

## BOOK REVIEWS

**Mercury Contamination: A Human Tragedy.** By Patricia A. D'Itri and Frank M. D'Itri. New York: John Wiley & Sons, Inc. 1977. Pp. xxii, 311. \$17.95.

### I

Patricia D'Itri and Frank D'Itri, authors of **MERCURY CONTAMINATION: A HUMAN TRAGEDY**, have undertaken the ambitious tasks of chronicling all of mankind's past and present contacts with mercury in its various forms, and evaluating the negative ramifications of those contacts. To a great extent, the D'Itris are successful; their efforts represent a major contribution to the literature on the interactions between humans, their environment, and toxic substances.

The central thesis of **MERCURY CONTAMINATION** is that "[t]he national attitude toward environmental protection depends on the strength of basic human rights in that country, and these depend on the will of the citizenry." The authors' belief that scientific knowledge alone cannot be expected to result in environmental improvement has inspired them to examine the problem of mercury contamination in a much broader context. Thus, the problems associated with mercury contamination are examined with human health and welfare as the central point of reference. For example, discussions of technological applications of mercury focus largely on the occupational health hazards presented by various mercurial compounds.

In keeping with this comprehensive, human-oriented approach, **MERCURY CONTAMINATION** is divided into four parts: "Environmental Contamination," "Technical Applications," "Mercury in Medicine," and "Conclusion," which centers on various proposed solutions to the mercury problem. "Environmental Contamination" consists of a group of narratives on the most dramatic and horrifying episodes of mercury contamination, including the Minamata, Japan tragedy of the late 1950's. This incident involved the discharge into Minamata Bay of highly toxic industrial mercury wastes which, over a period of more than twenty years, killed, maimed, and caused birth defects in hundreds of residents of nearby fishing villages. The authors' purpose in relating these episodes appears to

be three-fold. First, the scattered locations of these major incidents of contamination highlight the international nature of the problem. Human health problems caused by contact with mercury in the environment affect both less developed countries (LDCs) and industrialized nations. Epidemics in Iraq and Guatemala caused by the consumption of seed grains sprayed with mercurial fungicides are matched by incidents in Japan, Canada, Sweden, and the United States in which humans were harmed by mercury concentrated in the food chain (fish and livestock). These examples lead the reader to the conclusion that mercury contamination is a pervasive problem from which no nation is immune.

A second reason for relating these incidents is to expose the evasion and obfuscation that accompanied each revelation of mercury contamination. The D'Itris contend that much of the harm caused by mercury in the environment is the result of the refusal of industry and government to confront reports of contamination, thus prolonging victims' exposure and lack of adequate remedies. The dramatic manner in which the authors recount these episodes is calculated, at least in part, to dispel the complacent attitude of citizens toward industry and government inaction.

A final reason for relating these episodes is to emphasize the possibility of preventing a recurrence of these incidents. The D'Itris place most of their faith in this regard in the public, citing citizen activism and journalistic vigilance as essential safeguards.

Much of the remainder of this initial section of *MERCURY CONTAMINATION* provides the reader with an overview of the environmental contamination problem. The diverse ways in which mercury becomes an environmental health hazard to humans (i.e., from grain, fish or livestock) are discussed and are aptly illustrated by the aforementioned episodes. Furthermore, scientific explanations are provided of how mercury interacts with air and water. For example, the authors stress the significant ramifications of the recently discovered process of natural methylation. In this process, stable, relatively harmless mercury compounds are naturally converted in waterways into highly toxic mercurial substances.

The second part of the book, "Technical Applications," inquires into past and present industrial uses of mercury and its concomitant effects on health. The D'Itris' discussion of occupational health and safety problems caused by various forms of mercurial poisoning begins with an historical overview of British and the rather insignificant American legislative efforts in this area. The overview con-

cludes with a seven page table outlining "Industries with a potential Mercury Hazard, Present and Past." This table graphically introduces the thesis of the book's second part: mercury has been, and continues to be, a serious health hazard to workers in numerous industries, but the potential for harm has not been fully recognized by the public, industry or government.

The D'Itris next examine what may be called mercury's industrial contamination cycle. This cycle involves man's initial contact with mercury at its source in mines, its use in various industries, and the accumulation of mercurial wastes in the environment. The first phase of the cycle involves efforts to extract mercury-rich cinnabar ore from mines. This enterprise began at least as early as 700 B.C. in Spain, and from that time to the present miners throughout the world have suffered the tremors, personality changes, insomnia and other symptoms associated with mercurialism.

The authors continue to display their encyclopedic knowledge of mankind's contact with mercury in their discussion of the second phase of the cycle, industrial applications. The discussion of obsolete industrial applications of mercury naturally centers on the most notorious use, the use of mercury in the manufacture of felt hats. From the time of the original Mad Hatter (Roger Clap in the 1640's) to the end of "the Danbury (Connecticut) shakes" in the 1940's, felt-hat makers were exposed to excessive amounts of mercury and were frequent victims of chronic mercury poisoning.

The decline of the felt-hat industry has not resulted in a decline in the industrial use of mercury, for new manufacturing processes are increasing demands for the element. The industry with the fastest growing demand for mercury is the electrical equipment field. Within that field, workers with the fastest growing mercury-induced health problems are those who manufacture mercury-vapor lights. However, mercury also presents a problem in terms of occupational health hazards to workers in plants that manufacture chloralkali (an industrial intermediary) and pulp and paper mills.

Despite the serious nature of the harm caused by individuals' encounters with mercury in the workplace, the D'Itris are more fearful of the third phase of the cycle, in which mercury discharged by manufacturers accumulates in the environment in ways which affect the general public. Mercury is introduced to the environment through industrial discharges, the combustion of fossil fuels and natural releases by weathering. Its concentration in the air,

water, soil and food chain means that increasing numbers of people are being constantly exposed to higher levels of mercury.

The third part of *MERCURY CONTAMINATION* examines "Mercury in Medicine." The D'Itriss' treatment of the history of mercury's medicinal uses is perhaps the most fascinating, albeit horrifying, portion of the book. Mankind's early fascination with this strange element led to the naming of gods after it and ascribing to it potent curative powers. Through the ages mercury has been used to "cure" numerous ailments, with its primary application being as a treatment for syphilis. The jest that "a moment with Venus may mean a lifetime with Mercury" may have been true from as early as 2657 B.C. (in China). In any event, until the discontinuance at the beginning of World War II of the mercury-based syphilis cures, "[s]uch notables as Napoleon, Ivan the Terrible, Robert Burns, and countless kings and noblemen are believed to have been shepherded to the nether world by mercurialists in vain attempts to cure the dread disease." Other ill-fated medicinal uses of mercury include its use as a contraceptive and diuretic.

Mercury is currently used in skin ointments, numerous cosmetics, tattoo dyes, dental fillings and antiseptics. The authors concede the therapeutic benefits of some of these current applications, but argue that other more desirable substitutes are often ignored. They assert that this is the case with common mercurial antiseptics such as Mercurochrome and Merthiolate, which merely suppress rather than kill germs.

The "Conclusion," part four of *MERCURY CONTAMINATION*, contains the authors' synthesis of the preceding sections of the book. The central question running through this section of the book is: How can mercury contamination be cured? This question is first answered with respect to individual cases of poisoning, where the drug British anti-Lewisite (BAL) has been found effective in hastening the body's discharge of mercury in cases of chronic poisoning. The authors then address the problem of mercury removal from the waterways, as contamination of water bodies presents perhaps the greatest mercury-related threat to human and animal life. The authors discuss several alternatives, such as dredging, but conclude that given the current apathetic state of public opinion, the expense and impracticality of these alternatives are likely to bar their implementation. In conjunction with their discussion of the technical aspects of mercury removal, the D'Itriss examine the federal laws in the area of mercurial pollution of the

water. The focus of their attention is on the reluctance displayed by the Environmental Protection Agency (EPA) and by the Departments of the Interior and Justice to either recognize or attempt to correct the mercury problem. The D'Itris contend that federal regulations and guidelines for issuance of pollution permits, under the Rivers and Harbors Act of 1899 and the 1972 Water Quality Act, are impediments to the clean-up process.

Despite continuing efforts to cure mercury contamination on the individual and societal levels, the D'Itris perceive a pattern which has developed with respect to such contamination. The pattern involves six steps: (1) increasing demands for mercury for industrial uses coupled with a lack of effective substitutes (in many instances) means that the natural supply of mercury dwindles and the environment is further degraded; (2) inadequate efforts by governments to control the mercury problem means that economic interests are favored over interests opposing environmental degradation; (3) there is then an outbreak of mercury poisoning, usually among members of lower socio-economic classes, but secrecy and ignorance of the problem means that government officials and industry are likely to deny the existence of the problem; (4) once the problem has been identified as mercury contamination, frequently there are official expressions of concern or ineffective, hastily implemented emergency measures in response to the public outcry and media publicity; (5) after the initial publicity dies down, governments or economic groups dispute the accuracy of any evidence that has surfaced which would mandate corrective measures; and (6) the last step, solving the problem, is often evaded by means of compromises which may result in increased research and gradual abatement of contamination, but which only minimally impact on the problem.

## II

MERCURY CONTAMINATION represents an important contribution to the literature on toxic pollution because it is one of the few books which has taken a holistic approach towards the subject. The D'Itris examine the scientific, economic, legal, political, medical and social aspects of the problem. This unified approach offers two significant advantages which are lost whenever authors minutely dissect one aspect of the mercury problem. First, the book is, by and large, quite interesting reading. This is important because too

often books on environmental subjects are left unread by the general public as their overemphasis on technical preciseness results in dry, turgid prose.

The second advantage offered by the holistic approach is that it provides the best way in which to analyze environmental issues. Most books written about environmental subjects fall into one of two categories; they are either too technical or too subjective. Books in the first category are, as noted before, often difficult to read and reach only a limited readership that has a particular expertise in the book's subject matter. Overly subjective books on the environment include those polemical diatribes that anyone is capable of reading but that few take seriously. Poorly documented predictions of environmental "disaster" make up the bulk of this category.

However, the very nature of environmental issues commends the holistic approach. Scientific and technical knowledge is merely one aspect of an environmental issue, and the D'Itris recognize that knowledge about mercury contamination cannot be equated with a cure. The subjective variety of an environmental book may emphasize the need for solutions, but rarely does it display a full comprehension of the problem. The authors' backgrounds—she is a professor of "American Thought and Language" and he is a professor of water chemistry—have equipped them to handle this eclectic approach. Thus, the D'Itris' understanding of the socio-economic aspects of the mercury problem dissuades them from positing easy answers to difficult questions. *MERCURY CONTAMINATION* is a recognition of the multi-faceted nature of environmental issues, for the reader is informed not only that toxic pollution occurs, but also why it is allowed to continue. The reader thus is provided with a thoroughly realistic appraisal of the conflicting interests and tensions inherent in efforts to stem the mercury problem.

The authors chose this timely issue and this holistic approach because they justifiably felt that it is likely to affect the greatest number of people. In their preface, the D'Itris emphasize that the book is intended to reach "citizens who are concerned about the degradation of the environment," rather than scientists or industrialists, and suggest that *MERCURY CONTAMINATION* be used as a high school or college textbook. If, as the D'Itris contend, the solutions to environmental problems lie in heightened public awareness of the issues, the unified approach utilized in *MERCURY CONTAMI-*

NATION is a valuable contribution to environmental literature.

In addition to being a well-conceived book, *MERCURY CONTAMINATION* is well written. Most of the book is written in an engaging narrative style. The authors' lucid prose is augmented by informative graphs, drawings and exhaustive documentation, but the book also contains a series of pictures and a poem on mercury poisoning that appear a bit contrived. Interesting anecdotes and fascinating historical material also add to the book's appeal.

*MERCURY CONTAMINATION* is not without its flaws. Its major deficiency is that at times it is too political. The D'Itris were active in a fight waged against the Canadian government by native Indians who were struck by a mercury epidemic in the early 1970s. Understandably, the authors' fervor often shows in their writing. While there certainly is a necessity for enthusiasm by an author, the D'Itris at times cross the line into polemics or proselytism. For example, the D'Itris lay great stress on the web of silence spun by industry and government. In reality, government inaction in the area of mercury contamination is probably due less to conspiracies than to apathy or bureaucratic inertia. The authors also tend to over-document instances of contamination, as though to bolster the credibility of their clear moral commitment. Thus, at times *MERCURY CONTAMINATION* fluctuates between strong rhetoric and somewhat tedious statistics on victims of mercurialism. A final problem presented by the D'Itris' strong beliefs on the subject matter of the book emerged in their discussion of solutions. The authors are convinced that the solution to the problem of mercury contamination will be found in the will of a sufficiently enlightened people. While this assessment may indeed be true in the long run, the D'Itris are guilty of the same evasion of solutions for which they chastize government. The D'Itris cannot realistically believe that the public will soon rise up to the challenge of mercury contamination with the same fervor as have the authors. The true question to be answered is: Given the present state of public opinion, what can be done? The authors give no satisfactory answer.

A final flaw with *MERCURY CONTAMINATION* is that the authors have made no attempt to view mercury contamination within the larger perspective of toxic pollution. In their preface, they express the hope that this book may serve as a prototype for the study of other pollutants, but nowhere do they point to any general principles or lessons that may be drawn from mankind's experience with

mercury. Mercury is one of a group of toxic pollutants, and it is reasonable to expect that much of what has been learned about mercury contamination may be applicable to other toxics.

Despite these flaws, *MERCURY CONTAMINATION* is an important book that is well worth reading. The D'Itris' synthesis of our knowledge about mercury is both informative and enjoyable.

*Steven Dubner*



NATURE, BUREAUCRACY AND THE RULES OF PROPERTY: REGULATING THE RENEWING ENVIRONMENT. By Earl Finbar Murphy. Amsterdam: North-Holland Publishing Co. 1977. Pp. xii, 335. \$44.50.

In *NATURE, BUREAUCRACY AND THE RULES OF PROPERTY*, Earl Finbar Murphy discusses the viability of bureaucratic regulation, market controls, and the rules of property as mechanisms to protect the environment. The central theme of the book is an evaluation of each of these three mechanisms in order that they be more clearly defined and more effectively utilized as instruments of environmental protection. This book differs significantly from Murphy's earlier work, *WATER PURITY*,<sup>1</sup> a detailed, factual study of water pollution control in Wisconsin. The present work is aimed at persons interested in the policy considerations that should be studied and utilized for more effective governmental protection of the environment. It mainly examines concepts, not specific examples or proposals.

Our current reliance on bureaucratic regulation is probably not as effective in protecting the environment as that protection offered by a combination of the three mechanisms. Murphy suggests a regulatory system combining, in unspecified ways, all three mechanisms which may help to restore to Western urban/industrial society its appreciation of nature. All three mechanisms are relatively widely accepted, but Murphy thinks that they should be modified and redefined to cope more fully with present needs of the environment. If carefully implemented, these changes should heighten Western society's appreciation of nature without threatening the continued acceptance of bureaucratic regulation, market control, and the rules of property as regulatory mechanisms.

A mix of environmental techniques has other advantages. As the author notes, "there is no regulatory scheme that is not condemned by some insightful critic." There is no one perfect regulatory device because the concerns environmental regulation seeks to address are constantly changing. Through continued experimentation involving different devices in different combinations a better response to these changing needs should be possible. Professor Murphy also points out the concomitant requirement that

1. E.F. MURPHY, *WATER PURITY, A STUDY IN LEGAL CONTROL OF NATURAL RESOURCES* (1961).

changes in environmental conditions and the reasons for those changes must be better documented to establish the effects of existing controls and to increase our awareness of new threats to the environment.

The most interesting portions of the book discuss the changing of the definition and, therefore, the role of property. Theoretically, at one time there were no categories such as private and public property or real and personal property. In fact, there was no property at all. There was, however, a common pool of all items, tangible and intangible, which had the potential to become property. The rules of property for any given society define what may become property, what people can do with property and what can be done to it. For example, wild animals, *ferae naturae*, have long been considered items of potential property in the common law tradition and, thus, are considered as belonging to a common pool. They become property by being captured. While not everything in the environment can be made property, Professor Murphy believes that recognizing elements in the environment as property is better protection than leaving them in the common pool, where they are everyone's resource and no one's responsibility.

Over the course of time, more items have become property by their removal from the common pool because of increased awareness as to the items' value or potential value. However, this trend has been accompanied by a change in the concept of what can be done with property once it has been removed from the pool. The traditional or early historical view allows property as an inalienable right only as it is needed to discharge social functions. The concept of waste prohibited the lessee from devaluing the estate of the lessor because the estate had to support such social obligations as providing soldiers or money. Over the centuries, obligations which were attached to property have lessened or been reassigned elsewhere in society. As obligations accompanying property have declined, the valuation of property has focused on the cash price alone and not on the larger social effect associated with the use of the property. The early views have been heavily undermined by the urban/industrial revolution, but there may be enough of these early views still extant to be of use in protecting the environment. The author states: "The rules of property in a system that recognizes the worth of environmental protection must reflect the worth inherent in natural systems rather than expecting nature to take her value from an assignment out of a rule of property."

As Murphy notes, there is no perfect system for protecting the environment; he proposes no specific models or examples for experimentation. The book is meant mainly as food for thought. The use of some examples would have been especially helpful in illustrating some of the ideas presented. The examples used here are the reviewer's and may not accurately reflect the author's ideas. The book is well-documented with notes at the end of each chapter, as well as a bibliography with notations delineating which items were especially useful to the author. Most of the sources, as so often is true in the area of environmental protection, are not strictly legal. There is a good, detailed index.

The major flaws in the work are its lack of organization and tightness in writing. It is difficult to follow the development of an idea from one chapter to another or even from one section of a chapter to another. It is only at the end of the volume that various aspects of an idea can be pulled together. A more successful book would have resulted from a higher degree of organization. Nevertheless, the work is interesting and useful, especially for those concerned about public policy decisions involving more effective environmental protection.

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PRINCIPLES FOR LOCAL ENVIRONMENTAL MANAGEMENT. By Peter G. Rowe *et. al.*, Cambridge, Massachusetts: Ballinger Publishing Co. 1978. Pp. xviii, 272. \$17.50.

## I.

PRINCIPLES FOR LOCAL ENVIRONMENTAL MANAGEMENT examines the mechanics of environmental regulation and the role of local governments in framing functional land and resource planning schemes in the face of rapid economic expansion. The book's purposes are two-fold. It seeks to provide a textbook for use by local governments, by cataloguing the history, scope and impact of the complex environmental regulatory system—state and federal—that has come into being over the last two decades. It also sets out to chronicle and probe the response of one local government to the competing demands of public regulation and private growth.

As indicated by the title, the authors are concerned with developing principles for managing the environment. Thus, while the book is practice oriented, it does not address specific environmental problems and their regulation. Rather, it focuses on the process by which overall environmental policies can be formulated and managed at the local level and synthesized into workable programs for controlled expansion. The authors define the term "environmental" as extending beyond traditional natural resource problems such as air, water and chemical pollution, to general concepts of land and resource planning that have to do as much with allocation as with pollution (for example, should a housing or highway development be built and, if so, when and where).

As portrayed by the authors, the environmental framework within which local governments currently operate is conflicting and abstruse. First, the regulatory "scheme" is in reality a myriad of federal and state laws and agency regulations, having overlapping jurisdiction and covering overlapping subject areas. Second, the problems and solutions are themselves conflicting and dependent upon prevailing interests. Local governments tread a thin line between acting as "spectators" to uncontrolled growth and reacting too quickly, cutting off growth altogether. Third, in environmental matters, as well as in other political policy areas, most local governments are only minimally self-governing. With the exception of some major urban centers with home rule provisions, local governments are simply political subdivisions of a state, unable to take substantial independent steps<sup>1</sup> to control resources.

1. Zoning and building codes, among others, are areas where local governments

A central goal of this book is to assist local government in sorting through the vast environmental regulatory requirements in order to develop a coherent environmental policy. The authors do this well, for the book provides an excellent overview of the significant state and federal statutory and regulatory provisions and of the interface between the different substantive provisions. The book falls short, however, in presenting the solutions: *i.e.*, precisely what can local governments do, in a practical context, to develop comprehensive environmental policies, and, equally important, what happens in the face of *conflicting* regulatory requirements? We see, through the authors' descriptions, the complexity of the regulatory process and the broader questions that the regulatory scheme fails to answer—questions of redistribution of resources and compensation for the “losers” in the regulatory process, and of the increasing encroachment of government on resource management. However, the authors offer only the most general solutions, *e.g.*, the need for comprehensive policies, for obtaining support services from the state for accurate information gathering and growth projection, and for local advocacy of environmental policies before federal and state agencies. These are “textbook” solutions and, except for the last, are difficult to translate into concrete plans.

## II.

PRINCIPLES FOR LOCAL ENVIRONMENTAL MANAGEMENT had an intriguing literary evolution. The book grew out of a study requested by the Commissioners Court of Chambers County, Texas (in the Houston-Galveston area) to “develop a decisionmaking process” for land use planning and regulation in the county which would be anchored in “reliable comprehensive information, [and] which would enlist the varied interests of farmers, ranchers, conservationists, industrialists, developers and public officials in a common undertaking.” The study was to be an interdisciplinary project involving participants from a broad spectrum of social science disciplines—urban studies, economics, history, law, political science, architecture—with the goal of providing a handbook to assist Chambers County and other local governments and community leaders in managing the problems of vast and rapid economic growth. The project's two stated purposes were to formulate gen-

have traditionally had independence from state control. However, this operates as a minimal (and, through the courts, increasingly challenged) check on resource planning and use.

eral principles that would assist in future environmental management and to serve as a handbook for local governmental action regarding environmental management. Chambers County, in the authors' view, is particularly well-suited for this kind of analysis because of its predominately rural character until its rapid economic and industrial expansion in recent years. The authors also point to the inability of Chambers County to regulate environmental problems in a traditional regulatory control manner because the county lacks ordinance-making authority. With local governance subject to state control, and with questions of the impact of environmental data subject to state and federal statutes, alternative regulatory approaches were needed.

This genesis is intriguing, and one would expect the book to provide an eyewitness account of one locality's attempt to develop a systematized procedure for attacking potential environmental "on-slaughts" through development of consistent policies for growth rather than through litigation generated by crisis responses. This is surely a main *theme* of the book, *i.e.*, the necessity for a preventive approach to environmental problems through intelligent planning rather than crisis intervention when conflicts arise, or through hindsight after damage has already occurred. However, after the first chapter we hear very little about Chambers County and its problems. The study moves quickly to focus on descriptive analyses of the environmental regulatory process—the statutes and regulations, and the interface between their various provisions. With the exception of a highly technical analysis of the process of environmental impact assessment using the Chambers County experience as a hypothetical example, there is very little empirical information and little concrete insight into the case study that was the heart of the project. The mystery of whether Chambers County, along with the other public and private participants in the environmental planning process, achieved the productive collaborative relationship envisioned in the book's genesis remains undisclosed. What is left, though, is a thorough analytic handbook for such collaborative functioning which provides a blueprint for local governments to follow.

### III.

Chapter by chapter, the book provides a sweeping view of the country's environmental policies, moving from a macrocosmic overview of the system to a microcosmic analysis of the effects of

these policies on individual localities. The interdisciplinary orientation is clearly present in the meshing of historical, sociological, economic, political science and urban studies approaches and methods. One would assume that the first task of any local government attempting to coordinate environmental management is to be fully informed about the broad spectrum of environmental regulation. A compelling aspect of the book is that it does this with a sensitive and deep-seated awareness not simply of the statutes, regulations and cases themselves, but of some of the historical evolution of those provisions and of their place in the post-war growth phenomena and sudden raising of environmental consciousness in the 1960s and 1970s.

The movement from the broad policy sphere of the macrocosm—chronicling the history and scope of federal environmental regulation—to the practice-intensive problem-solving sphere of the local microcosm is helpful. We are first given a satellite's view of the country and its policies as a whole and gradually directed to a closer examination of local problems and local regulatory processes—a county road map of environmental regulatory structure. A central focus of the book is the thesis that environmental policy and management is (or should be) at once sufficiently broad to establish national policies and standards, and sufficiently flexible to allow for variations in local and regional environmental problems. To local governments mired in indigenous problems seemingly unrelated to any other environmental problems, the sense of national community that emerges from the exposition should be profoundly comforting.<sup>2</sup>

#### IV.

The discussion explores some of the fundamental issues and considerations which must be faced in formulating general regulatory principles. The authors raise questions concerning the extent to which social costs should be reckoned with in environmental management, and the most effective manner of allocating such costs. A basic issue is whether the allocation is best left to the working of a

2. The exposition is comparative as well, and is visually compelling, with chart comparisons of environmental provisions and the functions performed by federal, state, regional and local agencies. See, e.g., P. ROWE, *et. al.*, PRINCIPLES FOR ENVIRONMENTAL MANAGEMENT, Table 6-1, at 164-67 and Table 6-2, at 170-73 (1978) [hereinafter cited as ROWE].

free market economy or whether strict governmental control is the only solution. While neither solution seems feasible, a middle ground is difficult to achieve, and some of the serious "social cost" issues continue unresolved. Thus we are left with troubling unanswered questions: how to incorporate environmental "good" into a system, without strict regulation, where no individual or group has an economic incentive to work toward such a goal, and how to allocate limited resource, such as water (and waterways) and energy, which do not have well-defined property rights attached to them and where several parties could benefit equally.

The authors further explore the difficulties inherent in attempting to establish "acceptable" levels of pollution or environmental harm, and in attempting to allocate the costs of pollution or environmental harm, and in attempting to allocate the costs of pollution abatement procedures (either direct costs, such as that of installing effluent filters or chemical converters, or indirect costs that result from cutting off a resource altogether—use of a river, or denial of permission to build a housing development or highway). The authors return to the question of an appropriate method of compensation in their conclusion, emphasizing that local governments have an impact of the formulation of such a system.

This discussion is followed by an examination of the interaction between technological developments and the environment. This is accompanied by a systematic description of the methodology employed to make such an examination (using here, for the only time in the book, empirical data from the Chambers County study). The premise here is that "knowledge of the conditions under which land [resource] use activities exceed the 'natural carrying capacity' [of the resource] allows meaningful performance standards to be developed . . ."<sup>3</sup> The authors' point is clear: before a plan of environmental management can be formulated on a local level, the problems must be defined, feasible solutions anticipated, and data must be gathered in a systematized and scientific manner using readily available technical resources.

An additional element must be factored into the management development process: the historical perspective. There is a brief analysis of the evolution of government regulation of private property rights, from early nuisance law, including the conflict between

3. *Id.* at 6-7.



nuisance provisions and actions which constitute an unconstitutional "taking,"<sup>4</sup> to the decade-by-decade expansion of regulatory power in the 20th century. The book traces the development of the regulatory process from early urban building code provisions, through local zoning provisions, regional highway and housing developments, to the increased federal government control over regional planning in the 1960s and 1970s. Again, the authors' macrocosmic view persists. They trace the thread of regulatory activity as well as the movement of the regulatory process away from local and private interest control toward increasingly stringent public sector regulation by the federal government; control is given back to states and local and regional subdivisions in the 1970s, but with federal pursestrings or sanctions attached.

The authors then move to a closer scrutiny of the specific federal legislation of the 1970s. This recent legislation seems to epitomize, for this reviewer if not for the authors, the indecision of Congress in the area of environmental management, and whether it should opt for free enterprise, local control, or tight federal controls. The legislation runs the gamut of approaches, from broad policy statements with general controls, such as the National Environmental Policy Act of 1970, and the Housing and Community Development Act of 1977, to more directive legislation such as the Clean Air Acts, the Federal Water Pollution Control Act, and the Coastal Zone Management Act. There is a comprehensive exposition here of the legislative policies, and the interrelationships among and across a broad range of agencies and regulatory structures.<sup>5</sup>

Here, clearly, the handbook orientation is of paramount concern to the authors. They repeatedly stress an underlying theme that local governments, in searching for solutions to specific, immediate problems, should remain cognizant of the broader perspective—of both the full range of environmental concerns and the full regulatory picture. They see the mid-to-late 1970s legislation at the federal level as an expression of a "New Federalism,"<sup>6</sup> (a Nixonian expression) whereby the federal government would provide general policy guidelines and funding for environmental management, leav-

4. *Id.* at 99-100. See also, *Slaughterhouse Cases*, (16 Wall) 83 U.S. 36 (1873), *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393 (1923).

5. For instance, numerous agencies, including EPA, HUD, HEW, Departments of Commerce and Interior, and FEA have some role in environmental regulation. All are executive level agencies, and yet regulations are issued without much interagency coordination.

6. ROWE, *supra* note 2, at 121.

ing to states (and to local governments, through so me state policies) individual determinations of specific goals and methods. The Housing and Community Development Act of 1977, and the Federal Water Pollution Control Act amendments are examples of the "New Federalism" approach to legislation.

The authors tend to ignore the possibility that the "New Federalism" approach might be regarded by many as an abdication of environmental responsibility. Surely, if state and local governments do not step in where federal regulations simply set policy without providing standards of enforcement, there is nothing to check the operation of "free market" interests, and no reason to presume that those interests will exercise any more "public" responsibility now than they have in the past. The book's handbook technique emphasizes descriptive analyses of federal legislative and administrative responses to environmental concerns and leaves undisclosed the effects of the national policy planning process (influenced by economic and social pressures) and the political arena. Moreover, it is shortsighted of the authors to focus on local management of environmental regulation, without taking note of the broader national concerns and influences. Indeed, these concerns are often felt first at the local level, as when the Defense Department awards a contract to build helicopters to a manufacturer in Pennsylvania and rejects the bids of the Texas and Connecticut manufacturers. Air and water pollution, housing and highway expansion are all affected by the decision.

The book concludes with two chapters which focus on local responses to legislative and regulatory requirements that will allow local governments to take charge of the local planning process. The authors describe the information needs, analyses, and planning required to meet federal mandates, and they stress the elements of such information: the information gathering process itself, the ability to make accurate population and land use projections, and to assess environmental performance and social and economic impact, and the development of management strategies. These are examined both with respect to methodology and key provisions of the acts. The book concludes with some suggestions for local government participation in the policy making forum, and with specific suggestions regarding guidelines for local government participation.<sup>7</sup> It is clear, however, that the book's chief value is not in pro-

7. *Id.* at 226-28.

viding solutions, but in surveying the problem.

One is left with some sense of frustration at seeing how local governments might effectively assume an active role in environmental planning and management. The book seems to recognize that local governments are sandwiched between private interests and broad federal and state regulation. A major shortcoming of the book, however, is the authors' failure to pinpoint the dilemma of local governments (and others for that matter) when faced not simply with a myriad of regulations, but with *conflicting* regulations from different agencies, and from different levels of government. The crisis of limited fuel, forcing use of cheaper but more polluting fuels, is one example of the difficult dilemmas confronting local governments. While explaining the various demands placed on local governments, the authors fail to address the effect of pyramiding and conflicting regulatory provisions. It is this effect which may well be the next crisis faced by the authors and Chambers County.

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