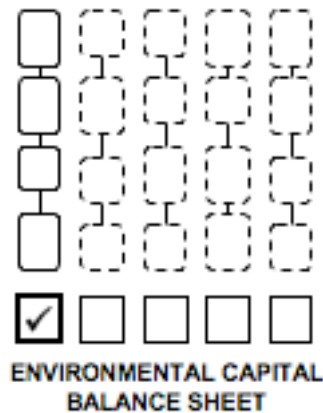


CHAPTER THREE

Environmental Transparency*Developing an Environmental Capital Balance Sheet*

When we humans do not properly understand and appreciate all of Nature's world, we are very nearly helpless to protect it. The first skills we need are those of environmental understanding, and one critical tool for acquiring those skills is an Environmental Capital Balance Sheet.

Consider the following data fragments. They are warnings, not only of assets being lost, but of human ignorance not yet being corrected.

Gus Speth, Dean of the Yale School of Forestry and Environmental Studies, reports in his book *Bridge at the Edge of the World* that "Half the world's tropical and temperate forests are gone." "About half the wetlands...are gone. An estimated 90 percent of large predator fish are gone... twenty percent of the corals are gone. Persistent toxic chemicals can now be found by the dozens in every one of us."ⁱ Serious warnings. Are we in a position to measure? And then to manage?

A recent study on newborn health expands on Speth's last point. In "tests of 10 samples of umbilical-cord blood taken by the American Red Cross," researchers "found an average of 287 contaminants in the blood, including mercury, fire retardants, pesticides, and the Teflon chemical PFOA."ⁱⁱ In other words, even babies in the womb now pick up pollutants and contaminants.

Turning from babies to birds, the Audubon Society believes that 176 America bird species in the continental United States and another 38 species in Hawaii are facing the possibility of extinction. These represent a quarter of our bird species.ⁱⁱⁱ Would a business at risk of losing precious assets ever allow itself to operate without a proper balance sheet?

Aquifer depletion is another hidden consequence of how the modern world currently does business. Stanford professors Richard Luthy and David Kennedy run a project that's addressing water issues in the North American west. In one memorable slide, they dramatize aquifer depletion in California's famed Central Valley. When underground water disappears, land subsides. In some areas, total land subsidence is now 50 to 75 feet.^{iv}

Environmental Capital Balance Sheets

These are anecdotal fragments, but still deeply worrisome. The time for fudging on the common good is over; the time for stewardship of the common good is now. But we cannot do this just with factoids and random insights. We need far greater clarity than we have, and we need to receive it in a way that all the American public can have easy access to a full-bodied look at the reality we now must deal with.

Let's imagine the information tools that would give us what we truly need.

In my mind's eye, I would like to sit at my desk, as an average citizen, open Google Earth or a similar program, select the jurisdiction that interests me the most, and then click on a link that will take me directly to the Environmental Capital Balance Sheet for that jurisdiction.

Almost instantly, I am presented with its top level Balance Sheet. Perhaps I have chosen the entire world, so that I can study the balance sheet sections that summarize the health of the world's oceans. Or perhaps I have selected the United States, to better understand the condition of American birds and other wildlife. Or perhaps I have made a selection closer to home – the State of Maryland, or Anne Arundel County, or the City of Annapolis, in order to understand the balance sheet scoring for the health of the Chesapeake Bay.

Whatever level of geographic resolution I might choose, I will want a predictably formatted illuminating Balance Sheet. I want to begin with high level summaries, and then, on topics where I wish more detail, I want to be able to drill down another level. Or two. Or three.

I will want current information. What's strong? What's sick, or weak, or disappearing? I will want trend information. What has improved, over the past five years, and how much? Which environmental assets have been further degraded? What's losing ground, over the past years and decades? Perhaps I want to know if the contaminant count in newborn infants has declined or increased. Is the chemical stew of modern society clearing up, or getting worse? Or I may want to see trends in bird species. And perhaps I'll want to see trends in stream pollution. Are the stream assets that feed into the Chesapeake becoming cleaner, or more polluted?

Somewhere, in a complex world, when numbers matter a first-rate supplier of reliable data is essential. I think of Nielsen Media as an exemplar of scrupulous measurement and reporting. Broadcasters sell time for commercials, advertisers buy time for commercials. Pricing formulas are driven primarily by audience size. Who is to say, though, how large the audience really is? The network would exaggerate, the ad agency would lowball. Nielsen functions as the third party referee. It uses statistical sampling methods to pull together a cross-section of the viewing public, and in the largest markets installs metering devices on every television in the home. The equipment in each metered home files a nightly report with Nielsen's central computers, and Nielsen converts the information into national viewing estimates that help advertisers and networks pin down the actual size of the viewing audience the advertiser is expected to pay for.

Nielsen's numbers became the gold standard for the industry it served. And so it needs to be with the environmental measurement. An analogous gold standard for assessing asset quality is essential.

The purpose of environmental measurement is not unlike the purpose of a medical chart. Doctors gather several bits of data on each patient – temperature, blood pressure, weight, cholesterol,

blood sugar, urine quality, HIV status, and so on. They take testimony from the patient. What's wrong? When did it start?

At its best, medicine represents the scientific method in operation. Gather data. Develop a likely diagnoses and a likely prognosis. Given the diagnostic hypothesis, offer a prescribed course of treatment. Follow through on the treatment; find out how the patient responds. If the treatment works, close the case. Hypothesis confirmed. If the treatment fails, adjust the hypothesis, adjust the prescribed course of action, and try again.

And so it is with environmental assets. If they're ailing, try to find out why. Is there a misfiring sector whose unwanted pollution is degrading crucial environmental assets? Is there a faulty template, a risky pattern of replication to be addressed? A good Balance Sheet is a bit like a good medical chart. It highlights a key set of vital signs.

From Concept to Reality

Three men are shipwrecked on a desert island. For food all they have is a can of beans. No one has a can opener. The physicist proposes fire. Heat the can till it blows open. No, no, his associates say, the beans would be lost in the sand. Then the chemist offers corrosion. No, no, his friends say, that would take too long and it might poison the beans. Finally it is the turn of the economist. "Well," says the economist, "first we assume the can opener."

Am I at risk of the same error here? Do I simply assume the Balance Sheet? I hope not. This takes some doing, and in time I hope there will be quite a number of people excited by its potential and willing to bring it into being.

I see several sets of questions to resolve, several streams of work to set in motion.

Sponsorship is the first. I am loathe to suggest that the federal government be given the role of defining, collecting, and disseminating the data. In today's political climate, one cannot rely on the federal government to maintain sufficient impartiality, administration after administration. Sooner or later, someone will force the data to be twisted to serve a partisan aim, and should this ever happen, recovery would not be easy.

The task of fashioning a proper set of sponsors and the right implementing body is best resolved within civil society, not by the White House or by the Congress. In the end, the best sponsoring body will almost surely be a non-profit, with a board carefully drawn from academic, scientific, business, and advocacy circles. The individuals chosen should be above reproach.

Funding is the second. It is much too early to get into specifics. Foundations might provide some of the initial funding. Well-respected corporate sponsors might provide a bit more. In the end, though, a permanent endowment is the safest funding strategy. It will be interesting to see how this takes shape.

Balance Sheet Design is one of the steps that I look forward to the most. Top level summaries have to be comprehensive and compact at the same time. The procedures for drilling down to deeper and deeper levels have to be intuitive and illuminating, each step of the way. The interests of all sorts of citizens have to be properly anticipated. Is there a way of capturing watershed health, ecosystem health, plant species, animal species, soil quality, air quality, land cover changes, glaciers and ice sheets, climate, oceans, and all the rest, under a small number of top level headings? And then giving users many paths forward? There has to be. It is a wonderful design challenge.

Then we will want a bit of *Stoplight Coding*. Think the Green-Yellow-Red format of a stoplight chart. Categories that are doing well earn a Green rating, while those in serious trouble draw a Red. If we have a two column display, “Five Years Ago” and “Today,” an asset category that’s improving might shift from Red to Yellow or even Green. Or one that’s deteriorating might have Yellow in the Five Years Ago column and Red in the current column.

What’s the *Right Staffing*? What sort of people would be best for taking on this work? And *What’s the Right Process*? Would one convene a committee of high-ranking scientists, send them off to a top-secret retreat, and await an ivory tower answer from on high? I doubt it. Would one throw the question open to the blogosphere? Also unlikely. A better answer is a properly run Expert-Public dialogue, or even a series of such dialogues.

Architects, as a profession, have as much relevant experience with this as anyone. Expert-public dialogue sometimes is essential to their work. A large tract of urban property will be abandoned by its owners. Its fate cannot be left to chance. City officials require an answer that will move the city forward and satisfy innumerable local stakeholders. Architects and developers are engaged to submit a master proposal. Architects gather input, generate creative possibilities, firm up their ideas, and create a proposal to be shared with the public. Perhaps they present drawings; perhaps they create a scale model rendering of their key ideas. Meetings are held, ideas presented, feedback offered. In the lingo of architects, these discussions are known as charrettes. A charrette helps the public understand what’s possible. Architects will have ways of solving problems that most people wouldn’t think of. At the same time, public feedback helps the architects learn where they’ve hit it right and where they’ve been off base. For especially involved projects, the charrette stage may run for two, three, or four rounds of discussion, but after enough back-and-forth, most participants agree that they’ve resolved the main issues and that it’s time to move to the next stage.

And so it is likely to be for the design of an Environmental Capital Balance Sheet, and, later on, for the other four balance sheets as well. Expert creativity on one side, public feedback on the other, and a final resolution that captures the best insights of all participants.

With a solid design in hand, the next issue is one of *Data Availability and Data Collection*. Suppose that eighty percent of the necessary data is already being collected, at least here in the United States. For each data stream, a supplier-user handshake will have to be negotiated.

For the remaining items on the data list, those not currently gathered anywhere, a larger piece of work lies ahead. Who might do the collection? Is there any chance that existing data gathering efforts could be expanded? Could university-based collection efforts expand? Might there be a volunteer approach to data collection? If the National Weather Service can collect some of its daily readings from school children, might the volunteer model work for the gathering and reporting of data about environmental assets? Not every hold has to be plugged right away. The Balance Sheet can be launched as a reporting tool even before the last items on the checklist have been resolved.

Next, there is the matter of *The Actual Data Host*. Should the non-profit do its own data hosting? Or should it make an arrangement with, say, Google or Map Quest or Yahoo or MSN? There’s real value in working with someone skilled at displaying maps almost instantly on computer desktops. The more visual power at the hands of the user, the faster the civic learning. Three dimensional geographic visualization tools already exist in rudimentary form, and they will improve steadily. Balance Sheets can present overview data without geographic visualization, of course, but it

would be better for users to have tools that help them relate numeric data to physical images. It's one thing to see a value for stream health on a page of text, something else again to call up the stream on a mapping service and to flip back and forth between stream data and the stream image.

Finally, as the Environmental Capital Balance Sheet goes on line, even in an early beta version, it's important to get rolling with *Public Review*. It is at this point that Mayors and County Commissioners and other local officials have a chance to step up, convene public meetings, and take their fellow citizens through a Balance Sheet review. This is what executive committees do all the time in the private sector, and it is a key citizen engagement and stewardship skill for all of us to learn. But Mayors aren't the only players. On all our campuses, professors and students can do the same. And not just our young students – we can engage older learners as well.

Think of it. A modern democracy whose citizens regularly re-acquaint themselves with the state of the community's asset base. Why would we ever NOT have done that?

What's Broken? And How Did It Happen?

A Balance Sheet tells us what's broken. And, if we want to shrink our Liabilities and grow our Equities, knowing what's broken is a good first step.

As I write, there has been a commuter airplane crash in Buffalo, New York, with fifty people killed. The National Transportation Safety Board has swung into action. An investigation team has been named and charged with determining the cause of the crash. Odds are they'll succeed. They almost always do.

What if local citizens inspect the Environmental Capital Balance Sheet for their home community and discover crashing assets? Odds are, they would want something similar – skilled investigators, and more data gathering. And, knowing that we live in a cause-and-effect world, they would also want to go from data to diagnosis. Why has the environmental crash occurred? They see the flashing red of asset failure, they want the steady green of asset health, and they want to know what has to happen to reverse the downward trend.

It's exactly what we do, automatically, whenever a plane crashes. Why wouldn't we do it for an environmental crash as well?

In the next chapter, I take up one of the largest themes of all. Can we have environmental health? Can we have lasting sustainability? And if the answer is Yes – a conditional Yes – what changes will we want to make?

ⁱ Quoted in Washington Post Book World, review by Ross Gelbspan, April 27, 2008.

ⁱⁱ From Reuters, July 15, 2005, quoted in the Washington Post.

ⁱⁱⁱ Audubon Society website, <http://web1.audubon.org/science/species/watchlist>, as of May 4, 2009.

^{iv} "Water in the West: The Challenges of Scarcity," Richard Luthy and David Kennedy Joint Lecture, Stanford's Annenberg Auditorium, February 27, 2009.