"Business & Economy"

DISCUSSION COURSE ON

CHOICES FOR SUSTAINABLE LIVING

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DETROIT SPEECH

by Robert F. Kennedy

Let us be clear at the outset that we will find neither national purpose nor personal satisfaction in a mere continuation of economic progress, in an endless amassing of worldly goods. We cannot measure national spirit by the Dow-Jones Average, nor national achievement by the gross national product.

For the gross national product includes air pollution and advertising for cigarettes, and ambulances to clear our highways of carnage. It counts special locks for our doors, and jails for the people who break them. The gross national product includes the destruction of the redwoods and the death of Lake Superior. It grows with the production of napalm and missiles and nuclear warheads and it even includes research on the improved dissemination of bubonic plague. The gross national product swells with equipment for the police to put down riots in our cities; and though it is not diminished by the damage these riots do, still it goes up as slums are rebuilt on their ashes. It includes Whitman's rifle and Speck's knife, and the broadcasting of television programs which glorify violence to sell goods to our children.

And if the gross national product includes all these, there is much that it does not comprehend. It does not allow for the health of our families, the quality of their education or the joy of their play. It is indifferent to the decency of our factories and the safety of our streets alike. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It allows neither for the justice in our courts, nor for the justness of our dealings with each other. The gross national product measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to country. It measures everything, in short, except that which makes life worthwhile; and it can tell us everything about America, except whether we are proud to be.Americans.

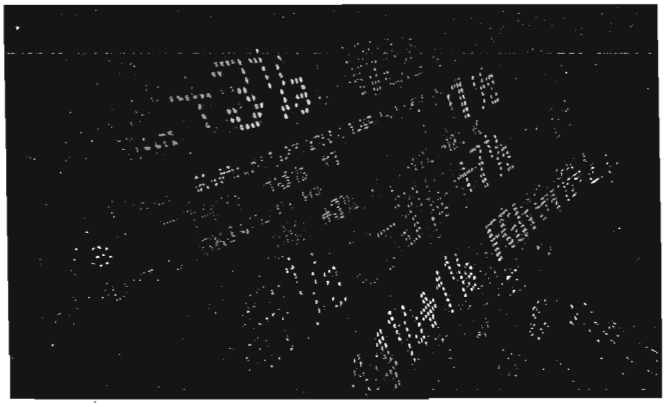
This speech was delivered by Robert F. Kennedy, May 5, 1967.

ECO-ECONOMY

by Lester R. Brown

ECONOMY SELF-DESTRUCTING

The economic indicators for the last half-century show remarkable progress. The economy expanded sevenfold between 1950 and 2000. International trade grew even more rapidly. The Dow Jones Index, a widely used indicator of the value of stocks traded on the New York Stock Exchange, climbed from 3,000 in 1990 to 11,000 in 2000. It was difficult not to be bullish about the long-term economic prospect as the new century began.



Difficult, that is, unless you look at the ecological indicators. Here, virtually every global indicator was headed in the wrong direction. The economic policies that have yielded the extraordinary growth in the world economy are the same ones that are destroying its support systems. By any conceivable ecological yardstick, these are failed policies. Mismanagement is destroying forests, rangelands, fisheries, and croplands—the four ecosystems that supply our food and, except for minerals, all our raw materials as well. Although many of us live in a high-tech urbanized society, we are as dependent on the earth's natural systems as our hunter-gatherer forebears were.

To put ecosystems in economic terms, a natural system, such as a fishery, functions like an endowment. The interest income from an endowment will continue in perpetuity as long as the endowment is maintained. If the endowment is drawn down, income declines. If the endowment is eventually depleted, the interest disappears. And so it is with natural systems. If the sustainable yield of a fishery is

exceeded, fish stocks begin to shrink. Eventually stocks are depleted and the fishery collapses. The cash flow from this endowment disappears as well.

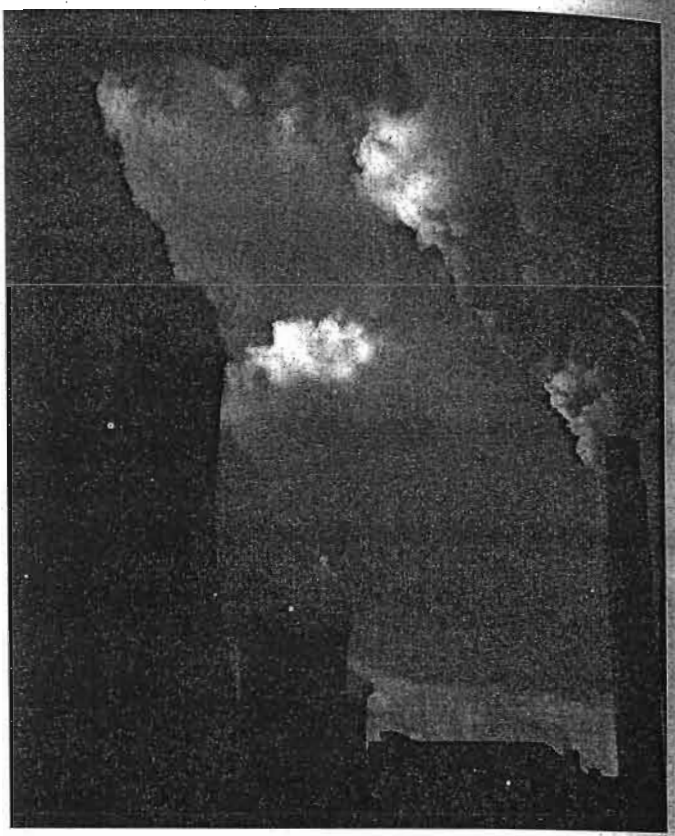
As we begin the twenty-first century, our economy is slowly destroying its support systems, consuming its endowment of natural capital. Demands of the expanding economy, as now structured, are surpassing the sustainable yield of ecosystems.

THE OPTION: RESTRUCTURE OR DECLINE

In our shortsighted efforts to sustain the global economy, as currently structured, we are depleting the earth's natural capital. We spend a lot of time worrying about our economic deficits, but it is the ecological deficits that threaten our long-term economic future. Economic deficits are what we borrow from each other; ecological deficits are what we take from future generations.

Herman Daly, the intellectual pioneer of the fast-growing field of ecological economics, notes that the world "has passed from an era in which man-made capital represented the limiting factor in economic development (an 'empty' world) to an era in which increasingly scarce natural capital has taken its place (a 'full' world)." When our numbers were small relative to the size of the planet, it was human-made capital that was scarce. Natural capital was abundant. Now that has changed. As the human enterprise continues to expand, the products and services provided by the earth's ecosystem are increasingly scarce, and natural capital is fast becoming the limiting factor while human-made capital is increasingly abundant.

Transforming our environmentally destructive economy into one that can sustain progress depends on a Copernican shift in our economic mindset, a recognition that the economy is part of the earth's ecosystem and can sustain progress only if it is restructured so that is compatible



with it. The preeminent challenge for our generation is to design an eco-economy, one that respects the principles of ecology. A redesigned economy can be integrated into the ecosystem in a way that will stabilize the relationship between the two, enabling economic progress to continue.

Unfortunately, present-day economics does not provide the conceptual framework needed to build such an economy. It will have to be designed with an understanding of basic ecological concepts such as sustainable yield, carrying capacity, nutrient cycles, the hydrological cycle,

WHAT DO GROWTH AND DEVELOPMENT REALLY MEAN?

According to our current mindset, economic development is usually assumed to mean the same thing as economic growth; the result is the expanding use of resources. But is that assumption necessarily correct?

Growth means an increase in size or number. Development, on the other hand, means bringing something to a fuller or better state. A society can certainly grow without developing—but it can also develop without growing. Consider economist Herman Daly's example of a steady-state library. The stock of books is constant but not static. As a book wears out or becomes obsolete, it is replaced by a newer or better one. The quantity of books does not grow, and the quality of the library actually improves. The library develops without growing.

Sustainable development of human culture means improving the quality of human life while living within the carrying capacity of supporting ecosystems. What is sustained is not a rate of growth, but rather a level of physical resource use. What is developed is the capacity to convert those physical resources into improved goods and services for satisfying human needs, without degrading the supporting systems.

Source: "Changing Direction Toward Sustainable Culture" by Paul Wilson, *Northwest Report*, 1996.

and the climate system. Designers must also know that natural systems provide not only goods, but also services—services that are often more valuable than goods.

We know the kind of restructuring that is needed. In simplest terms, our fossil-fuel-based, automobile-centered, throwaway economy is not a viable model for the world. The alternative is a solar/hydrogen energy economy, an urban transport system that is centered on advanced-design public rail systems and that relies more on the bicycle and less on the automobile, and a comprehensive reuse/recycle economy. And we need to stabilize population as soon as possible.

How do we achieve this economic transformation when all economic decisionmakers—whether political leaders, corporate planners, investment bankers, or individual consumers—are guided by market signals, not the principles of ecological sustainability? How do we integrate ecological awareness into economic decisionmaking? Is it possible for all of us who are making economic decisions to "think like ecologists," to understand the ecological consequences of our decisions? The answer is probably not. It simply may not be possible.

But there may be another approach, a simpler way of achieving our goal. Everyone making economic decisions relies on market signals for guidance. The problem is that the market often fails to tell the ecological truth. It regularly underprices products and services by failing to incorporate the environmental costs of providing them.

Compare, for example, the cost of wind-generated electricity with that from a coal-fired power plant. The cost of the wind-generated electricity reflects the costs of manufacturing the turbine, installing it, maintaining it, and

GENUINE PROGRESS INDEX (GPI)

The usual Economic Measures have no way of measuring how money is distributed within a country nor how economic activity contributes to production and services that are healthy for society and the environment. If we look at economic growth without looking at the costs of this growth, we leave many people out of our economy and we create havoc for the earth. Reducing the economy to a simple money equation means missing out on many opportunities to care for ourselves, each other, and the earth.

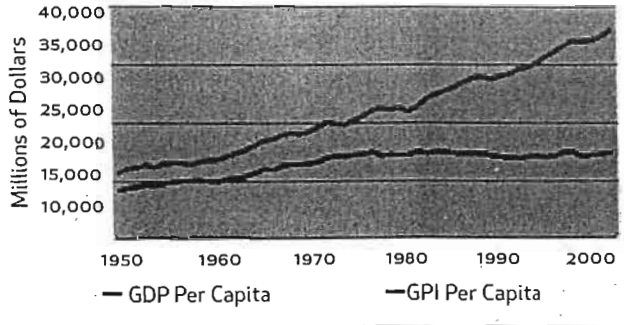
Rather than a simple mathematical equation of GDP, our economy needs a set of measures that includes financial cost as well as other kinds of costs, such as costs to the environment, costs to ourselves, costs to society.

The founders of Nova Scotia's Genuine Progress Index (GPI) came up with a system that consists of 22 social, economic and environmental components used to measure genuine progress. The components include:

1. Time Use
   - Economic Value of Civic and Voluntary Work
   - Economic Value of Unpaid Housework and Child Care
   - Costs of Underemployment
   - Value of Leisure Time
2. Natural Capital
   - Soils and Agriculture
   - Forests
   - Marine Environment/Fisheries
   - Nonrenewable Subsoil Assets
3. Environmental Quality
   - Greenhouse Gas Emissions
   - Sustainable Transportation
   - Ecological Footprint Analysis
   - Air Quality
   - Water Quality
   - Solid Waste
4. Socio-economic
   - Income Distribution
   - Debt, External Borrowing, and Capital Movements
   - Valuations of Durability
   - Composite Livelihood-Security Index
5. Social Capital
   - Health Care
   - Educational Attainment
   - Costs of Crime
   - Human Freedom Index

Source: Edited and adapted from *Women and the Economy*. www.unpac.ca/economy/altmeasures.html

GROSS PRODUCTION VS. GENUINE PROGRESS, 1950-2004



Source: "Genuine Progress Indicator." Redefining Progress: The Nature of Economics. http://www.rprogress.org/sustainability_indicators/genuine_progress_indicator.htm

delivering the electricity to consumers. The cost of the coal-fired electricity includes building the power plant, mining the coal, transporting it to the power plant, and distributing the electricity to consumers. What is does not include is the cost of climate disruption caused by carbon emissions from coal burning—whether it be more destructive storms, melting ice caps, rising sea level, or record heat waves. Nor does it include the damage to freshwater lakes and forests from acid rain, or the health care costs of treating respiratory illnesses caused by air pollution. Thus the market price of coal-fired electricity greatly understates its cost to society.

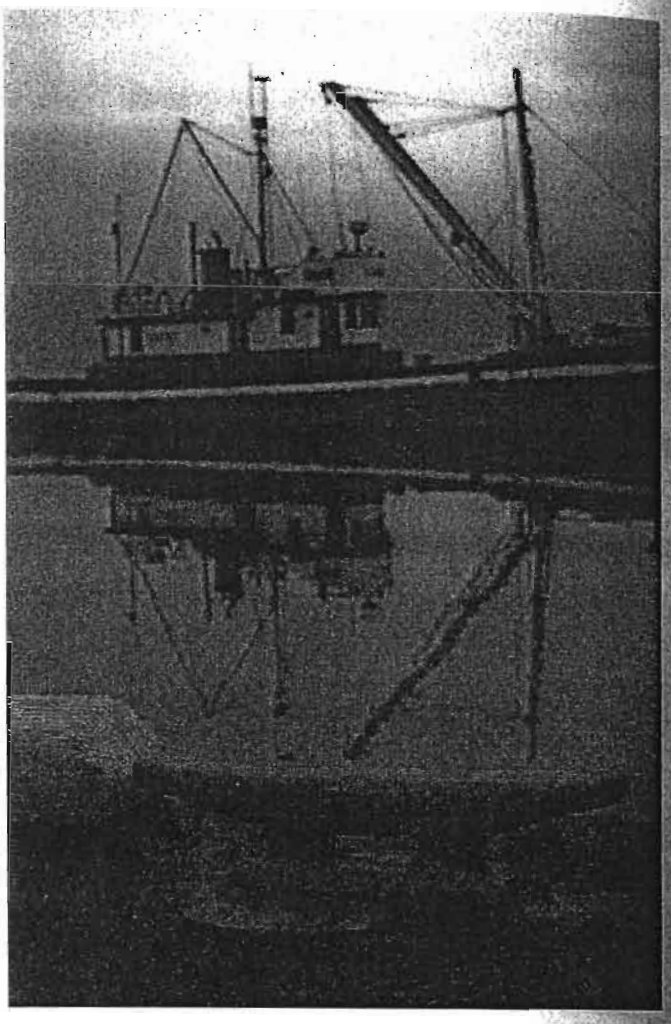
One way to remedy this situation would be to have environmental scientists and economists work together to calculate the cost of climate disruption, acid rain, and air pollution. This figure could then be incorporated as a tax on coal-fired electricity that, when added to the current price, would give the full cost of coal use. This procedure, followed across the board, would mean that all economic decisionmakers—governments and individual consumers—would have the information needed to make more intelligent, ecologically responsible decisions.

We can now see how to restructure the global economy so as to restore stability between the economy and the ecosystem on which it rests. When I helped to pioneer the concept of environmentally sustainable economic development some 27 years ago, at the newly formed Worldwatch Institute, I had a broad sense of what the new economy would look like. Now we can see much more of the detail. We can build an eco-economy with existing technologies. It is economically feasible if we can get the market to tell us the full cost of the products and services that we buy.

The question is not how much it will cost to make this transformation but how much it will cost if we fail to do it. Øystein Dahle, retired Vice President of Esso for Norway and the North Sea, observes, "Socialism collapsed because it did not allow prices to tell the economic truth. Capitalism may collapse because it does not allow prices to tell the ecological truth."

Building an eco-economy is exciting and satisfying. It means we can live in a world where energy comes from wind turbines instead of coal mines, where recycling industries replace mining industries, and where cities are designed for people, not for cars. And perhaps most important of all, we will have the satisfaction of building an economy that will support, not undermine, future generations.

This excerpt was drawn from *Eco-Economy* (2001). Lester R. Brown is a noted environmental analyst and founder of the Worldwatch Institute. He is the author of over twenty books, including *Plan B: Rescuing a Planet Under Stress and A Civilization in Trouble*. Brown is the founder and current president of the Earth Policy Institute, a non-profit research group based in Washington, D.C.



IT'S FOLLY TO SAVE JOBS BY RISKING A RESOURCE

by Donella Meadows

At the beginning of the [second] millenium, the Norse began to fish what is now called the Grand Banks off the coast of Newfoundland. In 1501, the Company of Adventurers to the New Found Lands was chartered in England to make summer expeditions to that rich fishing ground. For the next 500 years, the Grand Banks yielded up vast wealth. In 1981, the fishery brought in 779,000 metric tons of groundfish, mostly cod, worth $705 million. East coast Canada boasted 29,000 registered fishing vessels and more than 1,000 fish-processing plants. The fishery employed 62,000 people in 1,300 communities, 20 percent of all the jobs in Newfoundland.

Then, after 1,000 years, it was over. Not suddenly. The catch declined for 20 years. Just about everyone saw what was coming. Many issued warnings. The government imposed quotas, but the fleet couldn't even manage to land the quotas, a blatant sign that they were set too high. Finally in 1992, the cod fishery was essentially closed. No one knows whether it will ever recover.

If you want to assign blame for this destruction of a resource that should have been renewable forever, you can point in many

directions. You could point at the Canadian fishermen, who knew better than anyone that their golden goose was dying, yet opposed their government's attempt to revive it. You could also blame the foreign fleets that invaded the 200-mile limit, cheated on quotas, and falsified records.

Technology, so often hailed as our way out of any problem, was a direct cause of this one. Only after 1954, when the first factory trawler made its appearance on the Grand Banks (it was a British ship, rapidly followed by Russian and Spanish ones), was it actually possible to catch all the fish. Here is how Michael Harris, in his book *Lament for an Ocean*, describes these vessels: "The net and rigging are engineered to haul 50 to 60 tons of fish at a time. One hundred tons of mature cod can be taken in just two hours by these killing machines. The huge trawl is hoisted up and with a sudden whoosh, tons of cod shoot through the hatches to the factory deck below. Cod are loaded on conveyer belts that lead to the filleting machines. The fillets are packed into ... blocks, frozen, and stored.... The offal and so-called trash fish are sent to the fish-meal factory on a lower deck.

"If a vessel from a particular fleet hits a 'hot spot,' her captain will call in sister ships to work the shoal. As many as 50 factory-freezers will converge, fishing nonstop until nothing is left.... Electronic fish-finders, echographs and even minisubs are used to locate shoals of fish. The newest sonar devices can scan the ocean two miles in advance of a working trawler."

You could blame this voracious technology, except that across the ocean another nation, equally dependent on a cod fishery, faced with the same technology, hearing the same kinds of warnings, managed to save its fishery.

In 1989, Norwegian scientists warned that the cod population in the Barents Sea was plummeting. They advised that the normal quota for the catch, about 800,000 tons, be drastically reduced. This idea was received, as in Canada, with panic, demonstrations, pleas from coastal communities, political threats. In Norway, the government hung tough. As one fisheries official said, "The main qualification to survive one week as minister of fisheries is that you have to be tough, because it's the most unpopular occupation you could have in Norway."

The Norwegian government slashed the cod quota, reducing fishing incomes by more than 80 percent. It put a moratorium on catching caplin, the main food of the cod. It banned fishing on the spawning grounds. No one had proved that dragging huge nets through schools of spawning cod interfered with reproduction, but the Norwegians assumed that reproducing fish should be left alone, if you want fish in the future.

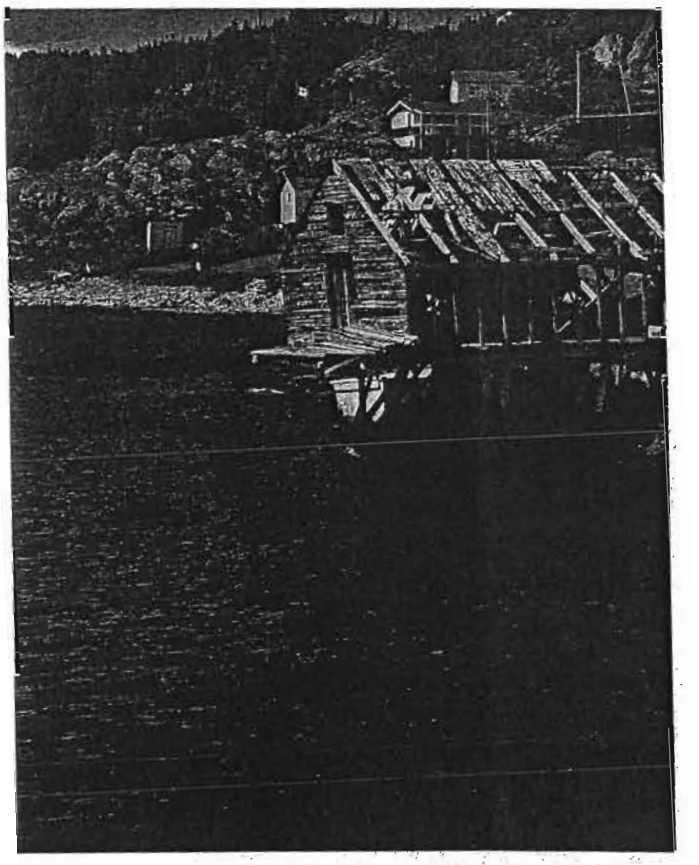
Both Norway and Canada are compassionate nations. They supported their fishing communities while fisheries were down, in each case at a cost of billions of dollars. But Canada, in its compassion (and bowing to immense political pressure), closed the fishery too late and incompletely, didn't ban fishing on spawning grounds, didn't stop caplin fishing, and enforced its restrictions tepidly. Canada is still supporting its ex-fishermen. Norway no longer needs to.

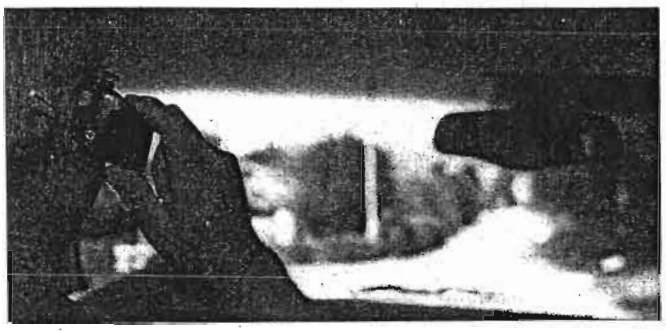
After three years of Norway's intense restrictions, the Barents Sea cod population began to rise. The government cautiously raised its quota to 248,000 tons, double the 1990 quota, but far below historic catches. By 1997, there had been such a stunning recovery that the quota went up to 850,000 tons. Unable to process that catch themselves, the Norwegians kindly sent some of it to the idle fish plants of Canada.

Given the rate at which fisheries are crashing all over the world, it is not clear that anyone is eager to learn lessons from anyone else. But I see at least two lessons from the Norwegians' happy example—lessons that apply far beyond fisheries. One is that it is crazy to save jobs in the short term by endangering the resource upon which the jobs depend. The other is that social policy, and especially regulatory policy, must keep up with technical change. A world of powerful technology requires strong regulation. Those who wield the technology ought to be the first to demand that regulation, to ensure their own survival.

EDITOR'S NOTE: The Canadian Department of Fisheries estimates that the current cod population is merely 4 percent of the observed cod populations of the 1980s. With so little change, the moratorium on cod fishing is still held in place by the Canadian government. Despite Norway's efforts, cod stocks are dangerously low and debate rages within the European Union over the implementation of a cod fishing ban in the North Sea.

This article appeared in *TimeLine*, September/October 1999.
Donella Meadows, 1941-2001, was a systems analyst, journalist, writer, teacher, and farmer. She was a leading voice in the sustainability movement.





FEEDING THE BEAST

by John R. Ehrenfeld

It has become fashionable in business to celebrate one's progress toward "sustainability." Hewlett-Packard wins plaudits for its focus on recyclable computers and printers, and reduced greenhouse-gas emissions. McDonald's trumpets its efforts to forge a "socially responsible supply system" encompassing everything from healthy fisheries to redesigned Happy Meal boxes.

All of which is fine. There's nothing wrong, per se, with strategies that leave the world more fish and less cardboard. But those corporate efforts have little to do with true sustainability. In fact, they're missing the point—and the bigger opportunity.

I spent four decades as a chemical engineer in industry, pursuing technological solutions to clean up environmental problems. In the late-blooming academic career that followed, my research came to suggest that those very solutions were in fact part of the problem. What most businesses do in the name of the environment really amounts to an effort to reduce unsustainability. Solutions such as emissions trading and carbon taxes are new means to old ends, modifications of the current economic process that its proponents claim need not cause the destructive consequences of the past.

Real sustainability is a vision both more positive and less simplistic: Not merely the opposite of unsustainability, it embraces the possibility that humans and other life will flourish on the planet forever. Sustainability is, like beauty, a property of an entire functioning system; it's evident only when everything is working well in relation to everything else.

And the problem for business is, in fact, systemic. It has less to do with what we toss out than with what we consume, which is why it's so difficult to fix. Simply put, we buy and use too much; consumption has become a form of cultural addiction—and it's that addiction that has the most profound impact on the environment. All of their well-intentioned programs to reduce waste notwithstanding, most companies are just feeding the beast.

Business should be wondering why the promise of consumer satisfaction always seems just out of hand, always an iPod or Xbox away—why we have lost, in the sense of Erich Fromm's *To Have or To Be?*, the being part of human being, reduced instead to the diminished form of having. Roy de Souza, founder of a new Web site, Zebo.com, which collects and displays lists of everyday possessions from mostly young users, told *The New York Times*, "For the youth, you are what you own." Tellingly, he notes, "They list these things because it defines them."

And that's the thing about consumption: It's essentially a myopic, self-centered pastime. Addictive consumption submerges our concerns about ourselves, others, and the Earth. The things we buy and use become extensions of ourselves; we use them mindlessly, with little awareness of why. The challenge for business should be to reverse this pattern by offering goods and services that, beyond merely adding to our possessions, actually restore and maintain our ability to care and flourish.

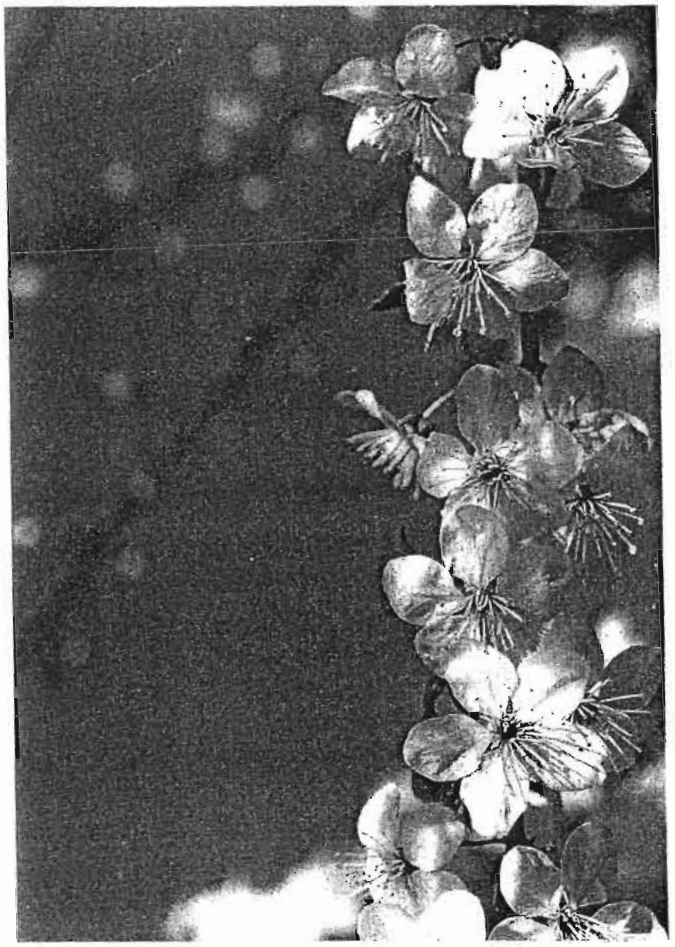
Such products exist today. My favorite example is the two-button toilet, still a rarity in the United States but increasingly popular in Northern Europe and New Zealand. In place of the usual single lever or button, the toilet offers two buttons or levers, one small and one large, actuating a smaller or larger flush volume. Beyond its obvious "green" credentials, this toilet actually forces users to engage with it on more than a utilitarian level, and to make a choice. It creates presence in place of mindlessness.

Likewise, German designer Sven Adolph has created a space heater with movable ceramic panels that must be adjusted to conform to the placement of people in a room. The operator actually engages with (and takes care of) the occupants. Imagine extending that dynamic to a range of everyday products. Our cars could remind us, in real time, of the fuel we're consuming and the emissions we're producing—and suggest walking or taking a bus.

Instead, automakers just give us more fuel-efficient vehicles, which limit the damage but miss the root of the problem. (Perversely, gains in efficiency tend to encourage more consumption.) And we drive around talking into our Bluetooth-connected phones, engrossed in conversation but absent from the rest of the world. The result is what Linda Stone, a former Microsoft researcher, calls "continuous partial attention." We lose our sense of engagement, ultimately compromising our awareness of underlying concerns and our ability to take care of them. Hence, obesity, family violence, and pollution—unsustainable outcomes, to be sure.

Consumers are not just economic bundles of desires; they are human beings whose concerns can't be satisfied merely by having lots of things. Sustainable businesses will help us escape addiction by offering carefully designed products and services that bring the world present—and nudge us toward responsible choices.

This article appeared in the December 2006/January 2007 issue of FastCompany.com. John R. Ehrenfeld, a former faculty member at the Massachusetts Institute of Technology, is executive director of the International Society for Industrial Ecology. Ehrenfeld's "manifesto" on sustainability can be accessed at http://www.changethis.com/25.03.BeyondSustain.



THE EXTRAVAGANT GESTURE

by William McDonough and Michael Braungart

NATURE'S ABUNDANCE

How is it possible for industry and nature to fruitfully coexist? Well, consider the cherry tree, each spring it produces thousands of blossoms, only a few of which germinate, take root, and grow. Who could see cherry blossoms piling up on the ground and think, "How inefficient and wasteful?" The tree's abundance is useful and safe. After falling to the ground, the blossoms return to the soil and become nutrients for the surrounding environment. Every last particle contributes in some way to the health of a thriving ecosystem. Waste that stays waste does not exist. Instead, waste nourishes; waste equals food.

As a cherry tree grows, it enriches far more than the soil. Through photosynthesis it makes food from the sun, providing carbon, produces oxygen, and filters water. The tree's limbs and leaves harbor a great diversity of microbes and insects, all of which play a role within a local system of natural cycles. Even in death the tree provides nourishment as it decomposes and releases minerals that fuel new life. From blossom to sapling to magnificent old age, the cherry tree's growth is regenerative. We could say its life cycle is cradle to cradle—after each useful life it provides nourishment for something new. In a cradle to cradle world—a world of natural cycles powered by the sun—growth is good, waste nutritious, and nature's diverse responses to place are the source of intelligent design.

Industrial life cycles, on the other hand, tend to be cradle to grave. Typically, the production and consumption of goods follows a one-way, linear path from the factory to the household to the landfill or incinerator. Wasted materials and harmful emissions trail products from the cradle to the industrial plant to the grave of the local dump, where products themselves are thrown "away" or burned for energy. Recycling and regulation are often employed to minimize the negative impacts of industry and they do help ease the conflict between nature and commerce. By why not set out, right from the start, to create products and industrial systems that have only positive, regenerative impacts on the world?> why fine-tune a damaging system when we can create a world of commerce that we can celebrate and unabashedly applaud?

Commerce worth applauding applies nature's cycles to the making of things. It generates safe, ecologically intelligent products that, like the cherry tree, provide nourishment for something new after each useful life. From a design perspective, this means creating products that work within cradle to cradle life cycles rather than cradle to grave ones. It means rather than designing products to be used and thrown away, we begin to imitate nature's highly effective systems and design every product as a nutrient.

What is a nutritious product? It's not simply an all-natural product; it's not a recycled product, wither. Instead it's a product designed to provide nutrients to what we have conceived as the Earth's two discrete metabolisms, the biosphere—the cycles of nature—and the technosphere—the cycles of industry. Lightweight food packaging, for example, can be designed to be a nutritious part of the biological metabolism; if it is made of organic compounds it can be safely returned to the soil to be consumed by microorganisms. Synthetic materials, chemicals, metals, and durable goods are part of the technical metabolism; they can be designed to circulate within closed-loop industrial cycles, in effect, providing "food" for the technosphere.

Cars, computer cases, washing machines, televisions—in fact, all industrial products—can be designed to retain value as they flow between producer and consumer. Instead of being recycled, or downcycled, into lower-quality materials, products created and used within closed technical cycles—what we call products of service—can continually circulate as high-quality products. Customers will soon be able to buy the service of such goods, and manufacturers will take them back at the customer's request, using their complex materials in the product's next high-value iteration.

When products from either the biosphere or the

technosphere take a one-way trip to the landfill, a great wealth of nutrients is squandered. Trapped in a plastic lined dump, organic waste cannot renew the soil and valuable technical materials are lost forever. Worse, the two discrete metabolisms are mixed, contaminating both spheres: Nature, by design, cannot safely absorb the materials of industry and the technosphere has little or no use for organic nutrients. But if the things people make are channeled into one or the other of these metabolisms, then products can be safely manufactured and consumed without straining the environment. They can be considered either biological nutrients or technical nutrients, both of which provide nourishment within their respective spheres of nature and industry...

We'd like to see a true transformation of commerce, in which design goes beyond using nature efficiently and instead creates value and opportunity with products that nourish rather than deplete the world...Efficiently managing a toxic system is not the "right thing." Efficient innovations within an affirming design protocol, however, suggest a dynamic path to a cradle to cradle world.

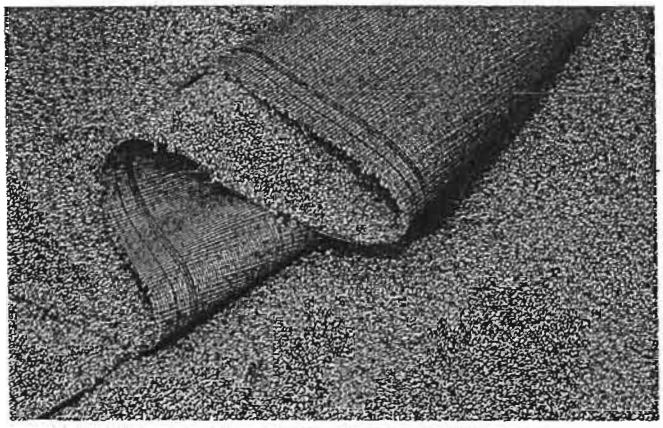
FROM MAINTENANCE TO RENEWAL TO INHERENT CREATIVITY

The conceptual, and actual, shift to cradle to cradle products transforms the impact of industry. When all manufactured products and materials are designed as nutrients, the production and consumption of goods enriches the natural world. And when those nutrients flow within coherent cycles, human industry and human desires can become the cherry tree, writ large.

Fanciful? Not at all. Many notable larders of companies all over the world have begun to move from the maintenance of the old industrial system to a renewal of commerce. They have decided to recognize the far-reaching influence of their creative acts and celebrate their impact of the world rather than disguise it. They have launched the next Industrial Revolution.

In fact it's already well under way...

Companies such as Milliken, Collins & Aikman, and Interface—major commercial carpet companies—are all putting forward their products as materials designed for reclamation. They are telling their customers they want to replace used carpets with new ones and retrieve their technical nutrients. In effect, the companies continue to own the carpet material but lease and maintain it while a customer uses the carpet in their building. Eventually the carpet will wear out like any other, and the manufacturer will reuse its materials in new carpets.



It's important to note, however, that many carpets on the market contain such questionable, potentially toxic materials such as PVC and heavy metals, which cannot be truly "recycled," and are instead shredded and blended into what we call a downcycled material of lower quality—a nylon reinforced PVC mush, for example. Our strategy would imply a design of the industry so that carpet materials would maintain their high quality over many useful lives in the technical metabolism.

The chemical company, BASF, for example, has recently announced a new fiber called Savant, which is made from an infinitely recyclable nylon 6 fiber. Savant is inherently stain resistant, inherently colorfast—no need for Scotchgard—and designed to be taken back to its constituent resins to become new material for new products. In fact BASF can retrieve old nylon 6 and transform it into an improved fiber, upcycling, rather than downcycling, an industrial material. The nylon is rematerialized, not dematerialized—a true cradle to cradle product. On the heels of BASF, manufactures of everything from running shoes to automobiles are designing and implementing new ways to retrieve and circulate valuable materials.

Design Tex, on the other hand, has created an upholstery fabric that flows in the biological metabolism. The company set out to create a product that was beautiful, durable, and ecologically intelligent. After an assiduous design process with the Swiss textile mill Rohner, they decided on a wool-ramie blend that could be removed from the frame of the chair after its useful life and tossed onto the ground to naturally decompose. To ensure that the fabric would safely biodegrade, the design team considered more than eight thousand chemicals used in the textile industry to finish and dye natural fabrics. Most contained some form of mutagen, carcinogen, heavy metal, endocrine disruptor, or bio-accumulative substance, but thirty eight were found to be suitable for a material destined to be food for the soil.

It was a pleasing outcome: a gorgeous, affordable fabric that would one day be mulch for the local garden club. But the design process also yielded another very positive, if unintended, effect. When regulators tested the effluent from the Swiss mill that produced Design Tex fabric, they thought their instruments were broken. They tested the influent to check their equipment and found that it was working fine—the water coming out of the factory was as

clean as the water going in. the manufacturing process itself was filtering the water.

THE CREATION OF COMMUNITY WEALTH

A textile mill that purifies water begins to suggest the profound impact intelligent design can have on communities. Just as a product designed as a biological nutrient nourishes a community of microorganisms in the soil, a factory and its manufacturing processes can be designed to address a broad range of local concerns, from the desire for a convivial, productive workplace to the health of the environment to the creation of community wealth...

Herman Miller, the furniture manufacturer, took that principle to heart when it commissioned the design of a 295,000-square-foot factory and office near its headquarters in western Michigan. The company's goals for the new plant were to foster a spirit of collaboration between office and factory workers and create a workplace with a restorative impact on the local environment. Working with a design team that paid close attention to local conditions, Herman Miller built a plant that serves the needs of all its factory workers and administrative employees by celebrating an array of natural and cultural delights.

The low-lying, curved building follows the natural contour of the Michigan grassland. Storm water spilling off the building moves off the site through an extended series of wetlands that purify the water while providing habitat for hundreds of species of birds, plants, and insects. Plantings of native grasses and trees provided additional habitat for local creatures and further enhance the beauty of the site. Inside the building, offices face the manufacturing plant across a sunlit, urbane promenade, where workers meet and lunch and drink coffee among whimsical sculptures and thriving plants. The entire building—the gyms, the bathrooms, the factory floor—is so pleasantly bright and airy, it is now known as "the greenhouse."

Does this enhance the well-being of workers? Create productivity and wealth? Well, yes. When Herman Miller moved into the building the company was producing $250 million worth of furniture each year. Within a single year it increased production by nearly $50 million with the same number of employees, a gain of 24 percent. At the same time, both office and manufacturing staff reported a significantly higher degree of job satisfaction than they had at their previous workplace...

While it's impossible to measure the influence of delight, it's easy to imagine the pleasure of working in a place where you can always see the beauty of the surrounding landscape, where copious fresh air and light actually blur the boundary between indoors and out. Workers in such a place feel as if they have spent the entire day outdoors. They see the comings and goings of birds and the passing of the seasons. They come to know the place where they live during their days at work...

When a company decides to create a workplace where employees can develop an appreciation for local natural beauty, it has given itself the opportunity to rethink everything under the sun; it is making a decision that will ripple through all its endeavors and through the life of the community it inhabits. It is, in effect, making a profound declaration: We are native to this place. For Herman Miller, that meant building a workplace that embodied a new way of thinking about its role in the world. For other companies, for the giants of the Industrial Age, it means staying put, reinventing themselves, and restoring the sites where they have done business for years...

Innovations in architecture and community design are being employed all over the world. The revolution in product design is well under way. And as we begin to realize the fruits of our efforts, today's laments will become celebrations of a world in which people and nature thrive together—abundantly, delightfully, extravagantly...hopefully.

This essay originally appeared in the collection *Sustainable Planet* (2002) by Juliet Schor and Betsy Taylor (eds). William McDonough is the founding principal of William McDonough & Partners architectural design firm. He continues to conduct research at University of Virginia and Stanford University. Michael Braungart is the founder of EPEA Internationale Umweltforschung GmbH in Hamburg, Germany, and co-founder of MBDC McDonough Braungart Design Chemistry in Charlottesville, Virginia.

BRIDGING THE GREEN DIVIDE

An interview with Van Jones by David Kupfer

Trained as a lawyer, Van Jones has spent two decades fighting what he sees as an inefficient and prejudiced criminal-justice system. He defies easy categorization: ottorney, human-rights advocate, political radical, environmentalist, churchgoing Christian—Jones is all of these. He can sit with two feet squarely on one side of an issue—rising juvenile prison populations, for exomple—and simultaneously intuit how others might see the same problem differently.

Jones lives in Oakland with his wife, Jana, and their three-year-old son, Cabral, named after African revolutionary Amilcar Cabral. I spoke with Jones on a hot summer day at the Emmo Baker Center in Oakland, in a back room where several people were using the copy machine. Despite being the center's cofounder, Jones had o cramped office no bigger than the rest—too cramped for our meeting. Amid the bustle, he wos focused and warm, his voice lilting the same way it does when he gives a speech to a pocked conference hall.

Kupfer: What stake do people of color have in the environmental movement?

Jones: A big one. It's the people of color who are disproportionately affected by bad food, bad air, and bad water. People of color are also disproportionately unable to escape the negative consequences of global warming. Look at Hurricane Katrina. People of color need equal protection from the worst environmental disasters and equal access to the best environmental technologies. We should be speaking out ourselves on these issues, because we are going to be hit first and hardest by everything negative, and we will benefit last and least from everything positive—unless everybody works to solve this problem.

Kupfer: You often speak about "eco-apartheid." Could you define it?

Jones: "Eco-apartheid" is a situation in which you have ecological haves and have-nots. In other words, if you are in the San Francisco Bay Area, and you visit Marin County, you'll find hybrid vehicles, solar panels, organic food, organic everything. If you then get in your car and drive twenty minutes, you'll be in west Oakland, where people are literally choking on the fumes of the last century's pollution-based technologies. That's eco-apartheid, and it's morally wrong, because we should deliver clean jobs and health benefits not just to the wealthy, but also to the people who need them most. Eco-apartheid doesn't work on a practical level either, because you can't have a sustainable economy when only 20 percent of the people can afford to pay for hybrids, solar panels, and organic cuisine, while the other 80 percent are still driving pollution-based vehicles to the same pollution-based jobs and struggling to make purchases at Wal-Mart.

For the sustainable economy to be successful, it has to be a full-participation economy. Right now it is a niche economy, a lifestyle economy. Though green products are a $230 billion industry and growing, that's still a slice of a slice of a slice of the overall pie. It is easy for the eco-elites in Massachusetts or northern California to wrap themselves in the trappings of sustainability and think that the problem has been solved, but the people who clean their houses are going back to neighborhoods that may be fifty years in the past in terms of their ecological sustainability. As we move toward a sustainable economy, if we do not take care to minimize the pain and maximize the gain for the poor, they will join forces with the polluters to derail the green revolution.

It's important from both a moral standpoint and a purely crass political point of view that we create a "new-deal" coalition among green businesspeople, labor, the poor, and people of color. You unite groups by offering immediate, as well as long-term, benefits for each constituency. For poor people, that could take the form of job opportunities, better mass transportation, and free bus passes. Obviously, you'll want to split the business community: the problem makers should get nothing but grief; the problem solvers should get plenty of support. Right now the problem makers—the warmongers, the polluters, the clear-cutters, the incarcerators—get all the support they need from the government. The problem solvers—the solar engineers and the people who are growing local and organic produce—get very little support from any level of government. We want to lure the government away from the problem makers and put it back on the side of the problem solvers: give *them* the tax breaks, the subsidies, and the incentives, and starve those other guys.

Another part of the new-deal strategy is to give labor plenty of support. We have to find union-wage jobs for low-income people, and those are just the sort of jobs that building a sustainable infrastructure will create. But it will require government action, public-private partnerships, and, most of all, leadership.

Kupfer: Do you think that the green-jobs initiative will help soften the social, economic, and ecological shocks to come?

Jones: As much as they can be softened. One good thing about green-collar jobs is that they can't be outsourced. If you want to weatherize this building, you can't ship it to India or China. If you want to build wind farms, it's the wind blowing in the U.S that has to be captured. If you want to install solar panels, it's the sun shining on the U.S. they have to catch. Green-collar jobs create a stable source of employment for U.S. workers, who right now are under tremendous pressure from India and China. God bless India and China; I want their economies to do well. But the outsourcing of good blue-collar manufacturing jobs has created enormous social and political instability in the U.S.

...I think we need eight to twelve years of progressive stewardship to deal with our ecological problems. The only way we are going to get that is if working people feel that help is on the way and that somebody on the Left is concerned about the economic crisis in this country.

Kupfer: Is this what some refer to as the "politics of inclusion"?

Jones: Yes, in some ways it's the opposite of the traditional, white, mainstream environmentalist approach. Environmentalists sometimes don't understand that what motivated them to get involved in political activism and change their lifestyle isn't going to inspire everyone else. It's not just a matter of their explaining louder and louder why everyone should be like them. That's not the politics of inclusion; that's the politics of elitism. The reality is that working people will support ecological solutions, but not for the same reasons that the eco-elites support them.

A lot of wealthy, educated people wanted to take action as a result of Al Gore's documentary *An Inconvenient Truth*, but most low-income people and people of color I know had no interest in seeing the movie in the first place. They already have enough problems. They don't need new crises to worry about. Around here we say that the people who already have a lot of opportunities are the ones who need to hear about the crises. So if you have a house and a car and a college degree, then, yes, you should hear about global warming, or peak oil, or dying species. But poor and low-income people need to hear about opportunities. They need to hear about the expected reduction in asthma rates when we reduce greenhouse gases. They need to hear about the wealth and health benefits of moving to a sustainable

economy. Otherwise you are just telling people who are already having a bad day that they should have a worse one.

The politics of inclusion requires that you let different people approach ecological issues through different doors. Wanting to create jobs for poor kids has to be just as valid an entryway as concern about the rain forest. These different crises—political, ecological, and spiritual—are all interlocked.

The people who are dominating the environmental discussion right now want everybody to watch their movie, sign their petition, and march in line behind them. But the movement cannot grow the way we need it to unless we let the working-class guy and the undocumented worker and the poor kid from the inner city articulate their own agendas.

Kupfer: How do you deal with cynicism and apathy?

Jones: Some people are committed to being cynical, and they have their role, which is to keep asking the tough questions. I use those people to keep my own thinking sharp. But right now a lot of good people are being cynical who shouldn't be. Some of them accuse me of being "inspirational," as if that were a bad thing. I hope that I am inspirational about projects that excite me.

I want to break people out of their cynicism, because the level of cynicism that we have been indulging in is a luxury that we cannot afford. It is indulgent to live in the richest, most advanced technological society in history and say, "We cannot do it." We have the best shot of anyone at solving the big problems. We have technologies that thirty years ago people couldn't have imagined: the Internet, laptop computers, cellphones. You and I have better computers on our person than the U.S. government had when it landed a man on the moon. Everyone you know is a walking technological superpower by the standards of thirty years ago. To be playing helpless and throwing up our hands when we haven't even tried to solve these problems is totally unacceptable to me.

There was a speech that Winston Churchill gave in the early days of World War II, before the U.S. entered the war. British citizens felt they were living in darker days. "Do not let us speak of darker days," he said. "Let us speak rather of sterner days. These are not dark days; these are great days."

That is how I feel. These are difficult times, but these are great times. It's when the authoritarians have taken over your country and are running it into the ground and the earth is crying out for a change of course that people have to look within and figure out where they stand. I think many people are willing to stand together and make the necessary sacrifices. It is going to be a tough period, but I'm betting that this country's best days lie ahead.

This article originally appeared in the March 2008 issue of *The Sun* magazine. David Kupfer is a frequent writer for *The Sun* and other progressive, Earth-centered publications.

CASE STUDY: BREAKING DOWN BUILDINGS, BUILDING UP A NEIGHBORHOOD

by Holly Dressel

When Shane Endicott was 27, he wrestled with a crisis that haunts many adults. He'd spent his early years amassing skills and was now ready to embark on a profession that would define his adult work life. He wanted to make a living that would support his new family, but he didn't want to spend his life making rich people richer. He believed in doing work that would provide benefits for his neighborhood as well as himself. He wanted to work someplace where everyone had an equal say and similar values. And he especially wanted to avoid producing anything that would create more dangerous wastes or use up more natural resources.

Endicott's work ethic sounds not just idealistic, but positively quixotic; it flies in the face of every rule society teaches us about business life in the modern world. But today, Endicott and his work crew are grossing nearly $2 million a year supporting their families and watching their dreams turn into reality. In a business Endicott and his partners have built from the ground up, the Rebuilding Center in Portland, Oregon, is living up to all the demands he had about work. They are also doing it within a well established but under-used business model—the nonprofit.

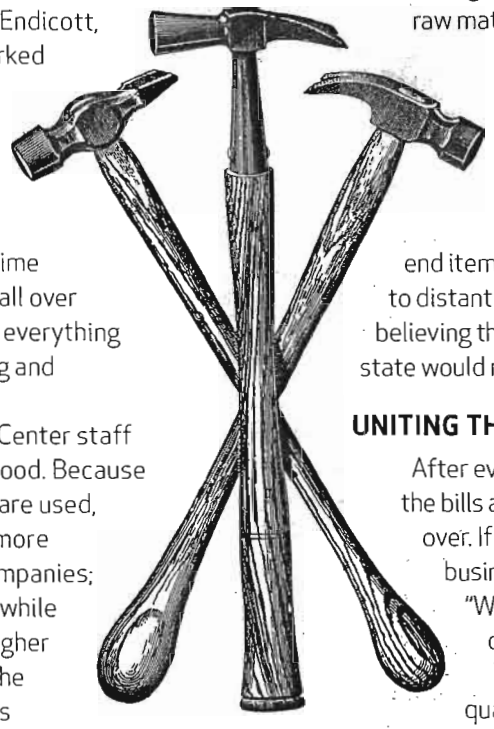
Endicott had always been interested in the construction and demolition business. But he and his partners did not want to emulate demolition as it is usually done. He says he didn't want to "crunch and dump, grind up all that useful wood, metal, and brick and dump it in a landfill, then go out and chop down more trees and mine more iron to build something else." Instead, the Rebuilding Center demolishes, by hand, wooden or brick houses, guts entire apartment buildings, or removes

built-ins like old kitchen cabinets for reuse. The Center renews the used building materials and sells them to the public at half the cost of retail or less.

REBUILDING IDEAS: ECONOMY AND COMMUNITY

Endicott and his partners understood that one of the first steps toward being a socially responsible business is to have ties to the locality. They were located in an economically depressed area of northeast Portland. While the neighborhood needed job opportunities, it also needed a sense of itself as a viable community.

Starting with a $15,000 private loan, Endicott, his partners, and several volunteers worked for a few months out of a garage. Now, after four years, they're still in the neighborhood. They've expanded to a half-block-long building, stuffing it with recycled building materials. Humming with the activities of 36 full-time employees, it attracts customers from all over the city who come to get good deals on everything from toilets and light fixtures to roofing and door frames.



About 80 percent of the Rebuilding Center staff comes from the surrounding neighborhood. Because no expensive, oil-demanding machines are used, the Center employs three to six times more people than mechanized demolition companies; and they still do the job for less money while paying their employees considerably higher wages. Wages start at $10 an hour for the most unskilled labor (like shifting bricks or pulling nails) with regular reviews and wage increases, plus full medical and dental coverage....

Workers are treated like full business partners; everyone, including the director, gets the same single vote on work-related issues, and potential workers are hired by the people they'll be working with. With principles like these, the employees and their families aren't the only ones who have felt the effect. After just two years of existence, the Center was being hailed by the local neighborhood paper as "an anchor that's revitalizing the local economy."

ENVIRONMENTALLY FRIENDLY

Besides revitalizing the economy, the Rebuilding Center's key tenet for social responsibility is to help protect the Earth. They've adopted a closed-loop cycle for building materials that reuses everything down to, as Endicott says, "a two-foot length of nail-studded two-by-four." Because of this, they've diverted millions of pounds of still-useful materials from overflowing landfills every year, and they prevent more raw materials from being extracted.

"And even more importantly, we value the energy in that porcelain sink, even the gyprock," says Endicott. "We help that energy, that was once alive, to go on giving." Although the Center is now so successful it could ship high-end items like oak doors or repaired stained glass to distant markets, the staff has refused to do so, believing that burning fossil fuels for shipping out of state would negate the point of their enterprise.

UNITING THE NEIGHBORHOOD

After everyone's paid a decent wage and all the bills are paid, there's usually money left over. If not needed to improve or expand the business, the money is paid out to the public. "With our surplus, we try inspiring various community projects ....

"We used to think we could attain quality of life individually, by making more money," Endicott says. "But with our water and air increasingly polluted and so many people isolated and unhappy, the only way we'll get that quality of life is to evolve new ways to do business and to live together in communities that are value-based, not money-based."

This article appeared in *YES!* magazine, Fall 2002. Holly Dressel coauthored *Good News for a Change* with David Suzuki.

I am a part of all that I have met.

— Alfred Lord Tennyson