

D Environmental Ethics and Economic Policy

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66 A Declaration of Sustainability

Paul Hawken

I recently performed a social audit for Ben and Jerry's Homemade Inc., America's premier socially responsible company. After poking and prodding around, asking tough questions, trying to provoke debate, and generally making a nuisance of myself, I can attest that their status as the leading social pioneer in commerce is safe for at least another year. They are an outstanding company. Are there flaws? Of course. Welcome to planet Earth. But the people at Ben & Jerry's are relaxed and unflinching in their willingness to look at, discuss, and deal with problems.

In the meantime, the company continues to put ice cream shops in Harlem, pay outstanding benefits, keep a compensation ratio of seven to one from the top of the organization to the bottom, seek out vendors from disadvantaged groups, and donate generous scoops of their profits to others. And they are

about to overtake their historic rival Häagen-Dazs, the ersatz Scandinavian originator of super-premium ice cream, as the market leader in their category. At present rates of growth, Ben & Jerry's will be a \$1 billion company by the end of the century. They are publicly held, nationally recognized, and rapidly growing, in part because Ben wanted to show that a socially responsible company could make it in the normal world of business.

Ben and Jerry's is just one of a growing vanguard of companies attempting to redefine their social and ethical responsibilities. These companies no longer accept the maxim that the business of business is business. Their premise is simple: Corporations, because they are the dominant institution on the planet, must squarely face the social and environmental problems that afflict humankind. Organizations such as Business

for Social Responsibility and the Social Venture Network, corporate "ethics" consultants, magazines such as *In Business* and *Business Ethics*, non-profits including the Council on Economic Priorities, investment funds such as Calvert and Covenant, newsletters like *Greenmoney*, and thousands of unaffiliated companies are drawing up new codes of conduct for corporate life that integrate social, ethical, and environmental principles.

Ben and Jerry's and the roughly 2,000 other committed companies in the social responsibility movement here and abroad have combined annual sales of approximately \$2 billion, or one-hundredth of 1 percent of the \$20 trillion sales garnered by the estimated 80 million to 100 million enterprises worldwide. The problems they are trying to address are vast and unremittingly complex: 5.5 billion people are breeding exponentially, and fulfilling their wants and needs is stripping the earth of its biotic capacity to produce life; a climactic burst of consumption by a single species is overwhelming the skies, earth, waters, and fauna.

As the Worldwatch Institute's Lester Brown patiently explains in his annual survey, *State of the World*, every living system on earth is in decline. Making 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 within the next 50 years with unknown climatic results. The cornucopia of resources that are being extracted, mined, and harvested is so poorly distributed that 20 percent of the earth's people are chronically hungry or starving, while the top 20 percent of the population, largely in the north, control and consume 80 percent of the world's wealth. Since business in its myriad forms is primarily responsible for this "taking," it is appropriate that a growing number of companies ask the question, How does one honorably conduct business in the latter days of industrialism and the beginning of an ecological age? The ethical dilemma that confronts business begins with the acknowledgment that a commercial system that functions well by its own definitions unavoidably defies the greater and more profound ethic of biology. Specifically, how does business face the prospect that creating a profitable, growing company requires an intolerable abuse of the natural world?

Despite their dedicated good work, if we examine all or any of the businesses that deservedly earn high marks for social and environmental responsibility, we

are faced with a sobering irony: If every company on the planet were to adopt the environmental and social practices of the best companies – of, say, the Body Shop, Patagonia, and Ben and Jerry's – the world would still be moving toward environmental degradation and collapse. In other words, if we analyze environmental effects and create an input-output model of resources and energy, the results do not even approximate a tolerable or sustainable future. If a tiny fraction of the world's most intelligent companies cannot model a sustainable world, then that tells us that being socially responsible is only one part of an overall solution, and that what we have is not a management problem but a design problem.

At present, there is a contradiction inherent in the premise of a socially responsible corporation: to wit, that a company can make the world better, can grow, and can increase profits by meeting social and environmental needs. It is a have-your-cake-and-eat-it fantasy that cannot come true if the primary cause of environmental degradation is overconsumption. Although proponents of socially responsible business are making an outstanding effort at reforming the tired old ethics of commerce, they are unintentionally creating a new rationale for companies to produce, advertise, expand, grow, capitalize, and use up resources: the rationale that they are doing good. A jet flying across the country, a car rented at an airport, an air-conditioned hotel room, a truck full of goods, a worker commuting to his or her job – all cause the same amount of environmental degradation whether they're associated with the Body Shop, the Environmental Defense Fund, or R. J. Reynolds.

In order to approximate a sustainable society, we need to describe a system of commerce and production in which each and every act is inherently sustainable and restorative. Because of the way our system of commerce is designed, businesses will not be able to fulfill their social contract with the environment or society until the system in which they operate undergoes a fundamental change, a change that brings commerce and governance into alignment with the natural world from which we receive our life. There must be an integration of economic, biologic, and human systems in order to create a sustainable and interdependent method of commerce that supports and furthers our existence. As hard as we may strive to create sustainability on a company level, we cannot fully succeed until the institutions

surrounding commerce are redesigned. Just as every act of production and consumption in an industrial society leads to further environmental degradation, regardless of intention or ethos, we need to imagine – and then design – a system of commerce where the opposite is true, where doing good is like falling off a log, where the natural, everyday acts of work and life accumulate into a better world as a matter of course, not a matter of altruism. A system of sustainable commerce would involve these objectives:

- 1 It would reduce absolute consumption of energy and natural resources among developed nations by 80 percent within 40 to 60 years.
- 2 It would provide secure, stable, and meaningful employment for people everywhere.
- 3 It would be self-actuating as opposed to regulated, controlled, mandated, or moralistic.
- 4 It would honor human nature and market principles.
- 5 It would be perceived as more desirable than our present way of life.
- 6 It would exceed sustainability by restoring degraded habitats and ecosystems to their fullest biological capacity.
- 7 It would rely on current solar income.
- 8 It should be fun and engaging, and strive for an aesthetic outcome.

Strategies for Sustainability

At present, the environmental and social responsibility movements consist of many different initiatives, connected primarily by values and beliefs rather than by design. What is needed is a conscious plan to create a sustainable future, including a set of design strategies for people to follow. For the record, I will suggest 12.

1. Take back the charter

Although corporate charters may seem to have little to do with sustainability, they are critical to any long-term movement toward restoration of the planet. Read *Taking Care of Business: Citizenship and the Charter of Incorporation*, a 1992 pamphlet by Richard Grossman and Frank T. Adams (Charter Ink, Box 806, Cambridge, MA 02140). In it you find a lost history of 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 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 accountability of the corporation to society as a whole. When Rockwell criminally despoils a weapons facility at Rocky Flats, Colorado, with plutonium waste, or when any corporation continually harms, abuses, or violates the public trust, citizens should have the right to revoke its charter, causing the company 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 mismanaged a corporation into a charter revocation. This is not merely a deterrent to corporate abuse but a critical element of an ecological society because it creates feedback loops that prompt accountability, citizen involvement, and learning. We should remember that the citizens of this country originally envisioned corporations to be part of a public-private partnership, which is why the relationship between the chartering authority of state legislatures and the corporation was kept alive and active. They had it right.

2. Adjust price to reflect cost

The economy is environmentally and commercially dysfunctional because the market does not provide consumers with proper information. The “free market” economies 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 must reflect or at least approximate its actual cost, not only the direct cost of production but also the costs to the air, water, and soil; the cost to future generations; the cost to worker health; the cost of waste, pollution, and toxicity. Simply stated, the marketplace gives us the wrong information. It tells us that flying across the country on a discount airline ticket is cheap when it is not. It tells us that our food is inexpensive when its method of production destroys aquifers and soil, the viability of ecosystems, and workers’ lives. Whenever an organism gets wrong information, it is a form of toxicity. In fact,

that is how pesticides work. A herbicide kills because it is a hormone that tells the plant to grow faster than its capacity to absorb nutrients allows. It literally grows itself to death. Sound familiar? Our daily doses of toxicity are the prices in the marketplace. They are telling us to do the wrong thing for our own survival. They are lulling us into cutting down old-growth forests on the Olympic Peninsula for apple crates, into patterns of production and consumption that are not just unsustainable but profoundly shortsighted and destructive. It is surprising that “conservative” economists do not support or understand this idea, because it is they who insist that we pay as we go, have no debts, and take care of business. Let’s do it.

3. Throw out and replace the entire tax system

The present tax system sends the wrong messages to virtually everyone, encourages waste, discourages conservation, and rewards consumption. It taxes what we want to encourage – jobs, creativity, payrolls, and real income – and ignores the things we want to discourage – degradation, pollution, and depletion. The present US tax system costs citizens \$500 billion a year in record-keeping, filing, administrative, 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 cheat for us. The entire tax system must be incrementally replaced over a 20-year period by “Green fees,” taxes that are added onto existing products, energy, services, and materials so that prices in the marketplace more closely approximate true costs. These taxes are not a means to raise revenue or bring down deficits, but must be absolutely revenue neutral so that people in the lower and middle classes experience no real change of income, only a shift in expenditures. Eventually, the cost of non-renewable resources, extractive energy, and industrial modes of production will be more expensive than renewable resources, such as solar energy, sustainable forestry, and biological methods of agriculture. Why should the upper middle class be able to afford to conserve while the lower income classes cannot? So far the environmental movement has only made the world better for upper middle class white people. The only kind of environmental movement that can succeed has to start from the bottom up. Under a Green fee system the incentives to save on taxes will create positive, constructive acts that are affordable for everyone. As energy prices go up to

three to four times their existing levels (with commensurate tax reductions to offset the increase), the natural inclination to save money will result in carpooling, bicycling, telecommuting, public transport, and more efficient houses. As taxes on artificial fertilizers, pesticides, and fuel go up, again with offsetting reductions in income and payroll taxes, organic farmers will find that their produce and methods are the cheapest means of production (because they truly are), and customers will find that organically grown food is less expensive than its commercial cousin. 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 product in the marketplace would be best for the customer, the worker, the environment, and the company. That is rarely the case today.

4. Allow resource companies to be utilities

An energy utility is an interesting hybrid of public-private interests. A utility gains a market monopoly in exchange for public control of rates, open books, and a guaranteed rate of return. Because of this relationship and the pioneering work of Amory Lovins, we now have markets for “negawatts.” It is the first time in the history of industrialism that a corporation has figured out how to make money by selling the absence of something. Negawatts are the opposite of energy: They represent the collaborative ability of a utility to harness efficiency instead of hydrocarbons. This conservation-based alternative saves ratepayers, shareholders, and the company money – savings that are passed along to everyone. All resource systems, including oil, gas, forests, and water, should be run by some form of utility. There should be markets in negabarrels, negatrees, and negacoal. Oil companies, for example, 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 supply of oil that would meet US consumption needs for only six months, is the only way an oil company can make money under our current system of commerce. But what if the oil companies formed an oil utility and cut a deal with citizens and taxpayers that allowed them to “invest” in insulation, super-glazed windows, conservation rebates on new automobiles, and the scrapping of old cars? Through Green fees, we would pay

them back a return on their conservation investment equal to what utilities receive, a rate of return that would be in accord with how many barrels of oil they save, rather than how many barrels they produce. Why should they care? Why should we? A \$60 billion investment in conservation will yield, conservatively, four to ten times as much energy as drilling for oil. Given Lovins' principle of efficiency extraction, try to imagine a forest utility, a salmon utility, a copper utility, a Mississippi River utility, a grasslands utility. Imagine a system where the resource utility benefits from conservation, makes money from efficiency, thrives through restoration, and profits from sustainability. It is possible today.

5. Change linear systems to cyclical ones

Our economy has many design flaws, but the most glaring one is that nature is cyclical and industrialism is linear. In nature, no linear systems exist, or they don't exist for long because they exhaust themselves into extinction. 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 toxic waste water, incinerator fly ash, agricultural wastes, heavy metals, and waste chemicals, paper, wood, etc. This does not include CO₂, which if it were included would double the amount of waste. Cyclical means of production are designed to imitate natural systems in which waste equals food for other forms of life, nothing is thrown away, and symbiosis replaces competition. Bill McDonough, a New York architect who has pioneered environmental design principles, has designed a system to retrofit every window in a major American city. Although it still awaits final approval, the project is planned to like this: the city and a major window manufacturer from a joint venture to produce energy-saving superglazed windows in the town. This partnership company will come to your house or business, measure all windows and glass doors, and then replace them with windows with an R-8 to R-12 energy-efficiency rating within 72 hours. The windows will have the same casements, molding, and general appearance as the old ones. You will receive a \$500 check upon installation, and you will pay for the new windows over a 10- to 15-year period in your utility or tax bill. The

total bill is less than the cost of the energy the windows will save. In other words, the windows will cost the home or business owner nothing. The city will pay for them initially with industrial development bonds. The factory will train and employ 300 disadvantaged people. The old windows will be completely recycled and reused, the glass melted into glass, the wooden frames ground up and mixed with recycled resins that are extruded to make the casements. When the city is reglazed, the residents and businesses will pocket an extra \$20 million to \$30 million every year in money saved on utility bills. After the windows are paid for, the figure will go even higher. The factory, designed to be transportable, will move to another city; the first city will retain an equity interest in the venture. McDonough has designed a win-win-win-win-win system that optimizes a number of agendas. The ratepayers, the homeowners, the renters, the city, the environment, and the employed all thrive because they are "making" money from efficiency rather than exploitation. It's a little like running the industrial economy backwards.

6. Transform the making of things

We have to institute the Intelligent Product System created by Michael Braungart of the EPEA (Environmental Protection Encouragement Agency) in Hamburg, Germany. The system recognizes three types of products. The first are *consumables*, products that are either eaten, or, when they're placed on the ground, turn into dirt without any bio-accumulative effects. In other words, they are products whose waste equals food for other living systems. At present, many of the products that should be "consumable," like clothing and shoes, are not. Cotton cloth contains hundreds of different chemicals, plasticizers, defoliants, pesticides, and dyes: shoes are tanned with chromium and their soles contain lead; neckties and silk blouses contain zinc, tin, and toxic dye. Much of what we recycle today turns into toxic by-products, consuming more energy in the recycling process than is saved by recycling. We should be designing more things so that they can be thrown away – into the compost heap. Toothpaste tubes and other non-degradable packaging can be made out of natural polymers so that they break down and become fertilizer for plants. A package that turns into dirt is infinitely more useful, biologically speaking, than a package that turns into a plastic park bench.

Heretical as it sounds, designing for decomposition, not recycling, is the way of the world around us.

The second category is *durables*, but in this case, they would not be sold, only licensed. Cars, TVs, VCRs, and refrigerators would always belong to the original manufacturer, so they would be made, used, and returned within a closed-loop system. This is already being instituted in Germany and to a lesser extent in Japan, where companies are beginning to design for disassembly. If a company knows that its products will come back someday, and that it cannot throw anything away when they do, it creates a very different approach to design and materials.

Last, there are *unsalables* – toxins, radiation, heavy metals, and chemicals. There is no living system for which these are food and thus they can never be thrown away. In Braungart's Intelligent Product System, unsalables must always belong to the original maker, safeguarded by public utilities called "parking lots" that store the toxins in glass-lined barrels indefinitely, charging the original manufacturers rent for the service. The rent ceases when an independent scientific panel can confirm that there is a safe method to detoxify the substances in question. All toxic chemicals would have molecular markers identifying them as belonging to their originator, so that if they are found in wells, rivers, soil, or fish, it is the responsibility of the company to retrieve them and clean up. This places the problem of toxicity with the makers, where it belongs, making them responsible for full-life-cycle effects.

7. Vote, don't buy

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 live in a plutocracy – government by the wealthy. One way out is to vote with your dollars, to withhold purchases from companies that act or respond inappropriately. Don't just avoid buying a Mitsubishi automobile because of the company's participation in the destruction of primary forests in Malaysia, Indonesia, Ecuador, Brazil, Bolivia, Canada, Chile, Siberia, and Papua New Guinea. Write and tell them why you won't. Engage in dialogue, send one postcard a week, talk, organize, meet, publish newsletters, boycott, patronize, and communicate with companies like General Electric. Educate non-profits, organizations, municipalities, and pension funds to act

affirmatively, to support the ecological CERES (formerly *Valdez*) Principles for business, to invest intelligently, and to *think* with their money, not merely spend it. Demand the best from the companies you work for and buy from. You deserve it and your actions will help them change.

8. Restore the "guardian"

There can be no healthy business sector unless there is a healthy governing sector. In her book *Systems of Survival*, author 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 that arose from territorial cultures. The guardian system is hierarchical, adheres to tradition, values loyalty, and shuns trading and inventiveness. The commercial system, on the other hand, is based on trading, so it values trust of outsiders, innovation, and future thinking. Each has qualities the other lacks. Whenever the guardian tries to be in business, as in Eastern Europe, business doesn't work. What is also true, but not so obvious to us, is that when business plays government, governance fails as well. Our guardian system has almost completely broken down because of the money, power, influence, and control exercised by business and, to a lesser degree, other institutions. Business and unions have to get out of government. We need more than campaign reform: We need a vision that allows us all to see that when Speaker of the House Tom Foley exempts the aluminum industry in his district from the proposed 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 that its involvement in governance is good corporate citizenship or at least is advancing its own interests. The reality is that business is preventing the economy from evolving. Business loses, workers lose, the environment loses.

9. Shift from electronic literacy to biologic literacy

That an average adult can recognize one thousand brand names and logos but fewer than ten local plants is not a good sign. We are moving not to an information age but to a biologic age, and unfortunately our technological education is equipping us for corporate markets, not the future. Sitting at home with virtual

reality gloves, 3D video games, and interactive cable TV shopping is a barren and impoverished vision of the future. The computer revolution is not the totem of our future, only a tool. Don't get me wrong. Computers are great. But they are not an uplifting or compelling vision for culture or society. They do not move us toward a sustainable future any more than our obsession with cars and televisions provided us with newer definitions or richer meaning. We are moving into the age of living machines, not, as Corbusier noted, "machines for living in." The Thomas Edison of the future is not Bill Gates of Microsoft, but John and Nancy Todd, founders of the New Alchemy Institute, a Massachusetts design lab and think tank for sustainability. If the Todds' work seems less commercial, less successful, and less glamorous, it is because they are working on the real problem – how to live – and it is infinitely more complex than a microprocessor. Understanding biological processes is how we are going to create a new symbiosis with living systems (or perish). What we can learn on-line is how to model complex systems. It is computers that have allowed us to realize how the synapses in the common sea slug are more powerful than all of our parallel processors put together.

10. Take inventory

We do not know how many species live on the planet within a factor of ten. We do not know how many are being extirpated. We do not know what is contained in the biological library inherited from the Cenozoic age. (Sociobiologist E. O. Wilson estimates that it would take 25,000 person-years to catalog most of the species, putting aside the fact that there are only 1,500 people with the taxonomic ability to undertake the task.) We do not know how complex systems interact – how the transpiration of the giant lily, *Victoria amazonica*, of Brazil's rainforests affects European rainfall and agriculture, for example. We do not know what happens to 20 percent of the CO₂ that is off-gassed every year (it disappears without a trace). We do not know how to calculate sustainable yields in fisheries and forest systems. We do not know why certain species, such as frogs, are dying out even in pristine habitats. We do not know the long-term effects of chlorinated hydrocarbons on human health, behavior, sexuality, and fertility. We do not know what a sustainable life is for existing inhabitants of the planet, and certainly not for future populations. (A Dutch study calculated that your fair share of air

travel is one trip across the Atlantic in a lifetime.) We do not know how many people we can feed on a sustainable basis, or what our 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.

11. Take care of human health

The environmental and socially responsible movements would gain additional credibility if they recognized that the greatest amount of human suffering and mortality is caused by environmental problems that are not being addressed by environmental organizations or companies. Contaminated water is killing a hundred times more people than all other forms of pollution combined. Millions of children are dying from preventable diseases and malnutrition.

The movement toward sustainability must address the clear and present dangers that people face worldwide, dangers that ironically increase population levels because of their perceived threat. People produce more children when they're afraid they'll lose them. Not until the majority of the people in the world, all of whom suffer in myriad preventable yet intolerable ways, understand that environmentalism means improving their lives directly will the ecology movement walk its talk. Americans will spend more money in the next 12 months on the movie and tchotchkes of *Jurassic Park* than on foreign aid to prevent malnutrition or provide safe water.

12. Respect the human spirit

If hope is to pass the sobriety test, then it has to walk a pretty straight line to reality. Nothing written, suggested, or proposed here is possible unless business is willing to integrate itself into the natural world. It is time for business to take the initiative in a genuinely open process of dialogue, collaboration, reflection, and redesign. "It is not enough," writes Jeremy Seabrook of the British Green party, "to declare, as many do, that we are living in an unsustainable way, using up resources, squandering the substance of the next generation however true this may be. People must feel subjectively the injustice and unsustainability before they will make a more sober assessment as to whether it is worth maintaining what is, or whether there might not be more equitable and satisfying ways that will not be won at the expense either of the necessities of the poor or of the wasting fabric of the planet."

Poet and naturalist W. S. Merwin (citing Robert Graves) reminds us that we have one story, and one story only, to tell in our lives. We are made to believe by our parents and businesses, by our culture and televisions, by our politicians and movie stars that it is the story of money, of finance, of wealth, of the stock portfolio, the partnership, the country house. These are small, impoverished tales and whispers that have made us restless and craven; they are not stories at all. As author and garlic grower Stanley Crawford puts it, "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, 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

lifelines, it is our seed, our clove, our filament cast toward the future." It is something deeper than anything commercial culture can plumb, and it is waiting for each of us.

Business must yield to the longings of the human spirit. The most important contribution of the socially responsible business movement has little to do with recycling, nuts from the rainforest, or employing the homeless. Their gift to us is that they are leading by trying to do something, to risk, take a chance, make a change – any change. They are not waiting for "the solution," but are acting without guarantees of success or proof of purchase. This 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.

67 The Steady-State Economy

Herman E. Daly

The Concept of a Steady-State Economy

The steady-state economy (SSE) is defined by four characteristics:

- 1 A constant population of human bodies.
- 2 A constant population or stock of artifacts (exosomatic capital or extensions of human bodies).
- 3 The levels at which the two populations are held constant are sufficient for a good life and sustainable for a long future.
- 4 The rate of throughput of matter-energy by which the two stocks are maintained is reduced to the lowest feasible level. For the population this means that birth rates are equal to death rates at low levels so that life expectancy is high. For artifacts it means that production equals depreciation at low

levels so that artifacts are long lasting, and depletion and pollution are kept low.

Only two things are held constant – the stock of human bodies and the total stock or inventory of artifacts. Technology, information, wisdom, goodness, genetic characteristics, distribution of wealth and income, product mix, and so on are *not* held constant. In the very long run, of course, nothing can remain constant, so our concept of a SSE must be a medium-run concept in which stocks are constant over decades or generations, not millennia or eons.

Three magnitudes are basic to the concept of a SSE:

- 1 *Stock* is the total inventory of producers' goods, consumers' goods, and human bodies. It corresponds to Irving Fisher's (1906) definition of

capital and may be thought of as the set of all physical things capable of satisfying human wants and subject to ownership.

- 2 *Service* is the satisfaction experienced when wants are satisfied, or "psychic income" in Fisher's sense. Service is yielded by the stock. The quantity and quality of the stock determine the intensity of service. There is no unit for measuring service, so it may be stretching words a bit to call it a magnitude. Nevertheless, we all experience service or satisfaction and recognize differing intensities of the experience. Service is yielded over a period of time and thus appears to be a flow magnitude. But unlike flows, service cannot be accumulated. It is probably more accurate to think of service as a "psychic flux" (Georgescu-Roegen, 1966, 1971).
- 3 *Throughput* is the entropic physical flow of matter-energy from nature's sources, through the human economy and back to nature's sinks; it is necessary for maintenance and renewal of the constant stocks (Boulding, 1966; Daly, 1968; Georgescu-Roegen, 1971).

The relationship among these three magnitudes can best be understood in terms of the following simple identity (Daly, 1974):

$$\frac{\text{service}}{\text{throughput}} \equiv \frac{\text{service}}{\text{stock}} \times \frac{\text{stock}}{\text{throughput}}$$

[. . .]

In the SSE a different behavior mode is adopted with respect to each of the three basic magnitudes. (1) *Stock* is to be "*satisfied*" – maintained at a level that is sufficient for an abundant life for the present generation and ecologically sustainable for a long (but not infinite) future.¹ (2) *Service* is to be *maximized*, given the constant stock. (3) *Throughput* is to be *minimized*, given the constant stock. In terms of the two ratios on the right-hand side of the identity, this means that the ratio (service/stock) is to be maximized by maximizing the numerator with the denominator constant, while the ratio (stock/throughput) is maximized by minimizing the denominator with the numerator constant. These two ratios measure two kinds of efficiency: service efficiency and maintenance efficiency.

Service efficiency (service/stock) depends on allocative efficiency (does the stock consist of artifacts that people most want and are they allocated to

the most important uses?), and on distributive efficiency (is the distribution of the stock among alternative people such that the trivial wants of some people do not take precedence over the basic needs of others?). Standard economics has much of value to say about allocative efficiency, but it treats distribution under the heading of social justice rather than efficiency, thus putting it on the sidelines of disciplinary concern. Although neoclassical economists carefully distinguish allocation from distribution in static analysis, they seem not to insist on any analogous distinction between intertemporal allocation (one person allocating over different stages of his lifetime) and intertemporal distribution (distribution between different people, that is, present people and future people). Intertemporal distribution is a question of ethics, not a function of the interest rate. The notion of optimal allocation over time must be confined to a single lifetime unless we are willing to let ethics and distributional issues into the definition of optimum. Neoclassical economics seems inconsistent, or at least ambiguous, on this point.

Maintenance efficiency (stock/throughput) depends on durability (how long an individual artifact lasts) and on replaceability (how easily the artifact can be replaced when it finally does wear out). Maintenance efficiency measures the number of units of time over which a population of artifacts yields its service, while service efficiency measures the intensity of that service per unit of time. Maintenance efficiency is limited by the entropy law (nothing lasts forever; everything wears out). Service efficiency may conceivably increase for a very long time, since the growing "magnitude," service, is nonphysical. There may, however, be physical limits to the capacity of human beings to experience service. But the definition of the SSE is in terms of physical stocks and throughput and is not affected by whether or not service could increase indefinitely.

[. . .]

The above concepts allow us to make an important distinction between growth and development. *Growth* refers to an increase in service that results from an increase in stock and throughput, with the two efficiency ratios constant. *Development* refers to an increase in the efficiency ratios, with stock constant (or alternatively, an increase in service with throughput constant). Using these definitions, we may say that a SSE develops but does not grow, just as the planet earth, of which it is a subsystem, develops without growing.

How do these concepts relate to GNP, the more conventional index of "growth"? GNP makes no distinction among the three basic magnitudes. It simply adds up value estimates of some services (the service of those assets that are rented rather than purchased, including human bodies, and omitting the services of all owned assets not rented during the current year, with the exception of owner-occupied houses), plus the value of the throughput flow (maintenance and replacement expenditures required to maintain the total stock intact), plus the value of current additions to stock (net investment). What sense does it make to add up benefits, costs, and change in inventory? Services of the natural ecosystem are not counted, and, more important, services sacrificed are not subtracted. In fact, defensive attempts to repair the loss of ecosystem services are added to GNP. The concept of a SSE is independent of GNP, and what happens to GNP in the SSE simply does not matter. The best thing to do with GNP is to forget it. The next best thing is to try to replace it with two separate social accounts, one measuring the value of service (benefit) and the other measuring the value of throughput (cost). In this way costs and benefits could be compared, although this aggregate macrolevel comparison is not at all essential, since regardless of how it turns out the behavior modes remain the same with respect to each of the three basic magnitudes. If we really could get operational cost and benefit accounts, then we might optimize the level of stocks by letting it grow to the point where the marginal cost of an addition to stock just equals the marginal benefit. But that is so far beyond our ability to measure that satisficing will for a long time remain a better strategy than optimizing. Aggregate economic indices should be treated with caution, since there are always some kinds of stupid behavior that would raise the index and thus become "justified."

Neither the concept nor the reality of a SSE is new. John Stuart Mill (1881) discussed the concept in his famous chapter on the stationary state. Historically, people have lived for 99 percent of their tenure on earth in conditions very closely approximating a steady state. Economic growth is essentially a phenomenon of the last 200 years, and only in the last 50 years has it become the dominant goal of nations. Growth is an aberration, not the norm. Development can continue without growth and is, in fact, more likely under a SSE than under a growth economy.

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Social Institutions

The social institutions of control for a SSE are of three kinds: those for maintaining a constant population, those for maintaining a constant stock of physical wealth, and those governing distribution. In all cases the guiding design principle for social institutions is to provide the necessary control with a minimum sacrifice of personal freedom, to provide macrostability while allowing for microvariability, to combine the macrostatic with the microdynamic (Luten, n.d.).

The distribution institution

The critical institution is likely to be that of the minimum and maximum limits on income and the maximum limit on wealth. Without some such limits private property and the whole market economy lose their moral basis, and there would be no strong case for extending the market to cover birth quotas and depletion quotas as a means of institutionalizing environmental limits. Exchange relations are mutually beneficial among relative equals. Exchange between the powerful and the powerless is often only nominally voluntary and can easily be a mask for exploitation, especially in the labor market, as Marx has shown.

There is considerable political support for a minimum income, financed by a negative income tax, as an alternative to bureaucratic welfare programs. There is no such support for maximum income or maximum wealth limits. In the growth paradigm there need be no upper limit. But in the steady-state paradigm there must be an upper limit to the total, and consequently an upper limit to per capita income as well. A minimum wealth limit is not feasible, since we can always spend our wealth and could hardly expect to have it restored year after year. The minimum income would be sufficient. But maximum limits on both wealth and income are necessary, since wealth and income are largely interchangeable, and since, beyond some point, the concentration of wealth becomes inconsistent with both a market economy and political democracy. John Stuart Mill (1881) put the issue very well:

Private property, in every defense made of it, is supposed to mean the guarantee to individuals of the fruits of their own labor and abstinence. The guarantee to them of the fruits of the labor and abstinence of others, transmitted to them without any merit or exertion of their own, is not of the essence

of the institution, but a mere incidental consequence, which, when it reaches a certain height, does not promote, but conflicts with, the ends which render private property legitimate.

According to Mill, private property is legitimated as a bastion against exploitation. But this is true only if everyone owns some minimum amount. Otherwise, private property, when some own a great deal of it and others have very little, becomes the very *instrument* of exploitation rather than a guarantee against it. It is implicit in this view that private property is legitimate only if there is some distributist institution (as, for example, the Jubilee year of the Old Testament) that keeps inequality of wealth within justifiable limits. Such an institution is now lacking. The proposed institution of maximum wealth and income plus minimum income limits would remedy this severe defect and make private property legitimate again. It would also go a long way toward legitimating the free market, since most of our blundering interference with the price system (e.g., farm programs, minimum wage, rent controls) has as its goal an equalizing alteration in the distribution of income and wealth. Thus such a distributist policy is based on impeccably respectable premises: private property, the free market, opposition to welfare bureaucracies and centralized control. It also heeds the radicals' call of "power to the people," since it puts the source of power, namely property, in the hands of the many people, rather than in the hands of the few capitalist plutocrats and socialist bureaucrats.

The concept of private property here adopted is the classical view of John Locke, Thomas Jefferson, and the Founding Fathers. It is emphatically not the apologetic doctrine of big business that the term *private property* evokes today. Limits are built into the very notion of property, according to Locke (quoted in McCloughry, 1974, p. 31):

Whatsoever, then, a man removes out of the state that nature hath provided and left it in, he hath mixed his labor with it, and joined to it something that is his own, and thereby makes it his property. But how far has God given property to us to enjoy? As much as anyone can make use of to any advantage of life before it spoils, so much may he by his labor fix his property in. Whatever is beyond this is more than his share, and belongs to others.

Clearly, Locke had in mind some maximum limit on property, even in the absence of general scarcity.

Locke assumed, reasonably in his time, that resources were superabundant. But he insisted that the right to property was limited. Growing resource scarcity reinforces this necessity of limits. [. . .]

Maximum limits on income and wealth were an implicit part of the philosophy of all the prominent statesmen of early America except Alexander Hamilton.

Maximum income and wealth would remove many of the incentives to monopolistic practices. Why conspire to corner markets, fix prices, and so forth, if you cannot keep the loot?

[. . .]

Transferable birth licenses

This idea was first put forward in 1964 by Kenneth Boulding (1964, pp. 135–6). Hardly anyone has taken it seriously, as Boulding knew would be the case. Nevertheless, it remains the best plan yet offered, if the goal is to attain aggregate stability with a minimum sacrifice of individual freedom and variability. It combines macrostability with microvariability. Since 1964 we have experienced a great increase in public awareness of the population explosion and an energy crisis, and we are now experiencing the failures of the great "technological fixes" (green revolution, nuclear power, and space). This has led at least one respected demographer to take Boulding's plan seriously, and more will probably follow (Heer, 1975).

So many people react so negatively to the birth license plan that I should emphasize that the other two institutions (distributive limits and depletion quotas) do not depend on it. The other two proposals could be accepted and the reader can substitute his own favorite population control plan if he is allergic to this one.

The plan is simply to issue equally to every person (or perhaps only to every woman, since the female is the limitative factor in reproduction, and since maternity is more demonstrable than paternity) an amount of reproduction licenses that corresponds to replacement fertility. Thus each woman would receive 2.1 licenses. The licenses would be divisible in units of one-tenth, which Boulding playfully called the "deci-child." Possession of ten deci-child units confers the legal right to one birth. The licenses are freely transferable by sale or gift, so those who want more than two children and can afford to buy the extra licenses, or can acquire them by gift, are free to do so. The original distribution of the licenses is on the basis of

strict equality, but exchange is permitted, leading to a reallocation in conformity with differing preferences and abilities to pay. Thus distributive equity is achieved in the original distribution, and allocative efficiency is achieved in the market redistribution.

[. . .]

There is an understandable reluctance to couple money and reproduction – somehow it seems to profane life. Yet life is physically coupled to increasingly scarce resources, and resources are coupled to money. If population growth and economic growth continue, then even free resources, such as breathable air, will become either coupled to money and subject to price or allocated by a harsher and less efficient means. Once we accept the fact that the price system is the most efficient mechanism for rationing the right to scarce life-sustaining and life-enhancing resources, then perhaps rather than “money profaning life” we will find that “life sanctifies money.” We will then take the distribution of money and its wise use as serious matters. It is not the exchange relationship that debases life (indeed, the entire biosphere runs on a network of material and energy exchanges), it is the underlying inequity in wealth and income beyond any functional or ethical justification that loads the terms of free exchange against the poor. The same inequality also debases the “gift relationship,” since it assigns the poor to the status of a perpetual dependent and the rich to the status of a weary and grumbling patron. Thus gift as well as exchange relationships require limits to the degree of inequality if they are not to subvert their legitimate ends. The sharing of resources in general is the job of the distributist institution. Allocation of particular resources and scarce rights is done by the market within the distribution limits imposed.

[. . .]

Depletion quotas

The strategic point at which to impose control on the throughput flow seems to me to be the rate of depletion of resources. If we limit aggregate depletion, then, by the law of conservation of matter and energy, we will also indirectly limit aggregate pollution. If we limit throughput flow, then we also indirectly limit the size of the stocks maintained by that flow. Entropy is at its minimum at the input (depletion) end of the throughput pipeline and at its maximum at the output (pollution) end. Therefore, it is

physically easier to monitor and control depletion than pollution.

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An example will illustrate the reason for putting the control (whether tax or quota) on resources rather than on commodities. Suppose the government taxes automobiles heavily and that people take to riding bicycles instead of cars. They will save money as well as resources (Hannon, 1975). But what will the money saved now be spent on? If it is spent on airline tickets, resource consumption would increase above what it was when the money was spent on cars. If the money is spent on theater tickets, then perhaps resource consumption would decline. However, this is not certain, because the theater performance may entail the air transport of actors, stage sets, and so on, and thus indirectly be as resource-consumptive as automobile expenditures. If people paid the high tax on cars and continued buying the same number of cars, then they would have to cut other items of consumption. The items cut may or may not be more resource-intensive than the items for which the government spends the revenue. If the revenue is spent on B-1 bombers, there would surely be a net increase in resource consumption. The conclusion is that the tax or quota should be levied on the resource itself rather than on the commodity.

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How would a depletion quota system function? The market for each resource would become two-tiered. To begin with, the government, as a monopolist, would auction the limited quota rights to many buyers. Resource buyers, having purchased their quota rights, would then have to confront many resource sellers in a competitive resource market. The competitive price in the resource market would tend to equal marginal cost. More efficient producers would earn differential rents, but the pure scarcity rent resulting from the quotas would have been captured in the depletion quota auction market by the government monopoly. The total price of the resource (quota price plus price to owner) would be raised as a result of the quotas. All products using these resources would become more expensive. Higher resource prices would compel more efficient and frugal use of resources by both producers and consumers. But the windfall rent from higher resource prices would be captured by the government and become public income – a partial realization of Henry George’s ideal of a single tax on rent (George, 1951).

The major advantage is that higher resource prices, would bring increased efficiency, while the quotas would directly limit depletion, thereby increasing conservation and indirectly limiting pollution. Pollution would be limited in two ways. First, since pollution is simply the other end of the throughput from depletion, limiting the input to the pipeline would naturally limit the output. Second, higher prices would induce more recycling, thereby further limiting materials pollution and depletion up to the limit set by the increased energy throughput required by recycling. The revenue from the depletion quota auction could help finance the minimum-income component of the distributist institution, offsetting the regressive effect of the higher resource prices on income distribution. Attempts to help the poor by underpricing resources are totally misguided, because the greatest benefit of subsidized prices for energy, for example, goes to those who consume the most energy – the rich, not the poor. This is hardly progressive.

[. . .]

A coordinated program

Let us now consider all three institutions as a unified program.

The allocation among firms of the limited aggregate of resources extracted during a given time period would be accomplished entirely by the market. The distribution of income within the maximum and minimum boundaries imposed would also be left to the market. The initial distribution of reproductive licenses is done outside the market on the basis of strict equity – one person, one license – but reallocation via market exchange is permitted in the interest of efficiency. The combination of the three institutions presents a nice reconciliation of efficiency and equity and provides the ecologically necessary macrocontrol of growth with the least sacrifice in terms of microlevel freedom and variability. The market is relied upon to allocate resources and distribute incomes within imposed ecological and ethical boundaries. The market is not allowed to set its own boundaries, but it is free within those boundaries. Setting boundaries is necessary. No one has ever claimed that market equilibria would automatically coincide with ecological equilibria or with a reasonably just distribution of wealth and income. Nor has anyone ever claimed that market equilibria would attain demographic balance. The very

notions of “equilibrium” in economics and ecology are antithetical. In growth economics equilibrium refers not to physical magnitudes at all but to a balance of desires between savers and investors. As long as saving is greater than depreciation, then net investment must be positive. This implies a *growing* flow of physical inputs from and outputs to nature, that is, a biophysical disequilibrium. Physical conditions of environmental equilibrium must be imposed on the market in aggregate quantitative physical terms. Subject to these quantitative constraints, the market and price system can, with the institutional changes just discussed, achieve an optimal allocation of resources and an optimal adjustment to its imposed physical system boundaries. The point is important because the belief is widespread among economists that internalization of externalities, or the incorporation of all environmental costs into market prices, is a sufficient environmental policy and that once this is accomplished the market will be able to set its own proper boundaries automatically. This is not so. Nor, as we have already seen, is it possible to incorporate all ecological costs in rigged money prices.

The internalization of externalities is a good strategy for fine-tuning the allocation of resources by making relative prices better measures of relative marginal social costs. But it does not enable the market to set its own absolute physical boundaries with the larger ecosystem. To give an analogy: Proper allocation arranges the weight in a boat optimally, so as to maximize the load that can be carried. But there is still an absolute limit to how much weight a boat can carry, even optimally arranged. The price system can spread the weight evenly, but unless it is supplemented by an external absolute limit, it will just keep on spreading the increasing weight evenly until the evenly loaded boat sinks. No doubt the boat would sink evenly, *ceteris paribus*, but that is less comforting to the average citizen than to the neoclassical economist.

Two distinct questions must be asked about these proposed institutions for achieving a steady state. First, would they work if people accepted the goal of a steady state and perhaps voted the institutions into effect? Second, would people ever accept either the steady-state idea or these particular institutions? I have tried to show that the answer to the first question is probably “yes.” Let the critic find any remaining flaws; better yet, let him suggest improvements. The answer to the second question is clearly “no” in

the short run. But several considerations make acceptance more plausible in the not-too-long run.

The minimum-income side of the distributist institution already has some political support in the United States; the maximum limits will at first be thought un-American. Yet, surely, beyond some figure any additions to personal income would represent greed rather than need, or even merit. Most people would be willing to believe that in most cases an income in excess of, let us say, \$100,000 per year has no real functional justification, especially when the highly paid jobs are usually already the most interesting and pleasant.

In spite of their somewhat radical implications, the proposals presented in this chapter are, as we have seen, based on impeccably respectable conservative institutions: private property and the free market.

[. . .]

All three of the institutions we have discussed are capable of gradual application during the transition to a steady state. The birth quota does not have to be immediately set at negative or zero growth, or even at replacement, but could begin at any currently prevailing level and gradually approach replacement or lower fertility. Initially the certificate price would be zero, and it would rise gradually as the number of certificates issued to each person was cut from, for instance, 1.1, to 1.0, to 0.9, or to whatever level is desired. The depletion quotas could likewise be set at present levels or even at levels corresponding to a slower rate of increase than in the recent past. They could be applied first to those materials in shortest supply and to those whose wastes are hardest to absorb. Initial prices on quota rights would be low but then would rise gradually as growth pressed against the fixed quotas or as quotas were reduced in the interest of conservation. In either case the increased scarcity rent would become revenue to the government. The distribution limits might begin near the present extremes and slowly close to a more desirable range. The three institutions are amenable to any degree of gradualism we may wish. However, the distribution limits must be tightened faster than the depletion limits if the burden on the poor is to be lightened. All three control points are price system parameters, and altering them does not interfere with the static allocative efficiency of the market.

But it is also the case that these institutions could be totally ineffective. Depletion quotas could be endlessly raised on the grounds of national defense,

balance of payments, and so forth. Real estate and construction interests, not to mention the baby food and toy lobbies and the military, might convince Congress to keep the supply of birth licenses well above replacement level. People at the maximum income and wealth limit may succeed in continually raising that limit by spending a great deal of their money on TV ads extolling the Unlimited Acquisition of Everything as the very foundation of the American Way of Life. Everything would be the same and all justified in the sacred name of growth. Nothing will work unless we break our idolatrous commitment to material growth.

A definite US policy of population control at home would give us a much stronger base for preaching to the underdeveloped countries about their population problem. So would the reduction in US resource consumption resulting from depletion quotas. Without such a base to preach from we will continue to waste our breath, as we did at the 1974 Population Conference in Bucharest.

Thus we are brought back to the all-important moral premises. A physical steady state, if it is to be worth living in, absolutely requires moral growth. Future progress simply must be made in terms of the things that really count rather than the things that are merely countable. Institutional changes are necessary but insufficient. Moral growth is also necessary but insufficient. Both together are necessary and sufficient, but the institutional changes are relatively minor compared to the required change in values.

On Moral Growth

Let us assume for a moment that the necessity of the steady state and the above outline of its appropriate technologies and social institutions are accepted. Logic and necessity are not sufficient to bring about social reform. The philosopher Leibnitz observed, "If geometry conflicted with our passions and interests as much as do ethics, we would contest it and violate it as much as we do ethics now, in spite of all the demonstrations of Euclid and Archimedes, which would be labeled paralogisms and dreams" (quoted in Sauvy, 1970, p. 270). Leibnitz is surely correct. However logical and necessary the above outline of the steady state, it is, on the assumption of static morality, nothing but a dream. The physically steady economy absolutely requires moral growth beyond the present level.

Economists and other social scientists of positivistic bias seem to consider appeals to morality as cheating, as an admission of intellectual defeat, like bending the pieces of a jigsaw puzzle. In economics there is a long and solid tradition of regarding moral resources as static and too scarce to be relied upon. In the words of the great British economist Alfred Marshall, "progress chiefly depends on the extent to which the *strongest* and not merely the *highest* forces of human nature can be utilized for the increase of social good" (quoted in Robertson, 1956, p. 148).

Presumably self-interest is stronger and more abundant than brotherhood. Presumably "progress" and "social good" can be defined independently of the driving motive of society.

Another British economist, D. H. Robertson, once asked the illuminating question: What is it that economists economize? His answer was "love, the scarcest and most precious of all resources" (Robertson, 1956, p. 154). Paul Samuelson quotes Robertson approvingly in the latest edition of *Economics*, his influential textbook. Nor are economists alone in ruling out reliance on moral resources. The reader will recall that in his "Tragedy of the Commons" biologist Garrett Hardin identifies a class of problems with no technical solution. He rules out moral solutions as self-eliminating on a somewhat far-fetched evolutionary analogy, and advocates a political solution: mutual coercion mutually agreed upon. This is fine, but where is the mutual agreement to come from if not from shared values, from a convincing morality? Political scientist Beryl Crowe (1969), in revisiting the tragedy of the commons, argues that the set of no-technical-solution problems coincides with the set of no-political-solution problems and that Hardin's "mutual coercion mutually agreed upon" is politically impossible. Between them they present a convincing case that "commons problems" will not be solved technically nor politically, assuming static morality. Mutual coercion does not substitute for, but presupposes, moral growth.

[. . .]

The morality of the steady state is that of the Sermon on the Mount. Growthmania requires the negation of that morality. If we give our first attention to the evils of the day, we will have moral growth though not so much economic growth. If we anxiously give our first attention to tomorrow's larger income, we will have economic growth but little or no moral growth. Since economic growth is reach-

ing physical limits anyway, we may now find the Sermon on the Mount more appealing and easier to accept.

[. . .]

There are other sources of moral support for the steady state besides the Sermon on the Mount. From the Old Testament we have two creation myths, the Priestly and the Yahwistic, one that gives value to creation only with reference to man, and one that gives value to creation independently of man. In Western thought the first tradition has dominated, but the other is there waiting to receive its proper emphasis. Also, Aldo Leopold's "land ethic" is extremely appealing and would serve admirably as the moral foundation of the steady state. Finally Karl Marx's materialism and objection to the alienation of man from nature can be enlisted as a moral foundation of the steady state. Marx recognized that nature is the "inorganic body of man" and not just a pile of neutral stuff to be dominated (Marx, 1963, p. 127).

In writing this chapter, I've considered the steady state only at a national level. Clearly the world as a whole must eventually adjust to a steady state. Perhaps ultimately this recognition will promote unity among nations – or, conversely, the desire for unity may promote the recognition. However, when nations cannot even agree to limit the stock of "bads" through disarmament, it is hard to be optimistic about their limiting the stocks of "goods." There is no alternative except to try, but national efforts need not wait for international agreement.

Finally, one rather subtle yet very powerful moral force can be enlisted in support of the steady-state paradigm. That is wholeness. If the truth is the whole, as Hegel claimed, then our current splintered knowledge is so far from truth that it is hardly worth learning. I believe this is why many of our best university students do not work very hard at their studies. Why continue mining the deep, narrow, disciplinary shafts sunk into man's totality by the intellectual fragment makers? Why deepen the tombs in which we have buried the wholeness of knowledge? Why increase the separation of people by filling separate heads with separate fragments of knowledge? The malaise reflected in these questions is very grave, and is, in my view, a major reason for the new surge of interest in ecology. Ecology is whole. It brings together the broken, analyzed, alienated, fragmented pieces of man's image of the world. Ecology is also a fad, but when the fad passes, the movement toward

wholeness must continue. Unless the physical, the social, and the moral dimensions of our knowledge are integrated in a unified paradigm offering a vision of wholeness, no solutions to our problems are likely. John Stuart Mill's idea of the stationary state seems to me to offer such a paradigm.

[. . .]

Probably the rule of right action most accepted in practice is Jeremy Bentham's greatest good for the greatest number. Economists have avoided the difficult problem of defining *good* by substituting the word *goods*, in the sense of commodities. The principle thus became the greatest per capita product for the greatest number. More products per capita and more people to enjoy those products lead, in this view, to the greater social good. Our commitment to growth is no doubt based in considerable degree on this principle, which implies that right action is that which leads to more goods for more people.

But there are two problems with the greatest per capita product for the greatest number. First, as others have pointed out, the dictum contains one too many "greatests." It is not possible to maximize more than one variable. It is clear that numbers of people could be increased by lowering per capita product, and per capita product could be increased by lowering numbers, since resources taken from one goal can be devoted to the other. Second, it makes a big difference whether "greatest number" refers to those simultaneously alive or to the greatest number ever to live *over time*.

To resolve the first of these difficulties, we must maximize one variable only and treat some chosen level of the other as a constraint on the maximization. For one of the "greatests" we must substitute *sufficient*. There are two possible substitutions: the greatest per capita product for a sufficient number, or a sufficient per capita product for the greatest number. Which is the better principle? I suggest that we adopt the latter, and that "greatest number" be understood as greatest number over time, which takes care of the second problem. The revised principle thus becomes *sufficient per capita product for the greatest number over time*.

It is hard to find any objection to maximizing the number of people who will ever live at a material level sufficient for a good life. However, this certainly does *not* mean maximizing the number alive at any one time. On the contrary, it means the avoidance of any destruction of the earth's capacity to support life, a destruction that results from over-

loading the life support system by having too many people – especially high-consuming people – alive at once. The opportunity cost of those extra lives in the present is fewer people alive in all subsequent time periods, and consequently a reduction in total lives ever to be lived at the sufficient level. Increasing per capita product beyond the sufficient level (extravagant luxury) may also overburden life support systems and have the same long-run life-reducing effect as excess population.

Maximizing number while satisficing per capita product does not imply that quantity of life is a higher value than quality. It does assume that beyond some level of sufficiency further increase in per capita goods does not increase quality of life and, in fact, may well diminish it. But sufficiency is the first consideration. To put it more concretely, the basic needs of all present people take priority over future numbers, but the existence of more future people takes priority over the trivial wants of the present. The impact of this revised utilitarian rule is to maximize life, or, what is the same thing, to economize the long-run capacity of the earth to support life at a sufficient level of individual wealth. The sufficient level may be thought of as a range of limited inequality rather than a single specific per capita income applicable to everyone. Some inequality is necessary for fairness.

This modified utilitarian principle certainly offers no magic philosopher's stone for making difficult choices easy. But it does seem superior to the old Benthamite rule in that it draws our attention to the concept of sufficiency, and it extends our time horizon. It forces us to face the question of purpose: sufficient *for what?* needed for what? It will be very difficult to define sufficiency and build the concept into economic theory and practice. But I think it will prove far more difficult to continue to operate on the principle that there is no such thing as enough.

Note

- 1 To *satisfice*, as used here, means to seek enough rather than the most. The concept of "enough" is difficult to define but even more difficult to deny.

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68 Making Capitalism Sustainable

John Elkington

Is Capitalism Sustainable?

Capitalism and sustainability, however much we may wish it otherwise, do not make easy bedfellows. As *Fortune* recently put it:

Corporations were put on this earth, after all, to make money, and to some minds, profit maximization will never seem all that different from greed. But profits, of course, pay for the latest equipment and technology that produce economic growth and more jobs. If corporations weren't greedy like that, they'd go out of business and then we'd all be in trouble.¹

Well maybe. But the sustainability lobby points out that we are in trouble already, often because of the self-interested way in which most corporations have interpreted their missions. So, it asks, can the capitalist system change not only its spots but also its

very nature? Can these corporate cannibals, in short, not only learn to use more civilized tools but also begin to shift their diet towards inputs that are less ecologically, socially, and economically damaging?

Meanwhile, although it is far from clear that capitalism is significantly more environmentally damaging than the alternatives, it has been in the spotlight recently both because of its rising global power and because of what some would have us believe is the "end of history." In 1989, Francis Fukuyama wrote an influential article arguing that the world was seeing the development of a quite remarkable consensus on the legitimacy of liberal democracy as a system of government. This system, he suggested, had conquered rival ideologies such as hereditary monarchy, fascism, and communism. In this narrow sense, he believed that we were seeing the end of history, the "end point of mankind's ideological evolution" and the "final form of human government."

From John Elkington, *Cannibals with Forks: The Triple Bottom Line of 21st Century Business* (Capstone Publishing Ltd, 1999), pp. 24–5, 25–6, 35, 37, 38–9, 70–6, 79–81, 84–6, 87–8, 92–4, 94–6 (notes). © John Elkington, 1997, 1999. Reprinted with permission from Wiley-Blackwell.

The almost immediate crackdown by the Chinese communists after the Tiananmen Square protests in 1989, and the 1991 Iraqi invasion of Kuwait and ensuing Gulf War led many critics to argue that Fukuyama – who followed up with a controversial book, *The End of History and The Last Man*² in 1992 – was wrong. Whatever the facts, some analysts fear that the world may potentially be even more unstable after the end of the “Cold War” than it was when the West and the Soviet Union were poised in nuclear deadlock. Certainly, the potential for “rogue” states to develop their own nuclear, chemical, or biological arsenals appears much greater now that many of the defence industry skills of the old USSR are available on the open market. In this context, any transition to more sustainable forms of economic development will have to cope with – and may even trigger – major political dislocations. If we fail to wake up to and manage these challenges in time, they may well derail key elements of the sustainability transition.

[. . .]

Stripped to its essence, capitalism – of whatever brand – is an economic (and, necessarily, political) system in which individual owners of capital are (relatively) free to dispose of it as they please and, in particular, for their own profit. As we will see, there are many different ways of calculating, defining and valuing capital, but a key question for all capitalist societies in the 21st century will be whether their particular version can be sustained in the face of broader economic, political, social, and environmental challenges? This question is becoming more urgent as we see a shift in the balance of international power, with nations tending to lose power and transnational corporations tending to become increasingly powerful.

[. . .]

It is not yet remotely clear whether capitalism can ever become sustainable, as that term is currently understood. But there is enough evidence to suggest that the free enterprise model offers the best hope of moving in that direction – provided that it is suitably shaped by social and regulatory pressures. Its real strength is that, more than any other model subjected to large-scale testing, it promises to help harness human creativity and innovation to the sustainability cause.

[. . .]

Marx, it turns out, was right in much of his analysis but his prognosis was deeply flawed; Kruschew’s,

too. Even so, the last thing 21st century corporations will be able to do is put their corporate feet up. On top of all the other changes under way, the sustainability transition will destroy some industries and force the radical restructuring of others. It will be the unmaking of tens of thousands of companies and businesses around the world. But it will also provide the seedbed conditions for hundreds of thousands, indeed millions, of new businesses.

[. . .]

[W]e are still a long way from sustainability. Systems thinking tells us that sustainability cannot be defined for a single corporation. Instead, it must be defined for a complete economic–social–ecological system, and not for its component parts.³ Think of an industry directly based on a renewable natural resource, such as the fishing industry. A captain of a fishing vessel might fish for his entire life without depleting fish stocks in an area, but if he were joined by a sufficiently large fleet of identical vessels, the fishery could be destroyed. The behavior of the captain and his vessel would not have changed, but in the first case it would be sustainable and in the second not.

Worse, as Paul Hawken has pointed out in *The Ecology of Commerce*,⁴ is that:

we are faced with a sobering irony: If every company on the planet were to adopt the environmental and social practices of the best companies – of, say, the Body Shop, Patagonia, and Ben and Jerry’s – the world would still be moving toward environmental degradation and collapse.

Ultimately, Paul Hawken argues, the problem we face is not so much a management problem as a *design* problem. “In order to approximate a sustainable society,” he concludes, “we need to describe a system of commerce and production in which each and every act is inherently sustainable and restorative.” This is the challenge implicit in the sustainability transition. Even the best companies [. . .] will only be sustainable when the institutions and markets surrounding them have been redesigned to support and promote sustainability.⁵ This recognition, in turn, will require triple bottom line campaigners to invest much greater efforts in such fields as the recalibration of international trade agreements and the operations of global financial markets. In many respects, the challenge has only just begun.

The Triple Bottom Line

Driving companies towards sustainability will require dramatic changes in their performance against the triple bottom line. Some of the most interesting challenges, however, are found not within but *between* the areas covered by the economic, social, and environmental bottom lines. These “shear zones” are illustrated in figures 68.1–68.7 and typical agenda items are covered in the three “shear zone” panels.

Like the ancient Trojans dragging the vast wooden horse through a great gap torn in the walls of their long-besieged city, some of the world’s best business brains spent the 1990s struggling to take on board the emerging sustainability agenda. Many of their colleagues warned that success would end in disaster, just as it had done for the Trojans. Sustainable development, they argued, was a treacherous concept; basically, communism in camouflage. By the middle of the last decade of the 20th century, however, their fevered brows were being soothed by the concept of “eco-efficiency,” promoted by the World Business Council for Sustainable Development (WBCSD). And then, as some had feared, the trap was sprung.

Communism had nothing to do with it. But the sustainability agenda, long understood as an attempt to harmonize the traditional financial bottom line with emerging thinking about the environmental bottom line, turned out to be more complicated than some early business enthusiasts had imagined. Today we think in terms of a “triple bottom line,” focusing on economic prosperity, environmental quality, and – the element which business had preferred to overlook – social justice.

None of this was new, of course. *Our Common Future*, the 1987 report of the World Commission on Environment and Development, had made it perfectly clear that equity issues, and particularly the concept of inter-generational equity, were at the very heart of the sustainability agenda.⁶ But most of the hundreds of companies that limbered up for the 1992 Earth Summit by signing the Business Charter for Sustainable Development, devised by the International Chamber of Commerce (ICC), had little idea of the deeper logic of sustainable development. As far as they, and the thousands of companies which have signed up since, were concerned, the basic challenge was simply one of “greening,” of making business more efficient and trimming costs.

When the *Harvard Business Review* turned its spotlight on to the sustainability agenda in 1997, ten

years after the publication of *Our Common Future*, it noted that, “Beyond greening lies an enormous challenge – and an enormous opportunity. The challenge is to develop a sustainable global economy: an economy that the planet is capable of supporting indefinitely.”⁷ This represents a profound challenge. Although some parts of the developed world may be beginning to turn the corner in terms of ecological recovery, the planet as a whole is still seen to be on an unsustainable course.

“Those who think that sustainability is only a matter of pollution control are missing the bigger picture,” explained Stuart Hart, director of the Corporate Environmental Management Program at the University of Michigan:

Even if all the companies in the developed world were to achieve zero emissions by the year 2000, the earth would still be stressed beyond what biologists refer to as its carrying capacity. Increasingly, the scourges of the late twentieth century – depleted farmland, fisheries, and forests; choking urban pollution; poverty; infectious disease; and migration – are spilling over geopolitical borders. The simple fact is this: in meeting our needs, we are destroying the ability of future generations to meet theirs.

And these problems are not simply economic and environmental, either in their origins or nature. Instead, they raise social, ethical, and, above all, political issues. The roots of the crisis, Hart concluded, are “political and social issues that exceed the mandate and capabilities of any corporation.” But here is the paradox: “At the same time, corporations are the only organizations with the resources, the technology, the global reach, and, ultimately, the motivation to achieve sustainability.”

There is no question that some of these issues can have – indeed, already have had – a profound impact on the financial bottom line. Think of the companies and industries making or using such products as asbestos, mercury, PCBs, PVC, and CFCs and it is clear that the long-term sustainability of major slices of any modern economy is already being called into question.

Worryingly, at least on current trends, things can only get worse. “It is easy to state the case in the negative,” as Hart pointed out. “Faced with impoverished customers, degraded environments, failing political systems, and unraveling societies, it will be increasingly difficult for corporations to do business. But,” he stressed:

the positive case is even more powerful. The more we learn about the challenges of sustainability, the clearer it is that we are poised at the threshold of an historic moment in which many of the world's industries may be transformed.

The level of change implied by the sustainability transition is extraordinary. As the Worldwatch Institute put it in a recent *State of the World* report:

We are only at the beginning of this restructuring. New industries are emerging to reestablish natural balances – based on technologies that can produce heat and light without putting carbon into the atmosphere; on metals made out of the scrap of past buildings and cars; on papers made out of what was once considered wastepaper. Some homes and offices are heated entirely by the sun or from electricity generated by the wind.⁸

But sustainable capitalism will need more than just environment-friendly technologies and, however important these may be, markets which actively promote dematerialization. We will also need to address radically new views of what is meant by social equity, environmental justice and business ethics. This will require a much better understanding not only of financial and physical forms of capital, but also of natural, human, and social capital.

Business leaders and executives wanting to grasp the full scale of the challenge confronting their corporations and markets will need to carry out a sustainability audit [. . .] against the emerging requirements and expectations driven by sustainability's triple bottom line. In the spirit of the management dictum that what you can't measure you are likely to find hard to manage, we should ask whether it is even possible to measure progress against the triple bottom line?

The answer is yes, but the metrics are still evolving in most areas – and need to evolve much further if they are to be considered in an integrated way. In the following pages, we briefly focus on the relevant trends in relation to the economic, environmental and social bottom lines. In each case, we headline some of the current thinking on accountability, accounting, performance indicators, auditing, reporting and benchmarking. But we also look at the new concepts and requirements emerging at the interfaces between each of these great agendas, in the “shear zones” (see figures 68.1–68.4).

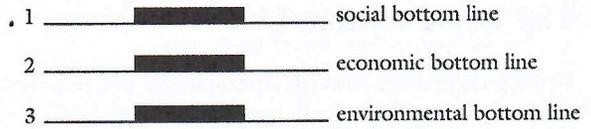


Figure 68.1 Sustainability is developing the concept of the “triple bottom line” of sustainable development. Society depends on the economy – and the economy depends on the global ecosystem, whose health represents the ultimate bottom line.

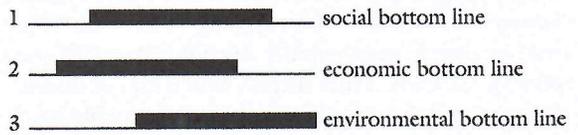


Figure 68.2 The three bottom lines are not stable; they are in constant flux, due to social, political, economic and environmental pressures, cycles and conflicts. So the sustainability challenge is tougher than any of the other challenges in isolation.

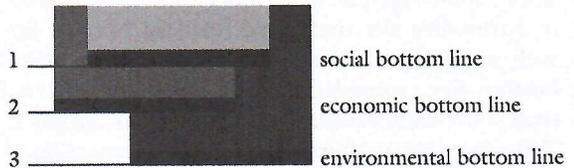


Figure 68.3 Think of each bottom line as a continental plate, often moving independently of the others. People often forget their dependence on wealth creation; and most of us are ignorant of our impacts on the ultimate bottom line.

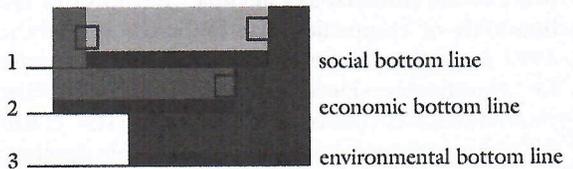


Figure 68.4 As the plates move under, over, or against each other, “shear zones” emerge where the social, economic, and ecological equivalents of tremors and earthquakes occur. The main shear zones are illustrated in figures 68.5–68.7.

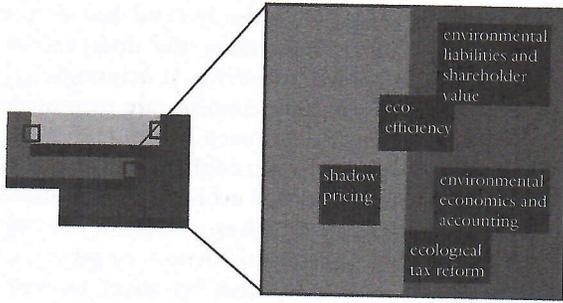


Figure 68.5 In the *economic/environmental shear zone*, some companies already promote eco-efficiency. But there are even greater challenges ahead, such as environmental economics and accounting, shadow pricing, and ecological tax reform.

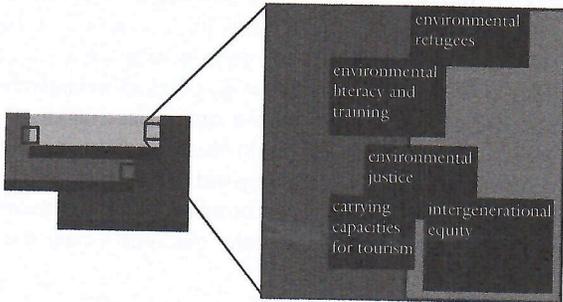


Figure 68.6 In the *social/environmental shear zone*, business is working on environmental literacy and training issues, but new challenges will be sparked by e.g. environmental justice, environmental refugees, and intergenerational equity.

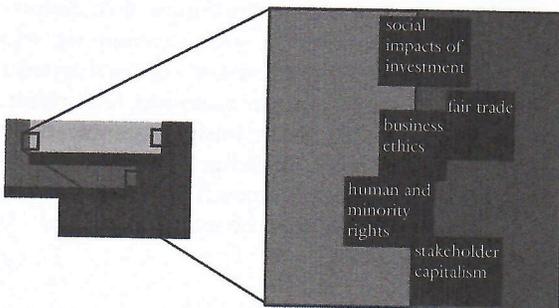


Figure 68.7 In the *economic/social shear zone*, some companies are looking at the social impacts of proposed investment, but bubbling under are issues like business ethics, fair trade, human and minority rights, and stakeholder capitalism.

The Economic Bottom Line

Let's begin in the area where business should feel most at home. Given that we are using the "bottom line" metaphor, however, we need to understand exactly what it means in its traditional usage. A company's bottom line is the profit figure used as the earnings figure in the earnings-per-share statement, part of standard accounting practice. In trying to assess a company's conventional bottom line performance, accountants pull together, record and analyze a wide range of numerical data. This approach is often seen as a model for environmental and social accounting, but the challenge can be even tougher in these emerging areas of corporate accountability.⁹

Economic capital

So how should a would-be sustainable corporation assess whether its business operations are economically sustainable? Obviously, a critical first step is to understand what is meant by economic capital. In the simplest terms, your capital is the total value of your assets minus your liabilities. In traditional economic theory, capital as a factor of production can come in two main forms: *physical capital* (including machinery and plant) and *financial capital*. But as we move into the knowledge economy, the concept is gradually being extended to include such concepts as *human capital* – a measure of the experience, skills, and other knowledge-based assets of the individuals who make up an organization. We will also consider the *intellectual capital* concepts adopted by companies like Skandia.

Among the questions business people need to ask in this area are the following. Are our costs competitive – and likely to remain so? Is the demand for our products and services sustainable? Is our rate of innovation likely to be competitive in the longer term? How can we ensure that human or intellectual capital does not migrate out of the organization? Are our profit margins sustainable?¹⁰ Longer term, too, the concept of economic capital will need to absorb much wider concepts, such as *natural capital* and *social capital*, both of which are discussed below.

Accountability

In most countries, companies have an obligation to give an account of their financial performance. In the case of limited companies, directors are accountable

to shareholders. This responsibility is partly discharged by the production and – in the case of public companies – publication of an annual report and accounts. An annual general meeting (AGM) theoretically provides shareholders with an opportunity to oversee the presentation of audited accounts, the appointment of directors and auditors, the fixing of their remuneration, and recommendations for the payment of dividends.

Typically, there has been little, if any, overlap between the areas covered by financial auditors in serving the interests of shareholders and the issues of interest to other stakeholders in terms of the environmental and social bottom lines. But one area where we see a growing degree of overlap between a company's economic and environmental performance is "eco-efficiency" [. . .]. At the same time, too, there are early signs that, as the sustainability agenda becomes a board-level issue, we will see growing overlaps with the whole corporate governance agenda [. . .].

Accounting

By the very nature of their work and training, most traditional accountants are short-sighted. Typically, the so-called accounting period is 12 months. Internal accounts are often prepared on a monthly or quarterly basis, with full results produced annually. Worldwide, however, the pressure to perform on a quarterly basis is intensifying as Anglo-Saxon approaches to stock management and investment banking spread.

In preparing their accounts, accountants are guided by a range of reasonably well-established concepts. These include the *ongoing concern concept* (with assets not stated at break-up value, unless there is evidence that the company is no longer viable), the *consistency concept* (which calls for accounts to be prepared on a consistent basis, allowing accurate comparisons between quarters or years), the *prudence concept* (accounts should be prepared on a conservative basis, recording income and profits only when they are achieved, and making provision for foreseeable losses) and *depreciation* (with the value of most assets progressively written off over time).

Despite 500 years – counting early clay tablets, some would say at least 5,000 years – of evolution in mainstream accounting, there remain huge controversies over how companies account for acquisitions and disposals, record extraordinary and exceptional items, value contingent liabilities, capitalize costs, and depreciate their assets. [. . .]

We have tended to see the bottom line as the hardest of realities, representing the unappealable verdict of impartial markets.¹¹ But it is increasingly clear that such accounting concepts are man-made conventions that change over space and time. Bottom lines are the product of the institutions and societies in which they have evolved. And, because accounting inevitably involves compromises, the bottom line turns out to be influenced by subjective interpretations, quite apart from "creative" accounting. So, for example, when Rover was taken over by BMW and subjected to Germany's stricter valuation criteria, a 1995 "profit" of £91 million became a £158 million "loss."

A key concept in relation to all three dimensions of sustainability – but particularly relevant in relation to environmental and societal costs – is that of "externalities." These economic, social, or environmental costs are not recorded in accounts. So, to take an economic example, the decision of a company to locate a high-technology plant in a relatively undeveloped region may have such effects as drawing up property prices locally beyond what local people can afford. We will look at examples of environmental and social externalities under the appropriate sections below.

[. . .]

Environmental Bottom Line

The social agenda for business probably has a longer history than the environmental agenda. Think of the early controversies around slavery, child labor, and working conditions. But, following a flurry of interest in social accounting and auditing in the 1970s, the environmental agenda has tended to attract greater attention. The result, paradoxically, is that many business people these days feel happier being challenged on environmental issues than on social issues. This fact has had a marked impact on the way the sustainability agenda is defined by business.

Natural capital

How can a would-be sustainable corporation work out whether it is environmentally sustainable? Again, a critical first step is to understand what is meant by natural capital. The concept of natural wealth is both

complex and still evolving. If you try to account for the natural capital embodied in a forest, for example, it is not simply a question of counting the trees and trying to put a price-tag on the lumber they represent. You have to account for the underlying natural wealth which supports the forest ecosystem, producing – as just one stream of benefits – timber and other commercial products. Wider forest functions that need to be added into the equation include contributions to the regulation of water (in the atmosphere, water table, soils, and surface waters) and of greenhouse gases like carbon dioxide and methane.¹² And then there are all the flora and fauna, including commercial fisheries, whose health is linked to the health of the forest.

Natural capital can also be thought of as coming in two main forms: “critical natural capital” and renewable, replaceable, or substitutable natural capital. The first form embraces natural capital which is essential to the maintenance of life and ecosystem integrity; the second forms of natural capital which can be renewed (e.g. through breeding or relocation of sensitive ecosystems), repaired (e.g. environmental remediation or desert reclamation), or substituted or replaced (e.g. growing use of man-made substitutes, such as solar panels in place of limited fossil fuels).¹³

Among the questions business people will need to ask are the following. What forms of natural capital are affected by our current operations – and will they be affected by our planned activities? Are these forms of natural capital sustainable given these, and other, likely pressures? Is the overall level of stress properly understood and likely to be sustainable? Is the “balance of nature” or the “web of life” likely to be significantly affected?

The interesting thing about a company’s ecological bottom line is that the carrying capacity of most ecosystems varies in relation to the number – and behavior – of the economic actors operating within them. As a result, these bottom lines will vary over time and space. The more efficient the actors, however, the more actors can be sustained. [. . .]

Accountability

In many countries, companies are held accountable by regulators for aspects of their environmental performance. In the USA, the Toxic Release Inventory (TRI) requires companies producing more than certain threshold limits of over 600 chemicals to report

their emissions. Some countries, like the Netherlands, also back up their regulations with voluntary programs designed to push companies towards sectorally agreed targets.

Just as often, however, business is held to account by environmentalist and media campaigns, which may bear little relation to regulated or voluntarily agreed targets. And as companies begin to challenge their supply chains, a new dimension of pressure is being introduced. While planning this book, for example, I was invited by Volvo to help facilitate their first environmental conference for supplier companies. The company’s top management told the 500-plus audience that Volvo had started off by focusing on safety, then added quality. Now, they said, environmental performance was increasingly in the spotlight – and suppliers would find environmental aspects being covered in Volvo’s regular supplier audits.

Accounting

The field of environmental accounting is relatively embryonic, but is generating a growing literature.¹⁴ Among other things, it aims to: re-balance the treatment of environmental costs and benefits in conventional accounting practice; separately identify environmental related costs and revenues within the conventional accounting systems; devise new forms of valuation which encourage better management decisions and increased investment in environmental protection and improvement; develop new performance indicators to track progress; and experiment with ways in which sustainability considerations can be assessed and incorporated into mainstream accounting.¹⁵

As far as environmental externalities go, many companies have been forced to take on to their books impacts and effects which were once externalized. Take the case of T&N, which as Turner & Newall was once one of the world’s largest asbestos producers. For years, the company argued that the risks involved in the use of asbestos were acceptable. Eventually, however, the tide turned, not only against Turner & Newall but against the entire asbestos industry. At the time of writing, T&N had already paid out over £350 million over ten years to meet asbestos claims – and was busily selling off corporate assets to fund a further £323 million provision.¹⁶ And, in an attempt to draw a line under its asbestos legacy, the company had announced a £515 million charge against annual profits to meet future

personal injury claims and insurance costs. It was not alone in experiencing such problems.

[. . .]

Social Bottom Line

Some in the sustainable development community insist that sustainability has nothing to do with social, ethical or cultural issues. A sustainable world, they argue, could equally well be more equitable or less equitable than today's world. The real issues, they say, relate to resource efficiency. Like King Canute, they are trying to hold back the tide by sheer force of will, or prejudice. Their views may be a useful counterbalance to attempts to turn sustainability into a new form of communism, but in the end our progress against the social bottom line is going to be critically important in determining the success or failure of the sustainability transition. If we fail to address wider political, social and ethical issues, the backlash will inevitably undermine progress in the environmental area.

Social capital

So, how should a would-be sustainable corporation think about social capital? In part, it comprises human capital, in the form of public health, skills and education. But it also must embrace wider measures of a society's health and wealth-creation potential.

[. . .] Fukuyama says that social capital is "a capability that arises from the prevalence of trust in a society or in certain parts of it." It is a measure of "the ability of people to work together for common purposes in groups and organizations." This ability is likely to be critical to the sustainability transition. It can be developed (or eroded) at every level in a society, from the basic family unit to the major institutions of international government. It depends on the acquisition and maintenance of such virtues as loyalty, honesty and dependability.

The central benefits flow from a lowering of social friction. So, for example, Fukuyama notes that:

if people who have to work together in an enterprise trust one another because they are all operating according to a common set of ethical norms, doing business costs less. Such a society will be better able to innovate organizationally, since the high degree of trust will permit a wide variety of social relationships to emerge.

In the same way, the degree of trust between a corporation or industry and their external stakeholders is likely to be a key factor determining their long-term sustainability. Conversely, "widespread distrust in a society imposes a kind of tax on all forms of economic activity, a tax that high-trust societies do not have to pay."

A key assumption in the work SustainAbility has done in recent years is that sustainable development is most likely – and will be achieved at the lowest overall cost to the economy – in those societies where there are the highest levels of trust and other forms of social capital. This, in turn, is likely to depend on the levels and equity of investment in human capital. According to Ismail Serageldin, the World Bank's vice president of environmentally sustainable development, human capital requires "investments in education, health and nutrition." Developing and spreading the necessary skills and training, particularly in the emerging economies and developing countries, will require new forms of public-private partnership.

Among the questions business people will need to ask are the following. What are the crucial forms of social capital in terms of our ability to become a sustainable corporation? What are the underlying trends in terms of the creation, maintenance, or erosion of these forms of capital? What is the role of business in sustaining human capital and social capital? To what extent are such concepts as environmental justice and intra- and inter-generational equity likely to change the ways in which we define and measure social capital?

Accountability

Whatever its critics may choose to believe, business is part of society. Governments try to regulate and otherwise control the social impacts associated with industry and commerce, but history is full of examples where the agenda was created outside the intertwined worlds of government and business. Whether it was the crusade to end slavery or the various campaigns to end child labor in European and North American factories, business people have long found their freedom of action being increasingly constrained by emerging social movements.

As globalization gathers steam, the interface between the economic and social bottom lines becomes increasingly problematic. Consider the abortive attempt by Germany's Krupp Hoesch to

take over its rival Thyssen. This represented an attempt to make the German steel industry more competitive in the face of intensifying international competition. But, faced with massed rallies by tens of thousands of Ruhr steel-workers concerned about the implications for their jobs and protesting about “casino capitalism” and calling for “people before profit,” Krupp – and its partner banks, Deutsche, Dresdner, and Goldman Sachs – backed down.¹⁷ The decision was widely hailed by German politicians as evidence that the country’s social consensus economy works; that “social responsibility” had prevailed. But there are short-term definitions of responsibility and longer-term definitions. The two companies may achieve the necessary efficiencies without redundancies, but if globalization continues Germany may simply have postponed the day of reckoning. In doing so, it may be ensuring that the inevitable economic and social quakes are worse than they need to have been.

[. . .]

Accounting

Social accounting aims to assess the impact of an organization or company on people both inside and outside. Issues often covered are community relations, product safety, training and education initiatives, sponsorship, charitable donations of money and time, and employment of disadvantaged groups. “Socio-economic sustainability,” says Professor Tom Gladwin, “requires poverty alleviation, population stabilization, female empowerment, employment creation, human rights observance and opportunity on a massive scale.”¹⁸

As far as social externalities are concerned, an example from Japan would be *karoshi*, the word for death caused by overwork. The case of Ichiro Oshima is not unusual. By the time he committed suicide, he had worked eighteen months with only half a day off. The advertising agency executive started work at 7am each day, often returning home at two in the morning. What was unusual was that his parents decided to sue his employer.¹⁹ A flurry of litigation in the country has been forcing Japanese corporations to introduce “no overtime” days, in an attempt to give employees time off to spend with their families. How can such social costs be captured? Clearly, social accounting is another area where a great deal of further work is needed.

[. . .]

Accounting for the Triple Bottom Line

It is clear that progress – or the lack of it – can be measured against a wide range of indicators associated with each of the three bottom lines of sustainability. But the next step will be to tackle this agenda in an integrated way. Key tools will be sustainability accounting, auditing and reporting. In many respects these concepts are still “black boxes,” more talked about in generalities than defined in precise terms, but there is now fascinating work under way in each of these areas.

Ultimately, as Professor Rob Gray and his colleagues put it, sustainability reporting “must consist of statements about the extent to which corporations are reducing (or increasing) the options available to future generations.”¹⁹ This is an extremely complex task, but one which will probably look much easier once we have worked our way through a decade or two of experimentation in sustainability accounting, auditing and reporting. A key area of activity in this respect will be “full cost pricing” – underpinned by new forms of full cost accounting. The idea of full cost pricing is that all the costs associated with a product or service should be internalized, and, as a result, reflected in its price. Even where no markets exist for the values being considered, the “shadow pricing” approach can provide at least some guidance on relative values.

Very often, we will be unable to say whether or not a particular company or industry is “sustainable,” but we will become increasingly sophisticated in terms of our ability to assess whether or not it is moving in the right direction. The triple bottom line approach clearly complicates matters. It is one thing to suggest, as some do, that a sustainable corporation is one which “leaves the biosphere no worse off at the end of the accounting period than it was at the beginning,” but when we include the social and ethical dimensions of sustainability the range of sustainability-related issues and impacts grows dramatically. This does not mean that we should not try to move in this direction, but simply that we should be very careful about over-hyping the likely early benefits or pace of progress.

Notes

- 1 *Fortune*, 15 April 1996, page 26.
- 2 Francis Fukuyama, *The End of History and the Last Man*, Hamish Hamilton, 1992.

- 3 Module 3, *From SMAS to SMAS: The EPE workbook for implementing sustainability in Europe*, Version 1.1, edited by Andrea Spencer-Cooke, SustainAbility for European Partners for the Environment, May 1996.
- 4 Paul Hawken, *The Ecology of Commerce: How business can save the planet*, Phoenix, 1993.
- 5 Paul Hawken, "A Declaration of Sustainability," *Utne Reader*, September/October 1993.
- 6 World Commission for Environment and Development, *Our Common Future*, Oxford University Press, 1987.
- 7 Stuart L. Hart, "Beyond Greening: Strategies for a sustainable world," *Harvard Business Review*, January–February 1997.
- 8 Hal Kane, "Shifting to sustainable industries," *State of the World 1996*, Worldwatch Institute.
- 9 Many of the definitions under the "Economic bottom line" section are based on the *Oxford Dictionary of Business*, Oxford University Press, 1996.
- 10 Daniel Blake Rubenstein, *Environment Accounting for the Sustainable Corporation: Strategies and techniques*, Quorum Books, 1994.
- 11 Simon Caulkin, "When black means red," *Observer*, 14 April 1996.
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- 13 Jan Bebbington and Rob Gray, "Sustainable development and accounting: incentives and disincentives for the adoption of sustainability by transnational corporations," in *Environmental Accounting and Sustainable Development: The final report*, Limperg Institute, The Netherlands, 1996.
- 14 See, for example, Rob Gray, Jan Bebbington and Diane Walters, *Accounting for the Environment*, Paul Chapman Publishing Ltd, 1993; Daniel Blake Rubenstein, *Environmental Accounting for the Sustainable Corporation: Strategies and techniques*, Quorum Books, 1994; and Wouter van Dieren (editor), *Taking Nature Into Account: Towards a sustainable national income*, a report to the Club of Rome, Copernicus, 1995.
- 15 Rob Gray, Jan Bebbington and Diane Walters, *Accounting for the Environment*, Paul Chapman Publishing Ltd, 1993.
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69 The Ignorance Argument: What Must We Know to be Fair to the Future?

Bryan Norton

It is often noted that "sustainability" has come to "mean all things to all people," and indeed the term is used in many confusing ways; but we should not go too far in emphasizing the ambiguity of the term. It does, after all, have a clear, core meaning: sustainability is about the future and our concern toward it.

It thus seems reasonable to say that sustainability has to do with our intertemporal moral relations and concerns our obligations to future generations. [. . .] Opinion polls show that overwhelming majorities of people in modern democratic societies

believe we should protect resources and natural wonders for the future. [. . .] Surely this widespread impulse is at least partially responsible for the widespread interest in, and acceptance of, sustainability as a public policy goal.

Intertemporal Ethics as Economics

[. . .] I will refer to the "bequest package" that one generation leaves for the next – a bequest package is