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# Acceptable Risk?: Making Decisions in a Toxic Environment by Lee Clarke

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## BOOK REVIEW

**Acceptable Risk? Making Decisions in A Toxic Environment.** By Lee Clarke. Berkeley: University of California Press. 1989. Pp. 229. \$25.00.

*Reviewed by Paulette L. Stenzel\**

The important question, "How clean is clean?," is voiced with increasing frequency today in instances such as the aftermath of a toxic spill<sup>1</sup> or during the cleanup of a federal Superfund<sup>2</sup> site. The question is inevitable in view of the unavoidable limitations we face as we try to clean up toxins in our environment.<sup>3</sup> One major set of limitations concerns the risk assessments prepared by scientists who study chemicals to determine the existence and magnitude of

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1. Several current examples illustrate the increasing frequency of these spills. In Sante Fe Springs, California, 3000 gallons of hydrochloric acid leaked from a storage tank at a wire manufacturing plant. *Acid Spill May Bring New, Tighter Rules for Storage; Safety: Investigation May Lead to New Regulations on Tanks for Chemical Solutions*, L.A. Times, Jan. 17, 1991, Part J (Southeast), at 1, col. 5. The spill created a cloud of vapor which forced the evacuation of 2000 people from nearby homes. *Id.* In another case, Canada's Environment Minister told Dow Chemical Inc. to "spillproof its [Canadian] plant" immediately after the third incident in a week in which toxic chemicals were spilled into the St. Clair River at Sarnia, Canada. *Dow Warned After Third Chemical Spill Near Sarnia*, Toronto Star, Nov. 7, 1990, at A13, col. 1 (Metro ed.). In Los Angeles, California, four people were injured when 1000 gallons of toxic material, which was being transported from a ship to a railroad car, spilled onto a dock. *Four Injured in Toxic Spill at Harbor Dock*, L.A. Times, Dec. 11, 1990, Part B (Metro), at 2, col. 2 (Valley ed.).

2. In 1980 Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9601-9675 (West 1988 & Supp. 1990). CERCLA establishes a trust fund, commonly known as "Superfund," of which 87.5% is financed through an excise tax and the remainder through general funds. See *Exxon Corp. v. Hunt*, 475 U.S. 355, 358 (1986). Superfund money is designated for use in cleaning up releases of hazardous substances. *Id.*; see 42 U.S.C. § 9611.

3. Recent strides in developing technology to address ecological problems, however, are encouraging. For example, Michigan State University and the Research Development Corporation of Japan recently committed themselves to a \$15,000,000 research program aimed at developing microbes that can clean up oil spills and toxic wastes. *U.S. and Japan Seek Oil-Eating Microbes*, N.Y. Times, Mar. 19, 1991, § C (Science), at 8, col. 1. Environmental work has become one of the nation's fastest-growing fields due, in part, to more expansive regulation and concerns stemming from the Exxon Valdez oil spill and other catastrophes. Sing, *Southern California Job Market; The New Jobs; Environmental Slots Abound; Clean-up Work Shows No Sign of Fading Soon*, L.A. Times, Mar. 4, 1991 (Business), at 14, col. 1 (Home ed.).

toxic effects resulting from exposure to specific chemicals.<sup>4</sup> Because of the uncertainties inherent in the risk assessment process, such risk assessments produce only educated predictions about toxic effects and the level of exposure that will produce harmful effects in humans. Additional limitations which affect cleanup decisions include inadequate financial resources,<sup>5</sup> lack of technology,<sup>6</sup> and the often inadequate workings of the political process through which decisions about cleanup are made.<sup>7</sup> As a consequence, the evaluation of the harmful level of exposure to toxic substances and the decision to cleanup such substances are especially difficult. A great deal of research has been undertaken in an effort to understand how such decisions are made. Over the past decade, researchers have analyzed the use of risk assessment in decisionmaking and in the interrelated fields of risk perception and risk communication.

In *Acceptable Risk? Making Decisions in a Toxic Environment*,<sup>8</sup> sociology professor Lee Clarke goes in a different direction and adds an interesting new dimension to this interdisciplinary field. In existing literature, psychologists focus on how decisions about the acceptability of risk are made by individuals,<sup>9</sup> economists discuss the use of the risk assessment in preparing a cost-benefit analysis,<sup>10</sup> and communication specialists study how and by whom risk infor-

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4. The leaders of the Environmental Protection Agency recently expressed concern that the nation's environmental priorities are sometimes misplaced. Stevens, *E.P.A. Moves to Change Environmental Priorities*, N.Y. Times, Jan. 26, 1991, § 1 (National), at 11, col. 5. Appearing before the Senate Committee on Environment and Public Works, William K. Reilly, the Administrator of the Agency, argued that what scientists regarded as the most serious environmental threats were often different from those that excited the public and stimulated congressional action. *Id.* Mr. Reilly stated that his agency desired to undertake a central role in shaping a coherent, long-term environmental policy based upon scientific assessments of risk. He acknowledged that in the past, the agency had often reacted to public and congressional environmental concerns on a case-by-case basis. However, according to Mr. Reilly, these public concerns may be emotional reactions to crises, which can differ from scientists' long-term view. *Id.*

5. When a tanker's oil spills into the water, millions of dollars are spent in equipment and workers, hired at premium wages, in an effort to clean up the environment. Wald, *Cleaning Spills: Is it Profitable?*, N.Y. Times, July 10, 1990, § D (Financial), at 8, col. 3.

6. However, technology is rapidly developing. Currently there are over 100 U.S. environmental-service companies that produce oil-eating bacteria used to clean up spills. Parrish, *New Oil Cleanup Technologies Face Crucial Test in Gulf*, L.A. Times, Jan. 30, 1991, Part D (Business), at 1, col. 5. These companies produce bacteria that use hydrocarbon as a food source. *Id.* As the bacteria eat, their numbers increase. Left behind are environmentally benign dioxide and fatty acids, which are readily consumed by most marine and aquatic life. *Id.*

7. In the aftermath of the Exxon Valdez disaster in Alaska's Prince William Sound, new environmental regulations were proposed in Washington and increased attention was paid to environmental danger. Flanigan, *Posturing Isn't a Way to Clean Environment*, L.A. Times, Mar. 29, 1989, Part 4 (Business), at 1, col. 1. Unfortunately, attention will eventually wane and outrage will fade, as before. This is why, after almost 20 years of laws on clean air and water, the environment is still not a priority in business or even in national politics. *Id.*

8. L. CLARKE, *ACCEPTABLE RISK? MAKING DECISIONS IN A TOXIC ENVIRONMENT* (1989).

9. *E.g.*, B. JOHNSON & V. COVELLO, *THE SOCIAL AND CULTURAL CONSTRUCTION OF RISK* (1987) (addressing the issue of how risks come to be selected as acceptable by our society).

10. *E.g.*, A. DONNELLY, *THE THREE R'S OF INVESTING: RETURN, RISK AND RELATIVITY* (1988) (advocating the need to assess and realize the riskiness of investments at the time of their

mation is conveyed to the public.<sup>11</sup> Professor Clarke's premise is that organizations are central actors in assessing risks, monitoring their cleanup, and determining what level of risk is "acceptable" in a given situation.<sup>12</sup>

Professor Clarke presents a case study of the 1981 contamination of the eighteen-story New York State Office Building in Binghamton, New York.<sup>13</sup> The building was thoroughly contaminated with polychlorinated biphenyls ("PCBs"), furans, and dioxins as the result of a fire in an electrical room. Almost five hundred people were directly exposed to the toxic chemicals,<sup>14</sup> with possible indirect exposure of thousands of others through the city's air and water supplies. As of the writing of *Acceptable Risk?* the building had not been re-opened. Professor Clarke documents how responses of various local, state, and federal agencies and organizations were muddled, confused, and infused with political considerations that were not always congruent with the overriding need to protect public health. He uses references and discussion throughout his book to relate his research and conclusions to existing research and literature in the broad interdisciplinary field in which he is involved.

Clarke divides his text into eight chapters, the first of which "sets the scene" using references to various toxic disasters our society has faced. His examples include the 1973 poisoning of Michigan's citizens in which cattle feed was accidentally contaminated with polybrominated biphenyls ("PBBs"); the disaster at Love Canal, in Niagara Falls, New York which was revealed to the public in 1977; and the 1984 leak of toxic chemicals that killed at least 2,600 people near Bhopal, India. He uses these examples to illustrate that organizations are central actors in such disasters. Next, he gives a brief overview of the February 1981 fire in the New York State Office Building in Binghamton, New York ("NYSOB"). Clarke outlines what is covered in the remainder of the book and explains, "This is a detailed study of organizations and publics interacting in a very uncertain environment, trying to solve some perplexing social and technical problems."<sup>15</sup>

Chapter two describes the organizational chaos that characterized the beginning cleanup actions and medical surveillance following the NYSOB fire.

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making).

11. E.g., V. COHN, *REPORTING ON RISK: GETTING IT RIGHT IN AN AGE OF RISK* (1990) (analysis of factors for the media to consider in reporting to the public about occurrences and circumstances throughout the world); M. MOORE, *HEALTH RISKS AND THE PRESS: PERSPECTIVES ON MEDIA COVERAGE OF RISK ASSESSMENT AND HEALTH* (1989) (advocating the necessity for increased communication between reporters and scientists to improve reporters' ability to relate environmental health risks to the public).

12. L. CLARKE, *supra* note 8, at 2. Organizations play central roles in both safekeeping and threatening the environment. *Id.*

13. Clarke uses the reactions to the New York State Office Building accident to examine how "tragic choices" are assessed and ameliorated by various official agencies. *Id.* at 11.

14. The New York State Department of Health is currently conducting medical surveillance of 482 exposed people. *Id.* at 10-11. The economic ramifications of the accident are enormous. Within a month after the fire, lawsuits totaling \$1 billion were pending against the State of New York. *Id.* at 16.

15. *Id.* at 12.

Initial cleanup was bungled.<sup>16</sup> Janitors were sent in to clean up the soot and worked for three weeks before the State of New York officially closed the building. They were poorly equipped,<sup>17</sup> poorly supervised,<sup>18</sup> and were not informed about the presence of dioxins and furans in the building. Initial medical surveillance was faulty and lacked a coherent plan. The County Department of Health ("County DOH") ordered blood tests for exposed individuals, but the State Department of Health ("State DOH") became involved and began to challenge the accuracy of the tests as well as other aspects of the county's conduct of medical surveillance.

Professor Clarke then examines various theories that might be used to explain the organizational anarchy. With respect to sending in the uninformed janitors, he rejects both a theory of a plotted cover-up and a theory of a callous bureaucracy. These theories posit that decisionmakers should have known from the start that the initial cleanup was a mistake.<sup>19</sup> Clarke concludes that the State Office of General Services ("OGS") had no reason to think that the soot itself was contaminated. Rather, the OGS was simply trying to perform its main job: cleaning up so that state agencies could resume their operations.

Analyzing the acrimonious conflict between state and county health departments, the author concludes that unproductive conflict was structured into the relationship between the departments and exacerbated by the medical and scientific ambiguity surrounding the situation. There are significant uncertainties in detecting chemicals and measuring exposure, and data interpretation was difficult due to a lack of a protocol for doing so. Professor Clarke describes the aftermath of the NYSOB fire as an "interorganizational garbage can" in which loosely coupled organizations were thrown together with few rules to govern their behavior.<sup>20</sup> As a result of the "shuffling" that took place, three agencies eventually assumed responsibility for handling the NYSOB incident: the New York State Health Department, the Broome County Health Department, and the New York State Office of General Services.

In chapter three, Clarke provides a disturbing examination of various other organizations that could have become involved but did not. This chapter is important reading for any lawyer, legislator, or government official who cares about making our environmental laws and regulatory system work. Professor Clarke uses the NYSOB disaster to illustrate how inadequate cleanup policies and ineffective communication between the necessary parties may compound a serious accident into an eventual disaster. For example, the contamination from the NYSOB went into Binghamton's city building by way of a shared

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16. The cleanup was, by almost universal accounts, a disaster. *Id.* at 15.

17. Protective gear was evidently used only sporadically. *Id.*

18. Reports indicate that contaminated cigarettes from the building's newsstand and food from the cafeteria had been consumed by the janitors involved in the cleanup. *Id.*

19. Clarke argues that "[i]t is unlikely that OGS would deliberately pursue a course of action that would be certain to bring bad publicity." *Id.* at 22.

20. *Id.* at 26-27. The "garbage can" theory seeks to explain how decisions are made within or among organizations when conditions are less than clear. *Id.*

ventilation system.<sup>21</sup> On the local level, the city council did little more than write a few letters. Similarly, the county building was attached to the NYSOB but was not directly contaminated. Concluding that "it was a no-win situation for politicians," Clarke asserts that the county legislature simply absolved itself of a risky situation and did nothing.<sup>22</sup> Owners of downtown businesses were also affected by the accident. Local business lost significant amounts of revenue due to the public fear of the contaminated building.<sup>23</sup> Scores of downtown merchants sought loans from the federal Small Business Administration ("SBA"). The SBA, however, refused to include the NYSOB contamination within its definition of a "genuine disaster" and, thus, refused to provide loans.

On the state level, in addition to the active roles of the Department of Health and Office of General Services, New York's Department of Transportation played a limited role.<sup>24</sup> It was the first agency called to the scene of the accident, and it assisted in finding a certified landfill for contaminated oils from the NYSOB's transformer room. The Department of Environmental Conservation is the state regulatory agency that would have been required to step in and issue permits for cleanup and reopening of the site if the accident had been at a private firm. Although the agency was integrally involved with the Love Canal disaster site, it refused to become involved in the NYSOB disaster. The state legislature also chose to do nothing.

On the federal level, the Occupational Safety and Health Administration ("OSHA") bowed out, saying that the NYSOB involved state workers, who are not the responsibility of the federal government.<sup>25</sup> Even without action by OSHA, the National Institute of Occupational Safety and Health may intervene in a dangerous situation. It did not do so directly with respect to the NYSOB, but the agency did provide general advice on medical surveillance in response to requests by the state and county health departments. The Environmental Protection Agency ("EPA") had been involved in various disasters including Michigan's PBB contamination and New York's Love Canal. The EPA has a "Dioxins Work Group" that has a significant amount of expertise it could have extended to the NYSOB cleanup. Clarke asserts that EPA scientists were very interested in the Binghamton case, but EPA administrators were reluctant to get involved in such a highly politicized situation.<sup>26</sup> He quotes a co-chairperson of the Dioxins Work Group who spoke of the poor public relations that resulted from the handling of the Love Canal accident. The Dioxins representative stated that "we wait until we are asked—and the

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21. *Id.* at 31. This contamination resulted in parts of the city building being closed for nine months because of the presence of unusually high levels of PCBs. *Id.*

22. *Id.* at 42.

23. *Id.* at 35.

24. *Id.* at 43. The Department of Transportation is responsible for emergency oil spills in the state. The leak of transformer oil such as occurred in the New York State Office Building would fall within their responsibility. *Id.* at 43-44.

25. *Id.* at 49.

26. *Id.* at 52.

'new federalism' has something to do with it, too."<sup>27</sup> Clarke concludes that the effect of these organizational exits was "that some solutions would be considered legitimate to pursue and others would not."<sup>28</sup> In this chapter, Professor Clarke reveals disturbing failures on the part of our regulatory systems. In a difficult situation threatening human life and health, available expertise was neither sought nor applied.

Chapter four presents a separate "story" of how the county government handled the cleanup of a contaminated office garage under the NYSOB. In contrast with the way the NYSOB site was handled, the garage was quickly reopened. Clarke uses the garage cleanup to illustrate what he labels as the five phases in accepting risk.<sup>29</sup> First, the problem was "defined." In this phase, efforts to determine the types and levels of contaminants in the garage illustrate uncertainties of the risk analysis process. For example, there were no regulatory standards for PCB surface contamination.<sup>30</sup> Questionable assumptions were used regarding contamination levels, and testing was not done for dioxins and furans.

Clarke labels phase two "Assessing Consequences." This phase provides a vivid illustration of how politics and personalities affect the outcome of risk assessments. Several differing and inconclusive interpretations of data were obtained. Arnold Schechter, director of the county DOH, was candid with the public and the media. In return, however, he was criticized for failing to provide definitive answers and for allegedly leading the public in an alarmist direction. Consequently, he was not reappointed to his position when his contract came up for renewal four months after the NYSOB fire.<sup>31</sup>

Clarke calls phase three "Ordering Alternatives." He asserts that before decisions can be made, alternative courses of action must be eliminated from consideration.<sup>32</sup> Clarke concludes that by firing Schechter, some of the county's alternative courses of action were eliminated from consideration.

With respect to phase four, "Constructing Acceptable Risk Assessments," Clarke discusses how in the wake of Schechter's firing, the county hired a consultant, John Buckley, to deal with the garage contamination. Buckley was less accessible to the media and less critical of state policies than Schechter had been. Buckley basically tried to "leave the decisions to the experts."<sup>33</sup> Clarke's discussion at this point is inadequate in that he fails to define who the "experts" are and does not explain why the "experts" did not offer competing definitions of the risk. He draws the significant conclusion, however, that

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27. *Id.* at 55.

28. *Id.* at 57.

29. *Id.* at 60.

30. *Id.* at 61. The federal OSHA and EPA had set federal standards only for air levels in the workplace. No other standards were available. *Id.*

31. *Id.* at 69.

32. *Id.* at 74.

33. During a Broome county Public Health Committee meeting, Buckley revealed how he planned to approach the job: "We are in the hands of people who are experts, and we have to take it on faith, because we can't smell it, or taste it, or make decisions ourselves." *Id.* at 76.

through his neutral position Buckley redefined debate on the garage contamination. "A necessary condition for defining acceptable risk is the lack of competing definitions."<sup>34</sup>

Clarke calls the fifth and final phase "Accepting Risk." He describes the formal risk assessments compiled for the NYSOB. He also discusses the significant, questionable assumptions used to compile the final assessment which county officials relied upon in concluding that the risks were "negligible" and that, therefore, the garage should be re-opened. However, Clarke fails to define the term "negligible." The definition is significant in view of the specialized meaning it has been assigned by certain regulatory agencies.<sup>35</sup> As a result of this "mini" case study of the garage contamination, Clarke concludes, "organizational and political interests, and not public welfare or scientific protocol, drive decisions regarding acceptable risk."<sup>36</sup>

In chapter five, Clarke returns to the overall story of the New York State Office Building contamination with detailed discussions of the medical surveillance conducted. Clarke illustrates the two most significant problems faced by the officials in formulating a response: first, the technical problem of defining what "appropriate medical surveillance" entailed,<sup>37</sup> and second, the inadequate structure of authority necessary to legitimate decisions and control resources.<sup>38</sup>

The medical surveillance was begun in an orderly manner; nevertheless, the process soon became one of turmoil and fighting between the state and county health departments. For example, there were disputes regarding how to define "exposed" individuals, the expertise of the laboratory used, and which tests should be conducted. Resources at the county health department were poorly organized, and it took months before patients' records were sent to their physicians. When the time came to interpret the information obtained, the uncertainties in the science involved became a tool in the competition between the county and state health departments. For example, the state DOH went as far as to conceal the results of chick embryo testing of the soot from the NYSOB, which suggested high toxicity, and released contradictory data obtained from other tests. Clarke also provides numerous examples of deficiencies in continuing surveillance, such as failure to study the effects of furans and dioxins on exposed individuals, and the lack of a control group of truly "nonexposed"

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34. *Id.* at 77.

35. For example, in 1988 a major government study recommended that EPA adopt a "negligible risk" standard to be used as it enforces the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), 7 U.S.C. §§ 135-136y (1988 & Supp. V 1990). Under the "negligible risk" standard, the EPA would allow chemical residues on foods as long as, according to the risk assessments on which the EPA was to rely, the residues presented a risk of less than one case of cancer per million people exposed. See COMMITTEE ON SCIENTIFIC AND REGULATORY ISSUES UNDERLYING PESTICIDE USE PATTERNS AND AGRICULTURAL INNOVATION. REGULATING PESTICIDES IN FOOD: THE DELANEY PARADOX 12-14 (1987).

36. L. CLARKE, *supra* note 8, at 81.

37. *Id.* at 85.

38. *Id.*



persons.

In chapter six, Clarke describes how decisions about remedial action were made. He shows that this process closely paralleled what happened with regard to medical surveillance. A panel of thirteen experts on environmental health and toxic substances was convened to aid in the decisionmaking process. However, scientific materials presented to the panel and to the public were edited to emphasize safety rather than jeopardy. A single cleanup agency was chosen whose word was to be "more or less final regarding the technical issues."<sup>39</sup> Clarke argues that the process was not fully rational. In fact, no alternative other than decontamination was fully considered "even though there were very good reasons to demolish the building."<sup>40</sup>

Chapter seven discusses the responses of exposed individuals. Clarke reviews the reactions of janitors who were exposed to the contamination through cleanup work and questions why they would undertake such work. He examines various possible theories used by sociologists to explain risk acceptance and concludes that the janitors simply tolerated potential risks because they needed the jobs.

Next, Clarke questions why a committee formed to represent the citizens of Binghamton failed to become a partner in decisionmaking in a meaningful sense. Comparing the New York State Office Building situation to other disasters in which the public has been able to establish more meaningful connections with policymakers, he notes that citizens in Binghamton did not receive the extensive national media attention that was extended to the Love Canal and Three Mile Island disasters. Clarke suggests that such national attention is necessary before grassroots associations can gain enough power to become real forces.<sup>41</sup> He also observes that the citizens' committee was formed nine months after the accident, which was after most major issues were settled. The timing of intervention by citizens, according to Clarke, is an important variable.<sup>42</sup>

In the final chapter of the book, Clarke discusses potential directions for continued research on the sociology of risk. To begin that discussion, he explains why he calls the Binghamton situation an "interorganizational garbage can." He cites a lack of a clear definition of the problem, a lack of centralized authority, and unrestricted mechanisms for information exchange that resulted in the media playing an important role during the first few months following the fire. Clarke asserts that the media's access to an organizational base is an important intervening variable in decisionmaking and that Schechter's ouster from the post of director of the county health department took away that access with respect to the NYSOB. After examining and applying various organizational theories of choice, Clarke concludes that if control of the NYSOB's risks had been distributed more broadly, "different solutions to cleanup and

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39. *Id.* at 137.

40. *Id.* at 138.

41. *Id.* at 155.

42. *Id.* at 156.

medical surveillance might have been applied."<sup>43</sup>

Clarke raises two criticisms of existing research related to risk analysis. First, he asserts that by focusing almost exclusively on individuals' risk perceptions, psychological studies wrongly assume that policymakers reflect the views of society as a whole. Second, he argues that researchers wrongly assume that choices among hazards follow a rational model of decisionmaking. Such a model incorrectly assumes, according to Clarke, that a logical and systematic information search is made. His overall conclusions are that "[r]ather than determining policy, risk assessments in controversial situations are more likely to *reflect* alternatives already chosen"<sup>44</sup> and that "risk assessments are claims to legitimacy that are directed at other organizations."<sup>45</sup> Clarke calls for more attention to the forces that impinge on organizational decisionmakers, suggesting that, "Organizations, not individual members of society, are the most important risk assessors in our society."<sup>46</sup>

Overall, Clarke's book is well organized and his writing style is clear. Occasionally his choices of wording or names to describe major concepts are awkward or need explanation. For example, he repeatedly refers to "risk assessment" literature. It is implicit that he is talking about existing literature regarding the use of risk assessments in decisionmaking, risk communication, and risk perception. To the uninitiated, however, his language might imply that he is referring to the literature regarding scientific methods for risk assessment. As another example, he fails to explain the term "acceptable risk" as used in his title and throughout the book. Although Clarke's meaning is implied gradually as he uses the term to refer to what is deemed legally permissible and politically feasible by decisionmakers in our society, such a critical term should be discussed directly early in the text.

*Acceptable Risk?* is informative because Professor Clarke applies existing theories and hypotheses from risk-related literature to a major, "real-life" instance of toxic contamination. This is welcome in a field where many studies are based on the results of interviews in which hypothetical hazardous situations are presented to individuals. Further, Professor Clarke challenges the conclusions and assumptions of other researchers in this broad, interdisciplinary field. For example, his observations about the helpful role of the news media, and reporters' sincere efforts to be well informed about the science involved, contradict the often-voiced view that the media are conveyors of misleading and inaccurate information about risks.

Professor Clarke's book can serve as a stepping stone to further analysis of our laws relating to toxic substances. It explores the process through which decisions about the acceptability of risk are made in our society. These decisions are confronted frequently today as decisionmakers in our legal system are asked to determine, "How clean is clean?" Although many researchers

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43. *Id.* at 175.

44. *Id.* at 181.

45. *Id.*

46. *Id.* at 182.

assume that the question of "acceptability" refers to what is acceptable to individual citizens, Professor Clarke makes a strong case for the proposition that this question, in operation, asks what is acceptable to the organizations that make decisions in dealing with toxic substances. His premise deserves attention both as environmental laws are drafted and as they are implemented. The "status quo" described by Professor Clarke, in which organizations are our primary decisionmakers and in which those organizations use risk assessments to legitimize their previously made choices, is an unacceptable situation in a democratic society. Professor Clarke adds strength to the arguments of those who believe that our citizens need more education and information about toxic substances so that they can become involved in the decisionmaking processes in a meaningful way.<sup>47</sup>

*Acceptable Risk?* is worthwhile reading for anyone who is concerned with the drafting, implementation, and enforcement of laws relating to toxic substances. Professor Clarke challenges the conclusions and assumptions of other researchers in fields related to the use of risk assessments, and he offers fresh perspectives with regard to how decisions about accepting risk are made in our society.

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47. I have argued that it is not only advisable but necessary in a democratic society to empower citizens through education and information and to involve them in decisionmaking related to toxic substances in our society. See generally Stenzel, *A Proposal for a National Risk Assessment Clearinghouse*, 14 COLUM. J. ENVTL. L. 549 (1989) (urging that risk management decisionmakers elicit and consider the opinions of citizens, whose views form the basis of public policy, when exercising any discretion in the environmental decisionmaking process); Stenzel, *The Need for a National Risk Assessment Communication Policy*, 11 HARV. ENVTL. L. REV. 381 (1987) (advocating that the public must be well informed about risks and must have a meaningful opportunity to contribute to the risk management process before administrative agencies will be able to manage risks effectively).