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## REVIEW OF AMERICA'S FUTURE IN TOXIC WASTE MANAGEMENT: LESSONS FROM EUROPE

BRUCE PIASECKI and GARY DAVID  
Westpoint: Quorem Books. 1987.

I reviewed an earlier book, *Beyond Dumping: New Strategies of Controlling Toxic Contamination*, edited by Bruce Piasecki, in the pages of this Journal.<sup>1</sup> The main thesis of that book was that most hazardous waste should be barred from landfills in the future. I supported this thesis because of the long-term threat to groundwater of these facilities which even the best will eventually leak. While the threat is mostly long term, even now nearly every state has had to close one or more well fields because of contamination by hazardous materials. Moves are underway at both the state and federal levels to prohibit hazardous wastes from land fills. But, while measures to reduce the generation of hazardous wastes are certainly the first line of attack, even rigorous efforts in this direction will leave large amounts of residuals for some form of disposal. Moreover, a conundrum in this field is how to provide a strong incentive (make the generator pay the full costs of disposal and residual damages) to reduce generation while not, at the same time, providing a further incentive for illegal disposal. Illegal disposal is thought to be a large problem in the United States, but its dimensions are quite uncertain. Obviously, the illegal dumper is not disposed to keep records.

As far as residual hazardous wastes are concerned, if landfills are to be avoided, the trick is to establish a legal and institutional structure that can efficiently collect, transport, recycle if cost-effective, and dispose of them. In my review of the earlier book I pointed out that it was a shame that the authors had not called more on European experience, which in most highly developed countries there is much more extensive experience than in the United States. I pointed especially to the system in place in Bavaria and Hesse in West Germany and the Danish system.

Seldom have reviewers' comments been taken so seriously. Piasecki assembled a team of researchers and attacked the study of European experience on a broad front. Thus this volume.

The researchers found that indeed, at least in the North European countries for the most part, land disposal is regarded as a method of last resort. A notable exception is Britain where dependence on land disposal, according to the authors, is regarded with smugness, if not actually with pride. In the other countries, especially Germany and the Scandinavian

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1. 25 Natural Resources Journal 249 (1985).

nations, highly developed systems for the collection, transportation, and final disposal of hazardous wastes are found to exist, and in most cases to operate with high effectiveness. In all cases these operations are highly subsidized (thus violating the organization for European Cooperation and Development "polluter pays" principle).

In my interpretation the authors see two major lessons to be drawn from the European experience. First, "the European nations studied overcame the early preoccupation of hazardous waste management as a subset of garbage disposal by reconceiving the hazardous waste challenge as one of chemical engineering rather than one of dirt moving." Population density and dependence on groundwater for drinking may have forced this reconsideration earlier than in the United States. As noted, the U.S. is now attempting to reduce its dependence on land disposal. As also noted, Britain continues to embrace land disposal as the method of choice. The authors speculate that the nations lesser dependence on groundwater may be a factor in this. Economic circumstances may also be involved.

But prohibiting land disposal is not enough. The first law of thermodynamics tells us that once a mass of residuals is generated, it must go somewhere. This leads to the second main lesson the authors draw. "The response of European policymakers to the hazardous waste challenges focused on waste reduction and on securing the infrastructure of recycling and treatment facilities necessary to manage the waste by increasingly more stringent design and monitoring standards." Perhaps the most highly developed example of this is the system of collection centers and high tech regional disposal facilities in Bavaria. Despite the very positive evaluation of the European system given by the authors there is a discordant note. All of the systems depend upon high temperature incineration to provide the final "purge" from the system leaving only a relatively small amount of ash for land disposal. Properly conducted incineration can indeed destroy hazardous organics to an almost vanishingly small amount. Nevertheless, despite careful attention to operation, and limitations on types of waste permitted into incinerators, monitoring at some sites has shown low, but elevated, amounts of dioxin and heavy metals in the environment. The health significance of this is subject to some dispute.<sup>2</sup> Nevertheless, the design and operation of incinerators is central to the matter of reducing land disposal if overall environmental protection is to be achieved. If our experience with defective sewage treatment facility, and even nuclear plant, operations in the United States is any indication this would be a matter for serious thought in connection with the widespread adoption of high temperature incineration technology here.

Turning then to explicitly what these lessons mean for policy in the

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2. For a well reasoned assessment of the dioxin threat, see Michael Gough, *Dioxin, Agent Orange: The Facts*, Plenum Press, New York and London, 1986.

United States, the authors conclude that "although many American companies are poised to profit from the new recycling and treatment market, careful attention to the European example will allow the United States to build upon the European successes in a manner appropriate to American culture and to avoid the failures." But how? One wishes the authors could have pointed us further in the direction of U.S. applications.

Nevertheless, the volume is unique in its comprehensive treatment of European approaches and will be extremely valuable to all persons concerned about hazardous wastes. I recommend it highly.

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Resources for the Future