

Chapter 11 Environmental Policy

Since the early 1980s environmental issues have become increasingly prominent on policy agendas in all the industrialized countries, including the six examined in this book. These issues are important for policymakers in political terms (as reflected in the effort of political parties and political leaders to appear “green”); in terms of the dimensions of the problems, which include global warming, global destruction of the ozone layer, global deforestation, and global overpopulation; and in terms of the sheer number of issues—for example, air, water, ground, and noise pollution; radioactivity; toxic waste; pesticides; and endangered species—and the possible solutions. Although substantial environmental gains have been achieved in most industrialized countries, the process of environmental protection has been more difficult, costly, and frustrating than policymakers initially foresaw, and much remains to be done.

Common Policy Problems

Industrialized countries make choices regarding environmental policies in a number of important areas. A relatively clearly defined and shared set of environmental issues confronts policymakers in each of the industrialized countries examined in this book. In this section and in the case studies we focus on problems related to air pollution, one of the first environmental issues that industrialized countries recognized and addressed. The process of postwar industrialization and a general reliance on fossil fuels for energy meant that by the late 1960s most industrialized countries began to experience significant air pollution problems and by the early 1970s the first air pollution control policies began to be implemented. As a result, each of the six countries has a substantial environmental protection record.¹

The term *ambient air quality*, which refers to air in our immediate surroundings, is common in discussions about the air we breathe. Deterioration in ambient air quality generally results from an increase in the number of contaminants present in the atmosphere—largely the result of the burning of

¹ For more detailed discussions of environmental issues in these countries, see the series *Environmental Performance Reviews*, published since the 1990s by the Organisation for Economic Co-operation and Development (2001, 2002a, 2002b, 2002c, 2005a, 2005b). Included in this series are in-depth treatments of environmental problems and policies for each of the countries examined in this book.

fossil fuels in industrial and transport activities. These contaminants are produced at far greater levels than can be processed naturally and are absorbed into the air relatively easily.

Air-polluting contaminants include both particles and gases. The term *particulate matter* refers to solids—including ash, soot, and lead—that are released into the atmosphere in industrial emissions and exhaust gases. The most important polluting gases include carbon monoxide (CO), which is emitted primarily from gasoline engines. Sulfur oxides (SO_x), such as sulfur dioxide (SO₂), are produced by burning sulfur-containing fuels (when combined with water vapor, SO₂ forms sulfuric acid and falls as acid rain). Volatile organic compounds (VOCs), which include many compounds that are known carcinogens or that have climate-changing properties, contribute to the large-scale formation of ozone and smog. Nitrogen oxides (NO_x), especially nitrous oxide, are byproducts of fossil fuel burning at high temperatures; these oxides combine with VOCs to produce smog. Finally, chlorofluorocarbons (CFCs) are compounds with a chemical composition such that part of the molecule, when released in the atmosphere, is highly destructive to ozone molecules.

Scientific studies demonstrate that both short- and long-term exposure to emissions containing these gases or particulates cause serious health problems in humans. Air pollution also endangers people indirectly by causing significant harm to plant and animal life. The threat from these emissions is compounded by the interaction effects of these pollutants, which can be more hazardous than exposure to each of the compounds separately.

The existence of such air pollutants in recent years also has created growing concern about ozone layer depletion. Increasingly, scientific evidence has supported the argument that the earth's ozone layer has gradually become depleted or developed holes as a result of polluting human activities. Such damage is thought to be an environmental danger because of the ozone layer's role in shielding the earth from dangerous wavelengths of ultraviolet rays. When this layer is depleted, the level of ultraviolet radiation that reaches the earth increases significantly. Increases in levels of ultraviolet radiation are linked to increases in skin cancer rates, possible weakening of the human immune system, crop loss, and forest damage. The most significant factor in ozone layer depletion is believed to be the production of CFCs in commercial activities.

Air pollution also creates another area of government concern with respect to the problem of global warming. This problem is caused by substances known as trace gases (so named because they make up less than 1 percent of atmospheric gases). They are also known as **greenhouse gases**, because they allow heat from the sun to enter the earth's atmosphere and then trap it, creating a greenhouse effect. These greenhouse gases are usually vital to the earth's ecology: they ensure that average temperatures are suitable to sustain life. However, human activities cause a harmful buildup of these gases, and the excess cannot be processed through the earth's natural capacity to recycle

these gases. As these gases (such as carbon dioxide, or CO₂) build up, the atmosphere's capacity to capture heat radiated from the earth's surface increases, which raises the average temperature of the earth's surface. Should global warming increase, it is generally held that higher temperatures would likely produce a range of harmful effects—including rising sea levels, changes in agricultural production patterns, and warmer weather patterns.

Major Policy Options

In all industrialized countries, environmental protection policies usually are designed with one of two goals in mind. Policies such as those regulating automobile emission standards may be intended to prevent additional environmental contamination from occurring. Alternatively, policies may be aimed at eliminating existing contamination, for example, through a policy of planting forests to absorb excess gases already in the atmosphere. Public policies designed to achieve either, or both, of these objectives may take several forms.

The most widely used environmental protection policy instruments are **direct regulations** (or **command-and-control policies**) imposed by governments. Regulatory policies tend to look very similar from country to country. They typically are either framework policies, which allow latitude in their interpretation and implementation, or detailed laws, which permit little discretion in their application. Environmental regulations usually define permissible levels of pollutants and place limits on their discharge in the interest of reaching established target levels.

Although the content of these policies tends to be similar from country to country, a significant degree of difference in direct regulation policies is observed in the sanctions for noncompliance. Penalties for noncompliance may include criminal liabilities with fines as a penalty and the possibility of personal liability for responsible individuals. Alternatively, sanctions may include modifying, suspending, or revoking a license to operate. Governments may also be given the power to clean up after a pollution incident, with the costs paid by the polluter. Polluters also may be required to pay significant damages for civil liability. The enforcement of such penalties may generate costly adverse publicity for the polluter. In most industrialized countries, these noncompliance penalties have become stricter and are enforced more vigorously than in the past.

In the 1990s governments in many industrialized countries moved away from a command-and-control approach to environmental problems toward new policy instruments. As environmental problems persisted, the regulations of the 1970s and 1980s came to be seen as economically inefficient, difficult to implement and enforce, and unsuited to new forms of pollution, especially “nonpoint” sources of pollution. As a result, policymakers began to search for mechanisms that were more flexible, incentive based,

and noncoercive. Among the new policy instruments adopted are green product labeling, eco-taxation, emission trading (or cap-and-trade) schemes, and voluntary agreements.

Industrialized countries may also develop **voluntary agreements** between the government and producers to reduce pollution levels. These agreements are usually used in conjunction with other policy instruments. They typically are negotiated directly between government and industry or are developed independently by industry (reflecting a genuine environmental concern, a concern about positive public relations, or both). These agreements are not legally binding but instead involve mutually agreed upon goals and target dates. Across industrialized countries, the use of voluntary agreements has risen dramatically since the early 1990s.

In some industrialized countries, policymakers have begun to address environmental problems by stressing the importance of market mechanisms through the use of **economic incentives**. These incentives include tax breaks for corporations that implement pollution controls, pollution charges or taxes, deposit-refund systems, and tradable discharge permits. These policies involve what are known as **polluter pays principles**, in which individuals are charged for their environmentally harmful activities, or **user pays principles**, which involve additional costs for consumers of environmentally hazardous products. Since the late 1990s, environmentally related taxes have become widespread across most industrialized countries.

Although such policy instruments are increasingly being discussed by policymakers, some industrialized countries continue to be reluctant to use such incentives to control environmental pollution. This reluctance probably reflects a natural bureaucratic preference for regulatory policies. In addition, opponents of incentives argue that these policies are too complex to be administered and that they offer less certainty that specific pollution reduction goals will be achieved. Others argue that economic instruments can be effective only when polluters, both producers and consumers, accept a notion of shared responsibility and have accurate information about the effects of their activities, conditions that are difficult to achieve.

An important environmental policy instrument for industrialized countries, particularly in the face of the globalization of many environmental problems, is the use of international environmental agreements. Since the late 1980s a number of international agreements have been developed that set pollution reduction targets for individual participant countries. One of the earliest of these agreements was the 1987 Montreal Protocol on Substances That Deplete the Ozone Layer, which forty-nine countries ratified. Other international agreements include the 1992 United Nations Framework Convention on Climate Change (FCCC) and the Convention on Biological Diversity, also drafted in 1992. One of the more controversial international agreements is the 1997 Kyoto Protocol on global warming. Box 11-1 provides a more in-depth look at these agreements regarding climate change.

Box 11-1 **In Depth: Climate Change Agreements**

The first international agreement to address the climate change problem was developed at the 1992 Earth Summit in Rio de Janeiro, Brazil. This document, the United Nations Framework Convention on Climate Change (FCCC), was intended to stabilize, not eliminate, greenhouse gas concentrations in the atmosphere. Under the FCCC, the industrialized countries made voluntary commitments to reduce their levels of greenhouse gas emissions to 1990 levels by 2000. Overall, 154 countries signed the FCCC, and it went into effect in March 1994. The United States was one of the first countries to ratify this agreement. It was estimated in 1999 that roughly half of the participating countries would meet the FCCC targets by 2000.

In the face of rising concerns about continued increases in carbon dioxide (CO₂) and other greenhouse gas emissions, a consensus emerged that further international action was needed. As a result, the Kyoto Protocol to the FCCC was adopted in December 1997. The protocol set more ambitious goals for reducing greenhouse gas emissions and involved binding commitments (though it lacked effective enforcement mechanisms). The Kyoto Protocol committed the industrialized countries to specific, binding emission targets for six key greenhouse gases, especially CO₂, methane, and nitrous oxide.

By 2008 the Kyoto Protocol had been signed by 174 countries, including the European Union, Canada, Japan, and China, and entered into force in February 2005. The United States is the only Group of 8 country that failed to ratify the protocol, which would have committed the United States to a target of reducing three greenhouse gases by 7 percent below 1990 levels between 2008 and 2012—instead, its greenhouse gas emissions rose more than 16 percent between 1990 and 2005. Bill Clinton's administration indicated that it would not submit the protocol for ratification in the Senate until developing countries also acted to reduce their greenhouse gas emissions. This position in part reflected a 1997 Senate resolution that the United States should not become a party to the agreement until developing countries also submit to binding targets. In March 2001 George W. Bush's administration announced that it was "unequivocally" opposed to the Kyoto Protocol. The president declared that the protocol was "fatally flawed" and antithetical to U.S. economic interests and withdrew all U.S. support for it.

In late 2007 the first global discussions on a new framework to replace the Kyoto Protocol, which expires in 2012, were held in Bali, Indonesia. At Bali, negotiators agreed to begin two years of negotiations to be concluded in Copenhagen in December 2009, but they made no firm commitments to new goals for greenhouse gas reductions, reflecting intense debate between European states and the United States over new obligations to limit emissions. Although European states argued strongly in favor of deeper international commitments, the United States opposed them. American arguments against binding targets were criticized heavily—at one point the U.S. ambassador was booed by conference delegates—and the U.S. delegation backed down, agreeing to work on a new, post-2012 agreement that would obligate countries to take on new commitments to limit greenhouse gas emissions and aid developing countries with sustainable development. The resulting Bali Action Plan established an Ad Hoc Working Group on Long-Term Cooperative Action, which met for the first time in April 2008. This group was scheduled to present its findings to the fifteenth meeting of the parties to the FCCC in Copenhagen in December 2009.

Explaining Policy Dynamics

The existing research on environmental policy reform rests largely on a case study approach; thus large-scale theorizing about these issues is generally lacking, and most work in the area is highly descriptive. Existing analytical work points primarily to the importance of institutional factors in explaining both policy reform and outcomes.

Cultural Explanations

A cultural factor that may influence environmental policy reform involves citizens' definition of their rights and freedoms with respect to the environment. Widely held social values, such as the right to own and drive an automobile, the importance of the open road, the freedom to drive at high speeds, or the freedom to fish and use waterways, are argued to influence a government's ability to impose more restrictive environmental policies. Where such things are viewed as right and proper, they are rarely challenged when it comes to making decisions about environmental policies (O'Riordan and Jordan 1996).

Not surprisingly, environmental policy reforms often reflect public opinion and priorities. In countries where environmental policy has yet to arouse public concern, governments face greater difficulty in enacting reforms. Conversely, in countries where populations are more mobilized on certain environmental issues, reform may be easier to pursue (depending on whether a match exists between public opinion and the government of the day). This pattern is especially relevant for understanding the policy reform process when the policy agenda has been determined by external rather than internal pressures (Collier and Lofstedt 1997; Crepaz 1995; Jansen, Osland, and Hanf 1998; McBeath and Rosenberg 2006; Vernon 1993). Further, in countries where postmaterialism is a relevant cultural attribute, public concern about the environment may account for the increasing prominence of environmental issues on political agendas (Inglehart and Baker 2000).

Economic Explanations

Environmental policy reform may also be affected by economic pressures arising from globalization and increased international competitiveness. For example, reforms involving environmental taxes have been difficult to adopt in industrialized countries. These reforms are often rejected on the grounds that they impede international competitiveness. In such cases, policy reform is affected by a perception that the policies will reduce the chances of making national industry profitable in a globally competitive environment (Jansen, Osland, and Hanf 1998).

Cost considerations also influence the environmental policy reform process. For example, the economic costs of achieving CO₂ emission targets are viewed as either the most critical factor for national decision making or one

of the most influential factors. Where estimated costs of a particular policy are low, support for the policy will be more readily forthcoming; where the policy involves tremendous expense, cost becomes a decisive factor in mustering opposition to reform. Thus cost is a critically influential factor when great expense is required to achieve the target but is less influential when the cost is small or uncertain or when environmental improvements may be economically beneficial (Kawashima 1997).

In most industrialized countries, the values and norms of business and industry also may influence environmental policy reform. Business and industrial interests often place primary emphasis on maximizing economic growth and the value of material wealth in a society. These interests often play an important role in defining the way environmental problems are defined, as well as in developing the various solutions that are given serious consideration (Ophuls and Boyan 1992; Schnaiberg and Gould 1994; Schnaiberg, Watts, and Zimmerman 1986).

Political Explanations

As we noted in earlier chapters, the ideology of the governing party in a country often determines the nature of policy reform. This relationship often holds true with respect to environmental policy. In particular, because organized environmental interests are usually allied with the political center or the left, we expect centrist or leftist governments to be more likely to pursue substantial environmental policy reform (Scruggs 1999).

Researchers also observe that the extent to which citizens participate in environmentalist movements or parties varies greatly from country to country. Not surprisingly, wider and more frequent reform efforts occur in countries where such movements are active than in those where they are conspicuously absent. Some countries have highly active interest organizations that continually demand more environmentally oriented policies and more effective environmental administration. In other countries, the government is subject to no significant political pressure concerning environmental policy, from either specific groups or the population at large.

Institutional Explanations

Many scholars argue for the importance of institutional arrangements in accounting for environmental policy reform (Hanf and Jansen 1998; Jager and O'Riordan 1996; Jansen, Osland, and Hanf 1998; Scruggs 1999; Weale 1992). Some scholars emphasize a lack of coordination and cooperation between different levels of government as an important influence. They note that although environmental problems offer substantial scope for action at lower levels of government and most countries have taken a good deal of initiative at these levels, central governments often pay little attention to such

efforts when drawing up national environmental programs. This lack of cooperation frequently results in duplications of effort, squandering of resources, and, overall, ineffective policy reforms (Jansen, Osland, and Hanf 1998).

Another important institutional factor may be the nature of a country's electoral system. Proportional representation electoral systems are argued to create the possibility for greater success in environmental protection, because they encourage the representation of smaller and more particularized interests. Under such a system, green parties are more likely to gain policy influence either by gaining access to elected office themselves or by compelling the more mainstream parties to accommodate those interests (Schreurs 2002; Scruggs 1999).

Researchers also have pointed to the importance of interest representation systems for explaining policy reform. Corporatist political systems are widely held to be more amenable to broader environmental policy reforms because they are more consensual and amenable to compromise. Pluralist systems are argued to allow for the blockage of such reforms because of their adversarial and competitive nature. Because environmental policies involve collective goods and action, they are argued to be more difficult to achieve in pluralist systems, which allow various interests to intervene in the policy process to defend their own interests. In particular, environmental policies impose costs on private economic interests, which are highly motivated to prevent the adoption of such policies. Although these policies are generally of aggregate benefit, particular sectors and individuals may lose out, resulting in considerable opposition to some measures—opposition to which pluralist systems are more likely to respond (Crepaz 1995; Enloe 1975; Lundqvist 1980; Steel, Clinton, and Lovrich 2003; Scruggs 1999; Vogel 1986).

O'Riordan and Jordan (1996) point to policy networks as important institutional factors that influence the direction and development of environmental policies. They argue that policy networks provide both an enabling and a constraining filter to policy development. Stable policy communities become an effective constraint to radical policy change because they tend to change slowly, if at all. Where policy networks exist, governments faced with new policy problems are forced to negotiate with and gain the support of relevant and important communities if they want their policies implemented. In such settings, these networks can place significant constraints on large-scale reform.

Lundqvist (1974) argues that the highly technical and standards-based nature of environmental policy makes policy development and implementation more difficult in a federal system. A federal structure may interfere with the technical connection between the national government, which sets standards, and those agencies responsible for monitoring and implementation at lower levels of government. As a result, effective policy making in federal political systems takes more time (because policies need to be articulated more fully) and requires consensus building (because multiple actors are involved). In unitary political systems, the existence of more immediate

connections between various governmental actors concerned with standards typically reduces the need for consensus building or policy elucidation. Lundqvist further argues that federal systems may also result in the development of more lenient standards than policymakers prefer, as well as a greater ability to delay actions because policy making in federal systems involves multiple decision-making points. At the same time, he notes that unitary political systems often result in reforms that deprive lower levels of government of the flexibility needed to cope with local problems when implementing reforms. Desai (2002) notes that countries with highly fragmented and decentralized policy and administrative systems are more likely to have national environmental policy reform that moves in fits and starts—advancing in some areas and retreating in others—and that, as a result, appears piecemeal and disconnected. Conversely, environmental policy is likely to have a clearer and more comprehensive focus, though not necessarily in a pro-environment direction, in more centralized political systems.

Scruggs (1999) argues that the relationship between the executive and the legislature is important to the degree that these two government branches are divided. In a unified legislative-administrative structure, policy continuity, consensus, and accountability will be enhanced. Where significant divides exist between the executive and the legislature, government will be less capable of providing consensual decisions about public goods and thus will be even less successful in achieving substantial reform.

International Policy Making

Policymakers in industrialized countries increasingly acknowledge that the environment in one country is not distinct from the environment in another and that environmental problems do not respect national territorial boundaries. Instead, most environmental issues have an international dimension or at least a regional or transborder component. This phenomenon is commonly known as the **globalization of the environment**. In policy terms, this globalization has meant that although effective environmental policies can be developed at the national level, identifying and addressing the regional and global dimensions of these problems also is necessary. This awareness has resulted in the development of a substantial number of international environmental agreements. A system of global environmental governance—consisting of intergovernmental and nongovernmental organizations, framework environmental laws, financing institutions, and mechanisms for implementing treaty mechanisms—now exists and continues to expand.

Environmental protection policies in the United States, Canada, and Mexico may be affected by some provisions of the North American Free Trade Agreement (NAFTA), which has a clear environmental component. NAFTA's environmental provisions are intended to ensure that environmental conditions in the agreement's three signatory countries do not hamper

trade or give one country a comparative advantage over the others. Under the agreement, none of the three countries may lower its environmental regulatory standards to attract investment. In addition, the agreement encourages the integration of environmental policies and a raising of environmental standards in these countries while protecting each country's right to set its own level of environmental protection.

NAFTA was also accompanied by a supplemental agreement on environmental cooperation that was drafted in 1993 at the encouragement of the Clinton administration. The supplemental agreement came in response to unprecedented pressures from many U.S. environmental groups with respect to trade issues. The agreement was intended to foster environmental cooperation and to improve enforcement of national environmental laws; however, it does not require the signatory countries to adopt any new environmental laws. It established a North American Commission on Environmental Cooperation, which has some powers to impose fines or trade sanctions for the failure to enforce existing environmental laws. Thus far, NAFTA's strongest impact on environmental policies has been seen in Mexico.

Environmental protection is one of the best developed policy areas within the European Union (EU). Approximately 300 environmental laws have been adopted since 1957, and roughly 200 are currently being implemented by member states. It is now possible to talk of a comprehensive EU environmental policy regime. The majority of these laws are directives to be adopted by individual member states and transposed into national laws. Today, responsibility for environmental policy making in Europe has shifted to the EU level to a remarkable degree, although national politics still produce noticeable policy differences across countries. The EU has developed some of the most comprehensive and innovative environmental policies found among the industrialized countries, reflecting a strong commitment to environmental protection that is supported by the EU member states and the majority of European citizens.

In the case studies that follow, we focus our consideration of contemporary policy dynamics on these countries' most recent attempts to meet their international commitments in preventing climate change under the Kyoto Protocol. These attempts typically involve efforts to reduce CO₂ concentrations in the atmosphere by reducing consumption of fossil fuels in both the energy and transport sectors. In all six countries, these efforts have been a primary focus of attempts at environmental policy reform since 1990, with the systemic agenda having been set largely through external influences.

United States

Background: Policy Process and Policy History

The development and administration of environmental policy in the United States can be very complex because it occurs at multiple points in the

government system. Responsibility for the development of environmental policies lies with a variety of executive branch offices, departments, and agencies, including the Environmental Protection Agency (EPA), the principal environmental bureaucratic agency. Congress, under its constitutional jurisdiction to regulate interstate commerce and control activities on federal lands, also passes specific, detailed (rather than framework) environmental policies. These laws may be implemented by either the executive branch or the states, depending on their specific provisions. Further, both criminal and civil actions may be used in the U.S. judicial system for implementing and enforcing environmental legislation, and many environmental cases are heard in federal courts. Strong compliance and enforcement are notable features of federal environmental management in the United States.

Although primary responsibility for environmental protection traditionally is placed in the federal government's hands (to harmonize regulations nationwide and to equalize the protection burden), individual states also may develop their own environmental policies that extend, or possibly supersede, federal mandates (albeit under strict federal oversight). Other states have laws that prevent them from toughening federal standards. Many states also have created their own bureaucratic structures to develop and implement environmental policies. States have become particularly active in developing environmental policies since the mid-2000s, when federal inaction on climate change issues compelled them to act on their own initiative.

A general policy of shared authority and cooperative arrangements exists between federal and state governments to implement and enforce national environmental laws. The federal government may authorize states to issue permits and take enforcement actions that are consistent with national-level policies. Local governments also have the authority to address environmental problems in their areas. Increasingly, states and localities have sought more independence in their environmental protection efforts and have objected to federal programs that require action without supplying the necessary funds.

The United States has pursued air quality improvements since the early 1970s. Environmental policy on air quality in the United States primarily takes the form of direct regulations that set strict standards. More than in other industrialized countries, air quality standards in the United States are enforced through stiff penalties and noncompliance fees. The United States also uses economic instruments and voluntary agreements to control air pollution, although historically to a lesser degree than direct regulations. The focus of air quality management policies is primarily on removing existing contaminants rather than on pollution prevention.

Air pollution control in the United States falls under the 1970 Clean Air Act (amended in 1977 and 1990), which calls for the creation of a set of national ambient air quality standards. Under the 1970 act, technology-based emission levels were set for eight compounds classified as hazardous air pollutants. This list of air contaminants was extended to 189 compounds in

1990, with a requirement for technology-based control standards to be developed for each (these standards replaced the quantitative, health-based risk assessments introduced in 1977). Ambient air quality is not monitored on a national basis but is checked at various points throughout the country.

George W. Bush's administration attempted to further amend the Clean Air Act with the introduction of the 2002 Clean Skies Bill. Among other things, the bill called for cuts in SO_x , NO_x , and mercury emissions from power plants through a cap-and-trade system. After three years of highly partisan deliberation, Congress failed to pass the bill. The administration then proceeded to implement many of the Clean Skies proposals via executive orders. Many of these orders were highly controversial, as they rescinded previous environmental policies. For example, an executive order was issued to repeal the new source review section of the 1977 Clean Air Act. This provision required older coal-fired plants, oil refineries, and other industrial facilities to install state-of-the-art pollution control equipment if they were to be modified to increase production or extend facility life. The repeal of this provision constituted a significant environmental policy development that occurred despite Congress's having failed to agree to it.

Emission controls for mobile sources of air contaminants have been in use in the United States since the 1960s. Stringent exhaust limits for passenger cars were instituted in 1981, following fuel-efficiency standards in 1978 that were strengthened progressively until 1985. Unleaded gasoline was introduced in the United States in 1975, and the complete phase-out of vehicles running on leaded gasoline was concluded in 1996. To reduce CO emissions, the use of oxygenated gasoline, particularly in winter, is required in thirty-one U.S. cities, and the use of reformulated gasoline with lower hazardous emissions is being introduced in select areas. The 1990 Clean Air Act amendments further tightened and introduced new controls. These controls included standards for cleaner fuels, new vehicle emission limits, inspection programs (many of which already existed at the state level), and changes in transportation policy to encourage van pooling and carpool lanes.

The United States makes use of voluntary agreements in air quality management, mostly to promote energy-efficiency improvements but also to reduce emissions. The Climate Challenge, a recent voluntary agreement between the Department of Energy and major utilities, involves a pledge to limit or reduce greenhouse gas emissions in the most cost-effective way possible under strict performance measures. More than 80 percent of U.S. electric utilities are party to the agreement. Voluntary agreements were particularly popular during the Clinton and George W. Bush administrations, because a voluntary approach also allowed for the formulation of policy without seeking congressional authorization.

Economic instruments, especially those based on user pays principles, are not an important air pollution control mechanism in the United States. The one strict use of tax incentives involves a significant tax on CFCs to facilitate

their phase-out. Some market-based mechanisms, such as the use of emission trading systems, particularly for SO₂ allowances and CFC emission permits, are used to help reduce air pollution at minimum cost. Under such systems, a company that reduces emissions below a required level can receive credits usable against higher emissions elsewhere; companies may also trade emission credits. Under the SO₂ program, allowances for SO₂ emissions may be bought, sold, or traded among utilities or industrial plants with the intention of reducing compliance costs to industry. The goal of these trading systems is to balance combined emissions within an aggregate limit. The United States also makes limited use of environment-specific subsidies and has created some tax programs aimed at funding damage compensation or clean-up activities performed by government.

The United States is party to both regional and international agreements to reduce air contaminant emission levels. In the 1991 Air Quality Agreement with Canada, the United States committed to reducing SO_x emission levels between 2000 and 2010 with a 40 percent decrease from 1980 levels. The United States also has agreements with Mexico, such as the 1992 Integrated Border Environmental Plan and the 1996 Border XXI Program, and participates in agreements on long-range transport of air pollutants, such as the acid rain program and the NO_x and VOC protocol. The United States was the first industrialized country to ratify the FCCC. Like most industrialized countries, the United States signed the Kyoto Protocol but withdrew its support for the agreement in 2001. Since 2001 the United States has played a less significant role in the development, implementation, and encouragement of global environmental agreements with respect to air quality than was true in the past. The Obama administration has committed itself to returning the country to the leading edge in this regard.

Contemporary Dynamics

The election of George W. Bush in 2000 dramatically altered the U.S. environmental policy agenda. As a conservative Republican, President Bush placed far more emphasis on economic development than on environmental protection. The president's natural inclination away from environmental issues was exacerbated first by September 11, 2001, and then by the war in Iraq. In the aftermath of these events, the prominent environmental challenges facing the country—especially climate change—virtually disappeared from the national political agenda.

Environmental policy did not merely experience benign neglect from 2001 to 2008. On the administration's first day in office in 2001, it issued a moratorium on all of the Clinton administration's environmental policies. The administration used its powers of appointment to staff the Environmental Protection Agency and the Departments of Energy, Agriculture, and the Interior with individuals who were more sympathetic to industry than to the

environment and then used these institutions to advance an industry-friendly, antiregulatory environmental agenda. For most of its time in office, the Bush administration expended the bulk of its environmental policy energy on weakening, undermining, or ignoring existing domestic environmental laws, while global agreements were rejected completely. The few environmental policies enacted in this period were more likely to be voluntary than regulatory. The government actively sought to roll back the impressive environmental policy gains the country had realized since the 1970s.

The United States ratified and sought to comply with the FCCC and signed but withdrew from the Kyoto Protocol. After this withdrawal, for most of the Bush administration's tenure, the United States distanced itself from climate change policy, in particular, making a full-scale retreat from binding targets and timetables. The Bush administration did not necessarily have a mandate to tackle climate change issues from 2001 to 2008, since these issues received little attention during either the 2000 or the 2004 elections. Nevertheless, these issues were already on the systemic agenda because the United States was presented with a serious greenhouse gas emissions problem, public support for fighting climate change was high and growing over this period, and the emissions picture was continuing to worsen. In this policy area there was an outside initiation model of agenda setting, in which interests and actors outside the government attempted to raise the profile of an issue already on the systemic agenda with the government. Their efforts ultimately proved fruitless, however, since the Bush administration did not enact national policies to address climate change. Among the industrialized countries, the United States is the world's largest emitter of greenhouse gases. Only China has higher emission levels. With less than one-twentieth of the world's population, the United States produces nearly one-fourth of its greenhouse gas emissions, and U.S. CO₂ emission levels were 16 percent higher in 2005 than in 1990. As in other industrialized countries, in the United States CO₂ emission levels continue to rise because of the continuing increase in motor vehicle use, despite the implementation of strict emission controls. A tradition of low gasoline prices and easy access to fossil fuels has increased people's reliance on individual transportation and discouraged fuel efficiency and alternative energy generation.

Even before 2001, the U.S. government did not go as far as formulating policies that involve specific CO₂ emission targets because of the perceived negative influence such targets would have on the domestic economy. Here we are referring to the cost factor—namely, that increasing energy efficiency in the country overall will have real economic costs in both the short and long terms. Although citizens demonstrated interest in climate change issues, prior to 2001 they were not overly alarmed and were especially persuaded by arguments that emission reductions would clash with their right to move about freely and cheaply and that such reductions would involve greater expense to them individually (in terms of both energy and transport costs). Without

pressure from the public and with intense opposition from industry, political leaders had only weak incentives to place on the institutional agenda CO₂ emission targets or other economic instruments for controlling emissions.

Significant opposition to setting specific targets for CO₂ emissions (and other greenhouse gases) comes in particular from industrialists, who argue that they are hurt by more stringent emission standards and increased costs of transport and that such costs affect their international competitiveness and result in lost jobs. Industry has encouraged the use of voluntary standards, which most supporters of environmental control argue will achieve little. Businesses also fear that emission targets will result in higher energy prices. Echoing the concerns of industry, many Republicans charge that the Kyoto Protocol imposes costly environmental controls on U.S. businesses while giving developing countries an unfair competitive advantage by easing restrictions facing them—all in an effort to address an environmental problem they believe does not exist.

Supporters of more stringent efforts to control CO₂ emissions in the United States include, not surprisingly, environmentalists and scientists. Environmental organizations were highly critical of the Bush administration for not pursuing more aggressively the reduction of CO₂ emissions. Given the pattern of partisan control of Congress from 2001 to 2007 and the fact that none of these groups enjoys the support of (or access to) the Republican Party, they had little influence on environmental policy making.

In this political context, the Bush administration made no significant attempt to control CO₂ emissions and, in particular, was uninterested in making any carbon reduction commitments. Its major greenhouse gas emission reduction effort was the 2003 Climate Change Initiative, which called for slowing the growth of greenhouse gas emissions to cut “greenhouse gas intensity” (the ratio of greenhouse gases to economic output) by 18 percent by 2012. This slower growth was to be accomplished through voluntary reporting of emissions by companies and voluntary reductions, as well as through an expanded climate research program and incentives to develop new technologies. Observers had no real expectations that these policies would reduce emissions.

Democrats in Congress made some attempts to initiate climate change legislation after seizing control of the House in the 2006 congressional elections, but these reform efforts amounted to nothing, illustrating the difficulty of resolving environmental policy conflicts in an era of intense partisan divide. Decisions on environmental policy require Congress to reconcile the conflicting views of multiple interests and constituencies, a task made all the more difficult in the face of partisan polarization. For over a decade, Congress was unable to pass either sweeping Republican environmental changes or moderate Democratic reforms. Democratic legislative efforts in the 110th Congress did move climate change issues to the front burner; however, these initiatives laid a foundation for sweeping climate change legislation to be considered

early in the Obama administration, through the 2009 American Clean Energy and Security Act.

The U.S. government's failure to set emission reduction targets or introduce economic instruments to reduce CO₂ emissions, especially from the transport sector, reflects the presence of several formidable obstacles to reform. First, during the Bush years, the combination of Republican control of the legislature (at least until the 2006 elections), strong business opposition, and the close relationship between the Republican Party and industry meant that efforts to set CO₂ reduction targets and new emission standards were not pursued. Second, cultural influences play a role in the lack of resistance to this approach, in that Americans are strongly attached to their right to own and operate vehicles. The culture of the open road is an important part of the national psyche, and policies that increase the cost of motor vehicle use are politically risky. Third, public opinion in the United States in the past was only weakly mobilized about global warming, creating little pressure for immediate action. Fourth, industry and consumer advocacy groups have been effective in lobbying against the adoption of economic instruments to reduce emissions, claiming that the costs are too high and that the country's economic competitiveness will be threatened. Several political factors also play an important role. The lack of an environmental party in the United States (in part reflecting the country's single-member district plurality electoral system) reduces pressure to address environmental issues in Congress. In the 2007–2009 congressional sessions, the existence of divided government, as well as intense partisan polarization, presented formidable obstacles to reform. In particular, the Republican Party's opposition to any discussion of global warming issues meant that little action was taken.

Japan

Background: Policy Process and Policy History

In Japan, primary responsibility for the development of environmental policy lies with the national Diet. Japan's forty-seven prefectures and the municipalities organized below them also are permitted to draft policies that are in line with national laws. Such policies typically are aimed at toughening national standards or responding to specific prefectural problems. Thus all prefectures, as well as many municipalities, have their own pollution control policies. Further, where air pollution levels are particularly high, prefectural governments are required by the national government to develop integrated pollution prevention plans.

The relationship among national, prefectural, and municipal governments generally is well coordinated through the ministries of the Japanese bureaucracy. Since a government reorganization in 2001, environmental issues are coordinated by the Ministry of the Environment at the central level. Implementation and enforcement of environmental laws is passed on to

the prefectures and sometimes municipalities, with close supervision from the national government, resulting in a high degree of policy effectiveness.

The Japanese government has vigorously pursued air quality management since the late 1960s and has made considerable progress in reducing air pollution levels. This reduction was accomplished through a combination of strong direct regulation and widespread use of voluntary agreements with industry, with only limited use of economic instruments. An important environmental policy emphasis in Japan is on air pollution prevention, especially through improved pollution control technology and strict standards. Since the 1990s Japan has been a strong advocate for and participant in global environmental agreements.

Environmental quality standards and emission standards in Japan are strictly controlled through direct regulations. The 1968 Air Pollution Control Law put in place limits on both stationary emissions (that is, from industrial and combustion facilities) and motor vehicle exhaust. Subsequent restrictions on emissions have made Japan's requirements among the strictest in the world. Emission targets were established for the major air contaminants in the early 1970s and are revised as new scientific data are gathered. For areas with more serious air pollution, the Area-wide Total Pollutant Load Control System was introduced in 1974 through amendments to the 1968 law. This policy determined the maximum tolerable emission levels for SO_x in these areas to conform to environmental quality standards. The policy was extended to NO_x in 1981. Accompanying these emission controls in Japan is one of the most extensive and effective air pollution monitoring systems found among the industrialized countries.

Japan also has introduced some of the world's strictest measures to control motor vehicle emissions. Passenger car and heavy vehicle emission standards and NO_x standards have been strengthened gradually, emphasizing the use of best-available technology. From early on, the Japanese government emphasized the development of technological improvements for new vehicles, favoring the use of catalytic converters. Vehicles are subject to emission inspections at one- to three-year intervals. Fuel quality improvements accompanied new vehicle technology. All gasoline was lead free by 1987, and sulfur levels in diesel fuel were reduced. Vehicle emissions are further controlled through a 1992 NO_x law to accompany more restrictive vehicle emission standards with special measures in designated areas to reduce NO_x emissions, and still stricter standards went into effect in 2000–2004.

Voluntary agreements are an important component of environmental policy making in Japan, probably to a greater extent than is found in the other industrialized countries. Local governments and citizens' groups have signed a number of voluntary agreements with industry to control both emissions and fuel use; these agreements encourage the use of best-available pollution control technology and energy-efficiency measures. By the early 2000s, over 40,000 agreements between government and industry were in effect. Japanese

industries are strong advocates for the use of voluntary agreements, and industry associations have been influential in striking such agreements.

The use of economic instruments in Japan is limited primarily to incentives (in the form of tax relief or low-interest loans) for investment in air pollution prevention and control equipment, mostly for industry, but also to encourage the replacement of older vehicles with newer, less polluting ones. For example, companies that install or improve their air pollution control equipment receive tax exemptions and may depreciate this equipment at special rates. Other economic incentives, such as emission charges, tradable permits, or eco-taxes have not been adopted in Japan in response to strong business opposition to such measures.

Since the 1980s the Japanese government has placed increasing emphasis on international environmental issues and has become a strong advocate of international cooperation in this area. Japan is an active partner in international attempts to control air quality as supporter of the Montreal Protocol, the FCCC, and the Kyoto Protocol. Japan also has increased its financial support and technology transfers to less developed countries to assist in their efforts to improve their environmental conditions. Further, Japan was one of the first countries to create a national government structure (the Global Warming Prevention Headquarters) specifically to address global environmental issues.

Contemporary Dynamics

Japan ratified the FCCC in 1993 and committed itself to stabilizing CO₂ emissions at 1990 levels by 2000. The country also ratified the Kyoto Protocol in 2002, and it went into effect in 2005. Despite strong mitigation efforts since the early 1990s, Japan has not been wholly successful in reducing greenhouse gas emissions. In 2006 Japan's CO₂ emissions were 6.3 percent above 1990 levels, meaning that its emissions remain above its Kyoto Protocol target. Current estimates indicate that Japan needs to cut emissions by 13.8 percent from 1990 levels to meet its assigned Kyoto Protocol target by 2012. In Japan, as in the other industrialized countries, CO₂ emissions from the transport sector continue to present an important obstacle to meeting these goals, despite substantial gains in the 1980s and 1990s. Transport-related emissions have continued to rise since 1990 as the number of vehicles in use has risen sharply. Further, consumer preference for larger, more powerful vehicles has resulted recently in a decline in the fuel efficiency of passenger cars in use. Emissions of CO₂ from the road transport sector will continue to present a difficult environmental problem for Japanese policymakers, particularly as they attempt to meet the stringent binding targets of the Kyoto Protocol. In this context, the government has placed further CO₂ emission reductions on the country's institutional agenda.

Early on, the Japanese government formulated policies under its 1990 Action Program to Arrest Global Warming, which laid out a strategy to

stabilize greenhouse gas emissions between 1990 and 2000. The 1990 program was replaced by the 1997 Guidelines on Measures to Prevent Global Warming; these guidelines were revised in 2002 after Japan ratified the Kyoto Protocol and again in 2005 (when their name was changed to the Kyoto Protocol Target Achievement Plan). These plans all emphasize voluntary action rather than strict obligations; hence, measures to achieve emission reduction targets include developing new technologies, strengthening forest management to enhance the absorption of CO₂, and promoting scientific research and public education, energy conservation measures, and international cooperation.

The most notable policy reform relating to CO₂ emission reductions surrounded the adoption of the 1998 Law Concerning the Promotion of Measures to Cope with Global Warming. Like its predecessor, the 1993 Basic Law for the Environment, the 1998 law was notable not so much for what it accomplished but for what it failed to achieve. The 1998 law and its amendments in 2002, 2005, and 2008 serve as a basic law for Japan's climate change policy. Although the law specifies clear roles for national and local government, business and industry, and citizens in mitigating climate change, the law imposes no legal obligations on any of these groups and involves only voluntary action to reduce greenhouse gas emissions. As is the norm in Japan, the law was the product of a consensus-building process between government and polluting industries, with limited chance for public input. Business preferences were translated directly into policies via tight and close networks with government ministries.

The policy formulation stage of this legislation took place through close consultations between industry and the bureaucracy. The Environment Agency (replaced by the Ministry of the Environment in 2001) advocated the introduction of strict regulatory measures as well as a carbon tax as a means of reducing CO₂ emissions. This proposal brought strong opposition from several other government ministries, especially the Ministry of Economy, Trade and Industry (METI) and the Ministry of International Trade and Industry (MITI), both of which are connected closely to business leaders. In addition, the country's most powerful business organization, the *Keidranen*, strongly opposed the introduction of stricter environmental regulations that would impose costly obligations on industry, or the implementation of a carbon tax, which they also perceived as economically detrimental. Industry, METI, and MITI all argued that economic growth should take precedence over environmental concerns. Because the Ministry of the Environment is much less influential than these other two powerful ministries, the proposed legislation was weakened considerably during the negotiation process, and the tax was omitted entirely. The final policy strongly emphasizes technological solutions because business preferred them over reducing overall production and consumption. As is often the case in Japan, industry's close connection to the bureaucracy was highly effective in influencing policy development.

Although environmental groups were unhappy with the climate law, they had no say in its formulation, nor were they able to influence the decision-making process. Environmental groups exist in Japan, but a strong national-level movement does not exist and a green party has not emerged. The strong industrial-bureaucratic linkage in Japan, combined with relatively few access points to the highly centralized decision-making process, meant that interest groups were weak and ineffective overall. In addition, because policymakers are unreceptive to citizen involvement on environmental issues (indeed, on most issues) at the national level, public opinion made no difference.

At present there are no significant implementation concerns for policies in this area. The implementation of all environmental policies remains under strict bureaucratic control. Environmental policies receive ample bureaucratic attention and are implemented efficiently. As Japan's government continues to develop policies to meet its existing commitments, it likely will be forced to create new sorts of policy instruments in this area, many of which may be more controversial among the general public and industry. For example, the government has yet to develop a taxation system for vehicle ownership and fuel use that would provide incentives for the use of more fuel-efficient passenger cars, commercial vehicles, and ships that emit less CO₂. The use of economic instruments such as taxes and charges may be the next policy approach to be adopted.

The reform process in Japan is explained by two key factors: economic concerns and the existence of a closed policy network in this policy area. The Japanese government's CO₂ emission control policies have thus far failed to include economic instruments (most notably, taxes) that could make significant inroads toward the country's emission reduction goals. This situation reflects the ability of industry to prevent the adoption of measures that involve significant costs, based on arguments that such measures will reduce international competitiveness. Because environmental policy formulation and decision making occur through a pattern of close consultation between business and industry, with no room for environmental groups or public opinion in the policy formulation or decision-making process, policy outputs reflect the wishes of industry and the bureaucracy. The absence of a strong environmental interest group at the national level in Japan, coupled with little public interest in the problem of global warming, results in little pressure being placed on the government to open up this policy network for more debate and discussion.

Germany

Background: Policy Process and Policy History

The German constitution does not allocate legislative responsibility for the environment to different levels of government. As a result, the distribution of environmental responsibility has differed among environmental areas. In most cases, federal environmental law supersedes state law. Air quality management

has fallen predominantly under the domain of the federal government. Federal environmental policy is managed by the Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety, created in 1986.

The German constitution makes state governments responsible for implementation of environmental protection laws. Once environmental standards are set, the federal government's authority ends and the states are responsible for enforcement. State governments are usually free to establish specific institutional arrangements for carrying out these laws, thereby creating the possibility for notable differences at the implementation stage. With respect to air quality management, state governments may grant permits; set penalties, fines, or sanctions; monitor ambient air pollution; and identify so-called investigation and smog areas. They are also responsible for developing emission inventories and air pollution abatement plans for these areas. Finally, the states are permitted to develop their own policies for locally specific air pollution problems, such as traffic control in smog-prone areas.

Successful environmental policy implementation in Germany requires a significant degree of cooperation between the federal government and the states. To facilitate this process, a number of highly effective committees and working groups exist, comprising both federal and state representatives, that facilitate coordination and cooperation. For example, the Conference of Environment Ministers includes ministers from both levels of government. These bodies are generally successful in harmonizing environmental policy enforcement in the states.

Concern over air quality has been a central focus of German environmental policy making since the early 1970s, and climate change appeared as an important political issue in the mid-1980s. Since the 1990s, Germany has been one of the leading industrialized countries in terms of its climate change policies, from reductions in overall greenhouse gas emissions to the development of a strong institutional capacity and comprehensive knowledge base. German policy especially focused on pollution prevention, emphasizing the development of technology-oriented standards and new methods for eliminating air pollution. Germany has transposed the EU's environmental directives into national law and is party to all international agreements on air quality. Even further, the German government has actively sought to set the global climate policy agenda at international negotiations since the late 1980s.

The primary mechanism for controlling air pollution in Germany is direct regulation adopted at the federal level. Such regulations involve emission standards, the use of best-available technology, fuel quality standards, and product standards. The foundation of air management policy in Germany is the 1974 Federal Immission Control Act.² The 1974 act provides an overarching framework for licensing of industrial facilities, air pollution

²The term *immission* refers in this context to the concentration of a substance in an environmental medium.

monitoring, and enforcement. More than twenty ordinances are involved in the implementation of the act. In addition, three administrative regulations, the most important of which is the Technical Instruction on Air Quality Control (TI Air), are implemented uniformly throughout the country and have addressed numerous pollutants from a variety of sources. Overall, the German air quality management program is one of the strictest and most successful in the industrialized countries.

Many of the air quality regulations that Germany has implemented are targeted to control production facilities. In particular, the government has focused on limiting emissions from large combustion installations. The Ordinance on Large Combustion Plants set stringent emission standards based on best-available technology for dealing with SO_x and NO_x emissions. Industrial sources of air pollutants are regulated under the TI Air that calls for the adoption of continuously evolving state-of-the-art controls. The TI Air is invoked on the premise that the higher the potential risk of a pollutant, the more stringent the controls or emission limits should be. This regulation thus involves best-available control technology requirements and emission limits specific to individual industries. Emission limits are set for all industrial pollutants.

This emission control approach is accompanied in Germany by the setting of ambient air quality standards (or, as the Germans call them, *immissions values*) under TI Air. These standards are linked directly to the process of licensing polluting facilities. To obtain a license, industries must demonstrate that they will keep their immission values within acceptable levels or implement additional controls to meet these standards. Although ambient air quality is not monitored at the national level, state governments are required to maintain monitoring systems in more polluted areas.

Federal regulations and economic instruments aimed at transport-related pollution focus on controlling automobile emissions and fuel quality. These regulations involve the use of state-of-the-art technology, emission standards for heavy vehicles, periodic inspection of older vehicles, and bans on leaded gasoline and certain fuel additives. Economic incentives in regulating emissions include reduced taxes on cars with three-way catalytic converters and on vehicles that use unleaded gasoline or that have diesel engines with lower particulate emissions. An eco-tax was introduced in 1999 that imposed a levy on electricity consumption and raised all existing fuel taxes.

Germany also has implemented a fairly elaborate system of smog control in which the states designate areas with high concentrations of air pollutants that lead to smog incidents. At the federal level, three grades of smog intensity are defined: when the second level is exceeded, traffic restrictions are issued; when the third level is exceeded, industrial activity is halted. Smog areas are defined in both western and eastern Germany, and in recent years, smog levels in the west rarely have triggered a second-level warning.

Although German environmental policy remains highly regulatory in nature, several new policy instruments have been developed recently. Within

the EU, Germany is now one of the highest users of voluntary agreements. Germany is a full participant in the EU Emission Trading System and has effectively implemented EU environmental directives. Germany also is a leader in the global movement to protect the environment. The country is party to many international agreements setting overall emission reduction goals and standards for transborder air pollution control as well as global measures. Germany also is a strong supporter of global efforts to prevent climate change and to protect the ozone layer. For example, Germany was the first country to have completed CFC reductions called for under the Montreal Protocol.

Contemporary Dynamics

Like the United States and Japan, Germany has committed to reducing its greenhouse gas emissions under the FCCC and the Kyoto Protocol and has achieved substantial reductions in these emissions since the late 1990s. Although a portion of these reductions accrued because of the rapid collapse of the eastern states' economies in the early 1990s, they also reflect increasing energy efficiency across all economic sectors over the past decade. Unlike in most other industrialized countries, in Germany, CO₂ emissions from the transport sector have declined since 2000. Germany's greatest progress was achieved in greenhouse gas emissions reductions (especially CO₂) through the 1990s, with some slowing of this trend by the mid-2000s. In this context, successive governments have placed further CO₂ emission reductions on the country's institutional agenda. Germany continues to pursue further, ambitious greenhouse gas emission reduction targets, recently committing to a 40 percent reduction in CO₂ emissions by 2020. This ambitious target goes well beyond Germany's international commitments as well as those made by any other industrialized country to date.

Notably, changes in the political composition of governing coalitions have not led to climate policy reversals. Instead, political leaders of all stripes have endorsed increasingly stringent national environmental goals. In 2007, at the German Energy Summit, current center-right chancellor Angela Merkel declared climate protection to be the biggest challenge of the twenty-first century. Her government continued to push for extensive climate policy that was consistent with the agenda pursued by her predecessor Gerhard Schröder's center-left government.

The continued ability of the German government to set such stringent emission reduction targets emerged from an unusual and early agenda-setting experience. In 1987 the government set up a nonpartisan inquiry commission (the Enquete Commission) to study climate change. In 1990 this commission issued three reports that created the basis for a common definition of the problem, climate change, while recommending the adoption of strict emission reduction targets. Because the commission, rather than political parties, the

Bundestag, interest groups, or ministries, reached this conclusion, it was possible to establish a broad national consensus around which to act. The commission's reports raised the public's awareness of climate change issues and set the institutional agenda for reform via a mobilization model that endures.

Because Germany emphasizes informal consultations in the policy-making process, particularly with industry but also with environmental groups, most climate change policy measures tend not to be strongly opposed by industry or the general public. The German population tends to be relatively more environmentally aware and environmentally demanding than the public in other industrialized countries and traditionally is less likely to oppose significant environmental reforms. These policies also are associated with no unusual implementation concerns.

Despite public consensus on global warming problems, initial attempts to extend Germany's frequent use of economic instruments to a CO₂ tax were unsuccessful. Environmental interest groups, the Green Party, scientists, and the center-left Social Democratic Party favored developing such a tax, and in 1996 the Social Democratic Party and the Free Democratic Party together proposed a CO₂ tax in the Bundestag. The decision-making stage for this policy proposal was marked by a great deal of controversy. The proposal was denounced by the Christian Democratic Union/Christian Social Union (CDU-CSU) as unfeasible and expensive. Fearing a loss of international competitiveness, German industrial associations also opposed the proposal and instead pushed for voluntary agreements. The government was not prepared to force the adoption of a tax despite it's being a necessary means to reach the country's ambitious emission reduction target. Instead, industry's opposition ruled the day, and the government conceded to industry's calls for voluntary agreements.

The idea of an eco-tax did not die, however. In the lead-up to the 1998 elections, environmental groups staged a major public campaign in favor of eco-taxation. The campaign was stridently opposed by industry groups. When the election produced a coalition government (between the Social Democratic Party and its junior partner, the Green Party), the eco-tax window of opportunity was reopened. In the coalition agreement, the two parties committed to pursuing eco-tax reform. Naturally, the Greens favored environmental taxation (with strong support from environmental nongovernmental organizations). The Social Democrats supported the idea because tax revenues would be used to benefit workers and employers. The tax plan introduced to the parliament in 1999 envisioned a five-step reform to be phased in through 2003. This timing was intended to allow companies to adjust to the tax increase while maintaining their economic competitiveness. Although the proposal generated considerable debate, with vocal opposition from the business sector and a high degree of skepticism from German citizens, the unified governing coalition was able to ensure the bill's passage in the parliament, and the new tax went into effect in 1999.

The eco-tax policy encountered some difficulty in the implementation phase as the annual increases in the tax rate generated intense political opposition. Rising fuel prices generated mass popular protests in 2000. These protests prompted the main opposition parties (the CDU-CSU and the Free Democratic Party) to demand that the government rescind the tax. The CDU-CSU tabled a parliamentary initiative to this effect, which was rejected by the coalition majority. The government did, however, adopt measures to compensate those most affected by fuel price increases, namely, commuters and lower-income households. Although the tax remains in place, the rate has not increased, diluting the tax policy's guiding principle—imposing price increases to discourage the continued use of nonrenewable energy sources—and reducing its environmental impact.

Despite the German government's commitment to environmental policy reform and a relatively high degree of public mobilization on environmental issues, the move to more stringent economic instruments to control CO₂ was not easily achieved. The initial failure to adopt an environmental tax to meet the country's stringent emission targets can be explained by both economic and political factors. Concerns about the competitive position of the German economy mean that policy choices must be justified to both the public and industry in terms of their cost neutrality. Thus arguments that environmental policies destroy jobs and reduce industrial competitiveness carry significant weight in policy debates. Measures seen as threatening to economic growth or the country's global competitiveness may be destined to fail, especially given the corporatist arrangements that exist between government and industry. The pattern of close consultation in policy making between these players means that any measures perceived as harmful to industry are less likely to succeed. This dynamic changed considerably, however, with the movement of the Green Party into the governing coalition. In 1999 their presence in government was enough to counter substantial industrial opposition to tax reform and reverse the earlier policy outcome.

France

Background: Policy Process and Policy History

Environmental policy in France has been managed by the Ministry of the Environment since 1971. A new super-ministry, the Ministry of Ecology and Sustainable Development, was created by President Jacques Chirac in 2002. The ministry is a large bureaucratic organization with wide-ranging responsibilities, covering most areas of environmental protection, including energy and transport, and overseeing a large number of environmental agencies. For example, the ministry oversees twenty-four regional directorates of industry, research, and environment (DRIREs), along with twenty-six regional

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