Wastes Seep Round the Law

While Congress continues to pound the Environmental Protection Agency (EPA) for its mismanagement of toxic waste programs, the Office of Technology Assessment (OTA) has raised an issue that has more fundamental and long-lasting implications. The nation's laws and regulations for dealing with toxic wastes are full of loopholes and will ultimately prove inadequate for protecting public health and the environment, OTA says in one of its more outspoken reports.*

In particular, OTA argues that the volume of hazardous waste produced each year is far greater than EPA has estimated, that the cost to the public of cleaning up old dump sites greatly exceeds the resources available under the so-called Superfund program, and that current regulations tend to favor the least environmentally acceptable means of waste disposal. The burden of OTA's message is that, in addition to ensuring that EPA properly enforces the hazardous waste laws, Congress needs to take a hard look at the laws themselves.

According to OTA's estimates, some 250 million metric tons (tonnes) of hazardous wastes are generated each year in the United States, yet EPA regulates the disposal of only about 40 million tonnes. The bulk of the federally unregulated waste is material of relatively low hazard, such as fly ash from power plants. But a substantial quantity of highly toxic waste also escapes regulation because small producers—those that generate less than 1 tonne of hazardous waste per month—are exempted from the federal law. As a result, says OTA, "millions of tons of federally exempted hazardous waste [ends up in] sanitary landfills," where it poses "substantial risks." Some toxic wastes also slip through EPA's regulatory net because they contain chemicals that, although clearly hazardous, are not on EPA's list of materials requiring regulation. Dioxin is a case in point.

Partly because of such loopholes, more and more dump sites are likely to require cleanup in the future, adding to the immense cost of dealing with those that already require action. According to OTA's estimates, it will require between $10 billion and $40 billion to clean up a substantial fraction of the 15,000 sites so far identified as being in need of remedial action. The Superfund program is supposed to deal with those sites for which a culprit cannot be identified. But its resources—which are generated by a tax on chemical and petrochemical producers—will total only about $1.6 billion by 1985, an amount that looks woefully inadequate.

The OTA study points out that 80 percent of federally regulated wastes are now disposed of on land. The reason is that less hazardous alternatives such as chemical or thermal treatment are more expensive and federal regulations provide little incentive for their use.

The report suggests that one way to encourage more desirable disposal techniques would be to establish a fee system under which companies would be charged according to the amount of toxic waste they generate, with higher fees imposed for wastes disposed of on land than by alternative means. Unlike Superfund fees, which are determined by the volume of materials used rather than the volume of waste produced, such a system would encourage more recycling of hazardous materials, the report claims. Like Superfund fees, charges based on waste production would be used for cleaning up abandoned dump sites.

The OTA study is likely to prove influential in congressional debates over the next few months. Representative James Florio (D–N.J.) has already introduced new legislation incorporating many of the report's recommendations, and its chances of passage by the House are considered good. Prospects in the Senate are more uncertain, however. Senator Robert Stafford (R–Vt.) chairman of the Senate environment committee last year kept legislation bottled up in his committee. But, given the public attention devoted to the matter this year, the pressures for action will be intense.

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Although Emory is remaining silent, some indication of where the Moran committee stands is evident from correspondence released by NIH. Clearly, Moran is finding problems. According to a 13 December memorandum from Braunwald to Raub, in October Moran informed Braunwald that "his committee had discovered serious problems regarding Dr. Darsee's work at Emory." Raub also got similar word from Moran and told Braunwald that "the NIH staff's preliminary review confirmed the existence of such problems."

Recently, evidence has come to light that suggests the trail of Darsee's misconduct goes back to his undergraduate days at Notre Dame, where microbiologist Julian Pleasants heard him give a student seminar in 1969. Prompted by news accounts of the Darsee case, Pleasants looked up two papers Darsee published in the student-run *Notre Dame Science Quarterly*. One paper, on hormones and aging, describes an experiment in which blood was drawn from the tails of 200 rats weekly for the animals' lifetime of 90 weeks or more. In a letter to Braunwald, Pleasants said "By internal evidence these articles are fabrications." Pleasants told *Science* he decided to write because "I felt Braunwald was being blamed unfairly for having changed a person's character when it was already set. It was unfair to Dr. Braunwald and to the general practice of research."

Darsee's response to these various allegations is ambiguous. Although he clearly admits fabricating data in the 21 May incident, he seems to have denied responsibility for other misconduct. According to the Morgan panel report, Darsee responded to written questions about his data and also brought his attorney, Robert Gerard of Boston, to Bethesda for a 3½-hour interview. This, the report says, "provided Dr. Darsee with a full opportunity to present his own account of events and circumstances." In particular, the panel sought explanations for its discovery of statistical aberrations in tabular data from five papers on which he was first author. No primary data were available for review but Darsee did offer "suggested explanations for the surprising statistical characteristics of his data." The Morgan panel found his explanations "unconvincing."

Darsee also wrote a letter to NIH that Raub found so "highly personal" in its references to the death of his father and his admiration for Braunwald that he has acceded to Darsee's request that it not be released. However, in his memorandum to Wyngaarden, Raub wrote about