

NAUFRP
January 4, 2006

by
Ray C. Anderson
Chairman, Interface, Inc.

Thank you, Randy (and Don).

Good afternoon. I bring greetings from Atlanta and I am glad to be with you. Looking over the list of attendees, I was impressed. This is a high powered group. Thank you for inviting me to be with you. I know my accent is strange to some, so while you tune your ears to my way of talking, let me introduce myself my own way.

First, I am not a forester though I own an 86 acre piece of a forest—79 acres of which is in a conservation easement. I am an industrialist – some would say, a radical industrialist—but as competitive as anyone you know, and as profit-minded. I founded my company, Interface, from absolute scratch – from just an idea 33 years ago – and through the efforts of many fine people it has grown into a billion dollar global manufacturer, producing carpets, carpet tiles, textiles, and architectural flooring, primarily for commercial and institutional buildings—now, also for the home—with manufacturing on four continents, and sales in 110 countries; successful by any standard definition of successful. I’ll come back to that word, successful.

Perhaps, you will be familiar with the story of Interface’s commitment to achieving environmental sustainability. The commitment is real. My assignment today is to make the case for *why*, and to talk a little about *how*, to give you a progress report which I hope you will find encouraging, I also will venture to spend a minute or two addressing the role of higher education in societal transformation, because I understand there are some people here who might have some influence in that arena.

So, let me approach this in terms of two trends. First, I presume we all know there is a problem—the industrial system, of which we are *each* a part, is consuming the earth and destroying the biosphere. Though it is a very long term trend, you might say that it is a very bad trend. I’ll talk a little bit about how that is happening.

There’s another trend that is a good trend—a growing awareness and a developing sense of right and wrong with respect to the first trend—call it environmental ethics, though religious conservatives prefer to call it “creation care” or “providential living”. People are just becoming more and more aware that we are pushing nature too far. You read about it in the newspaper every day, and people are reacting with growing concern.

Where these two trends (declining biosphere, increasing awareness) intersect is where the fate of humankind will be decided. What we need at that intersection is a plan that works. That is the meat of my presentation. But I speak as an industrialist. It's up to you to find the analogy for your field.

First, the Why: I shouldn't think that I need to convince this group that we *are* in the process of seriously degrading the biosphere that supports all of life on Earth – us, plus some 30 million (some think as many as 100 million) species that share the planet. If this trend goes unchecked, we will lose the biosphere. Perhaps, it would be instructive to consider just how a living planet– the rarest and most precious thing in the known universe—could lose its biosphere, its essential liveability? We really don't want to believe it could happen or even want to think about it; but you and I *are required* to be thinkers, and if we *do* think about it, we realize that if the day came in the distant future when Earth had lost its liveability, it would have happened insidiously:

One silted or polluted stream at a time;

One polluted river at a time;

One collapsing fish stock, one dying coral reef at a time;

One acidified or entrophied lake at a time;

One over-fertilized farm at a time, leading to one algae bloom at a time.

One eroded ton of topsoil, one developed wetland at a time;

One disrupted animal migration corridor at a time;

One corrupt politician at a time;

One new open-pit coal mine in a pristine valley at a time;

One decimated old growth forest, one lost habitat at a time;

One disappearing acre of rain forest, one leaching landfill, one belching smokestack or exhaust pipe at a time;

One depleted or polluted aquifer at a time;

One desertified farm, one over-grazed field at a time;

One toxic release, one oil spill, one breath of fouled air at a time;

On unremediated brown field at a time;

One political payoff at a time, resulting in one regulatory roll-back at a time;

One-tenth of a degree of global warming, one manipulated river channel at a time;

One exotic disease vector, one *new* disease, one invasive species at a time;

One perchlorate contaminated head of lettuce at a time. (Perchlorate is rocket fuel, and it is in the ground water of our San Joaquin Valley of California, thanks to an industrial “neighbor”.)

One chloro-fluorinated or methyl-brominated molecule of ozone at a time, destroying the ozone ultra-violet radiation shield—something very dear to all of creation, since every living thing dies without it!

One poorly designed carpet at a time;

One thoughtlessly designed building or building interior at a time;

One obsolete college curriculum at a time, teaching the present system of destruction, and teaching the teachers to perpetuate it for another generation or two;

One misplaced kilogram of plutonium at a time;

One more ton of nuclear fuel waste at a time, looking for a safe and secure home for 240,000 years (!);

One advance of urban sprawl at a time;

One insensitive or uninformed architect or interior designer or factory manager or manufacturer at a time;

One songbird at a time; do you all know that songbirds require at least 20 sq. mi. of unfragmented forest to procreate successfully?

One PCB-laced orca, one whale, one dolphin, one trumpeter swan, one mountain gorilla, one polar bear, one leatherback turtle at a time;

One entire wild species at a time; *and*

One poverty-stricken, starving, diseased, or exploited human being at a time.

That’s how it would have happened, and when we make ourselves stop and think, we know that’s how it *is* happening. You could make your own list, just as long, without duplication. It is a long, long slippery slope, and we are on it. We are losing the

biosphere itself, one strand of the web of life at a time. It is true, it is manifestly wrong, and it will not stop until either we *homo sapiens* come to our senses, or we, too, are gone and can do no more damage. If we do come to our senses in time, that will happen one changed mind at a time, out of a growing sense of right and wrong, undergirded by enlightened self-interest.

All that said, I confess that I am a relative newcomer to this mind change, this new view of reality; proof, perhaps, that it's never too late. Eleven years ago at age 60, I read Paul Hawken's book, *The Ecology of Commerce*, and it changed my life and my view of the world. It came for me at a propitious moment. Our customers, especially interior designers, had begun to ask, "What's Interface doing for the environment?" So, I had agreed, reluctantly, to speak to a newly assembled environmental task force of Interface people, from around the world, to address this awkward question. Awkward for me, because I could not get beyond, "We obey the law; we comply."

Hawken's book changed that. It landed on my desk, at that propitious moment, by pure serendipity. Without any idea as to what was in it, I started to thumb it. On page 19, I came to an arresting chapter heading, "The Death of Birth". I began to read. On page 25, I found the full meaning of the chapter heading, and encountered four terms I had never before heard mentioned together in one paragraph: carrying capacity, overshoot, collapse, and extinction, i.e., the death of birth. Species disappearing never ever to be born again. I read:

(Quote) "A haunting and oft-cited case of overshoot took place on St. Matthew Island in the Bering Sea in 1944 when 29 reindeer were imported. Specialist had calculated that the island could support 13 to 18 reindeer per square mile, or a total population of between 1,600 and 2,300 animals. By 1957 [13 years], the population was 1,350; but by 1963 [6 years], with no natural controls or predators, the population had exploded to 6,000. The scientists double-checked. The original calculations had been correct; this number vastly exceeded carrying capacity, and sure enough, the population was soon decimated by disease and starvation. Such a drastic overshoot, however, did *not* lead to restablization at a lower level, [with just the "extra" reindeer dying off.] Instead, the entire habitat was so damaged by the overshoot that the number of reindeer fell drastically below the original carrying capacity, and by 1966 [just 3 years later] there were only 42 reindeer alive on St. Matthew Island. The difference between ruminants and ourselves is that the resources used by the reindeer were grasses, trees, and shrubs and they eventually return, whereas many of the resources we are exploiting will not." (End quote)

Reading this for the first time 11 years ago, I *knew*—in my heart and in my mind—that it was a metaphor for the earth and humankind. It was an epiphanal moment for me, a spear in the chest. I knew, too, it was more than a metaphor. It demonstrated a law of nature—as immutable and as sure as the law of gravity: the cause and effect

relationship between overshoot and collapse. [Sidebar: As we speak, humankind is in overshoot, using at least 120% of the planet's carrying capacity, very probably much more, abusing the web of life, one strand at a time, according to Global Footprint Network, sponsored by World Wildlife Fund.]

I read on and was dumbfounded by how much I did not know about the environment, and the impacts of the industrial system on the environment—the industrial system of which I and my “successful” company were an integral part. A new definition of success flooded my consciousness, and a latent, lurking sense of legacy asserted itself. I got it! I was a plunderer of Earth, stealing my grandchildren's future, and *that* is not the legacy one wants to leave behind. I wept.

Hawken made the central point of his book in three parts: 1) The living systems and the life support systems of Earth are in decline; we are degrading the biosphere; it is a developing global crisis. 2) The biggest culprit in this decline is the industrial system—the linear, take-make-waste, fossil-fuel driven, abusive system—of which we are each and every one a part. 3) And the only institution on Earth that is large enough, powerful enough, pervasive enough, wealthy enough and influential enough to lead humankind out of this mess it is making is the same one that is doing the greatest damage, the institution of business and industry, my institution; for some, your institution; and the institution for which you in education are preparing tomorrow's members.

I took that message to heart and made that speech. And I committed my company to the road to sustainability, which today I consider to be its ultimate purpose. I simply said to my people, on 8/31/94, “If Hawken is right and business and industry must lead, who will lead business and industry? Unless somebody leads, nobody will. Why not us?” Since then, I have been a recovering plunderer.

I have told that story in much greater detail in my own book, *Mid-Course Correction* (1998).

So, what about a plan? How are we, one petro-intensive company, approaching the transformation of *our* company? How are we climbing this mountain, named Mount Sustainability? I can tell you the first decision was mine: to determine that we *are* going to climb it; and even when some people thought I had gone ‘round the bend, to stay on message, consistently, persistently, year after year, and to put the right people in the roles, and empower them, to make it happen. But, the most important decision was made collectively by the people of Interface, one mind at a time, to embrace this challenging vision.

We began where we were in 1994, with a schematic, showing all of the connections or linkages between Interface and the earth—lithosphere and biosphere—directly, and through our people, our suppliers, customers, and communities. We asked ourselves, “What is wrong with this picture?” We asked this when very few, if any, companies anywhere were asking it of themselves.

And, out of that analysis came a plan, in terms of climbing the *seven* faces of Mount Sustainability, to meet at the top – that point at the summit symbolizing zero impact (footprint). This plan is the heart of *Mid-Course Correction*. I'll quickly sketch the plan for you, because I believe it offers a template for the entire industrial system:

I urge you to think analogously.

Face 1 - *Waste elimination*, emulating nature in our industrial processes. In nature, there is no waste; one organism's waste is another's food. This means revolutionary re-design and re-engineering of processes, severing the unwanted linkages to Earth represented by our waste streams. We started here, and have made money every step of the way for the last 10-3/4 years (\$289 Million so far).

2. *Benign emissions*, to do no further harm to the biosphere. This means re-shaping *inputs* to our factories, working up-stream. What comes in to our factories will go out – as product, waste, effluents, or emissions. We want to eliminate smokestacks and obviate effluent pipes, and for sure to eliminate our net contribution to global warming, worldwide.

3. *Renewable energy*, focusing on energy efficiency first, then harnessing sunlight, wind, bio-mass, and (someday) hydrogen – to cut the fossil fuel umbilical cord to Earth, filling the “carbon gap” with GHG offsets.

4. *Closed loop material flows*, to cut the *material* umbilical cord to Earth for virgin fossil-derived materials through cyclical flows. The technologies did not exist when we started. One by one, they fall into place, including beginning the shift to carbohydrate polymers to replace petro-derived hydro-carbon polymers—using corn dextrose as a feedstock to replace fossil fuel feedstocks.

5. *Resource-efficient transportation*, to achieve carbon neutrality by eliminating or off-setting greenhouse gases generated in moving people and products.

6. *Sensitivity hook-up*. *This is the cultural shift, the mind-set shift*, to sensitize and educate everyone, changing minds – customers, suppliers, employees, and communities, to inspire environmentally responsible actions, (the thousands of little things everyone can do); and to connect in a more meaningful way with all stakeholders, especially with communities on educational initiatives.

Face 7 - *Commerce redesign* depends on getting the other six right. Then we hope to pioneer the true service economy, that goes beyond *people* selling their service—accountants, lawyers, teachers, waiters—to selling the service that our *products* provide, instead of selling the products themselves. In the case of carpets this means color, texture, design, acoustics, comfort, cleanliness – service, rather than product—retaining ownership in the stuff, the means of delivery, and giving those products, that stuff, life after life in closed loop material flows. This will bring about manifold improvement in resource efficiency by using stuff over

and over.

Success on all seven fronts (a successful climb on all seven faces) will bring us to the summit and our goal, "The *Prototypical* Company of the 21st Century" – modeled after nature. What will it look like? If I can put a picture into words, it will be: (1) Strongly service oriented by means of products that deliver service, even as nature delivers services, (2) resource efficient, (3) wasting nothing, (4) cyclical (no more linear take-make-waste processes), (5) driven by renewable energy (minimized/afforded via efficiency), (6) strongly connected to all constituencies (communities engaged, customers engaged, suppliers buying into the vision), (7) and to each other within the organization. *An eco-system, with cooperation replacing confrontation*, that includes Earth in win-win-win relationships; (8) and way ahead of the regulatory process, rendering it irrelevant; (9) taking nothing from Earth's lithosphere that's not rapidly renewable, (10), and doing no harm to her biosphere. (11) All the undesirable linkages, gone! (12) New, vital linkages, in place. (13) Sustainable and just, an example for all, and (14) *doing well (very well) by doing good*. (15) Winning in the marketplace, but not at Earth's expense, nor at the expense of our descendants, but at the expense of inefficient adapters, competitors who just don't get it. (16) Growing, yes, even in a no-growth world, should we come to that, by increasing value at the expense of the inefficient, and (17) with declining throughput of virgin materials, eventually to *zero*. (18) Only zero throughput of extracted natural capital is sustainable over evolutionary time (the true long run). Our goal: to achieve zero footprint (impact) by 2020. (19) Doing well by doing good. Cause and effect, effect and cause, all rolled into one positive feedback loop that is good for Earth. This is how the triple bottom line of Corporate Social Responsibility, done right, will come together in one truly superior financial bottom line, and companies everywhere will want to emulate the example. And that is how an entire industrial system can move toward sustainability.

So, how are we doing on the environmental front? It is a work in process. Here are a few metric, comparing where we are today with where we started in 1994:

- Net GHG Emissions, down 52% in absolute tonnage (2/3 from efficiencies and renewables, 1/3 from off-sets)
- Non-Renewable, fossil-derived energy used in worldwide carpet operations, down 43%, relative to production; 11% of the current energy usage comes from renewable sources. The goal remains 100% renewable.
- Water usage, down 66%, relative to production
- Smokestacks, 40% closed, obviated by process changes
- Effluent pipes, 53% abandoned, obviated
- Trees for Travel, more than 52,000 planted (off-setting 78 + million passenger

miles; one tree for each 1500 passenger miles)

- Scrap to the landfill, down 80%, and
- 81 million lbs. of material diverted from landfills/incinerators by ReEntry®, our initiative to reclaim & recycle used products. Precious organic molecules salvaged to be given life after life. We hope someday to mine the landfills for our petrochemical feedstock, rather than drill the earth for fossil fuels.
- Waste, \$289 Million of cost avoidance in 10 ½ yrs., has payed for all the rest of this mountain climb.

Our customers can now buy climate neutral carpet, meaning no net contribution to global warming throughout the life cycle, third party certified. We call it “Cool Carpet”®

This reduced footprint is reflected in every product we make anywhere in the world—in some more than others—not just one product here and one there. We are greening an entire company and its supply chain. We simply do not believe you make green products in a “brown” company. Furthermore, we know we *are* our entire supply chain, as is any other company or organization. No one stands alone.

But, you ask, how are we doing in the economic front? This may surprise you, but this entire initiative has been incredibly good for business. It is a better way to bigger profits—a new model.

First, our costs are down, not up, dispelling the myth that sustainability is costly—those waste savings!

Second, our products are the best they have ever been, since our product designers found the inspiration of *Biomimicry* (Janine Benyus, 1997). You may find this amusing: Our lead designer sent his team into the forest to discover nature’s design principles: how would nature design a carpet? They studied the forest floor and the stream beds, and they realized there was total diversity, even chaos—no two things were alike, no two sticks, no two stones, no two leaves. Yet there was a very pleasant orderliness in this chaos. So the designers went back to the design studio and designed a carpet tile such that the face designs of no two tiles were identical. Every one was different, contrary to the prevailing industrial paradigm that every mass produced item must be the “cookie-cutter” same—our predilection for perfection.

We introduced this new product with the name “Entropy®” (yeah, “disorder”), and in a year and a half it moved to the top of the best seller list, faster than any other product ever had. The advantages of breaking the old paradigm, insistence on perfection and sameness, were surprisingly numerous: There was almost no waste and no off-quality in production. Inspectors could not find defects among the deliberate “imperfection” of no-two-alike. The installer could install tiles very quickly, without

having to take the traditional care to get the nap running uniformly—the less uniform the installation, the better; so he could just take tiles out of the box and lay them randomly. There was almost no scrap during installation; even piece-tiles could find a place in the installation. Then, the user could replace an individual, damaged tile without creating the sore thumb effect of a new tile that so typically comes with precision “perfection”. Furthermore, there were no longer issues of dye lots; dye lots merged indistinguishably. This obviated the need for shelf stock (extra tiles) of the original dye lot. And the user could even rotate the tiles on the floor to equalize wear, the way tires can be rotated on a car.

Even with all these unexpected benefits, I wondered if there was not still more to explain the success of “Entropy®”. Then I heard of a speaker on the environmental circuit that began every speech by having her audience close their eyes and picture that ideal place of peace, serenity, creativity, comfort, and security. Then she would ask, “How many were somewhere indoors?” And almost no one would ever raise a hand. We humans seem to gravitate to nature for that ideal comfort zone. Somehow, I believe Entropy® brings outdoor indoors in a subliminal way, and that is its real appeal. There is enormous power in biomimicry.

Today there is a family of more than 30 Interface carpet tile products, designed on the principle: no two alike, and they represent more than 40% of sales.

Third, our people are galvanized around this higher purpose of sustainability, confirming psychologist Abraham Maslow’s assertion that at the top of the pyramid of human needs is self-actualization, which translates into higher purpose. You cannot beat it for bringing people together, and it happened one mind at a time.

Finally, the good will of the marketplace has been astounding. No amount of advertising could have created as much, or meant as much to the top line—to creating customer predisposition toward Interface, and to winning business.

These four advantages have enabled Interface to survive the deepest, most protracted recession in our industry’s history. With a primary marketplace—the office market—that declined 38% from peak to trough, we might not have made it without these sustainability advantages.

You can see much more at <http://www.interfacesustainability.com>. Take a look. You will find total transparency. Our first Sustainability Report (1997) contained 19 printed pages. Today, there are more than 400 pages, on line for a real time up-date.

As for other companies and industries, I see no other long term choice for the entire industrial system if it is to survive. Not just our industry, all industry, has got to make this transition, undergo this transformation, to survive. Those who don’t, won’t. What we hope to demonstrate at Interface is that it can be done, therefore it must be possible; to be the first, but not the last. We hope to facilitate the growing sense of ethical awareness that will move humankind toward survival, not extinction; and

encourage the market to demand ethical production of its products and its built environment.

This is where you come in. We must and we will, *all together*, learn to make peace with Earth, rather than war, for to win that war is to lose everything—and teach that peace-making in our universities.

So, thinking of universities and the role they must play: Will they continue to be part of the problem, or part of the solution? Where will they stand in the years ahead with respect to the nexus of the two determinate trends?

Will our mechanical engineers continue to learn about internal combustion engines or will they study fuel cells? Will our electrical engineers continue to learn about coal-powered, central generating stations, or wind, photo-voltaic, and biomass *distributed* generation? Will our ceramics engineers still learn the traditional, abusive heat-beat-treat methods, or will they study the abalone's natural nano-technological method, as it makes better ceramics than any man-made ceramic, and does it out of readily abundant minerals in sea water at 40° F? Will our textile engineers still learn to make Kevlar with boiling sulphuric acid, or study the spider as it makes a better, five times stronger, more resilient "textile fiber" out of bugs at body temperature? Will our chemistry students learn to make the next PCB, or will they learn green enzymatic chemistry in water?

Will our economics students continue to be taught that the externalities (the costs to society and the environment) don't count in the economic system, and that perverse subsidies are good and somehow deserved; or will they learn about true, full cost accounting that would put the cost of a barrel of oil at fully \$200 per barrel, if the cost of wars in the middle east were included, or if the costs of global warming to future generations were charged today to the burning of that oil?

Will our Ag students continue to learn petroleum intensive, industrial cultivation of annual food crops, or study Wes Jackson's methods at the Land Institute for producing self-rotating perennial crops?

Will our designers be taught that good design is when there's nothing else to add; or good design is when there's nothing else to remove, as when Michelangelo freed "The David's" hand from the marble that imprisoned it?

Will our law students be taught that compliance and defending their clients' bad behavior is their job, or will they be urged to go *beyond compliance* and insist that their clients embrace ethical behavior.

Furthermore, will our teachers continue to be taught the present, outmoded, destructive system, so they can pass it on and perpetuate destruction for another generation or two, or three; or will our universities wake up to their responsibility to challenge the obsolete status quo in their curricula? Will curricula be locked in the past and more of the destructive same, or focused on a sustainable future?

Preparing for this presentation, my thoughts, at this point, went back to a speech I made in October 1996 in Amsterdam . . . to the worldwide partners' meeting of one of the large international accounting firms. Since accountants tend to be highly analytical and unemotional, I thought that my standard speech, which had considerable emotional overtones, should be augmented if I wanted to connect with this group. So I added these comments just for the Amsterdam audience: of accounting professionals:

Now, what does this discussion have to do with you, your profession, and this meeting? I want to suggest that you and your profession are the scorekeepers in the game of business, but the rules of the game will change in the years ahead; therefore the method of scorekeeping will have to change, too, as business and commerce, and civilization, are reinvented. You could, with an early understanding of what might be, lead this change and help turn humankind from its course of self-destruction, unless, of course, you would rather just keep score as the world collapses around you. You could, for example, help to develop the field of EcoMetrics and help us understand God's currency, which certainly is not dollars or guilders, nor even pounds sterling.

I know that already you are faced with assessing Environmental liabilities, but let's go further. For example, let us consider how we value *assets* today. Take a forest, a stand of trees. What is its value? I think most would say: x boardfeet of lumber at y \$ per boardfoot equals z , less the cost of harvesting; that is the value.

But let me tell you a story about a small city on the banks of the Chattahoochee River in west-central Georgia in the United States, which in the first 100 years of its existence—through years of heavy rain and drought alike—never once experienced a flood. Then one year the banks of the river overflowed and \$5 million of damage occurred. So the city fathers commissioned a dike to be built at a cost of \$3 million, and that dike was sufficient to prevent flooding for five years. But then there was a season of especially hard rains, and the dike was breached, and the damage was \$10 million this time. Therefore, the dike was rebuilt, higher this time, at a cost of \$8 million, and the city was saved from flood for another seven years. And then, wouldn't you know it, the floods came higher still and the dike was breached again and someone finally said, "What is going on here?" So a team of experts was engaged to analyze the problem and one of the experts was an ecologist. And he, with brilliant insight, looked where? Not at rainfall records, nor at dike construction, nor at laminar or turbulent flows of a river. No, he looked upstream. And what did he find? He found that the forest for 50 miles upstream had been clear cut over a period of 20 years and the clear cutting had changed the hydrology of the area. Root systems no longer existed to hold the rainfall, so the rain ran off into the streams and rivers, eroding the land in the proves and filling the river with silt and—by the way—killing fish, too, depriving the poor people of the area of one source of sustenance, while flooding the plains downstream, including the unfortunate small city.

So, the question arises, “What is the value of a forest?” The short-sightedness of conventional economics lies exposed, naked, does it not? And I have not mentioned the value of a tree in removing carbon dioxide, a greenhouse gas, from the atmosphere, sequestering carbon, and producing oxygen for us to breathe, nor the songs of birds that are heard no more where the forests used to be. Neither have I mentioned the disease spreading insects that now proliferate unchecked because the birds, their predators, are gone, resulting in an increase of encephalitis in the children in the region. So you see, there are serious questions to be raised about the traditional calculation of profit on the sale of the timber harvested from that clear-cut forest.

The ultimate solution to the flooding, pursued by our federal government in its dubious wisdom, was to build a dam at a cost of \$100 million, which took 28,000 acres of prime agricultural land out of use and destroyed the habitat of uncounted creatures. Today the lake, thus created, is a polluted cesspool, collecting Atlanta’s sewage, and destroying its recreational value, which was the other justification for the dam. The value of a forest? Think again. (Though based on actual facts, the story is largely apocryphal and exaggerated, but I tell it for effect. I do know this river, though. As a boy I caught 20 pound channel catfish there that our family would eat for a week. Channel catfish no longer exist in the river.)

Or, staying with assets, what is the value of a mine, say a uranium mine—something that at first blush would seem to be highly treasured? But on second thought, when we consider the cost of the nuclear clean-up that Earth faces, somewhere between \$300 billion and \$900 billion, depending on just how bad the Russian and Ukrainian situations turn out to be, uranium somehow seems not to be so valuable anymore. Think of the liability we have transferred to future generations! Enlightened accounting would figure out how to take that liability right into the evaluation of that mining asset today.

Let’s look at Gross Domestic Product (GDP) for another exercise in new vs. old economics. Consider, for example, that the Exxon Valdez disaster in Prince William Sound *added* to GDP. Reflect on that. Reflect also on the absurdity of the fact that the medical expenses for a child dying of environmentally related cancer *add* to GDP. And that the costs to clean up and rebuild after a hurricane, exacerbated by global warming, *add* to GDP. Clearly, as a measure of standard of living, much less as a measure of progress or well-being, GDP is sorely lacking. There was more, but you get my drift

A sustainable society into the *indefinite* future, depends totally and absolutely on a vast re-design of the system, triggered by an equally vast mind-shift—one mind at a time, one organization at a time, one technology at a time, one building, one company, one university curriculum, one community, one region, one industry at a time, until the entire system of which we are each a part has been transformed into a sustainable system,

existing ethically in balance with Earth's natural systems, upon which every living thing utterly depends—even civilization itself. And all of us must be part of it.

I have been quite taken by Jared Diamond's compellingly written book, *Collapse*, his most recent publication. His central thesis is that cultural survival and biological survival are two different things, and civilizations can collapse biologically even as their cultures thrive, but ignore the limits of biological and ecological reality which surround them, i.e., "carrying capacity" (There's that term again.).

It seems to me that culture, with its taboos and mores, is a reflection of a society's mind-set. So, what about the mind-set that underlies our culture? What is society's general view of reality—our prevailing paradigm? I strongly suggest that we are in the grips of a flawed view of reality—a flawed paradigm, a flawed world view—and it pervades our culture, putting us on Jared Diamond's biological collision course with reality. It is the paradigm that is reflected in our culture's infatuation with stuff, otherwise known as *consumerism*.

The truth of a new paradigm doesn't just spring into existence. It will have been there all along. It will just have been obscured by the old, flawed view of reality. The earth was always round, even when everybody *knew* it was flat. It always circled the sun, even when everyone *knew* it was the center of the universe. As Amory Lovins says, the best way to have new, better ideas is to stop having the old, bad ideas.

That old, flawed view of reality, in this case, is the one that treats Earth as if it were infinite in its ability to supply the stuff to feed the industrial system's metabolism, when clearly—for one example—oil's coming peak (sooner or later, but surely) reminds us vividly that Earth is finite; or as if Earth were an infinite sink into which to pour our poisonous waste.

That old, flawed view of reality is the one that adopts as its relevant time frame for caring about the consequences of our decisions, the life of a human being—more likely the working life—rather than recognizing the true long term, evolutionary time (I think we would settle for the Native Americans' standard, seven generations.); that holds onto the notion that Earth was made for humankind to conquer and rule, to take whatever we want from nature without regard for the other species that depend on, *and even comprise*, nature—nature, of which we too are a part, not separate. What we do to the web of life, we do to ourselves.

That old, flawed view of reality holds that technology coupled with left-brained human intelligence, will see us through, without addressing the extractive, abusive attributes of technology that are part of the problem, and without appreciating the right-brain attributes of intelligence that include the human spirit.

Here I would add a third trend, and say that the ascendancy of women in business, the professions, government, and education is one of the most encouraging of all trends, as women bring their right-brained, nurturing nature to bear on the seemingly

intractable challenges created by us left-brained men and our pre-occupation with bottom lines and other “practical” considerations. After all, it’s the practical and pragmatic that got us into this mess. Surely, a different kind of thinking is needed to get us out.

As the French philosopher, Sartre said, “All the facts in the world will not get us to the essence of an issue.”

That old flawed view of reality holds that the “invisible hand” of the market is an honest broker, when we know the market can be very dishonest, because it is blind to the externalities as it establishes prices. Does the price of a pack of cigarettes reflect its true cost? Not close! The price of a barrel of oil? Not within a \$150! The “invisible hand” is blind as a bat if prices are dishonest. What kind of broker can it be, stumbling along in its blindness?

The old, flawed view of reality holds that increasing labor productivity is the route to abundance for all, when it is clear in a world of diminishing nature and increasing population that the route to abundance for all is through increasing resource productivity—for example, using precious organic, petrochemical molecules over and over (That’s the logic behind all recycling efforts. Even inorganic materials have embodied energy that can be salvaged.); and putting people to work in the process.

The old, flawed view of reality holds that happiness is to be found in abundance and material wealth (the trappings of affluence), when we know there is more to happiness than more stuff; and that consumerism will not bring real happiness, despite the messages with which our children (and we) are bombarded to saturation through advertising.

The old, flawed view of reality holds to the belief that business exists to make a profit, when we know in our hearts that business makes a profit to exist, and it must exist for some higher purpose. What CEO really expects to stand before her or his Maker someday and talk about shareholder value?

The old, flawed view of reality holds that the environment is a sub-set of the economy, you know, the pollution part. In our new enlightenment, we know that the economy is the wholly owned subsidiary of the environment, to quote the late U. S. Senator Gaylord Nelson. The environment is the parent. The economy is the child. It is not the other way ‘round, which most of our economists still seem to believe.

Will we shift paradigms in time and truly embrace a new view of reality? That is the question of our era. The hell of it is—and this is the hard part—it is up to you—and me. Unless somebody leads, nobody will. Why not us?

The week following Katrina, my wife Pat and I were on vacation on Cape Breton Island in Nova Scotia (eastern Canada). One morning, I drove our rented car to a trail head and took a walk up a mountain trail.

I was alone on the trail and, as I neared the top of the mountain, huffing and puffing along, I looked up. Whoa, hello! There on the trail ahead, about 60 feet away (the distance from the pitcher's mound to home plate on a baseball diamond) stood a bull moose. He was standing cross ways, blocking the trail—enormous, at least seven, maybe eight, feet tall, rack and all—and he was looking at me.

I actually considered for an instant, clapping my hands to shoo him away. Then, I caught myself and thought, “Don't be stupid! This trail is *his* trail; I am the intruder. If he charges, I don't stand a chance.” So, I backed off, turned, and retreated back down the mountain, keeping a watchful eye on the trail behind me. My heart was pounding. It was an amazing experience; I had been face to face with a force of nature.

Pat and I were glued to the television the entire week, watching CNN, keeping up with the unfolding aftermath of Katrina. After meeting the moose, I could not miss the metaphor: *That trail was the moose's territory. I was the intruder. How human-like of me to want to shoo him away and claim the trail for myself; and how foolish! Had I challenged him it would have been at my own peril. If he charges, I am mincemeat.*

Do you see the metaphor? The atmosphere is nature's “trail”, as are the meandering river beds, the buffer wetlands, the deltas, and the barrier islands. We challenge nature on her trail, with our greenhouse gases and man-made river channels and chopped up wetlands, at our own peril. On August 29, 2005, nature “charged” from the Gulf of Mexico, and Louisiana and Mississippi—an area the size of England—are mincemeat.

I doubt if there are many scientists who would say yet that Katrina, Rita, or Wilma were *caused* by global warming. But I think there are very few who would say they were *not* exacerbated by global warming. All went from a category 1 to category 4 (category 5 for a while) in two or three days (Wilma, one day!) because of the abnormally warm waters of the Gulf of Mexico. So, just why were the Gulf waters abnormally warm? The Precautionary Principle says we must not assume happenstance. We must ask, “What is going on”?

And I think there are very few scientists who would not agree that hurricanes and floods, storms and droughts, will become more frequent and more fierce, and the weather more erratic, as the atmosphere and oceans become warmer still in the years ahead.

As long as we continue to intrude on nature's “trail”, and challenge her in her domain, thinking we can shoo her away and claim it for ourselves, we do so at our own peril; and we can expect her to charge again and again. Her trail is simply not ours to do with as we please.

One mind at a time, humankind will realize that. You in education: Your business is shaping minds, including the minds that will guide business and industry, not to mention governments, in the critical turnaround years that lie ahead. You in business, your business is thinking and acting responsibly. Who will lead? Unless somebody does,

nobody will. Why not you? Thank you for taking on that challenge.

Who is really at risk here? Not you, not me. I met this person in the early days in this mountain climb, a Tuesday morning in March 1996. I was talking to our people at every opportunity, trying to bring them along—this time in southern California—often, not knowing whether I was connecting. But about five days later, back in Atlanta, an e-mail came to me from Glenn Thomas, one of my people in the California meeting. He was sending me an original poem that he had composed after our Tuesday morning together. When I read it, it was one of the most uplifting moments of my life, because it told me at least one person had really got it. Here's what Glenn wrote:

Tomorrow's Child

Without a name; an unseen face
and knowing not your time nor place
Tomorrow's Child, though yet unborn,
I met you first last Tuesday morn.

A wise friend introduced us two,
and through his sobering point of view
I saw a day which you would see;
A day for you, and not for me.

Knowing you has changed my thinking,
for I never had an inkling
That perhaps the things I do
might someday, somehow, threaten you.

Tomorrow's Child, my daughter-son,
I'm afraid I've just begun
To think of you and of your good,
Though always having known I should.

Begin I will to weigh the cost
of what I squander; what is lost
If ever I forget that you
will someday come to live here too.

Glenn Thomas, ©1996

Folks, every day of my life since, *Tomorrow's Child* has spoken to me with one simple but profound message, which I share with you, that we are each part of the web of life and we have a choice to make during our brief visit to this beautiful planet: to hurt it or to help it. For you, it is *your* choice.

NAUFRP

As del.
©Ray C. Anderson
1.3.06