

## CHAPTER ONE

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# Assessing Environmental Policy Instruments

## An Introduction

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Environmental policymaking appears to be at an important juncture as we enter the twenty-first century. While environmental protection continues to hold a prominent position on the political agenda of most industrial democracies the methods employed in the pursuit of this objective are often highly contested. The traditional forms of environmental regulation initially adopted in response to concerns about environmental pollution generally took a so-called command-and-control regulatory approach, direct government regulations that require certain types of behavior, either by prescribing uniform environmental standards or the specific process or technology that must be used to be in compliance. In recent years, however, attempts to address environmental problems through such an approach have encountered ever greater resistance. In the view of many, these instruments have proven either inappropriate or ineffective when confronted with a fundamentally different world from that existing at the time of environmental awakening in the late 1960s. As a consequence, there has been a growing interest in the use of different types of policy instruments ranging from green taxes and tradable permits to eco-audits and eco-labeling. The chapters in this volume provide case studies that generally chronicle this turn to alternative policy instruments.

### **Factors influencing the search for alternative policy instruments**

The growing interest in the use of different types of policy instruments has been driven by several separate but related phenomena. Common to most all is a general disaffection with traditional command and control instruments. The critique has taken various forms. One of the fundamental premises underlying a study by Chertow and Esty (1997) calling for a next generation of environmental policies in the United States is the ineffectiveness of traditional command and control regulations. While acknowledging that laws enacted in response to growing environmental activism in the late 1960s benefited the environment, they assert that further progress through the command and control regulatory approach is limited: many current environmental problems are different and some of the residual problems (automobile exhaust, agricultural runoff, loss of habitat to suburbanization) cannot be addressed effectively simply by further tightening of emissions standards (Esty & Chertow, 1997, p. 2). As argued by Elliot (1997, pp. 72–73), command and control approaches were developed to regulate large industrial polluters (such big dirties as power plants, refineries, chemical plants, and the automobile industry). The sources of environmental problems looming today are often smaller, more diffuse, and thus less amenable to traditional instruments. In other words, while certain sources of pollution may be overregulated, other sources are subject to little or no regulation.

Claims of overregulation are closely associated with concerns about the high cost or economic inefficiency of direct environmental regulation. By their very nature, command and control instruments are inflexible, imposing uniform emissions standards or technologies, irrespective of the varying conditions confronting individual firms as well as inefficiencies and costs these differences may generate. Moreover, by mandating specific technologies, the development of more effective or efficient technologies is discouraged; by prescribing specific emissions levels, there is little incentive to reduce below those levels, further serving to inhibit technological innovation (Golub, 1998b, pp. 2–4; Cohen, 1997, pp. 117–118). Important side effects of policies viewed as too costly or burdensome are the risk that the public support (so critical in the politics of environmental protection) could be undermined, investment in oversight and enforcement mechanisms restricted, and that noncompliance could become more problematic as administrative capabilities are diminished (Golub, 1998b, p. 4; Esty & Chertow, 1997, p. 6). Exacerbating these problems is the adversarial and legalistic nature of traditional regulatory strategies, which slow the formulation process and impede effective implementation and enforcement.

Concerns about economic competitiveness are often associated with claims of economic inefficiencies. The increasing globalization of economic activity in recent years has made more explicit the link between continued economic prosperity at home and the maintenance of international competitiveness. In a world of globalizing economic relations, where even local environmental problems now have important international economic ramifications, fears about the impact of environmental regulation on economic growth and competitiveness have heightened considerably.

Conventional wisdom holds that environmental regulation will have adverse effects on international competitiveness, economic growth and employment as production costs associated with environmental regulations reduce competitiveness in global markets. Rigorous environmental standards push industry abroad (industrial flight) and developing countries attempting to compete provide pollution havens. Confronted with such threats, there is the additional fear that policymakers will weaken environmental rules (the so-called race to the bottom). A number of studies attempting to test these hypotheses find little evidence to support such claims (OECD, 1993, 1997; Atkinson, 1996). Nonetheless, concerns about the loss of competitiveness due to government regulations continue to shape the views of many in the public and private sectors. Indicative of such concerns was the creation of the Competitiveness Council under the tutelage of Vice President Quayle during the first Bush administration (CPC, 1991), the debate in Germany about the country's ability to compete as a business site (Standortbericht, 1993) and the Molitor Report, a European Union study written by a group of independent experts expressing alarm about the potential threat to Europe's competitiveness posed by excessive environmental regulation (CEC, 1995; Golub, 1998a). In sum, though there is little evidence environmental regulation adversely impacts international competitiveness, such concerns continue to inform industry's approach to environmental policy. Regulatory standards are consistently opposed and voluntary approaches or market-based mechanisms such as emissions trading are, at least in the abstract, the preferred alternatives.

Taking this line of inquiry on the effect of environmental regulation on competitiveness one step further, some argue that the right type of regulatory instrument may, in fact, enhance a country's competitive advantage.

Variously characterized as the win-win or Porter thesis, and an important component of the ecological modernization paradigm that asserts a mutually supportive relationship between environmental protection and economic growth, (see, e.g., Blowers, 1998; Golub, 1998a; Hoerner, Miller, & Muller, 1995; Moore & Miller, 1994; Porter & van

der Linde, 1995; Wallace, 1995), environmental regulations—properly constructed—can trigger innovation and encourage firms to upgrade their technology. The resulting operational changes and improved production processes often lead to greater productivity and higher product quality at less expense. Moreover, when a nation initiates environmental actions in advance of other countries, its companies can gain first mover or early mover benefits. That is, companies encouraged to develop less polluting technologies will enjoy competitive advantages in expanding markets abroad; other countries—driven by domestic demands for a cleaner environment and/or the process of trading up, whereby stricter environmental regulations are exported through such international institutions as the European Union or NAFTA (Vogel, 1995)—adopt similar standards. Properly constructed regulatory instruments that aim at outcomes instead of methods stimulate innovation rather than locking in the use of specific environmental technologies. In other words, market-based instruments or voluntary approaches, if sufficiently rigorous and adhered to, should provide the type of regulatory framework conducive to enhancing competitiveness—one that leaves discretion and the initiative for innovation in the hands of industry.

Finally, to the degree the sustainable development paradigm informs policymakers' thinking about environmental policy, instruments that represent alternatives to command and control regulation should begin to have a larger presence in the regulatory approaches of nations. According to Agenda 21 (UN, 1992), the document adopted at the Earth Summit in Brazil to provide a blueprint for action for global sustainable development into the twenty-first century, market-based mechanisms and such voluntary instruments as environmental labeling, self-regulation, and eco-auditing by industry should be given prominent roles in national strategies to encourage changes in nonsustainable consumption patterns. In terms of actual programs, the Dutch government, for example, initiated the National Environmental Policy Plan (NEPP) in 1989. Informed by the Brundtland Report (WCED, 1987)—and anticipating many elements in Agenda 21—the NEPP explicitly embraced the goal of sustainable development and, in so doing, shifted its regulatory approach from that of direct regulation to voluntary agreements negotiated between the state and private actors (for details, see Liefferink, 1999). The concept of sustainability was also at the center of the European Union's Fifth Environmental program (1992–2000) which emphasized, among other things, the need to broaden the range of environmental tools to include such instruments as environmental taxes and voluntary agreements (EU, 1998).

All told, disaffection with command and control regulation—whether based on concerns about economic efficiency, international competi-

tiveness, environmental effectiveness, or the need for an approach that encourages sustainable development—has resulted in a search for alternative policy instruments believed to provide potential antidotes to such shortcomings.

### **Types of regulatory instruments and their assessment**

For the purposes of this study, regulation is understood as “any attempt by the government to influence the behavior of citizens, corporations, or subgovernments” (Cohen, 1997, p. 110). There are a number of highly involved, perhaps overly complex, taxonomies or classifications suggested for regulatory instruments (see, e.g., Vedung, 1998). From our perspective, the most fundamental and salient distinction to highlight is that between mandatory and voluntary policy instruments. With the former, the regulated party’s options are generally quite limited and the abrogation of mandated actions ultimately carries the possibility of legal sanction. Voluntary instruments, on the other hand, are most often nonbinding and allow considerable flexibility or discretion. Moreover, depending on the instrument involved, one might anticipate the development of a different type of political dynamic. For example, certain instruments may encourage a more adversarial approach that slows, if not hinders, the adoption and implementation of policy, whereas other instruments may be more conducive to a collaborative policy process that facilitates prompt implementation.

Included in the category of voluntary policy instruments are environmental or eco-labels, eco-audits and voluntary agreements. Among the distinguishing features attributed to each are the following:

- Environmental labeling programs formulate a set of production or performance criteria products must meet if they desire to carry the eco-label. Products certified as meeting these criteria embody more environmentally benign production and consumption practices than those of their noncertified competitors and offer consumers a choice based on ecological considerations. Eco-labels, in other words, create incentives for the innovation of more environmentally sound products or production practices by providing information upon which the environmentally conscious consumer can then act. Given the voluntary nature of this instrument, proponents argue that eco-labels are relatively light in terms of the amount of public expenditure, management, and oversight are concerned, and as such, are rather easy to introduce and implement.

- Similarly, eco-audits are voluntary arrangements that provide consumers information about environmental management practices. For firms that choose to adopt specified standards for environmental management, certified participation in such programs is designed to foster better relations with customers, suppliers, and stakeholders as well as employees. Moreover, through this process of self-evaluation, a firm may discover ways of doing things more efficiently, thereby reducing its ecological footprint. From the perspective of the public sector, such arrangements promise environmental benefits without the high administrative costs that accompany direct regulation.
- Voluntary agreements take a variety of forms ranging from industry covenants that are legally binding to informal declarations of intent. At its core, however, a voluntary agreement is “an agreement between government and industry to facilitate voluntary action with a desirable social outcome, which is encouraged by government, to be undertaken by the participant based on the participant’s self interest” (Storey, 1997, p. 11). In contrast to command and control regulation, firms may voluntarily agree to certain emissions targets, but they have much greater flexibility in terms of method and timing, thereby encouraging greater efficiency and innovation (Golub, 1998b, p. 5). In other words, voluntary agreements help achieve environmental objectives at lower costs and often more quickly, given the more collaborative nature of the policy process that such an approach implies.

Within the category of mandatory policy instruments, the most frequently cited are market-based taxes and tradable permits, environmental impact assessments and, of course, command and control regulation:

- Green taxes are charges assessed on an amount of pollution that a firm or product generates. Faced with the direct costs of their polluting activities, firms have an incentive to control pollution. At the same time, they are free to choose the most efficient reduction methods. In addition, green taxes provide ongoing incentives to find the most efficient reduction technologies in order to lower or avoid the tax. Finding the proper level of taxation, however, is critical to the effectiveness of the instrument because it is difficult to anticipate exactly how much pollution reduction will result from any given tax (see Stavins & Whitehead, 1997, pp. 106–107).
- Emissions trading too employs the price mechanism to internalize the costs of pollution, thus encouraging both the static and

dynamic efficiencies that lead to ongoing pollution reduction. In contrast to green taxes, however, tradable permits avoid having to predict the appropriate level of taxation required to reach the reduction goals. Under an emissions trading system, policymakers establish an overall target of emissions allowed for an industry, area, or country. Permits representing shares of the total emissions allowed are then allocated to each company. Firms that reduce their emissions below the allotted levels can sell the surplus to firms whose emissions exceed their permits or bank them for the future. Companies that exceed their permitted limits must purchase permits from other firms or face legal sanctions (Stavins & Whitehead, 1997, p. 107; Golub, 1998b, p. 5).

- Environmental impact statements (EISs) represent a process designed to identify, evaluate, predict, and mitigate the effects of proposed developments before decisions are taken or projects initiated. Generally mandated by law, they are to provide information on the environmental effects, risks, and consequences of development proposals. By explicitly integrating science into the decisionmaking process, EISs are said to facilitate the inclusion of environmentally sound and sustainable options in proposed projects (see, e.g., Sadler, 1996).
- There are generally two types of direct or command-and-control regulatory instruments, technology-based and performance-based. Technology-based regulations typically prescribe the use of specific equipment, processes or procedures, whereas performance-based standards specify the level of pollutant emissions allowed (Stavins, 1997, p. 8). Proponents argue both approaches are effective in achieving their specified environmental objectives. An added benefit of technology-based regulations is that compliance and oversight are made much easier; moreover, practices incorporating such principles as Best Available Technology are said to provide greater flexibility than commonly believed (Dente, 1995, p. 18). Similar arguments about the virtues of flexibility made by proponents of voluntary and market-based instruments are made in the case of performance-based regulations as well, since the regulated entities have considerable discretion in that only the levels of emissions are prescribed, not the methods allowed to achieve them.

All told, contending assertions are made about the relative virtues of these policy instruments. Similar to the critiques of command and control cited earlier, however, the claims made by advocates of voluntary and

market-based instruments have not gone unchallenged. Supporters of command and control express concerns that the increased flexibility allowed by voluntary approaches will lower overall environmental protection. In the words of the Sierra Club's executive director, for example, given the opportunity to cheat on environmental standards, some people do and others will follow, "Consistent, strictly enforced standards are the locks that protect our environment. Voluntary measures and self-policing sound appealing, but they aren't enough to keep law and order on the environment frontier" (Pope, 1999, p. 17).

Proponents of economic instruments are skeptical voluntary arrangements can produce economically efficient results since they are based on political bargains rather than price signals. Similarly, green taxes, when implemented in the real world, reflect the influence of powerful political forces as much as market forces and limit the environmental effectiveness of the instrument. At a more fundamental level, it is asserted that such market-based instruments as emissions trading essentially represent a right to pollute. In other words, the conflicting claims about these various policy instruments are very much in dispute. As such, it would be prudent to treat these assertions as quasi hypotheses in need of testing. This will be the central focus of the chapters that follow.

The hypothesized claims about the merits (and shortcomings) of these instruments are based, at least in part, on differing views regarding the priorities that ought to govern environmental policy. Such differences, in turn, are often reflected in the criteria employed when arguing the relative usefulness of particular instruments. Among the criteria that frequently inform such analyses are the following:

- Environmental effectiveness is perhaps the most common criterion used to evaluate policy instruments. Its precise meaning, however, is not self-evident. To some, it means eliminating the problem to be addressed. Others favor a definition that emphasizes some physical improvement in the environment. But given the highly complex nature of many environmental problems, as well as the lag times that frequently occur between action and impact, it is often difficult to establish causal links between any physical changes that may occur and the policy instrument. In the absence of reliable data, surrogates such as measuring the degree to which targets established by a policy instrument are met and/or the use of counterfactuals have been proposed (see Keohane, Haas & Levy, 1993; Helm & Sprinz, 2000).
- Economic efficiency emphasizes the cost effectiveness with which an instrument is able to achieve its policy objective.



- The choice of policy instruments is rarely the result of a purely technical selection process. It is the outcome of a political process that engages a myriad of actors with competing interests and priorities. As a consequence, the performance of that instrument may not achieve the idealized outcome hypothesized for other instruments in the abstract, ignoring the fact that the policies required to achieve that outcome are not politically viable. The criterion of political efficiency highlights the value of feasibility and second-best solutions when evaluating policy instruments (see Müller, 1999). It too suggests attention ought to be paid to the possibility that certain policy instruments may help realign interests and generate much needed political support for policy initiatives.
- As the growing literature on implementation and compliance in environmental policy suggests (see, e.g., Mitchell, 1994; Brown Weiss & Jacobson, 1998; Victor, Raustiala, & Skolnikoff, 1998), there is no guarantee that policies, once adopted, will be implemented as intended. The criterion of administrative efficacy points to the possibility that the design of certain types of instruments may enhance the implementation of and compliance with adopted policies. For example, regulations that mandate specific technologies may facilitate compliance and oversight, since it is fairly easy to detect whether or not the technology is employed. More collaborative approaches may also engender compliance as participants in the process feel more invested in the outcome.
- An important consideration for some when evaluating policy instruments is their effect on technological innovation—that is, the ability of various instruments to encourage rather than impede the development of technologies that reduce or prevent pollution (see Esty & Chertow, 1997, p. 12; Norberg-Bohm, 1999).

To conclude, a number of claims made about the virtues of the various policy instruments discussed above are most often grounded in their greater economic efficiency, environmental effectiveness, or technology-forcing capabilities. In the analyses that follow, efforts will be made to assess the usefulness of each policy instrument using the criteria just discussed. At the same time, since these claims are very much in dispute, they will be treated as quasi hypotheses to be tested.

The method employed for this testing are case studies that provide detailed analyses of the individual policy instruments in their practical

application. Single cases, of course, neither confirm nor disprove the general validity of hypotheses. What they can do, however, is help refine the understanding of specific conditions under which an instrument may be more or less useful (i.e., move beyond hypothesized correlations to observable empirical relationships), thereby facilitating a more thoughtful elaboration of hypotheses. At the same time, these case studies are intended to contribute to the cumulative process of constructing a body of literature that will assist in the eventual confirmation of broader generalizations.

### **Overview of the book**

The most fundamental differentiation in the type of regulatory instruments employed in environmental protection is between voluntary and mandatory instruments. The chapters in this volume are organized accordingly: chapters 2–5 provide case studies in the use of voluntary instruments, beginning with one of the earliest experiments with this type of approach. Chapters 6–10 focus on the application of several mandatory instruments in various national and international settings.

During the 1990s, environmental labels became increasingly popular throughout the world. However, as detailed by Edda Müller in chapter 2, one of the earliest efforts to employ this instrument began two decades earlier with the adoption of the Blue Angel program in Germany. Drawing on lessons from this eco-labeling program, Müller addresses three questions: First, is the environmental label really a light, less complex tool that is easily implemented? Second, how effectively are its economic and ecological objectives achieved? And third, what is the role of eco-labeling in an environmental policy mix that aims at stimulating innovation and diffusion of technical and social change?

In chapter 3, Ronnie D. Lipschutz continues the discussion on voluntary regulatory practices, but from a perspective that focuses on the shift of regulatory power to private, nongovernmental actors. Lipschutz argues that for reasons linked to globalization, there has been a gradual decline of public sector involvement in addressing various social problems, and growing difficulties in trying to devise cooperative public international conventions. As a result, nonprofit actors are engaged in a growing number of semipublic and private regulatory projects. To a large degree, such projects are the work of a global civil society and serve as the basis for a global system of democratized regulation for the rest of us. Lipschutz considers the general problematic of rule and rules in world politics, the sources of demand for global regulatory arrangements, and the activities of global civil society organiza-

tions and movements to meet these demands. With focus on the forestry sector, he provides a general discussion of the privatization of regulatory authority and involvement by civil society actors and describes several such initiatives currently underway.

In an effort to avoid regulation by the state, industries are suggesting alternative means of promoting environmental management within the corporate sector. These include such voluntary environmental management systems as the ISO 14001. In recent years, Japanese corporations have become world leaders in the number of companies that have applied for and received this certification. Multinational companies are now starting to demand similar certification of suppliers, many of which are based elsewhere in Asia. In chapter 4, Miranda Schreurs and Eric Welsh examine why Japanese corporations have suddenly become so interested in ISO 14001 and what it might mean for environmental protection in the Asian region.

In addition to eco-labeling and eco-auditing arrangements, governments and industry increasingly have entered into dialogues resulting in voluntary agreements. Proponents argue that voluntary agreements provide firms greater flexibility in the method and timing of activities, thus reducing the overall costs of environmental protection as well as stimulating innovation. Moreover, voluntary approaches are said to further understanding and trust between government and industry and promote faster implementation and compliance. Questions, however, have been raised about environmental effectiveness. Critics argue that voluntary agreements are not likely to move beyond what industry would have done in the absence of such commitments and in foregoing formal laws or ordinances, such commitments fall well short of what could have been achieved. In chapter 5, Michael T. Hatch sorts out the conflicting claims about the environmental effectiveness of voluntary agreements through an examination of what has become the centerpiece of Germany's strategy to reduce its CO<sub>2</sub> emissions 25 percent by the year 2005—a set of voluntary agreements concluded between the German government and industry in 1995 and subsequently revised in 1996, 2000, and 2001. Special attention is paid to the agreement between government and the electric utility industry—the sector responsible for approximately one-third of Germany's total CO<sub>2</sub> emissions.

Another part of Germany's effort to combat global warming was the adoption of a green tax. In 1999 Germany entered into an ecological tax reform. It was designed to increase energy taxes and reduce social security contributions in five steps up to 2003. It aimed at two goals simultaneously: to reduce energy consumption along with the accompanying emissions of climate gases while, at the same time, cut labor costs to decrease unemployment. This reform is highly controversial. It

has been hailed as a central project of the modern age by some proponents and denounced by opponents as a misguided attempt to satisfy the government's need for increased revenue and an impediment to economic growth and employment. In chapter 6, Michael Kohlhaas and Bettina Meyer describe the cornerstones of the new law and address the most controversial issues from an economic and political point of view. They argue that not all deviation from the optimal design of an ecological tax reform means bad politics. The law had to balance competing objectives and interests and was subject to legal, technical, and political restrictions that could not be overcome in the short term.

Whereas the Hatch and Kohlhaas/Meyer chapters look at policy instruments employed nationally in response to the challenges posed by climate change, several instruments have been proposed at the international level that would assist in reducing GHG emissions: the so-called flexible mechanisms of Joint Implementation (JI), the Clean Development Mechanism (CDM), and emissions trading established in the Kyoto Protocol. In chapter 7, Andreas Oberheitmann focuses on two of these programs, JI and the CDM, and asks why many Annex I Parties and their private companies appear reluctant to participate in them. He asserts that among the reasons for this reluctance are uncertainties about the implications of JI and CDM for instruments employed in national climate policy as well as the potential obstacles to their effective operation. Oberheitmann then analyzes how these instruments relate to those employed in national climate policy—specifically, CO<sub>2</sub>-taxes and voluntary agreements—and he looks at the questions raised about their compatibility with international agreements and provisions on subsidies governed by the WTO.

The flexible mechanisms proposed in the Kyoto Protocol essentially represent different types of trading arrangements in greenhouse gas emissions. In chapter 8, Gary C. Bryner examines the use of emissions trading in the United States, one of the few countries that has extensive experience with this instrument. Based on an analysis of the federal emissions trading established in the Clean Air Act and Southern California's South Coast Air Quality Management District's RECLAIM program, the strengths and limitations of emissions trading are discussed along with the implications of the U.S. experience for a greenhouse gas or carbon trading program.

Another area where the United States has been an innovator is in the use of environmental impact statements. Originally adopted with the passage of the National Environmental Policy Act (NEPA) in 1970, environmental impact assessments today are required in over one hundred countries—and many subnational bodies in federal systems—as

well as in many international lending institutions and bilateral aid agencies. Yet, despite its widespread popularity, relatively little attention has been devoted to the use of this instrument in recent years. Walter A. Rosenbaum seeks to redress this situation in chapter 9 as he analyzes the evolution of Environmental Impact Statements (EISs) in the United States. NEPA's mandate to federal agencies to create environmental impact statements was intended to create a profound change in federal environmental policymaking, both procedurally and substantively. At least five impacts were predicted by proponents of EISs: (1) greater bureaucratic integration of science and environmentally-related policy; (2) more environmentally benign federal policies; (3) an early warning system for environmentalists about the implications of evolving agency policies; (4) development of an environmentally sensitive infrastructure within major environmental bureaucracies; and (5) alterations in agency cultures. Rosenbaum argues the most important impacts are those involving the integration of science and environmental values within agency structures and that the course of this integration has been profoundly influenced, in ways largely unanticipated, by the federal judiciary.

In chapter 10, Daniel H. Cole and Peter Z. Grossman revisit the debate about the relative efficiency of economic as opposed to command and control regulatory instruments. They question the assertion that economic forms of regulation such as effluent taxes and emissions trading are inevitably more efficient than traditional command-and-control regimes for environmental protection. They take issue with the general portrayal of command-and-control environmental regulations in the economic literature that focus almost exclusively on compliance costs, ignoring technological and institutional constraints that can significantly affect the comparative efficiency of alternative environmental policies. Their analysis of air pollution control under the U.S. Clean Air Act suggests that where abatement costs are relatively low and monitoring costs are relatively high, command-and-control is likely to be at least as efficient (and effective) as effluent taxes or a tradable emissions program.

## References

- Agenda 21: A blueprint for action for global sustainable development into the 21st century.* (1992). New York: Author.
- Atkinson, R. D. (1996). International differences in environmental compliance costs and United States manufacturing competitiveness. *International Environmental Affairs*, 8(2), 107-134.
- Blowers, A. (1998). Power, participation and partnership: The limits of co-operative environmental management. In P. Glasbergen (Ed.), *Co-operative*

- environmental governance: Public-private agreements as a policy strategy*. Dordrecht: Kluwer Academic Publishers.
- Brown Weiss, E., & Jacobson, H. K. (Eds.). (1998). *Engaging countries: Strengthening compliance with international environmental accords*. Cambridge, MA: MIT Press.
- Chertow, M. R., & Esty, D. C. (Eds.). (1997). *Thinking ecologically: The next generation of environmental policy*. New Haven, CT: Yale University Press.
- Cohen, S. (1997). Employing Strategic Planning in Environmental Regulation. In S. Kamieniecki, G. A. Gonzalez & R. O. Vos (Eds.), *Flashpoints in environmental policymaking*. Albany, NY: State University of New York Press.
- Commission of the European Communities (CEC). (1995). *Report of the Group of Independent Experts on Legislative and Administrative*. COM (95) 288, 21 June, Brussels.
- Competitiveness Policy Council (CPC). (1991, March). *Building a competitive America*. First Annual Report to the President and Congress.
- Dente, B. (1995). Introduction: The globalization of environmental policy and the search for new instruments. In B. Dente (Ed.), *Environmental policy in search of new instruments*. Dordrecht: Kluwer Academic Publishers.
- Elliot, E. D. (1997). Toward ecological law and policy. In Chertow & Esty (Eds.).
- Esty, D. C., & Chertow, M. R. (1997). Thinking ecologically: An introduction. In M. R. Chertow & D. C. Esty (Eds.).
- European Union (EU). (1998). Decision No. 2179/98/EC of the European Parliament and of the Council of 24 September 1998 on the review of the European Community programme of policy and action in relation to the environment and sustainable development 'Towards sustainability.'
- Golub, J. (1998a). Global competition and EU environmental policy: Introduction and overview. In J. Golub (Ed.), *Global competition and EU environmental policy* (pp. 1–33). London and New York: Routledge.
- Golub, J. (1998b). New instruments for environmental policy in the EU. In J. Golub (Ed.), *New instruments for environmental policy in the EU* (pp. 1–29). London and New York: Routledge.
- Helm, C., & Sprinz, D. (2000). Measuring the effectiveness of international environmental regimes. *Journal of Conflict Management*, 44(5), 630–652.
- Hoerner, J. A., Miller, A. S., & Muller, F. (1995, April). *Promoting growth and job creation through merging environmental technologies*, Research Report No. 95-03, Washington, DC: National Commission for Employment Policy.
- Keohane, R. O., Haas, P. M., & Levy, M. A. (1993). The effectiveness of international environmental institutions. In P. M. Haas, R. O. Keohane, & M.A. Levy (Eds.), *Institutions for the earth: Sources of effective international environmental protection*. Cambridge, MA: MIT Press.
- Liefferink, D. (1999). The Dutch national plan for sustainable society. In N. J. Vig & R. S. Axelrod (Eds.), *The global environment: Institutions, law, and policy* (pp. 256–278). Washington, DC: CQ Press.
- Mitchell, R. B. (1994). *International pollution at sea: Environmental policy and treaty compliance*. Cambridge, MA: MIT Press.
- Moore, C., & Miller, A. (1994). *Green gold: Japan, Germany, the United States and the race for environmental technology*. Boston: Beacon Press.

- Müller, E. (1999). Ökonomische Effizienz und politische Effizienz in der Umweltpolitik. In E. Gawel & G. Lübke-Wolff (Eds.), *Rationale Umweltpolitik-Rationales Umweltrecht* (pp. 00–00). Baden-Baden: Nomos Verlagsgesellschaft.
- Norberg-Bohm, V. (1999). Stimulating “green” technological innovation: An analysis of alternative policy mechanisms. *Policy Sciences*, 32, 13–38.
- Organization for Economic Cooperation and Development (OECD). (1993). *Summary report of the workshop on environmental policies and industrial competitiveness, 28–29 January 1993*. Paris: Author.
- Organization for Economic Cooperation and Development (OECD). (1997). *Economic globalisation and the environment*. Paris: Author.
- Pope, C. (1999, July–August). Corporate crime: The consequences of letting polluters police themselves. *Sierra*, 16–17.
- Porter, M. E., & van der Linde, C. (1995). Toward a new conception of the environment-competitiveness relationship. *Journal of Economic Perspectives*, 9(4), 97–118.
- Sadler, B. (1996, June). *Environmental assessment in a changing world: Evaluating practices to improve performance*. Final Report, International Study of the Effectiveness of Environmental Assessment.
- Standortbericht. (1993, September). Report on securing Germany’s future as a business site.
- Stavins, R. N. (1997, January). Policy instruments for climate change: How can national governments address a global problem? Resources for the Future Discussion Paper 97–11.
- Stavins, R., & Whitehead, B. (1997). Market-based environmental policies. In M. R. Chertow & D. C. Esty (Eds.).
- Storey, M. (1997). *Voluntary agreements with industry*. Annex I Expert Group in the UNFCCC, Working Paper No. 8. Paris: OECD.
- United Nations. (1992).
- U.S. Congress, Senate. (1969). *National Environmental Policy Act of 1969*. 91st Congress, 1st session.
- Vedung, E. (1998). Policy instruments: Topologies and theories. In M-L. Bememlmans-Vidic, R. C. Rist, & E. Vedung. *Carrots, sticks sermon: Policy instruments and their evaluation*. New Brunswick, NJ: Transaction Publishers.
- Victor, D. G., Raustiala, K., & Skolnikoff, E. B. (Eds.). (1998). *The Implementation and Effectiveness of International Environmental Commitments*. Cambridge, MA: MIT Press.
- Vogel, D. (1995). *Trading up: Consumer and environmental regulation in a global economy*. Cambridge, MA: Harvard University Press.
- Wallace, D. (1995). *Environmental policy and industrial innovation: Strategies in Europe, the USA and Japan*. London: Earthscan.
- World Commission on Environment and Development (WCED). (1997). *Our common future*. Oxford: Oxford University Press.