

by David Suzuki and Dave Robert Taylor

Putting Mother Nature On the Payroll: Natural Services and Economics

You get what you pay for. It's one of those old, well-worn clichés that stays with us over the decades because of the simple fact that it's true. If you always look for the cheapest way to do something, regardless of other factors, quality will inevitably suffer.

Yet despite every businessperson, politician, and economist on the planet being able to recite this old saw by heart, that's not the way we've been treating Mother Nature. In fact, we've been stiffing her for a long, long time.

It turns out that in the mad rush to create a global economy, we forgot one thing—the globe. This spinning orb we live on happens to provide the base materials for everything that our ingenious human minds can create. Even more important, the Earth's natural systems create the necessary conditions for life on the planet to exist at all. They keep the air clean, the water fresh, and the soils fertile.

You'd think that if we valued these things, we'd have some way of accounting for them. But we don't. Mother Nature has been incredibly generous, offering these services for free. For our part, we've accepted them gladly and without question. In fact, we predicated our entire economy around the notion that these services have no quantifiable value and will continue to be provided indefinitely.

As this [book] explores, we don't have that luxury anymore. Our knowledge of Earth's systems and services may be imperfect, but we know that many of our actions are damaging them. The planet can provide only so many resources and absorb so much of our waste. After that, things start to break down. And breaking down they are.

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Nowhere is this more obvious than with global warming. Exhaust gases such as carbon dioxide from the tailpipes of our cars, the chimneys of our homes, and the smokestacks of our industries are building up in the atmosphere, enhancing the Earth's natural greenhouse effect and trapping more heat near the planet's surface, like a blanket.

But this extra heat and energy doesn't make things all warm and cozy. Because the atmosphere is a system, it's more like throwing random weights on a precariously balanced load, unbalancing the system, and disrupting a climate that's otherwise been relatively stable.

Dealing with this problem will be expensive. Very expensive. And the longer we wait to fix it, the more expensive it will be to deal with later on. That's why it's so important to come up with a way of valuing our atmosphere—such as a carbon tax—immediately. While it would be nice to be able to simply say that nature's services, like providing fresh water and a stable climate, are priceless (they do, after all, keep us alive), our society is ruled by the almighty dollar. The sad fact is, unless we are able to put a price on these services, we will continue to squander them.

Does this mean that we must assign dollar values to all of our experiences in nature? How much is inspiration worth? What is the value of knowing there are wild places left in the world? Of knowing that our closest cousins, the great apes, still inhabit our Earth? Of being able to honestly say that we have been responsible stewards of the only planet known to harbor life in the universe?

A free-market economist might say that these things are worth exactly what people are willing to pay for them. But the tragedy of the commons is that most people don't even know what natural services are, let alone how their actions are damaging them. And even if people do, they want to be quite sure that their neighbors are also paying their fair share for services that benefit us all. This is why govern-

ment policy is critical to create a level playing field where those who pollute and damage nature's services pay more than those who do not.

As fair as that may seem, powerful people and industries want to maintain the status quo, arguing that taxing them will hurt their bottom lines and weaken the economy. They're right, of course, unless you factor in the value of our natural services—which is the whole point. Welcome to Earth, the only planet we have. The services she provides are valuable. And someone, somewhere, has to pick up the check.

PUTTING A PRICE TAG ON NATURE

Many people believe that nature's value cannot be put into dollars and cents. That is, they value the natural

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world for its own sake, regardless of what services or benefits it provides for humans. Yet this notion is fundamentally at odds with the economic system we've created.

We live in a world increasingly dominated by a global economy, where it is assumed that everything of value has a price tag attached. If something can't be quantified and sold, it is considered worthless. The CEO of a forest company once told me, "A tree has no value until it is cut down. Then it adds value to the economy."

So how do we reconcile our economy with ecology? The Earth provides us with essential natural services like air and water purification and climate stability, but these aren't part of our economy because we've always assumed such things are free.

But natural services are only free when the ecosystems that maintain

them are healthy. Today, with our growing population and increasing demands on ecosystems, we're degrading them more and more. Unfortunately, remedial activities and products like air filters, bottled water, eye drops, and other things we need to combat degraded services all add to the gross domestic product (GDP), which economists equate to progress. Something is terribly wrong with our economic system when poor environmental health and reduced quality of life are actually good for the economy!

But what if we did put a price tag on things like clean air and water? If we assigned a monetary value to natural systems and functions, would we be more inclined to conserve them? This idea was pretty radical when it was first seriously proposed in 2000 by an international group of ecologists writing in *Science*.

The group argued that humanity will continue to degrade natural systems until we realize that the costs to repair or replace them are enormous. So we must find a way to put a dollar value on all ecosystem assets, including natural resources such as fish or timber, life-support processes such as water purification and pollination, and life-enriching conditions such as beauty and recreation.

Most of these assets, with the exception of natural resources, we already exploit but do not trade in the marketplace because they are difficult to price. But this is changing.

In 1997, for example, New York City officials decided to begin buying land around watersheds and let the forest and soil organisms filter water instead of building a massive new filtration plant. It wasn't that city planners were closet environmentalists trying to preserve nature. The economics just made sense. Protecting a service that nature provided for free was far cheaper than engineering a Band-Aid solution to clean up the water afterwards.

Until recently, this kind of potential to use natural services rather than technology to solve problems has been largely overlooked, even though natural approaches may provide

greater benefits to communities such as lower costs, reduced flooding and soil erosion, and aesthetic benefits.

In Canada and the U.S., forests are primarily valued for the timber they provide. But this leads to conflicts. For instance, a report from the Canadian Department of Fisheries and Oceans found that logging roads in the province of British Columbia continue to devastate fish-bearing streams, even though legislation is supposed to protect them.

In fact, these forests provide many services, including habitat for plants and animals, recreation, and others that, if assigned a monetary value, could completely change the way we use them. In Australia, the New South Wales Department of Primary Industries promotes the future of forests as being tied to ecosystem services, with timber considered simply one of the many products and services that intact forests can provide to human beings.

As just one species out of perhaps 15 million, the notion of assigning value to everything on Earth solely for its utility to humans may seem like an act of incredible hubris. But the harsh reality of today's world is that money talks and economies are a central preoccupation. At the very least, assigning monetary value to ecosystem services may force us to take a hard look at all that nature provides. Maybe then we'll stop taking it for granted.

CONSERVING NATURE IS LIKE MONEY IN THE BANK

Ask folks what they value about nature and most would probably be quick to mention aesthetic and spiritual properties like beauty, serenity, and peace. We hold these values dear to our hearts because they resonate with strong emotional ties. But there are other, more pragmatic, reasons to value nature—reasons even a hard-headed economist can't deny.

We've lost touch with the fact that everything we have depends on nature. Without the rest of nature propping us up, we could not survive—a fact so obvious that it seems silly to point it out. The problem is, we don't

behave as though this were obvious. We behave as though the economy is completely separate from the world in which we live. Industrialized society is geared entirely towards output—how many Wiis, SUVs, and cans of Pepsi we can create, sell, and consume. What aren't factored into the equation: the natural services needed to support this output. Why? Because nature's services are considered free.

And in a standard economic sense, they are free. Nature is the source of clean air, water, and fertile soil with no strings attached. However, with over six billion of us now shuffling up to nature's buffet, the "all you can eat" sign will have to come down soon or those at the back of the line—the next generation—will be left with nothing but Jell-O salad.

Efforts to quantify the value of nature's services have been met with suspicion by some economists. In 1997, an international team of researchers headed by ecological economist Robert Costanza came up with an estimated annual average of about US\$33 trillion—roughly twice the size of the annual GDPs of all the countries in the world, and virtually none of it accounted for in the marketplace. Their paper, published in *Nature*, was the first of its kind. But it only looked at the overall monetary value of natural services. It didn't answer the question of what effect human activities are having on nature's "net worth."

So, in 2002, a group of researchers attempted to tackle this question. The results were shocking. Their analysis, presented in *Science*, showed that simply in terms of dollar value, conserving natural areas is actually 100 times more profitable than exploiting them.

The researchers looked at five real examples—logging in Malaysia, small-scale agriculture in Cameroon, mangrove swamp conversion for shrimp farming in Thailand, drainage of marshlands for agriculture in Canada, and the destruction of coral reefs by dynamite fishing in the Philippines. In each case, the economic value of the conversion activity—such as the sales of the end product and jobs created—was far less than

the value of the services provided by intact natural habitats nearby (things like sustainable, low-impact logging, flood protection, sustainable hunting and fishing, and provision of clean water).

In total, the researchers estimated that world-wide loss of natural habitat costs humanity some US\$250 billion every year. And because the conversion is permanent, those losses continue every year into the future, in addition to next year's losses.

Such outrageous costs immediately raise the question: if these practices are so uneconomical, why hasn't someone stopped them? The answer is that the savings associated with conserving nature are spread throughout society, whereas the profits earned from exploiting natural resources are immediate and benefit a narrow group of individuals. Many current government subsidies and tax incentives also support such practices. In fact, researchers estimate that these subsidies add up to between US\$950 billion and US\$1,950 billion every year.

Our global economic system has been constructed under the premise that natural services are free. We can't afford that luxury anymore. We have created a deeply flawed system, but we can still change it. With new knowledge of the extent to which we are mortgaging humanity's future by subsidizing narrow economic interests, conventional views on economic development must be reconsidered and reconstructed to make ecological conservation a priority. We must put the economy in synch with the natural world that made it possible. **PM**

David Suzuki, Ph.D., cofounder of the David Suzuki Foundation, is a scientist, environmentalist, broadcaster, and author, Vancouver, B.C., Canada. Dave Robert Taylor is a writer and journalist and president of Tipping Point Communications, Tsawwassen, B.C., Canada.

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