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Will the environment
gain or lose from the
financial meltdown and
its economic aftermath?

The Nature of t





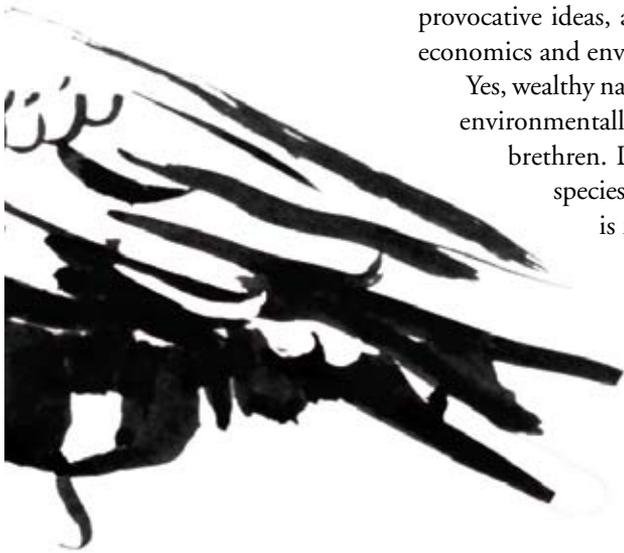
FEATURE

As economic prospects turn grim,

conservationists are locked in a familiar, highly polarized debate over the downturn's potential costs. On one side are those who believe the recession may trigger dramatic environmental setbacks because only wealthy, growing nations are willing and able to fund conservation initiatives. Standing opposed are those who say a slowdown could benefit the environment by reducing consumption and, in turn, pressure on natural resources.

The problem is, these viewpoints rest on shaky assumptions about the relationship between economic growth and environmental health. Research on this relationship is scant—and what little there is presents a more complicated picture than you might expect. To sort through this quandary, *Conservation* presents a sampling of the leading-edge thinkers, provocative ideas, and seminal research shaping the conversation about economics and environmentalism.

Yes, wealthy nations direct more resources toward conservation—but, environmentally speaking, poor nations can outperform their richer brethren. Developed nations see greater numbers of threatened species in some taxonomic categories but not others. The U.S. is made up of ravenous consumers, but its citizens prize environmental protection over economic growth.



he Fiscal World

By Tali Woodward

Illustration By Daniel Horowitz



Philanthropic Crumbs from the Fiscal Table

Conservation finances are in lockstep with economic indicators, but relying on donations may leave the environment in a precarious spot

Oliver Pergams left his job as chief executive of a commodity-options firm to get a doctorate in conservation biology. But as he worked on environmental issues at the University of Illinois and at Chicago's Field Museum, his mind kept returning to his earlier career. Pergams wondered how economic trends, including recessions like the one we're in now, affect conservation.

Pergams had a hunch that conservation is a luxury people forgo during lean times. But his search for evidence turned up little interdisciplinary research on the question. Ecologists study the environment, economists look at markets—and the two rarely meet.

Pergams decided to bridge this gap. He put together a research team and gathered historical data on measures of economic growth: gross domestic product, personal income, the Dow Jones Industrial Average, and Standard & Poor's index of large-cap stocks (the S&P 500). When they charted each one against conservation trends, the same pattern emerged: when the economy grows, more resources are

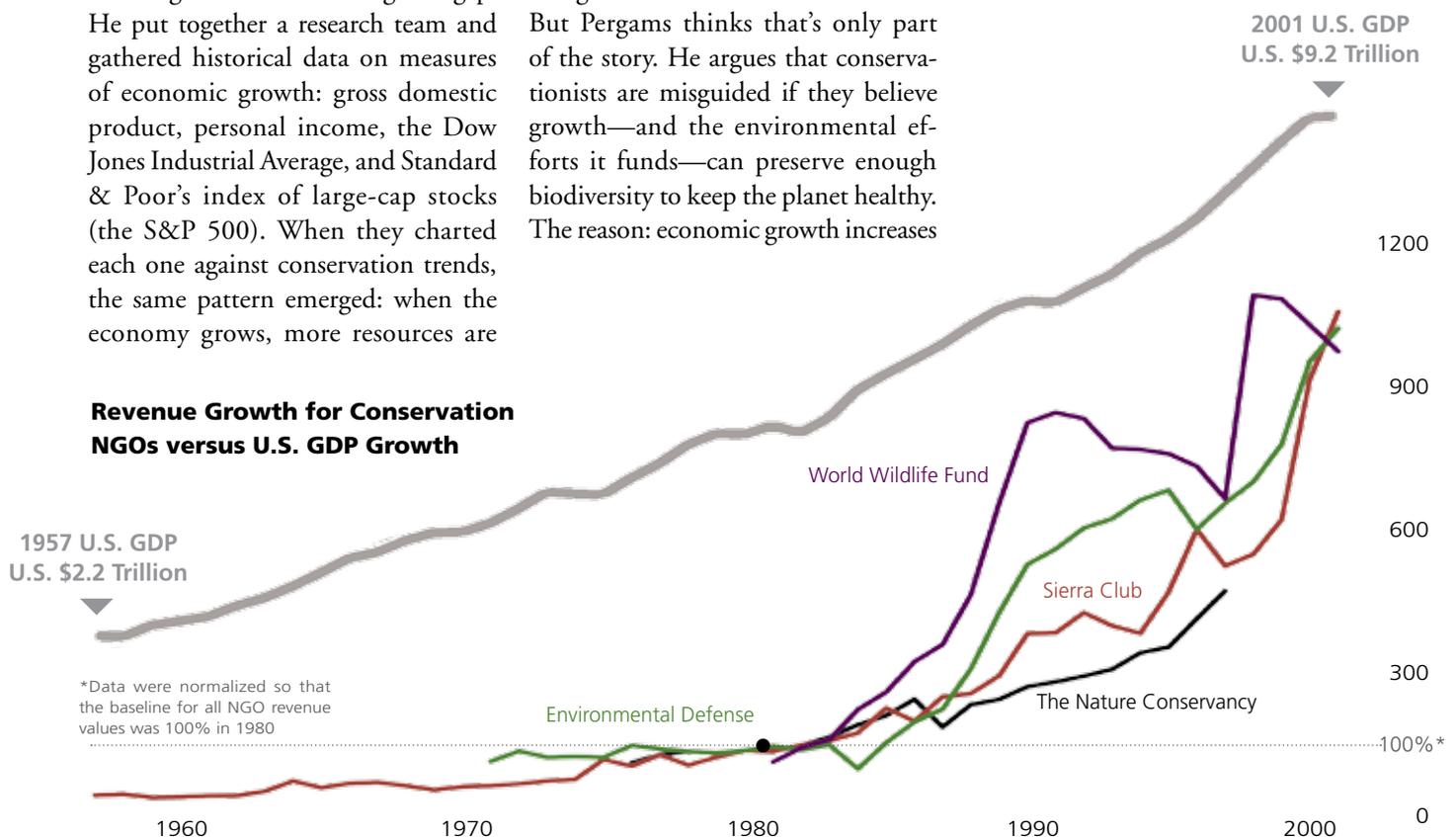
channeled toward conservation. It was true whether they were looking at donations to conservation nonprofits or at the acreage of national parks.

Conversely, when the stock market crashed in 1987 and took a less dramatic dive in 1999, the negative impact on conservation was immediate. Donations to NGOs like the Sierra Club and the World Wildlife Fund declined substantially. "Our results suggest that yearly corporate income may be the most important predictor of conservation effort, with individual income next in importance," the researchers reported in a 2004 paper. (1)

The obvious conclusion might be that growth is essential to conservation. But Pergams thinks that's only part of the story. He argues that conservationists are misguided if they believe growth—and the environmental efforts it funds—can preserve enough biodiversity to keep the planet healthy. The reason: economic growth increases

human pressures on limited natural resources. And no matter how much an economy expands, Pergams says, the donations it spawns can never be enough to counteract this.

As a solution, Pergams favors placing caps on growth, forcing society to live within tight economic boundaries. It's a controversial viewpoint with many naysayers but raises an intriguing question: has growth been miscast as a panacea? Rising gross national product is generally assumed to be good, and it certainly helps alleviate critical human problems. But growth also carries an environmental toll that at some point could outweigh its benefit. ■



Source: Pergams, O.R.W. et al. 2004. Linkage of conservation activity to trends in the U.S. economy. *Conservation Biology* 18(6):1617-1623.



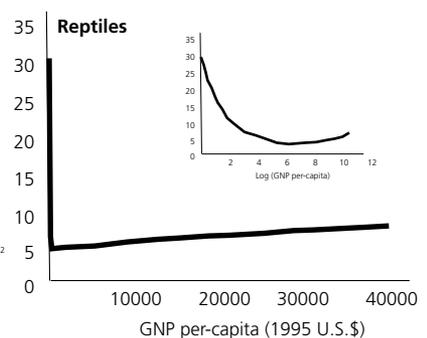
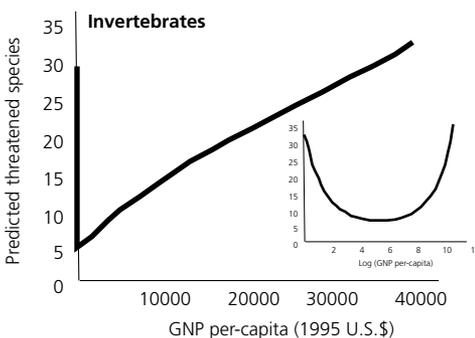
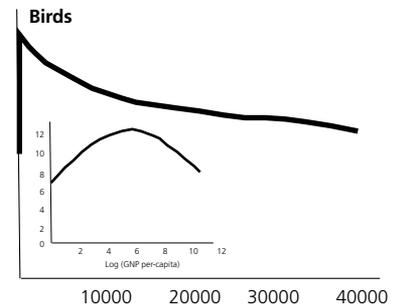
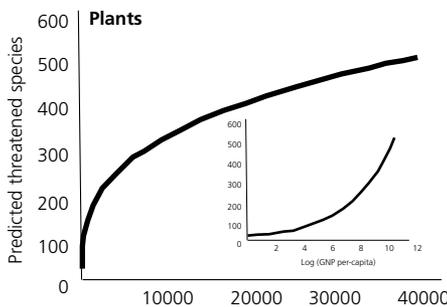
Robin Naidoo

The Nonhuman Toll of Economic Growth

As gross national product rises, so do extinctions—but some animals are more resilient than others

In the past few years, economists and ecologists have been taking a closer look at questions at the intersection of their fields. They've started to take on a particularly prickly topic—whether there is evidence that economic growth leads to biodiversity declines. People on both sides of the debate might assume the answer is obvious, but the research tells a murkier story.

Take the “environmental Kuznets curve,” a hypothesis that, in the long run, economic development is good for the environment. Shaped like an inverted U, the curve plots development against indicators of environmental health. Early in an industrialized nation's life, problems such as air and water pollution rise steeply. Then, the curve reaches an apex as citizens accumulate wealth



Source: Naidoo, R. and W.L. Adamowicz. 2000. Effects of economic prosperity on numbers of threatened species. *Conservation Biology* 15(4):1021-1029.

and come to value a clean environment. From there, environmental health improves.

The curve has a growing number of skeptics. Robin Naidoo and Wiktor Adamowicz of the University of Alberta were among the first researchers to try to find out whether the theory applied to biodiversity. They did a study comparing per capita gross national product (GNP) with data on threatened species in more than 100 countries. They tracked seven taxonomic groups: plants, amphibians, reptiles, fish, birds, mammals, and invertebrates. According to their study, published in *Conservation Biology*, five of the groups showed the opposite of a Kuznets pattern: the number of threatened species in those categories increased as GNP rose. (2) “If these relationships hold,” the researchers concluded, “it appears that much of the world’s biodiversity will be threatened with extinction should countries reach levels of consumption . . . equal to those of developed nations.”

But a closer look at Naidoo and Adamowicz’s work reveals that the case against economic growth isn’t entirely clear. Birds did follow a Kuznets pattern, and there was no clear relationship between GNP increases and numbers of threatened mammals. Other researchers have reached similar conclusions. (3,4, 5)

If GNP causes other taxa to suffer, why aren’t birds or mammals similarly affected? Naidoo and Adamowicz speculated that birds may receive greater conservation attention because people find them more attractive than “small and slimy” critters. When people have the wealth and values to support conservation, birds are one of the first taxa to be protected.

Naidoo, now at the World Wildlife Fund, suggests that understanding exactly how this relationship works could provide a roadmap for how to protect other taxonomic groups. 🐾

Is Wealthy Healthy?

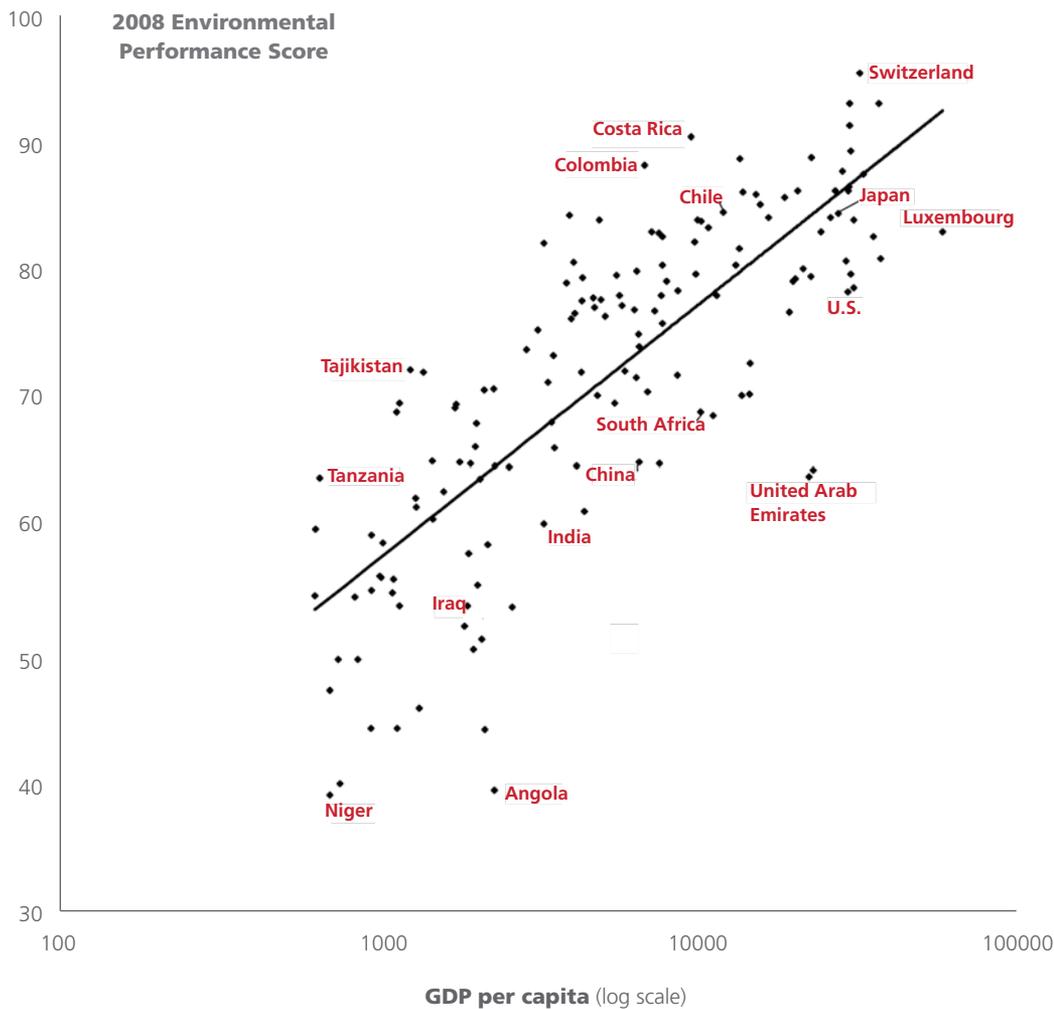
Rich nations get greener marks than poor countries—but true environmental health lies in the details

Researchers have made modest strides mapping out the overall relationship between economic growth and environmental health, but this broad research provides few concrete lessons to countries that want to craft ecofriendly policies. Daniel Esty has spent nearly a decade trying to change that. A lawyer by training, Esty directs the Yale University Center for Environmental Law and Policy and is the driving force behind the Environmental Performance Index (EPI), a cutting-edge ranking system that not only helps countries formulate policy goals but also shows that a country needn’t be wealthy to be a true environmental steward.

There have been other attempts to construct similar indices, but Esty’s—which is produced in collaboration with institutions such as Columbia University and the World Economic Forum—may be the most comprehensive. To compile the 2008 EPI, researchers identified 25 indicators of environmental health, such as water quality and pesticide use, then established targets countries should aim for. For instance, the EPI’s benchmark for habitat protection is that nations should protect ten percent of each major biological community within their borders. Countries are awarded points based on their proximity to these goals.



World Economic Forum managing director Jose Maria Figueres (L) talks with Daniel Esty, director of the Yale University Center for Environmental Law and Policy. ©Suzanne Plunkett/AFP/Getty Images



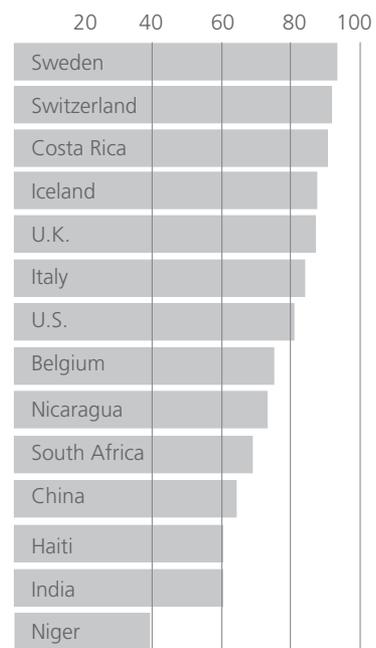
The final report, which Esty presented at the World Economic Forum in Davos, Switzerland, ranks nations by their overall score. Make no mistake: the rich countries are clustered at the top, and poorer countries are heaped at the bottom. But that's only a small part of the story; the EPI shows that a commitment to environmental health can make up for a lack of financial resources. Of the 149 countries ranked in 2008, Costa Rica landed in fifth place, even though its per capita GDP is only \$9,600—thanks to its robust ecotourism industry and its willingness to experiment with innovative conservation programs such as paying farmers when they leave forested land intact.

MORE ONLINE

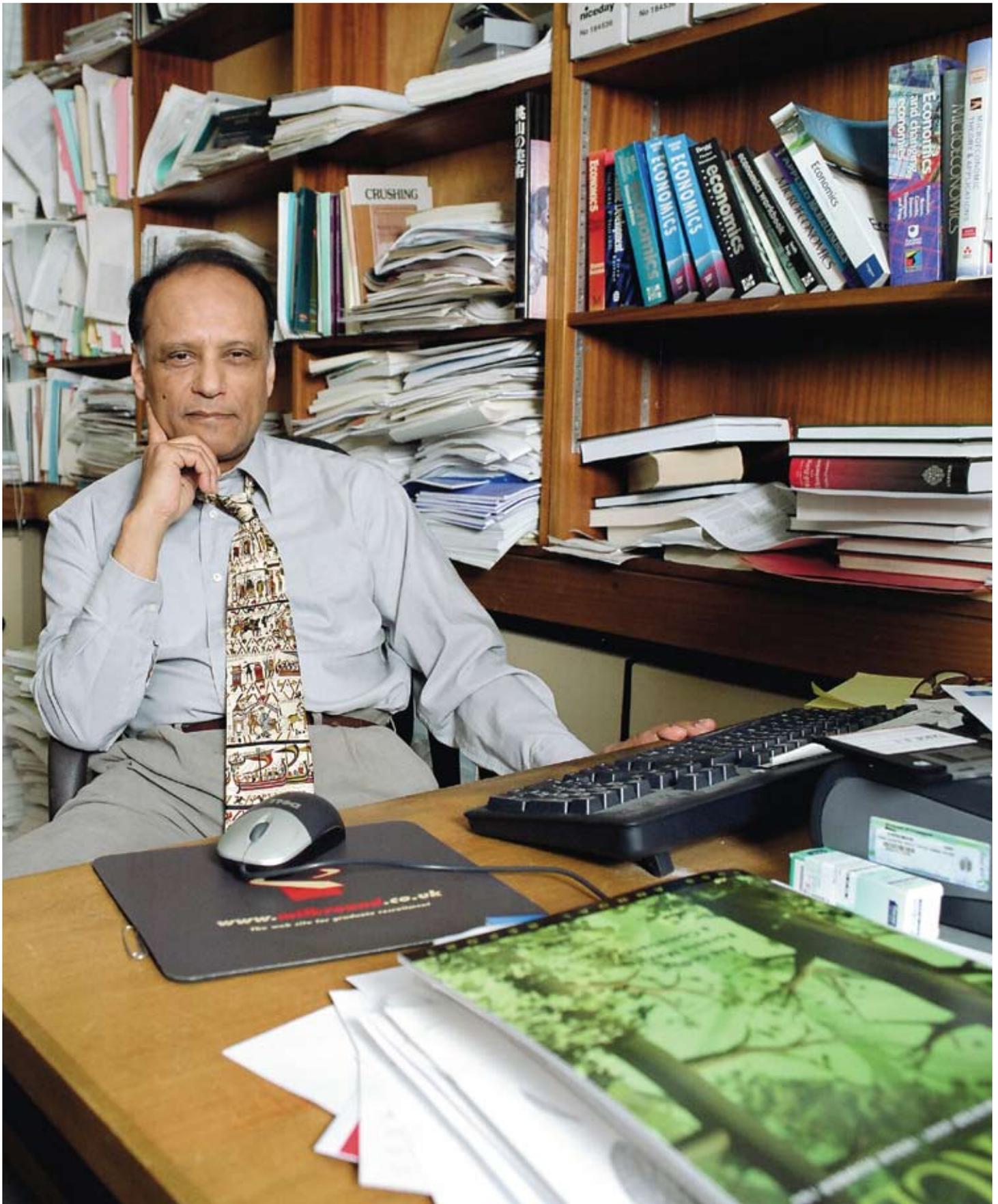
See the 2008 Environmental Performance Index scores for 149 countries at: www.epi.yale.edu

By holding up these countries as paragons of environmental health, Esty thinks, the EPI will give other nations ideas on how to improve their performance. In fact, the EPI has already spurred reform. For instance, when the United Arab Emirates ranked last in the 2002 report, it responded by launching an extensive program to monitor its environmental impacts. Believing this is only the beginning, Esty is now getting the chance to put some of the EPI's lessons into action. A former official at the U.S. Environmental Protection Agency, Esty was one of Barack Obama's environmental advisors—and could remain influential as the new president formulates his policies. ♻️

2008 EPI Scores for Selected Countries
100=best



source: www.epi.yale.edu



Partha Dasgupta. Photo ©Howard Guest





Kicking the GDP Habit

Is there a better way to judge whether an economy is moving forward?

In the early 1990s, Cambridge economist Partha Dasgupta began to focus on a single intimidating question: “How do we judge whether an economy is moving forward?” The standard answer for decades now has been gross domestic product (GDP)—defined as the total market value of all final goods and services produced within a country in a given period of time. GDP has been the king of all economic indicators since it was first developed to measure production during World War II. Yet GDP is beset with a gaping hole: it takes no account of nature, despite the fact that natural resources are integral to how we live and to future economic performance. “Even today natural capital has not entered our common economic language,” Dasgupta wrote in a paper published this year in *Environmental and Resource Economics*. (6)

GDP’s missing piece has been well known yet largely ignored for decades. A handful of reform attempts have sprouted over the years, but none has taken root. One of the more notable efforts in the mid-1990s came from Redefining Progress, a U.S. public-policy think tank. Building on Herman Daly and John Cobb’s earlier work on an Index of Sustainable Economic Welfare (ISEW), a group of economists devised the Genuine Progress Indicator (GPI). The GPI essentially starts with a standard GDP and makes a number of adjustments, including adding values such as volunteer work and subtracting for others such as pollution and

resource depletion. The result is a predictable “things are getting worse” picture of the economy.

More recently, China has taken a more ambitious stab at an alternative to GDP. In 2004, Chinese officials dispatched a team of economists to come up with a quantification of the costs of pollution and natural resource depletion across the entire country. This figure would then be deducted from China’s regular GDP, resulting in the world’s first green GDP. The first green GDP figures were announced in 2006, but they fell far short of expectations—their calculations of environmental damage amounted to only about three percent of the country’s GDP. Even this low figure set off a political firestorm, and the project was shelved indefinitely.

Enter Partha Dasgupta. He’s a leader in a loose international network of economists and ecologists (including the likes of Paul Ehrlich, author of the *Population Bomb*, and Kenneth Arrow, winner of a Nobel Prize in economics) who are tackling the GDP problem from a very different angle. (7) Instead of simply subtracting negatives from positives to judge a nation’s economic progress, Dasgupta has worked out an entirely different sort of framework, which he calls “inclusive wealth.”

Inclusive wealth is an attempt to assign monetary values not just to the manufactured economy but also to critical cogs such as nature, human welfare, and human knowledge. It’s

inclusive because, among other things, it treats ecosystems as capital assets that, like roads or buildings, depreciate if they are misused or overused. The goal is to manage those assets so they don’t diminish over time.

As Dasgupta explains it, inclusive wealth is not a “flow” like GDP but rather a quantification of an economy’s entire productive base. If GDP is analogous to a person’s annual salary, inclusive wealth is more like a year-end statement of total assets—including real estate, investments, and even hard-to-quantify assets such as education. “An economy enjoys sustainable development if and only if, relative to its population, its inclusive wealth (at constant prices) does not decline.”

Not surprisingly when viewed through this new lens, the world’s economies look very different than they do through a standard GDP scope. In fact, there are some surprising twists. Speaking to a roomful of biologists at the annual meeting of the British Ecological Society, Dasgupta demonstrated how the inclusive wealth concept works.

He started by looking at the economic performance of a handful of poor, middle-income, and wealthy countries from 1970 to 2000—first through traditional GDP measures and then in terms of inclusive wealth. By simple GDP standards, Pakistan’s economy grew at a respectable rate of 2.2 percent annually during the 30-year period. The U.S. grew by half as much

GDP Alternatives

Gross National Happiness

is a metric developed and used by the Bhutanese government to look beyond GDP and assess their country's quality of life. GNH takes into account equitable and sustainable socio-economic development, the preservation and promotion of cultural values, environmental conservation, and good governance.

The Genuine Progress

Indicator, developed by the think tank Redefining Progress, uses the same consumption data as the GDP but then includes values that measure income distribution, housework, volunteering, crime, resource depletion, pollution, long-term environmental damage, leisure time, lifespan of public infrastructure, and dependence on foreign assets. A study tracking the GPI from 1950-1974 shows that U.S. growth has been stagnant since the 1970s.

The Happy Planet Index

calculates how efficiently a country converts its natural resources into long and happy lives for its citizens. It is a gauge of both environmental impact and quality of life and was developed in 2006 by the New Economics Foundation.

The United Nations Development Program ranks countries using the **Human Development Index**, which takes into account not only per capita GDP but also human health, longevity, access to education, and standard of living.

at 1.1 percent per year. But Pakistan's population during that period grew at a high rate of 2.7 percent, and its productive base (including human and natural capital) was insufficient to compensate. As such, the productive base per capita fell at an annual rate of 0.7 percent. In contrast, low population growth in the U.S. meant that the productive base per capita grew at an average annual rate of 1 percent. In other words, economic development in the U.S. was barely sustainable from 1970-2000, while Pakistan was unsustainable. It is possible for a country's productive base to shrink during a period when GDP grows.

Another sobering result from Dasgupta's calculations was that the economies of all the poor countries on his list were either unsustainable or barely sustainable. Emphasizing that he doesn't want to deny that the standard of living has gone up in most poor

countries, Dasgupta adds, "The question is: do we pay a price for that?"

Dasgupta's arguments are based on rough estimates because the methods for calculating inclusive wealth still must be worked out. "It's very sad that we're in 2008 and we're still so far behind that we have to use such crude measures," he says. As economists figure out how to do these calculations, they are likely to start with smaller, local economies. Dasgupta told his audience that, in the meantime, he hopes his framework demonstrates that ecological truths can be introduced without fuss into economic reasoning. He also hopes entities like the World Bank will think more broadly about what constitutes economic health. "The World Bank lends 20 or 30 billion dollars a year, but gave up on doing valuation exercises," says Dasgupta. "And of course the one thing that gets neglected is the valuation of nature." ■

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When Push Comes to Shove Green vs. Growth

Even in tough times, financial worries don't eclipse environmental values

For 20 years, Gallup's annual poll on the environment has asked respondents whether they believe environmental protection should be prioritized over economic growth. Their answers might surprise you.

Sure, environmental concern is stronger when the economy is expanding. During the dot-com boom, at least 65 percent of respondents consistently favored protection over growth, while no more than 30 percent placed the economy on a higher tier. Not surprisingly, that gap narrowed sharply as the

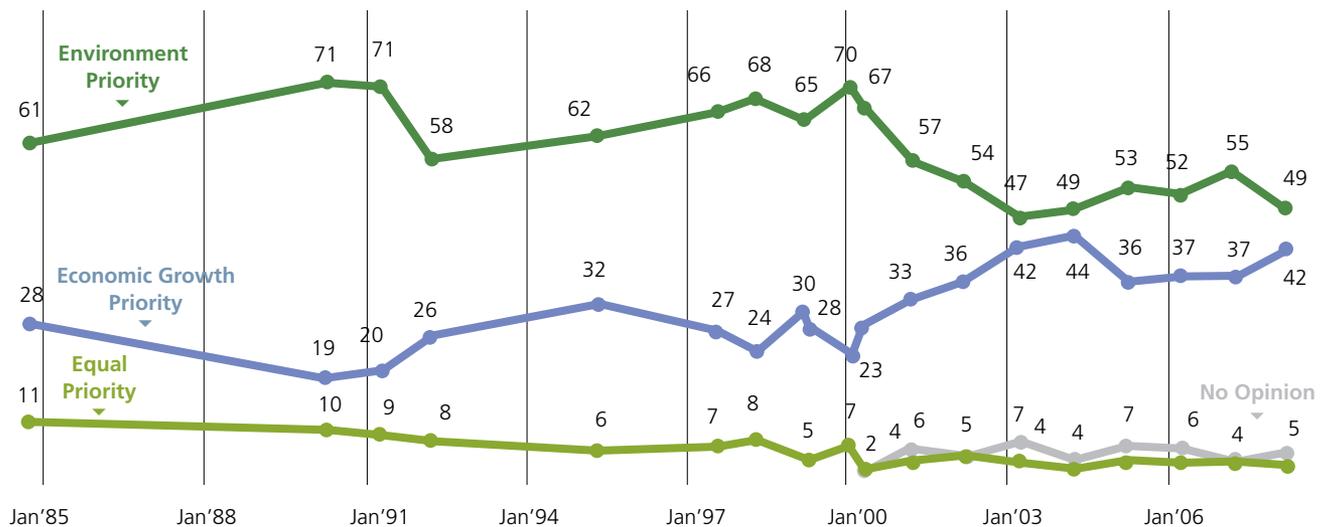
economy fell into recession; by January 2003, 47 percent of those polled came down on the environment's side, while 42 percent preferred growth.

What's striking is that, over a 20-year period, that was the closest the economy ever came to supplanting environmental worries—the data never show a majority preference for economic growth. Environmental preferences were even stronger in Canada and the U.K., where polls have shown that roughly two-thirds of citizens consistently favor the environment.

Of course, polls gauge attitudes, not behavior, and it's unclear whether the current downturn will shift the equation. There's already some evidence the recession is affecting consumer choices: the Nielsen Company reports that sales of organic products, recently growing at 20 percent a year, slowed considerably last fall. On the other hand, some analysts expect consumer belt-tightening to bolster recycling efforts. Either way, it seems that Americans' support for conservation is more entrenched than many suspect. ■

The following **Gallup Poll** question was posed to U.S. adults aged 18 and older: With which one of these statements about the environment and the economy do you most agree: Protection of the environment should be given priority, even at the risk of curbing economic growth; (or) economic growth should be given priority, even if the environment suffers to some extent?

numbers are in percentages



Source: www.gallup.com/poll/105715/Half-Public-Favors-Environment-Over-Growth.aspx