

# EPA's Strategic Revolution

## New initiatives to 'take aim before shooting'

By JANET RALOFF

**T**he Environmental Protection Agency unveiled a major new goal on Sept. 26 for controlling the 15 toxic chemicals posing the greatest threats to health in the United States. The agency now proposes to cut U.S. environmental releases of these chemicals by one-third within the next two years, and by 1995 it expects to have limited their allowed releases to less than half of current levels.

Though EPA officials are still sifting through candidates for their list of toxic enemies #1 through 15, they already anticipate that the magnitude of the curtailed releases will be quite large: an estimated 500 million pounds annually within five years. Moreover, says EPA Administrator William K. Reilly, the new initiative seeks to control these chemicals wherever they're found—a departure from the agency's traditional approach of focusing specifically on air, land or water pollution and tackling only the most concentrated sources of toxic emissions, such as the individual industrial polluters that release tons of wastes per year.

The toxics initiative is just one of several ambitious measures Reilly previewed at the September briefing. Such plans, he asserts, reflect a fundamental change in EPA's strategy for targeting problems. For the first time, EPA will now begin directing the discretionary portion of its budget toward the most efficient means of attacking what it deems the most serious environmental threats, designing controls that will encourage "the most cost-effective methods possible," he says. Ultimately, he adds, this change in posture may lead to an overhaul of EPA's research and regulatory agenda.

The game plan may not sound revolutionary, but for EPA it is, Reilly says. He acknowledges that in the 20 years since the agency's creation, EPA's efforts have seldom reached beyond enacting rules to correct problems already identified by congressional legislation.

"Rarely did we evaluate the relative importance of individual chemicals or individual environmental media," he says. "We didn't assess the combined effects on ecosystems and human health from the total loadings of pollutants deposited through different media, through separate routes of exposure, and at var-

ious locations."

Reilly likens EPA's former approach to a video game called *Space Invaders*. "Every time we saw a blip [an environmental problem specified by Congress] on the radar screen, we unleashed an arsenal of control measures to eliminate it," he says. In *Space Invaders*, the yardsticks of success are time and casualties, not bang for the buck. Because gunners "never run out of ammunition," Reilly says, they have little incentive to take careful aim before blasting at every enemy in sight with both barrels.

But in the real world of budget deficits, trade deficits, tax revolts and recession rumors, ammunition is a metered commodity. And so, says Reilly, "I think the time has come [at EPA] to start taking aim before we open fire."

**T**he strategy shift follows criticisms leveled at the agency by its own science advisory board. Just days before Reilly announced the new initiatives, this panel of outside experts presented him a set of sweeping new policy recommendations.

The board began with an evaluation of "Unfinished Business" — EPA's most recent internal "report card," prepared by agency staffers and widely publicized in 1987. "Unfinished Business" attempted to rank the nation's most important unresolved environmental problems, largely on the basis of the risks they posed. To many EPA program leaders and outside researchers, the 1987 document's biggest contribution lay in differentiating for the first time which issues were most important to EPA managers and which seemed most important to Congress, as evidenced by how much money the lawmakers appropriated for them. "The major conclusion [of 'Unfinished Business']," says an EPA insider who requested anonymity, "was that there was no inherent relationship between what EPA deemed important and what most money was being spent on."

That revelation spurred some quiet changes within EPA — so quiet, in fact, that several members of the science advisory panel later told *SCIENCE NEWS* they had assumed that "Unfinished Business" was shelved soon after its publication.

Far from being set aside to collect dust, the 1987 report and its implications percolated through successive layers of EPA management, gradually initiating "a whole set of very large changes in the agency," says Terry Davies, the agency's assistant administrator for policy, planning and evaluation. Over the past 18 months, for example, each of EPA's programs, departments and regional offices has drawn up plans for tackling unresolved problems based on analyses of the relative risks they pose. EPA's budget proposal for fiscal year 1992, due out in January, will reflect for the first time the new ranking of priorities culminating from those plans, Davies says.

The trick has been getting EPA managers to evaluate the risks in their program areas in terms of those facing the agency as a whole, says another EPA official. "People are more accustomed to building their own fiefdoms and protecting resources for their own programs," she says. We have now been asked to instead think broadly and become general environmental managers."

In early 1989, Reilly commissioned the science advisory board to assess the wisdom of this new tack. The board, charged with evaluating both the priorities set forth in "Unfinished Business" and its authors' reliance on risk analysis in identifying those priorities, presented its findings in "Reducing Risk" — a 26-page report with another 399 pages of supporting appendices, released to the public in late September.

Panel member Jonathan Lash, who cochaired the 20-month-long evaluation, says the 1987 document offered "a genuinely new way to think about environmental problems and priorities." The advisory board found that the risk rankings "certainly were not what people who had a passing interest in environmental issues would have said were EPA's expected priorities," he explains.

The board also identified some serious shortcomings:

- The 31 unresolved problems highlighted in "Unfinished Business" are "so broad, and include so many toxic and nontoxic agents, that [this ranking] of problems cannot be evaluated with rigor or confidence," the panel asserts in its report.

- The priorities list ignores many serious ecological problems, such as loss of critical wildlife habitats and species diversity. Any "meaningful ranking of relative environmental risks must include all such risks," the new report states, "whether laws have been passed or programs set up to control them." EPA's prevailing view that ecosystem risks are less important than threats to human health, as reflected in the 1987 analysis, "is inappropriate," charges the report, "because in the real world, there is little distinction between the two. Over the long term, ecological degradation either

directly or indirectly degrades human health and the economy.”

• The board found EPA had ranked some risks on the basis of faulty or inappropriate economic assumptions, such as whether the general public would care about specific problems. EPA's past reliance on such practices “has distorted current understanding of the value of natural resources,” the panel report says.

“Reducing Risk” attempts to steer EPA around a number of such problems. For example, the panel's working group on ecology advises EPA to rank declining species diversity, habitat change and destruction, stratospheric ozone depletion and global climate change as its top four priorities. Only the last two appear on the priorities list in “Unfinished Business.”

The board also recommends: emphasizing pollution prevention “as the preferred option for reducing risk”; targeting environmental protection efforts specifically toward those opportunities that offer the greatest potential for risk reduction; and developing improved analytical methods for gauging the value of natural resources and for considering long-term environmental effects in economic analyses.

But Lash says the board's most far-reaching suggestion calls for EPA to broaden its horizons beyond congressional mandates and “rethink the mission of the agency.” The panelists recognized that “we have reached the culmination of the regulatory EPA,” says Lash, who recently left his post as head of Vermont's Department of Natural Resources to direct the Vermont Law School's Environmental Law Center in South Royalton.

EPA's past approach — addressing individual environmental problems by regulating the activities that caused them — has proved “enormously successful,” he says. “All you need to do is compare the United States with eastern Europe [in terms of environmental conditions] to understand how important those regulatory activities have been.”

However, he adds, “Reducing Risk” recognizes that many of the major environmental problems confronting EPA today don't lend themselves to regulatory solutions. For example, the most cost-effective way to reduce overall U.S. emissions of carbon dioxide — the leading force behind global warming — might be a combination of information campaigns, public education and economic incentives that encourage energy conservation, Lash says.

**P**olicy issues lie well beyond the traditional scope of the science advisory board, notes William Cooper, who chaired the board's working group on ecological effects. In the past, the board advised EPA on science, data interpretation and uncertainties associated with research findings. “It very



Nat'l Solid Waste Mgmt. Assoc.

*Unloading metal cans for recycling. One new initiative unveiled by EPA on Sept. 26 will “establish a nationwide network and clearinghouse to find markets for recycled goods.” The low-cost, nonregulatory measure supports the agency's goal of recycling 25 percent of all U.S. municipal wastes by 1992.*

carefully stayed the hell out of science policy entirely,” says Cooper, a zoologist at Michigan State University in East Lansing. Now, having handed EPA a laundry list of policy recommendations, “we're walking on eggshells. More than any other science report that survived the science advisory board program, [‘Reducing Risks’ ends up] telling EPA what to do.”

Cooper notes, with some pride, that his ecology group authored some of the new report's more controversial policy recommendations. The group focusing on human health effects drew up a somewhat vague ranking of hazards to be addressed — largely, its members said, because they lacked sufficient data to compare threats. Though the ecology group also pleaded for more and better data, it did rank 13 problems into categories of relatively high, medium and low risks.

The chapter on ecological “welfare” effects, says Cooper, “is a fundamental challenge to the way people have traditionally done economics. I caught more flack for that chapter than for anything else we wrote. Nonetheless, there was almost universal agreement from the scientists and everybody else that they wanted the issue confronted.”

Welfare effects are those for which no one pays — at least not directly — or receives compensation. Examples of welfare benefits include the natural detoxification of chemicals by aquatic microbes, the production of oxygen by plants, and the filtering of the sun's harmful ultraviolet rays by stratospheric ozone. Welfare losses include such effects as acid rain's damage to buildings and statues, crop yield reductions due to smog ozone, and an oil spill's toll on shellfish beds.

Economists usually look for expenditures on capital improvements to pay back some sort of benefits within a relatively short period — typically two to

eight years. But Cooper says those payback periods don't apply to most investments in the environment, where polluted waterways or atmospheres may take dozens or even hundreds of years to recover.

What's more, typical economic formulas cannot gauge the value of a resource — say, a fish — except in terms of the public's willingness to pay for it. In other words, Cooper explains, the resource has value only if it is exploited for profit.

“Ecological resources have value intrinsically, whether you use them or not,” Cooper asserts. In the welfare chapter, his group advises EPA to adopt ecological time frames for investment paybacks and to shun “this malarkey, this willingness-to-pay business,” he says. “We tell EPA that if you're going to use economics, make sure it's ecologically good economics.”

**R**eilly apparently took “Reducing Risk” to heart. At a meeting on Sept. 25, he had the science advisory board brief some 200 of EPA's top program managers from all over the country on the new report, notes Donald Barnes, the advisory board's staff director. Afterward, Reilly broke the managers into small groups, each group including one board member, to discuss the report's implications.

“It was probably the best hearing you could imagine in terms of getting our message out quickly to the people whose behavior and thinking are going to have to change,” Barnes says.

Reilly also sent a copy of the report, along with an explanatory cover letter, to every member of Congress and to all 6,410 EPA employees ranked GS-13 or higher (typically staff professionals), according to Barnes. In just two weeks, Barnes says, “we distributed close to 10,000 copies of this report” — at least 3,000 more than any previous document issued by the board.

Those copies had a surprisingly powerful impact, says Cooper. “I've been advising state and local governments for a long time, but this is the first time I've seen something implemented from the top down this fast,” he says.

Davies, who calls the document “a significant milestone,” adds that EPA officials are actively exploring “how to use the report as a springboard” for more effective allocation of tight resources.

Reilly has not agreed to a wholesale adoption of the board's recommendations. Rather, he has called for a “robust national dialogue” on them, stating that “much more information is needed” before EPA can set a new agenda. Nonetheless, the report represents “an essential first step,” he asserts.

“Now at least we have a better idea of what we do need,” Reilly says, “as well as some basic principles that can help us to better target our resources.” □