING GOOD BUSINESS

IDEAS CAN ORIGINATE IN STRANGE MOMENTS AND places. This one began for one of its authors at a podium in the Waldorf-Astoria ballroom and for the other at a rooftop meeting with a German chemist in New York City.

One of us represented a company that had been nominated for the Environmental Stewardship Award of the Council on Economic Priorities (CEP). Although there are many environmental awards, the CEP's tough stance on social and environmental responsibility gave the honor some teeth and veracity. The list of environmental initiatives the company had taken was long, and it was not surprising that it had at least made the list of nominees. But when he was announced the winner by George Plimpton in the ballroom of the Waldorf-Astoria, the author walked to the podium, looked out at the sea of pearls and black ties, and

became mute. He was supposed to thank everyone. Instead, he realized two things: first, his company did not deserve the award, and second, no one else did, either.

The other of us represents an architectural firm that won an international competition with the design of a "low-entropy" building for the City of Frankfurt. During the competition the firm consulted with Michael Braungart and his group of ecological chemists in Hamburg to find the "best" German products to incorporate into the design. Braungart's chemists were apparently the first group to have focused on product and material toxicity, and developed ecological criteria for deep life-cycle analysis. The news was not good. It was



as if there weren't a single industrially produced product or material that did not harm some form of life at the point of manufacture, in the building, when

PHOTOGRAPHS BY MARK MORELLI

recycled, and after it was thrown away. Not until those conversations did the author understand the extent to which toxins are embedded in our products and processes. He also realized two things: first, he was not able to design an environmentally sound building; and second, no one else could, either.

Let us explain.

What both companies had done was scratch the surface of a problem, take some risks, and put a fair amount of time and money where their mouths were, but in the end their impact on the environment was only marginally better than if they had done nothing at all. The wood harvested from sustained-yield forests, the energy-efficient systems, the soy-based inks, the recycled toner cartridges, and the contributions to conservation groups were well and good, but basically, the companies could not change the fact that doing business in the latter part of the 20th century is a resource-intensive endeavor that gulps energy and creates dangerous waste.

Industry is being told that if it puts its hamburgers in coated-paper wrappers, eliminates emissions, and plants two trees for every car sold, we will be on the way to an environmentally sound world. Nothing could be further from the truth. The danger lies not in the half measures but in the illusions they foster—the belief that subtle course corrections can guide us to a good life that will include a “conserved” natural world and cozy shopping malls.

The problems to be addressed, although vast and unremittingly complex, come to this: Five and a half billion people are breeding exponentially. The process of fulfilling their wants and needs is stripping the earth of its capacity to produce life; a climactic burst of consumption by a single species is overwhelming the skies, earth, waters, and fauna. As Lester Brown patiently explains in his annual survey, “State of the World,” every living system on earth is in decline. To make matters worse, we are having a once-in-a-billion-year blowout sale of hydrocarbons, which are being combusted into the atmosphere, effectively double-glazing the planet with unknown climatic results. The cornucopia of resources that is being extracted, mined, and harvested is so poorly distributed that 20% of the earth’s people are chronically hungry or starving, while the top quintile of the population, largely in the North, controls and consumes 80% of the world’s wealth. Since business in its myriad forms is primarily responsible for this “taking,” it is appropriate that companies ask the question: How does one honorably conduct business in the latter days of industrialism and the beginning of an ecological age?

There are some 80 million to 100 million enterprises world-

wide, and of those enterprises a small but growing number are attempting to redefine their social and ethical responsibilities because they no longer accept the notion that the business of business is business. Because of our ability to communicate information widely and quickly, many companies are beginning to recognize their responsibility to the world around them. Their premise is simple: corporations, because they are the dominant institution of the planet, must squarely face and address the social and environmental problems that afflict humankind.

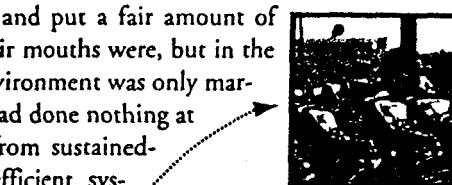
Despite the dedicated good work being carried out by many companies, we’re faced with this sobering irony: if every company on the planet were to adopt the practices of the most environmentally enlightened companies, the world would still move relentlessly toward environmental degradation and collapse.

What’s more, while proponents of socially responsible business are making an outstanding effort at reforming the “tired old ethics” of commerce, they’re unintentionally creating a new rationale for companies to produce, advertise, expand, and thus use up resources: the rationale that they’re doing good. Flying a jet across the country, renting a car at an airport, trucking goods cross-country—those acts cause the same amount of environmental degradation whether the person performing them works for the Body Shop, the Sierra Club, or Exxon.

If a tiny fraction of the world’s most intelligent companies cannot model a sustainable world, that may tell us that the environmentalism currently practiced by business, laudable as it may be, is only part of the overall solution, and that rather than having a human or management problem, what we may have is a design problem that is intrinsic to all business.

To create an enduring society, we need to devise a system of commerce and production in which each and every act is sustainable and restorative. Business will not be able to fulfill its social contract with the environment or society until the system in which it operates undergoes a fundamental change, a change that brings commerce and governance into alignment with the natural world. Because every act in an industrial society leads to further environmental degradation, regardless of intention, we need to imagine and then design a system of commerce in which the opposite is true, in which doing good is second nature, in which the natural, everyday acts of work and life cumulate into a better world as a matter of course, not a matter of altruism.

The prospect of a major redesign of our commercial system, while daunting, is exhilarating; it opens the doors to real long-term prosperity. It’s daunting because the system we presently engage grew from linear “progress” built of incremental ad-



Transform THE MAKING OF THINGS

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vances over a long period of time. It would be hard to describe our present industrialized, carbon-fuel system as a result of sophisticated analysis focused on the health of the greater whole. At the beginning of the industrial age, it was difficult to recognize the complexity and fragility of nature. Even Ralph Waldo Emerson, writing in the 1830s, at the cusp of the industrial revolution, stated that "nature . . . refers to essences unchanged by man; space, the air, the river, the leaf." We now know that even those are mutable, and we must incorporate that awareness into all systems of design, production, and activity if we truly seek prosperity.

At present the environmental movement consists of many different initiatives connected primarily by values and belief rather than by design. If design is the first signal of human intention, then a plan to create a sustainable future should realize its objectives through practical, clearly stated goals and strategies. For the record, we suggest the following as being fundamental to achieving commercial prosperity and environmental sanity:

One

GOAL: ELIMINATE THE CONCEPT OF WASTE.

It's no longer a question of what to do with our waste, but of how to make things so that there is no waste. Seminal to this principle is the understanding that pollution and toxicity are always and irrevocably products of inefficiency. They are not the inevitable outcome of human interaction with the environment but the built-in results of the design of our system. Designing manufacturing and living systems that create no waste is both economical and prosperous. It is more practical than industrialism, not less. When we examine the fundamental characteristics of nature, we see how the principle of waste equaling food permeates all natural systems. Everything is constantly cycled in nature. There is abundant waste in nature, just as there is in industry, but in nature waste constantly flows back into living systems. That principle is the key to true economics. Thus, whenever we design and make a product, the first question we have to ask is, Whose food will this product be when its present life is over?

STRATEGY: TRANSFORM THE MAKING OF THINGS.

We have to institute the Intelligent Product System created by Michael Braungart of the Environmental Protection Encouragement Agency, in Hamburg, Germany. Under the system, there can be only three types of products, and eventually only two. The first are *consumables*, products that either are eaten or, when placed on the ground, turn into soil without any harmful side effects. In other words, they're products whose waste equals food for other living systems. At present many of the products that should be "consumable" are not. Cotton contains hundreds of chemicals, plasticizers, defoliant, pesticides, and dyes; shoes are tanned with chromium and shoe soles contain lead; and silk blouses contain zinc, tin, and toxic dyestuffs. On the other hand, products such as toothpaste tubes and other nonbiodegradable packaging can be made out

of natural polymers so they can break down and become fertilizer for plants. Much of the recycling done today generates some toxic by-products and may consume more energy than it saves. We should be designing more things that can be thrown away—but into the compost heap. Heretical it may seem, but designing for decomposition is the way of the world around us.

The second category is *products of service*. These are what are known as durables, such as cars, computers, TVs, VCRs, and refrigerators. These would never be sold, only licensed. They would always belong to the original manufacturer. That means they would be made, employed, and returned within a closed-loop system. This process is already being instituted in Germany—and to a lesser extent in Japan—where companies are beginning to design products for disassembly. If a company knows its products will come back someday and that it cannot throw anything away when they do, it creates a very different design and materials ethic.

Last, there are products Braungart calls *unsalables*—radioactive material, heavy metals, and persistent toxins. There is no living system for which those are food, and thus they can never be thrown away. Unsalables would always belong to the original maker. They would be safeguarded by public utilities called Parking Lots, which would store the toxins in glass-lined barrels indefinitely, charging the original manufacturers rent for the privilege. The rent would cease when an independent scientific panel could confirm that there was a safe method to detoxify the substances in question. All toxic chemicals would have molecular markers identifying them as belonging to their originator—such as Dow Chemical, Occidental Petroleum, or Du Pont—so that if they were found in wells, rivers, soil, or fish, it would be the responsibility of the company to retrieve them, mitigate them, or clean them up. As with products of service, this would place the problem of toxicity with the makers, where it belongs, making them responsible for its full life-cycle effects.

Two

GOAL: RESTORE ACCOUNTABILITY.

In a system in which even shareholders must struggle to hold corporate management accountable, citizens have lost virtually all vestiges of control over the ways in which corporations affect their lives. Physicist Amory Lovins has said that "any system that doesn't use feedback is stupid." Although corporations will point to the marketplace as a powerful source of control and feedback, it is only one source and doesn't take into account the lives of workers, the long-term effects on resources, the destiny of communities, or the injuries and harm due to long-term exposure to toxins and pollution.

STRATEGY: TAKE BACK THE CHARTER.

Although corporate charters may have little to do with environmental sustainability on the surface, their status is critical to any long-term movement toward restoration of the environment. Read "Taking Care of Business: Citizenship and Charter of Incorporation," a pamphlet by Richard Grossman

and Frank T. Adams (Charter Ink, PO Box 806, Cambridge, MA 02140; 508-487-3151; 1992). In it you will find a history of lost corporate power and citizen involvement that addresses a basic and crucial point: corporations are chartered by, and exist at the behest of, citizens. Incorporation is not a right but a privilege granted by the state, one that includes certain considerations such as limited liability. Corporations are supposed to be under our ultimate authority, not the other way around. The charter of incorporation is a revocable dispensation that was supposed to ensure the accountability of the corporation to society as a whole.

When any corporation continually harms, abuses, or violates the public trust, citizens should have the right to initiate a process that would revoke the company's charter, cause it to disband, sell off its enterprises to other companies, and effectively go out of business. The workers would have jobs with the new owners, but the executives, directors, and management would be out of jobs, with a permanent notice on their résumés that they managed a corporation into charter revocation. That would be not merely a deterrent to corporate abuse but a critical element of an ecological society, because it would create negative-feedback loops that would prompt accountability, citizen involvement, and learning.

Three

GOAL: MAKE PRICES REFLECT COSTS.

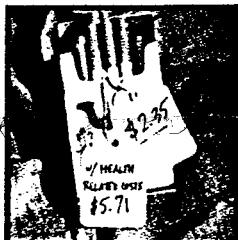
The economy is environmentally and commercially dysfunctional because the market doesn't provide consumers with proper information. The "free market" economics that we love so much are excellent at setting prices but lousy when it comes to recognizing costs.

In order for a sustainable society to exist, every purchase should reflect or at least approximate its actual cost, not only the direct cost of production but the cost to the air, water, and soil; the cost to future generations; the cost to worker health; and the cost of waste, pollution, and toxicity. For example, the World Resources Institute, in Washington, D.C., has estimated that the cost of a gallon of gas, when pollution, waste disposal, health effects, and defense expenditures like the Persian Gulf War are factored in, is approximately \$4.50, four



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times what we pay at the pump. A study by the University of California at San Francisco showed that a pack of cigarettes costs citizens in the state another \$3.63 in health care and related costs. Economist Robert Repetto estimates that traffic congestion costs an extra \$200 billion a year in wasted fuel, lost time, wear and tear, accidents, and higher insurance premiums.

Simply stated, the present market system is giving us the wrong information. It tells us that flying across the country on a discount ticket is cheap when it is not. It tells us our food is inexpensive when its method of production is destroying aquifers, soil health, ecosystem viability, and workers' lives.

Whenever an organism gets the wrong information, it's a form of toxicity. In fact, that's how pesticides work. An herbicide is a hormone that kills by telling the plant to grow faster than its capacity to absorb nutrients. It literally grows itself to death. Sound familiar? Our daily doses of toxicity are the prices in the marketplace. They're telling us to do the wrong thing for our own survival. Such patterns of production and consumption are not only unsustainable but profoundly shortsighted and destructive. It's surprising that "conservative" economists don't support or understand this idea, because they're the ones who insist that we should pay as we go, have no debts, and take care of business.

Let's do it.

STRATEGY: REPLACE THE ENTIRE TAX SYSTEM.

The present tax system sends the wrong message to virtually everyone. It encourages waste, discourages conservation, and rewards consumption. It taxes what we want to encourage—jobs, creativity, payrolls, and real income. And it ignores the things we want to discourage—environmental degradation, pollution, and depletion. The present U.S. tax system costs citizens \$500 billion a year in record-keeping, filing, legal, and governmental costs, more than the actual amount we pay in personal income taxes. The only incentive in the present system is to cheat or hire a lawyer to do it.

The entire tax system should be incrementally replaced over a 20-year period by green fees—taxes that are added onto products, energy, services, and raw materials, so that prices more closely approximate true costs. Those taxes would not be a

means to raise revenues or reduce deficits, but should be absolutely revenue neutral so that people in the lower and middle classes would experience no real change in income, only a shift in expenditures. The result: eventually, the cost of nonrenewable resources, extractive energy, and industrial modes of production would be more expensive than renewable resources, solar hydrogen, or biological methods of agriculture.

Under a green-fee system, the incentives to save on taxes will encourage people at all income levels to conserve, not just upper-middle-class white people—which is the case today. As energy prices go up to three or four times their existing levels (with commensurate reductions in payroll and income taxes to offset the increase), the natural inclination to save money will result in increased car pooling, bicycling, and telecommuting; better public transportation; and more energy-efficient houses. As taxes on artificial fertilizers, pesticides, and fuel go up, again with offsetting reductions in other taxes, customers will find that organically grown food is less expensive than its commercial cousin (because it really is). Eventually, with the probable exception of taxes on the rich, we will find ourselves in a position where we pay no taxes but spend our money with a practiced and constructive discernment. Under an enlightened and redesigned tax system, the cheapest thing should be the best thing for the customer, the worker, the environment, and the company. That is rarely the case today.

Five

GOAL: MAKE CONSERVATION PROFITABLE.

Businesses must be able to make money sustaining living systems, or global restoration will never happen. Competition in the marketplace should not be between a company harming the environment and one trying to save it. Today business is being forced to respond to conflicting signals. On the one hand, it is asked to deliver resources to the market at the lowest possible price; on the other, it is asked to assume the "new" costs of environmental stewardship. But business cannot achieve the lowest price without some or many forms of environmental compromises. If it performs its environmental functions well, its cost may be raised so high that it suffers in the marketplace.

STRATEGY: ALLOW RESOURCE COMPANIES TO BE UTILITIES.

Every utility is an interesting hybrid of public and private interests. A utility gains a market monopoly in exchange for open books, a guaranteed rate of return, and public control of rates. Because of that relationship and the pioneering work of Amory Lovins, we now have markets for "negawatts."

It's the first time in the history of industrialism that a corporation has figured out how to make money selling the absence of something. Negawatts represent the collaborative ability of a utility to mine efficiency instead of hydrocarbons, a conservation-based alternative that saves rate payers, shareholders, and the company money. The savings are passed along to everyone. All resource systems, including those for oil, gas, forests, and water, should be run by utilities. There should be markets in negabarrels, negatrees, and negacoal.

Take oil, for example. Oil companies have no alternative at present other than to lobby for the absurd, like drilling in the Arctic National Wildlife Refuge. That project, a \$40-billion to \$60-billion investment for a hoped-for six months' supply of oil, is the only way an oil company can make money under a linear system of production. But what if the oil companies formed an oil utility and cut a deal with us, the citizens and taxpayers, that allowed them to "invest" in superglazed windows, ceiling insulation, conservation "feebates" on new automobiles, and the scrapping of old cars? We would pay the oil companies back through green fees, giving them a return on their conservation investment equal to what utilities receive, a rate of return in accord with how many barrels of oil they saved, rather than how many barrels they produced. Why should they care? Why should we? A \$60-billion investment in conservation will yield, conservatively, 4 to 10 times as much energy as drilling for oil, and twice as many jobs.

Given the Lovins principle of efficiency extraction, imagine a forest utility, a salmon utility, a copper utility, a Mississippi River utility, or a grasslands utility. Imagine a system in which the resource utility benefits from conservation, makes money from efficiency, thrives through restoration, and profits from helping sustain the environment. It is possible today. *(Continued)*

Four

GOAL: PROMOTE DIVERSITY.

Nature's diversity is a response to an enormous variety of global and local conditions. Diversity and complexity exist at every level of nature, including human nature, and therein lies nature's capacity to adapt. Darwin's survival of the fittest was not about the conquest of one life-form over another but about the ability of species to fit within their allotted niche. Commerce must have unconditioned respect for the complexity of nature and the needs of a diverse human population.

STRATEGY: TAKE AN INVENTORY.

We don't know how many species live on the planet within a factor of 10. We don't know how many species are being extirpated. We don't know how complex systems interact—for example, how the transpiration of the Victorian Lily in the Amazon forest affects European rainfall and agriculture. We don't know what happens to 20% of the carbon dioxide that goes into the atmosphere every year. We don't know how to calculate sustainable yields in fisheries and forest systems. We don't know why certain species, such as frogs and lichen, are disappearing in pristine habitats. We don't know the long-term effects of chlorinated hydrocarbons on human health, behavior, sexuality, or fertility. We don't know if life on the planet can be sustained for its present inhabitants, and certainly not for its future population. We don't know how many people we can feed on a sustainable basis nor what that diet would look like. In short, we need to find out what's here, who has it, and what we can or can't do with it.

SIX

GOAL: INSIST ON THE ACCOUNTABILITY OF NATIONS.

The Earth Summit in Rio de Janeiro in June 1992 was the largest gathering of sovereign nations in history. They came together, in part, because the environment knows no borders, and it's now widely realized that national resource management and societal pressures can have critical interlocking effects. Although the United Nation's Agenda 21 asked each nation to prepare and promulgate a program of "sustainable development," there was no follow-up plan that required any accountability. To achieve a commercial environment where business can carry out the specific goals of Agenda 21, nations must incorporate international concerns within national trade policies.

STRATEGY: CREATE A MOST-SUSTAINABLE-NATION TARIFF.

No program of green fees to integrate prices and real costs in the U.S. marketplace will be effective if companies can circumvent those fees by bringing in products from overseas. Conversely, if U.S. companies absorb environmental costs, they should not be at a competitive disadvantage with overseas companies that do not. As a result, we should reverse the thrust of current trade policies and propose a new tariff status called most sustainable nation (MSN), replacing most favored nation (MFN). This status would grant low or no tariffs to countries that practiced sustained-yield harvesting of resources, that did not despoil the environment, that did not allow worker exploitation, and that did not have corrupt government officials selling off tribal forests to the highest corporate bidder. Such countries would be given the freest access to Western markets. Nations that continue to ruin peoples and lands would be penalized by significantly higher tariffs that would reinternalize the costs those countries thought were being "saved" by taking social and economic shortcuts. Their products would become uncompetitive, and they would have little incentive to continue industrial degradation.

Seven

GOAL: RESTORE THE GUARDIAN.

There can be no healthy business sector unless there is a healthy governing sector. In her book *Systems of Survival* (Random House, 1992) Jane Jacobs describes two overarching moral syndromes that permeate our society: the commercial syndrome, which arose from trading cultures; and the governing, or guardian, syndrome, which arose from territorial cultures. The guardian system is conservative and hierarchical, ad-

heres to tradition, values loyalty, and shuns trading and innovation. The commercial system, on the other hand, is based on trading and can function well only when it is open, trusting of outsiders, innovative, positive, and forward thinking. Jacobs's thesis is that, ideally, society should separate those two functions as completely as possible. Trouble ensues when the two systems become confused about their roles and each takes on the functions of the other, for it's then that the positive attributes of one system become the vices of the other. When the guardian syndrome intrudes, with its hierarchical, bureaucratic methodology, into the realm of commerce, it founders because it is no match for business in quickness and creativity. That's what we saw in Eastern Europe. What's also true, but not so obvious in the West, is that when business plays government, governance fails as well, which is what we're seeing in the United States, Japan, and other countries.

STRATEGY: GET BUSINESS OUT OF GOVERNMENT.

Democracy has been effectively eliminated in America by the influence of money, lawyers, and a political system that is the outgrowth of the first two. While we can dream of restoring our democratic system, the fact remains that we are in a plu-

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tocratic system of governance. Our guardian system has almost completely broken down because of the control exercised by business and, to a lesser degree, other organizations. Business and unions have to get out of government. We need more than campaign reform; we need a vision that allows business to see that when Speaker of the House Tom Foley exempts the aluminum industry in his district from the Btu tax or when Philip Morris donates \$200,000 to the Jesse Helms Citizenship Center, citizenship is mocked and democracy is left gagging and twitching on the Capitol

steps. The irony is that business thinks it is doing the right thing in its efforts to control the legislative agenda. The reality is that business is preventing the economy from evolving.

OUR ECONOMY HAS MANY DESIGN FLAWS, BUT THE MOST glaring is that nature is cyclical and industrialism is linear. In nature, no linear systems exist, or at least not for long because they exhaust themselves. Linear industrial systems take resources, transform them into products or services, discard waste, and sell to consumers, who discard more waste when they have "consumed" the product. But of course, we don't consume TVs, cars, or most of the other stuff we buy. Instead, Americans produce six times their body weight every week in hazardous and unusable waste. Cyclical means of production are designed to imitate natural systems, in which waste equals food for other forms of life, in which nothing is thrown away, in which symbiosis replaces competition.

(MAIN STORY continued on page 92)

FOUR CRITERIA FOR REINVENTING BUSINESS



Peter Senge of MIT writes about asking business leaders who they think is the leader of a ship crossing the ocean. The answer he receives is usually the captain, the navigator, or the helmsman, but he answers that it's the designer of the ship, because everyone on the ship is influenced by the effect of its design. The world of human activity—the goods we buy, the cars we drive, the factories we toil within—is also the effect of design, only in the case of our large-scale commercial and productive systems, there is no designer in the true sense.

If designers are to lead, then they need to be equipped with the information and tools necessary to create a more sustainable world. And if leaders are to accept their designing role, they must ask questions that go beyond the prosaic in every field. They must question fundamental material and process choices, and encourage all members of companies and communities to work within a revised ethical framework, a framework that respects our evolving understanding of the laws of nature.

The goals and strategies outlined in the body of this piece cannot be achieved unless we engage in a creative process that pays close attention to the needs of all people. Despite the attention and involvement that environmentalism has drawn, most people do not feel they are meaningfully involved in the designing and construction of economic and environmental solutions to everyday problems. The only design process that can succeed is one based on unconditional respect for everyone. To achieve broad-based participation in a system of commerce designed to sustain the environment, the following objectives should be kept in mind:

It should provide secure, stable, and meaningful employment for people everywhere. There can be no sustainable world without satisfying and remunerative employment. Self-administered or wholesale reductions of consumption in industrial countries without a broad-based and

workable employment strategy will result in the same random despoliation occasioned by the marginalized poor in the third world.

It should be self-actuating as opposed to regulated or mandated, honoring human nature and market principles. There are those who sincerely believe that the rate at which we are losing life on earth calls for the imposition of laws that protect the environment at the expense of individual freedom. Granting them their argument, which in effect puts aside certain human liberties for a greater good, the premise is flawed when you look at it from a design point of view. Although government has a critical role to play, its role must coincide with the natural impulses of society. Human beings want to flourish and prosper, to live in security and better themselves. If a system of conservation is misunderstood or blocks or interferes with those aspirations, it will ultimately be rejected.

The human condition has been discussed and debated for centuries by theologians, poets, politicians, and philosophers. If we can be sure of anything, it is that our essential nature changes slowly and mysteriously, and no "plan" to reverse environmental degradation can be effected within a reasonable time frame if it requires a wholesale change in human behavior. In other words, we have to work with what we have, hoping for deep, historic changes but not relying on them. Furthermore, the basic human instinct to shop the market and buy products of comparable quality that are the lowest price is firmly embedded. We have to respect and use that impulse rather than ask people to pay more for "saving the planet." They won't do it in many cases, and in most cases, they can't.

It should exceed sustainability by restoring degraded habitats and ecosystems to their fullest biological capacity. The dirty little secret in environmentalism is that there is no such thing as sustainability. In overall terms, habitats and ecosystems can endure over millennia, to be sure. But in terms of specific fisheries, tracts of land, and forested areas, calcu-

lating sustainability is like solving Xeno's paradox. Furthermore, we have probably passed the point where our planet's resources can be relied on to support the number of people expected to live on it within the next 40 years. Thus, any viable economic program must turn back the resource clock and reverse degradation by actively restoring damaged and deteriorating ecosystems. This restoration is far more compelling than the algebra of sustainability because we create rather than merely measure.

It should be creative and engaging, and be perceived as more rewarding than our present way of life. Government, business, and environmental organizations cannot create a sustainable society. It will come about in the minutiae of daily acts willingly engaged in by billions of eager participants. Redesigning our world has to uphold ideas, visions, and goals that people want to achieve. In other words, we have to uphold the image of a future world we will live in that is intriguing, nonthreatening to the vast majority, and wonderfully inviting because people can participate in, enjoy, and create it.

There are those who think that human beings are predatory by nature. But we cast our vote with those who feel that human beings take on the shape of their culture and that shifts in culture and how we express our nature can occur in rare moments with remarkable speed and vigor. One conventional view is that human beings are rushing pell-mell to an environmental hell. An alternative view is that our highest instincts and aspirations are being suppressed by the unintentional but worldwide imposition of a system whose usefulness is utterly negated by our numbers and the world condition. In other words, good design releases humankind from its neurotic relationship to the meaningless and absurd work of destruction, and allows us to head toward a destiny that is far more "realistic" and enduring than the commercial system we have today. The urge to create beauty, sanctity, and goodness is the untapped power that needs to be released, and it is as present in commerce as anywhere else.

As an example of this redesign, the authors have created a system to retrofit every window in a major American city. The project would go like this: The city and a major window manufacturer would form a joint venture to produce superglazed windows in the town. That jointly owned company would come to your home or business, measure all the windows and glass doors, and then within 72 hours replace them with windows with superinsulating R-12 ratings. The new custom-manufactured windows could have exactly the same casements, moldings, and general appearance as the old. You would receive a \$500 check upon installation and pay for the replacement windows over a 30-year period through increased property taxes. However, the amount you'd end up paying is guaranteed to be less than the amount you'd save on your energy bills. In other words, the windows would cost you nothing. To finance the project, the city would issue Industrial Development Bonds. The factory would train and employ more than 300 people in jobs of every description, from sweeping the factory floor to advanced multimedia robotics and chemistry. The windows removed would be checked for toxins and then completely recycled and reused, with the glass melted and the frames ground up and mixed with recycled thermoplastic resins that are extruded to make the casements. Once the entire city was reglazed, the residents and businesses would

have an extra \$20 million to \$30 million every year, money saved on utility bills. After the windows were paid for, the savings would go even higher. The factory, designed to be transportable, would move to another city, where the initiating partnership would continue to retain a carried interest. This is a win-win-win-win system. The rate payers, the homeowners, the city, the citizens, the environment, and the factory employees all would thrive because they would be making money from efficiency rather than exploitation.

If hope is to pass the sobriety test, then it has to walk a pretty straight line to reality. Nothing here is possible unless business is willing to integrate itself into the natural world. It's time for business to take the initiative in a genuinely open process of dialogue, collaboration, reflection, and redesign.

We believe business is on the verge of a transformation, a change brought on by social and biological forces that can no longer be ignored or put aside, a change so thorough and sweeping that in the decades to come, business will be unrecognizable when compared with the commercial institutions of today. We have the capacity and the ability to create a remarkably different economy, one that can restore our ecosystem and protect the environment while bringing forth innovation, prosperity, meaningful work, and true security. While com-

merce at its worst sometimes appears to be a shambles of de-filament when compared with the beauty and majesty of the natural world, it also contains the means to transform society. No other institution in the modern world is powerful enough and creative enough to bring about the changes that must be made. Perhaps we've been asking the wrong question all these years during the many battles between environmentalists and

businesspeople. The question as generally proposed is, How do we save the environment? The correct question may be, How do we save business?

W. S. Merwin, the poet and naturalist, cites Robert Graves when he reminds us that we have only one story to tell in our life. We are made to believe over and over by our parents and businesses, by our culture and television, by our politicians and movie stars, that

it's the story of money, of finance, of wealth, of the stock portfolio, the partnership, and the country house. These are not stories at all but impoverished, small tales and whispers that have made us restless and craven. As Stanley Crawford

puts it in his book *A Garlic Testament*, "The financial statement must finally give way to the narrative, with all its exceptions, special cases, imponderables. It must finally give way to the story,

the story, which is perhaps the way we arm ourselves against the next and always unpredictable turn of the cycle in the quixotic dare that is life; across the rock and cold of lifelessness, it is our

seed, our clove, our filament cast toward the future."

Business must yield to the longings of the human spirit. The most important contributions of the members of the socially responsible business movement have little to do with recycling, nuts from the rain forest, or employing the homeless. Their gift to us is that they are leading by trying to do something, to risk, to take a chance, to make a change—any change. They're not waiting for "the solution" but acting creatively without guarantees of success. That is what all of us must do. Being visionary has always been given a bad rap by commerce. But without a positive vision for humankind, we can have no meaning, no work, and no purpose. ■

Paul Hawken is the author of The Next Economy and Growing a Business. The material in this article is substantially from his book The Ecology of Commerce (HarperCollins, 1993). Additional material is from a work in progress titled A Declaration of Interdependence—Our Future and the Making of Things, cowritten by Hawken and William McDonough, to be published in 1995.

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