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SPECIAL REPORT: ENVIROTECH

Earth's Best Friend: Corporate America?

With Uncle Sam too strapped to foot the bill for environmental R&D, it's falling to business, which is more often finding the effort worthwhile

David Leith, an environmental researcher at the University of North Carolina, has noticed a pronounced changing of the guard in the effort to protect the nation's air, water, and natural resources. Some 20 years ago, when he first began working on ways to reduce air pollution, most of his funding came from the federal government. Now, all of it, \$1 million-plus over the past eight years, has come from the corporate world -- places such as Ford Motor ([F](#)) and the United Auto Workers union. The focus of Leith's research has changed as well, from reducing factory emissions to cutting pollution inside plants.

In microcosm, Leith's experience describes what's happening across the country. Because of the weak economy, corporate spending on environmental research and development has moderated. Yet experts say it's most likely holding up better than similar federal spending, which has fallen 1% in the current fiscal year.

While both trends may sound alarming, given the stress a rising world population puts on the earth's resources, here's a silver lining: Corporations have found that environmentally friendly technologies often allow them to eliminate waste and lower manufacturing costs, thus improving their financial performance. Wider use of envirotech can even avoid future liabilities for workers' health problems, says Bill McDonough, who has helped design environmentally friendly manufacturing facilities for the likes of Ford and shoe maker Nike ([NKE](#)).

FURTHER TO GO. Clearly, Corporate America is taking on a more active role in protecting the environment, even as the public sector's involvement fades. And as might be expected, that's leading to increased innovation in technologies used to protect and repair the environment.

In the three decades since the first Earth Day, much has been done to improve the environment in the U.S. And yet, much remains to be done. From 2000 to 2002, the number of days with unhealthy ozone levels in the U.S. jumped 18.5%, according to the American Lung Assn. And according to the Environmental Protection Agency's 2000 water quality survey -- the most recent available -- some 40% of U.S. streams and lakes aren't clean enough for fishing and swimming. That's hardly different than in 1998, when 35% of rivers and 45% of lakes weren't clean enough.

At the same time, the cleanup pace for the nation's most toxic sites slowed by half from 2001 to 2003, according to the environmental advocacy group U.S. Public Interest Research Group in Washington, D.C.

LEEWAY TO DIAL BACK. Worse, apathy over the environment seems to be spreading, perhaps as Americans focus more on the weak economy for now. In a March Gallup poll of 1,003 adults, some 51% -- down from 58% in 2000 -- said they think the government isn't doing enough to protect the environment.

And only 14% identified themselves as active participants in the environmental movement, down from 19% a year ago.

That has given the Bush Administration leeway to dial back on environmental programs. The Office of Management & Budget, the President's budgeting arm, estimated that the federal government would have had to spend \$31.15 billion in fiscal 2003, which began last October, to keep existing EPA programs in place. Congress approved only \$30.8 billion, however -- which was \$1.4 billion more than the Administration originally requested.

By 2008, a \$2.8 billion budget shortfall could exist between congressional funding and the \$36.9 billion needed to maintain status quo, according to the OMB. "Suddenly, we're fighting [to keep] programs that have been successful," says Greg Wetstone, director of programs at the environmental advocacy group National Resources Defense Council in New York.

SPITZER'S IRE. Additionally, the Bush Administration has been lax in its enforcement of existing laws, complains Dan Esty, director of the Yale Center for Environmental Law & Policy. The EPA disputes that. But Tim Oppelt, director of the EPA's National Homeland Security Research Center, says nearly 10% of the more than \$500 million annually the EPA spends on research now goes to homeland-security initiatives such as developing biological agent detectors.

That leaves less money for other projects -- and has attracted the ire of such notable critics as New York Attorney General Eliot Spitzer. Last November, between bouts of fighting malfeasance on Wall Street, he filed suit against the Bush Administration, alleging that a recent watering down of the Clean Air Act will lead to more pollution of the state's air.

So, Corporate America is being left with the task of running to the rescue. Its initiatives aren't instances of altruism run amok. Rather, many companies are finding that incorporating environmentally friendly technologies can reduce their costs -- and hold down prices -- and as a consequence please their customers. After all, 89% of the country now recycles, 80% of consumers have reduced their energy use to protect the environment, and 72% buy products specifically because they're better for the environment, according to the Gallup poll.

BUG POWER. Investors care about their companies' environmental image as well. In 2002, nearly half of the world's 250 largest corporations issued reports on their environmental performance, compared with 35% in 1999, according to accounting firm KPMG.

Reducing manufacturing costs is a big incentive for many. Materials maker DuPont ([DD](#)) used to make 10,000 tons of a polymer called Sorona each year using a petrochemical process in which oil is the raw material. Sorona is used in some swimsuits, slacks, and jackets, since fibers made from it are supersoft and can recover their shape after being stretched. Such fibers aren't biodegradable, however, and they're expensive to make because manufacturing them requires high-temperature, high-pressure reactors.

Then four months ago, DuPont engineers cloned genes from a bacteria, inserted them into a fermentation process -- and created a microorganism that doesn't exist in nature. One of the most advanced bioengineered organisms ever developed for commercial use, the new creature turns glucose -- a form of sugar -- into Sorona in a single step. When this new process debuts commercially in 2004, DuPont will no longer need either its oily raw material or its expensive reactors. Not only will production will be much cheaper, says DuPont research manager Scott Nichols, but Sorona will be biodegradable, and the process for making it will be more environmentally friendly.

MOLDED PAINT. Other companies have developed environmentally friendly processes that, while expensive, reduce the end product's cost. GE Plastics, a subsidiary of industrial powerhouse General Electric ([GE](#)), has developed a technology that by 2006 could make it unnecessary for carmakers to paint vehicles. That's important because a auto paint line costs about \$300 million to build and takes up about half of a car plant's floor space, says Robert Johnson, product manager for the GE's Lexan SLX product, which promises to make all that spending and space goes away.

Lexan SLX, which so far has been used only to paint the bumpers of a two-wheel personal transportation system called Segway, is a thin film. When it's heated, it can be molded into shapes that correspond to parts of a car. While the film will be more expensive than paint, the process will eliminate the need for paint lines. (It will be able to use a plant's existing molding equipment.) It could also free carmakers from guarding against leaks of paint solvents into the ground and water -- making the process more environmentally friendly, says Johnson. GE Plastics expects to announce its first contract with a carmaker in June, he says.

The search for ways to lower capital spending has also proven to be a motivator for using "green" technologies in designing plants. A new Ford auto plant due to open in June in Dearborn, Mich., will feature a natural storm-water management system for its grounds and roof, which will feature several inches of soil and vegetation in place of normal roofing. A conventional drainage system for the 600,000-square-foot assembly plant would have cost \$45 million, but the green system will cost only \$13 million, says McDonough, the environmental designer who worked on the project.

NO COMPROMISES. Other companies are uncovering environmentally friendly materials that improve a product's performance. Cargill Dow, a privately held producer of materials made from natural products, has developed the world's first biodegradable plastic from corn. It's already used in carpets, T-shirts, and the plastic baskets that hold strawberries at some grocery stores -- as well as in some comforters sold at retailer Bed, Bath & Beyond ([BBBY](#)). The material is good at drawing moisture away from the skin. And when used in making packaging, it's extra clear.

Making plastic from corn instead of petrochemicals delivers a 20% to 60% reduction in the emission of greenhouse gases during manufacturing, says Karl Rabago, whose title at Cargill Dow is "sustainability alliances leader." Still, "you can't walk in the [customer's] door in this business before first talking about performance," he says. "They expect the environmental features, but they don't want to compromise." CD's Nebraska plant, which can produce up to 300 million pounds of corn-based plastics pellets annually, should reach full capacity by the yearend, says Rabago.

Customer goodwill is another motivating force behind many environmental initiatives -- such as the decision by a number of electronics manufacturers to offer recycling after their products wear out. A year ago, computer-monitor maker NEC-Mitsubishi Electronics Display launched its Total Trade Program, in which it connects its customers with recycling companies. The components of a monitor can be toxic, leaving the customer with potential liability if it isn't properly disposed of. A 17-inch CRT (cathode-ray tube) monitor, the TV-set-like predecessor of today's flat-panel displays, contains nearly two pounds of lead. NEC, which acts as an intermediary between its corporate customers and recycling services, benefits by selling more new monitors to customers who are relieved to be rid of the old ones, says Al Giazzon, NEC's vice-president for marketing.

"GREEN CHEMISTRY." Similarly, on Mar. 25, Dell Computer ([DELL](#)) announced that it will pick up old printers from customers who buy its new ones -- at no extra charge. Customers who purchase a new Dell printer can simply put their old one in the box their new Dell came in, attach the pre-paid shipping

label, and follow the enclosed instructions for returning their machine.

Also in March, Dell announced that it will let customers order home pickup of unwanted notebooks, desktops, and monitors for \$15 per unit. Customers who purchase the service or donate used equipment to specified charities receive 10% off their next online purchase of Dell software and computer products.

Many corporate initiatives remain much more complex -- such as the effort to lessen or eliminate pollution before it's created using "green chemistry" -- preemptive manufacturing measures that companies hope will decrease their future liabilities. For example, the National Environmental Technology Institute -- created by the Massachusetts legislature, the chemical industry, and the University of Massachusetts -- is working on plant-based materials to replace the toxic ones in foams and adhesives, says Chad Nelson, NETI's director. It's also developing water-based coatings for cedar and yellow pine. Those would replace oil-based paint, which, as it dries, contributes to smog.

FEDERAL ENFORCEMENT. In sum, despite the weak economy, many companies remain committed to their environmental efforts. DuPont CEO and Chairman Charles Holliday has promised Wall Street that by decade's end, 25% of the company's revenues will come from the sale of products based on renewable resources, as will 10% of the energy DuPont uses. Still, corporations will implement such environmentally friendly processes only if they results in cost savings or higher sales -- which isn't always the case.

In theory, that's where federal regulations should come in. On Apr. 21, in fact, the EPA and the Justice Dept. announced the largest Clean Air Act settlement ever with a utility -- Virginia Electric Power Co. -- which agreed to spend \$1.2 billion by 2013 to eliminate 237,000 tons of sulfur dioxide and nitrogen oxides emissions each year from its eight coal-fired generating plants in Virginia and West Virginia. Also in April, the EPA proposed tightening pollution standards for big diesel trucks.

Still, in the March Gallup poll, only 44% of those surveyed said President Bush was doing a good job on the environment, down from 50% a year ago. Many experts say the government ought to step up its efforts. But as Bush's budget deficit heads toward the stratosphere, chances of that happening are waning. That could leave Corporate America with responsibility for setting the pace on environmental advances -- and in the driver's seat -- for years to come.

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