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On the Distinction Between Resource Use and Industrial Pollution

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Since the period of environmental activism and policy debate that dates from around the late 1960s, the idea has been firmly entrenched that pollution and resource depletion are complementary sources of threat and anxiety. They are the pincers of environmental risk that threaten industrial society on either side. If pollution does not get us, resource depletion will. Such an idea was made explicit in the modeling commissioned for the 1972 Club of Rome report, for example, where the scenarios traded one form of threat for the other.[1] Even if we did not imperil ourselves by running out of fossil fuels in short order, the burning of the fuels would create so much pollution that we would choke ourselves to death. On this view, pollution and resource depletion are the export and import ledgers of society's transactions with the natural world. Grave and persistent problems with either aspect of the enterprise could prove disastrous.

In the years that followed, this distinction became a popular frame of reference for the discussion of environmental issues. Scholars writing in the fields of geography, environmental science, and environmental policy reproduced the distinction and commonly organized their presentation of environmental issues around it.[2] It was adopted by the policy community and by leading campaign organizations and pressure groups, who in their publicity materials commonly stressed the twofold nature of the threat, using examples of industrial pollution and acid rain on the one hand and the decline of fossil fuel reserves on the other.

In many respects, the classification made good sense, especially as pollution problems managed to command center stage for activists and policy-makers. Pollution problems were easier to identify, to take action on, and to seek redress over, at least in the short term. Nonetheless, the threat of resource depletion lurked in the background, with a nagging worry that it simply had to be the case that nonrenewables (primarily energy resources) would before long become scarce. The fear was that at high and increasing rates of usage, the scarcity might show itself only shortly before the resources finally were depleted. As Andrew Dobson notes, environmental campaigners were fond of the analogy with a plant that invades a pond and doubles in size every day. It may take many months to cover the pond entirely, but if you wait until the pond is half gone before taking action, you have only one day to act.[3] In this climate of agreement there was felt to be no need to examine the actual analytical value of the distinction itself or the political consequences of continuing to take it for granted. Furthermore, as the potential significance of environmental threats to developing countries and to the global commons became more apparent and the focus for environmental problem solving

[1] Donella H. Meadows, et al., *The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind* (New York: Universe Books, 1972).
[2] See, for example, John Blunden and Alan Reddish, eds., *Energy, Resources and Environment* (London: Hodder & Stoughton, 1991); and sociological surveys such as Loren Lutzenhiser, Craig K. Harris, and Marvin E. Olsen, "Energy, Society, and Environment," in Riley E. Dunlap and William Michelson, eds., *Handbook of Environmental Sociology* (Westport, Conn.: Greenwood Press, 2002), pp. 222–71; it is also used as an organizing arrangement in my own *Sociology, Environmentalism, Globalization* (London: Sage, 1996), pp. 26–61.
[3] See Andrew Dobson, *Green Political Thought* (London: Unwin Hyman, 1990), p. 78.

began to spread beyond the industrial world, the relevance of this distinction to the conceptualization and analysis of environmental problems in the developing world or at the level of the globe as a whole remained to be established.

The studies in this volume mark one of the first systematic attempts to compare resource use and industrial pollution cases across countries with varying political systems, levels of social and economic development, and complexes of cultural values. This commentary will accordingly adopt a twofold approach. It will draw upon the case studies to make explicit cross-country comparisons regarding the politics of pollution and the management of conflicts surrounding natural resource use. At the same time, the case-study material will be employed to examine the theoretical and practical validity of the resource use and industrial pollution categories themselves. In this manner it will shed light on the ways in which policy practitioners and scholars categorize and approach environmental problems.

I begin with a brief discussion of alternative ways that the literature has conceptualized and classified environmental problems. I then move on to discuss the features of the pollution cases presented in this volume, pointing to the diverse nature of the problems and the need to look beyond the common classification as singularly "pollution problems." I follow this with a comparable analysis of the resource use cases. In the final section I examine the question of value change in relation to the two types of environmental problem, and take the opportunity to reflect again on the theoretical and practical validity of the distinction that underlies the industrial pollution/resource use classification.

Alternative Typologies

The growth in the scope and understanding of environmental problems and their societal impacts—in part a consequence of the greater involvement of social scientists in addressing environmental problems and the consequent birth of the field of environmental studies—has meant that at the start of the twenty-first century the nature of the resource use and industrial pollution distinction looks less clear-cut than it did when it first rose to public prominence in the 1970s. For one thing there are environmental problems that seem to fit the distinction only poorly, if at all; it is unclear, for example, whether fears over the release of genetically modified food crops or even genetically modified farmed fish should be regarded as a form of pollution anxiety or a disquiet about threats to a natural resource. Farmed salmon that escape captivity are, in a sense, a form of genetic pollution since they threaten to interbreed with native fish and pollute the gene pool. They also have a direct impact on the salmon fishery when thought of as a resource base, however, since their interbreeding and competition with native fish will have unpredictable effects on the natural resource. Second, the forms of pollution that attracted the most attention early on were relatively simple and immediate in their effects: a noxious substance was emitted that directly impacted local people's health or livelihood. By contrast, with ozone-depleting substances and carbon dioxide emissions—concerns that rose to prominence beginning in the 1980s—we are not worried about the gases themselves being harmful. They do not contaminate the air we breathe; they change the nature of the atmosphere so that, respectively, more high-energy radiation is admitted and more heat energy is stored. One could say they impact the atmosphere as a resource rather more than polluting the air we breathe in a commonsense manner. Accordingly, it is to some extent a matter of convention whether these problems are assigned to one category or the other.

Even more recent attempts to provide a single definition for "pollution" that encompasses the human dimensions of the issue have proved inadequate. For example, the political scientist Albert Weale has defined pollution as:

> . . . the introduction into the environment of substances or emissions that either damage, or carry the risk of damaging, human health or well-being, the built environment or the natural environment. There is no implication in this definition that the substances involved stem purely from human sources. . . . The assumption is simply that emissions or substances introduced into the environment in quantities or concentrations greater than those that can be coped with by the cleansing and recycling capacity of nature constitute pollution.[4]

But here again the definition is insufficient since ideas such as "the risk of damaging" and "concentrations greater than those that can be coped with by the cleansing and recycling capacity"fail to specify limits and are thus wide open to interpretation. Moreover, the definition presupposes that the environment should not change. By this definition, oxygen was a pollutant, presumably until life adapted to an oxygen-rich atmosphere.

Besides "resource use" and "industrial pollution," there are other ordering devices for conceptualizing environmental problems that take into account social context, causes, and impacts. One well-known distinction widely used in the environmental policy literature divides environmental issues into three categories on the basis of the ease with which policy actions can be taken.[5] The first category refers to mass environmental problems associated with heavy industry, vehicles, and power generation; an example would be sulfur dioxide emissions. Industrial societies produce millions of tons of this gas, and attempts to regulate it, while economically painful for many producers and their customers, are easy to codify in legislation and reasonably straightforward to implement and monitor. Varieties of fuel that are naturally low in contaminants can be used or regular fuels can be treated before use; alternatively, various technical fixes can be introduced to reduce the sulfur load carried by emissions.

The second category refers to environmental effects that are more numerous and widely dispersed geographically, such as the myriad chemicals—solvents, cleaning fluids, lubricants, wood preservatives, and so on—associated with particular industries or manufacturing processes. These problems are far more prevalent than the first kind, and attempts to prove beyond doubt that these substances or processes are dangerous have often faced almost insurmountable difficulties. It is hard to isolate the substances and to figure out their individual effects, let alone any synergistic reactions into which they jointly entered. Industrial interests have fought tenacious rearguard actions to hang on to favored chemical compounds.

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[4] Albert Weale, *The New Politics of Pollution* (Manchester: Manchester University Press, 1992), p. 3.

[5] See, for example, Michael E. Kraft and Norman J. Vig, "Environmental Policy from the 1970s to the Twenty-First Century," in Norman J. Vig and Michael E. Kraft, eds., *Environmental Policy: New Directions for the Twenty-First Century* (Washington, D.C.: CQ Press, 2003), pp. 24–25; similar views are expressed in Pieter Glasbergen and Ron Cörvers, "Environmental Problems in an International Context," in Pieter Glasbergen and Andrew Blowers, eds., *Environmental Policy in an International Context: Perspectives on Environmental Problems* (London: Arnold, 1995), pp. 2–7.

The third category of problems is those that are supranational, where the ability to regulate the problem is not located exclusively within a single country or political entity. Threats to world biodiversity or to the ozone layer fit this specification.

Policy analysts now typically argue that in retrospect the first kind of problem succumbed to control with misleading ease, leading to unattainable ambitions for environmental action with regard to the other kinds of problems.[6] With the identification of these new categories of problems, success in environmental policy-making has become decidedly patchy. In this view of the emerging environmental problematic, industrial pollution/resource depletion may not be the key distinction at all. Different instances of pollution can be expected to follow contrasting paths if they represent different positions on the three-tiered scale. We will revisit this typology after our review of the cases.

The Industrial Pollution Cases

The comparative design of this study invites the reader to match the four pollution cases with each other in analyzing the dynamics of environmental conflicts; to do so is to take for granted that the problems, qua pollution problems, are similar. The cases, however, illustrate that industrial pollution is not a single kind of problem. The Benxi and Delhi cases concern air pollution, the Minamata case concerns water pollution, and the Grand Bois case concerns toxic waste. But the differences are not just among the *forms* of pollution (air, water, hazardous waste): there are also significant differences in terms of the *social impacts* of pollution. As noted above, it is entirely possible to argue that there are important differences in policy and political implications between different forms of pollution. Accordingly, one key task is to assess the pollution problems presented in these case studies in terms of their social and physical impact. I highlight how the four pollution cases draw attention to the different social and political contexts in which environmental problems can come to attention—in which they are "constructed" as problems in the first place.

The well-known Japanese case of methylmercury poisoning in Minamata provides a very disturbing reminder of the shocking simplicity of some pollution problems: residents ate fish poisoned by a local pollutant, producing serious illness within the local population. The poisoning, a result of the release of untreated effluent into the enclosed bay, was brought about by a factory of the Chisso Corporation, a symbol of prosperity and hope for this small, close-knit Japanese city. This case represents the primitive logic of pollution, whereby the problem is visited on an area, region, or community by industrial activities carried on within that area. This outcome is distinct from many other pollution cases, where pollution has nearly always been visited on the poor by the wealthy. From the outset of industrialization in Great Britain, the westerly winds meant that affluent people tended to live at the western sides of cities. Minamata, on the other hand, is a case where the reproduction of existing socioeconomic inequalities in environmental terms was not universal; certain forms of pollution can smooth out these differences. The poisoned Minamata fish could affect rich and poor alike.

Though, in principle, it might have been easy to identify the pollutant and to halt its dispersion early on, given the vested interests of the Chisso Corporation and the government in keeping the plant running, it took decades before the company, government, and society at large acknowledged the problem and found the company responsible. The local population suffered

[6] Kraft and Vig, "Environmental Policy."

doubly. The people, notably the Minamata fishing families who most relied on a seafood-rich diet, bore the effects of mercury poisoning. They also suffered the stigma their fellow unaffected Minamata area residents attached to the ensuing illness itself, both because of fear that the "strange disease" was contagious and because by complaining about the problem and demanding compensation from the Chisso Corporation, the "patients," as they were known, were imperiling the economic security of the city and thus the livelihood of other Minamatans.

The United States has seen many cases of the Minamata sort, where polluter and victim are part of the same community, all across the industrial "rust belt," the old industrial area of the northeast. But the Grand Bois case, in which Exxon disposed of its toxic oil-field waste cheaply in the near vicinity of this Houma and Cajun community, represents something slightly different: a form of environmental exploitation of the politically and economically disadvantaged. A large portion of this community benefited from jobs in the oil industry. Yet unlike Minamata, the community suffered not from pollution produced by local industrial processes, but from the importation of waste materials resulting from other people's industrial employment elsewhere. In this sense, the Houma and Cajun had other people's environmental problems imposed on them. Thus, though Minamata and Grand Bois are both instances of relatively straightforward industrial pollution, subtle differences in the relationship between polluters and victims distinguish them. In Minamata, members of the local community face a conflict of interest between the retention of a reputable industry and the danger of its industrial practices. In Grand Bois, a community is faced with the introduction of others' waste with relatively little local payoff.

Here again the form of pollution also significantly shaped the manner in which people were affected and responded. Whereas Minamata represents the more classic case of a polluting industry denying that it is causing harm, in Grand Bois the community became the victim of a federal regulatory system that had seen fit to exempt oil-field waste from hazardous waste regulation; contaminated water from drilling could therefore be officially labeled simply as "brine" or "wastewater," a misleading designation that, as the chapter authors suggest, should have run into trouble with the Community Right to Know laws. As the sociologist William Freudenburg has observed, industry puts a lot of effort into constructing environmental issues as nonproblematic.[7] In this case, industry interests were served not through the laborious process of having to argue that exposure to oil-field wastes was safe; rather, the issue of the balance of proof was finessed by the legal definition of the substances being dumped. Furthermore, Big Oil's play of environmental double standards is indicated by the fact that the disputed storage facility was used for the disposal of waste trucked in from Alabama; material that was too hazardous for people in nearby states was not rejected in this part of Louisiana.

In Benxi and Delhi a different form of pollution—air pollution—stemming from multiple sources combines with socioeconomic and political conditions to shape the political response. In the Benxi case, the problem was constructed as a prominent issue within China largely because of its international profile as a city that was so shrouded in polluted air that it could not be seen by satellite. In contrast to Minamata and Grand Bois, although there was widespread local acknowledgment that the air was bad, in their decision to take action, Benxi local officials attested to the harm

[7] William R. Freudenburg, "Social Constructions and Social Constrictions: Toward Analyzing the Social Construction of 'the Naturalized' as Well as 'the Natural,'" in Gert Spaargaren, Arthur P. J. Mol, and Frederick H. Buttel, eds., *Environment and Global Modernity* (London: Sage, 2000), pp. 103–19.

independently of local people's experience. Their determination to take action was driven also by the ambition of local officials, who were happy to see their position boosted by their involvement in an issue that was gaining in national importance and by the possibility of funding and recognition from Beijing. Despite the flurry of regulatory activity and the unprecedented influx of funds from Beijing, Benxi residents who have seen rising unemployment since the introduction of market reforms question the priority placed on pollution remediation. Many are skeptical about the city's motives for the policy measures—some of which, like the greening of public spaces, they see as verging on arbitrary. That the largest and most significant state-owned enterprise, Benxi Iron and Steel, was given preferential treatment in the form of credit and other forms of assistance to modernize its equipment, together with the indictment of the company's top management on bribery charges, and the massive layoffs from the company, appear to have fueled this sense. Accordingly, since officials' actions are viewed as suspect and politically motivated, the willingness of experts to recognize the problem does not win overwhelming public support for the environmental campaign.

Like Benxi, in Delhi the working class is cynical about what it perceives to be the misplaced priorities of city officials and influential environmental advocates. There is widespread frustration among the workers toward the Supreme Court decision to promote pollution control that benefits the wealthy and privileged few at the expense of the vulnerable working class. The author makes the point that of all the sources of Delhi pollution, the polluting industries were the first to be targeted because that fit with the health concerns of the urban middle classes. Their interest was assisted by the campaigning zeal of legal advocates, who opted to show the power of the courts to get things done by sidestepping the political process and legally impelling the relocation of industry. By forcing firms to relocate—which often resulted in plant closures—Delhi's environmental campaigners are complicit in destroying the livelihood for many in the process of trying to clean the air. Ironically, the overall impact on the health and well-being of the population caused by these pollution-reduction measures and the associated growth in unemployment appears to be relatively minor given that vehicular, not industrial, pollution is the major cause of Delhi's air pollution problems in the first place.

Collectively these cases indicate the complexity of the category of "industrial pollution." Though the study at one level is about the differential experience of pollution in a set of varied policy-making and socioeconomic cultures, it is clear that some of the differences between the cases arise from the different kinds of pollution being analyzed. The effects of air pollution (Benxi and Delhi) are indiscriminate in so far as dirty air affects all community members—the well-to-do and the poor—equally, thereby blurring the line between victim and polluter. By contrast, the effects of water pollution (Minamata) or toxic waste (Grand Bois) are more specific. The unequal distribution of environmental "bads" in turn affects the ways in which people respond to the problem and participate in the policy process. We also see that some pollution is inflicted by a member of the community (Minamata, Benxi, and Delhi), while other pollution is imposed by an outside entity (Grand Bois and Niigata Minamata).

These differences do not in any straightforward way map on to the level of industrial development of a particular country. For example, the forms of environmental exploitation noted in Grand Bois can occur cross-nationally or within developing countries. Furthermore, the Delhi case emphasizes that the definition of pollution and of the most important kinds of pollution can be subject to discordant interpretations within a single culture, notably in this case between middle-class and trade-union representatives. The case-study method serves well in detailing how the politics of pollution work out in particular contexts, but variations within the category of "pollution problems"

mean that it is a matter of skilled interpretative judgment to work out which aspects of the case arise from the political culture and which from the characteristics of the pollution issue itself.

The Resource Use Case Studies

As argued above, the diverse forms of pollution seen in the pollution cases force us to consider the impact of this variable when comparing policy responses to the problem. By contrast, at first glance the resource use cases appear to allow more easy comparisons since they share a focus on water. Even so, we see that the degree and nature of stakeholder dependence upon the resource and the focus of the controversy varies across the cases in ways that have an impact on the social and political dynamics.

The effort to protect the wetlands in the Sanjiang Plain in northeastern China is about water conceived in a rather holistic manner. The conflict here is not strictly about the conservation of the water resource, but about the wise use of a resource, a debate that ensued not on the ecological merits of wetlands protection or even as a struggle between on-site stakeholders. Instead, as in Benxi, the issue arose as a consequence of socioeconomic and normative changes occurring beyond the region, both nationally and internationally. In the decades preceding the 1990s, in the national drive for food security, the integrity of the ecosystem was compromised in pursuit of agricultural development. As part of this effort and on the heels of the foray of "educated youths" sent to the region to "conquer nature" during the Cultural Revolution, peasant families were urged to relocate to the area. Furthermore, the armed forces had taken a leading role in shaping the area in the interests of maintaining the border with the Russian Federation. Accordingly, resource protection came to compete with other political objectives. With the government's new emphasis on wetland protection, local farming and cultivation practices have come into conflict with the regulations and have created resentment. The managers buy official favor further up the political hierarchy by allowing high-ranking officials to hunt in the area, contrary to all the rules. Furthermore, there is an important international dimension to the priority attached to the treatment of this location, as it was one of only six Ramsar sites in the country.

In the Sonoran Desert case, the controversy is not over whether to conserve water but how to conserve it, at what social and economic cost, and to whom. As the plans for the Civano development proceeded, resource conservation efforts became caught up with—some critics say compromised by—other considerations. For instance, the large-scale gathering and use of rainwater, which was figured into early housing designs, was subsequently ruled out on health and sanitation grounds. In fact, some critics believe that the entire commitment to environmental objectives in the project was compromised by the move to adopt New Urbanism ideals of architectural and design–led community development. Indeed, the developers deliberately excised environmental attributes from their promotional materials, reflecting the lower priority they expected potential buyers would place on these considerations.

The cases of Kerala in India and Lake Biwa in Japan bring to the fore another important dimension of resource use concerns: conflicts over who has the right to regulate and control a resource—in the Kerala case an in-shore fisheries resource, and in the Lake Biwa case the water resource itself. In Kerala, traditional fishers along the shores fought to retain their way of life while finding ways to increase their productivity so as to generate a growing surplus of fish to take to market. At the same time they were threatened by the development of a trawler fishery farther out to

sea and by the arrival of international fishing boats. Rather than experiencing the growth of yields with the introduction of mechanization, they faced declining catches, which they attributed to overfishing by trawlers, to trawlers fishing out of season, and to the influence of factories and other land-based economic activities that polluted coastal waters.

In addition to the central struggle over control of the fisheries resource, fishworkers' representatives are skeptical about who controls the very discourse of environmentalism. In particular, they take issue with the way in which "international" environmental objectives have been introduced through such measures as Turtle Excluder Devices (TEDs) on shrimping nets. International regulations favoring the use of TEDs carry the implication that there is only one acceptable way for turtles to be protected, a way that involved the adoption of U.S.-sanctioned devices. Alternative strategies that might be less costly and more sensitive to local conditions, such as closing the fisheries on the days that are critical to turtle reproduction, were not permitted by international regulations. The international discourse of environmental protection has thus been regarded with suspicion and seen as a cover for the advancement of foreign commercial interests. The representatives argue that ways of calculating what counts as "environmental protection" and the "maintenance of the resource" were being taken out of the hands of the locals and defined in ways that are not in their interests.

At Lake Biwa, a growth of algal blooms alarmed lakeshore residents, and in response to the perceived threat to the water resource, the "anti-detergent" movement took off as a practical way for people to take control of the protection of resources in their own environment, even though this dealt with only one aspect of the lake's despoliation. The chapter authors describe how the movement represents a turning point for Japan in terms of demands for greater public involvement in environmental decision making: the residents of the area began to seriously question the national government's invasive reach into local communities in the name of national development through often costly and inappropriate public works.

The varying types of resource conflicts represented by the case studies illustrate the complex character of water as a resource to be sustained. The common element of water invites reflection on the tendency to think of some resource issues solely in terms of conservation and depletion. Calculations of the world's remaining fuel resources, for example, are often couched only in terms of how much natural gas or oil is left. As the authors of the Louisiana case note, oil production involves large-scale pollution, but there is a temptation to abstract away from the messy business of winning oil from the land or the ocean to the more clinical business of working out the number of millions of barrels of oil remaining. By contrast, with water resources the intimate connection between the safeguarding of the resource by the regulation of use and the equally critical matter of protecting the *quality* of the resource against contamination and pollution hazards is clearer. Water is—in principle at least—a renewable resource, and thus the quality of the reserve that is recharged is as important as the monitoring of the usage. Consequently, the fact that these cases focus in large part on water means that the politics of resource protection are closely allied to the politics of pollution, again indicating the complications of the framing assumption about the separability of pollution and resources problems.

Thus in the Lake Biwa case, the lake resource was threatened with increased demand for water to feed a growing and affluent downstream population, and with a loss of water quality driven by an increase in residential, agricultural, and industrial wastewater. Similarly, in the Sonoran Desert

case, beyond the well-founded concerns about water scarcity, the preservation of water *quality* is a significant issue in the region. Faced with a growing demand for water, city authorities had to choose between further depleting the aquifer source and piping in more water. Piped-in water was economically unattractive and not popular with consumers. At the same time, the reliability of the aquifer was especially tenuous, because the less water that remained the harder it was to pump; worse still, there was the fear that pollution from the city and surrounding areas would enter the aquifer and that the smaller the reserve the greater the impact of any contamination.

In this way all of the studies indicate that resource use, even when it is of the same medium (water), is complex and multifaceted, which complicates efforts to compare community responses. The politics of resource protection may be about the conservation and wise use of a resource in a steady state or about the protection of that resource from pollution in the wake of socioeconomic changes. Yet while there are differences in the kinds of threats from which the water had to be protected, the study invites comparative analysis of the diversity of ways of exercising and disputing "control" over the resource. These variations in the character of the cases interact in complex ways with the cultural and political contexts in which the resources are used, negotiated, and protected.

Values and Value Change in the Cases of Industrial Pollution and of Resource Use

We now turn to the different dynamics of valuing the environment in the industrial pollution and resource use examples. On the face of it, pollution would seem always to be a "bad," with little disagreement about the need to curtail or eliminate it. By contrast, resources are "goods," where tensions derive from demands on the resources and the requirement to avoid overusing them. Value orientations might thus be expected to differ systematically across the two case types.

The case studies indicate that this hypothesis may be too simple. First, it appears that people do value the opportunity to pollute and that, within limits, pollution is not invariably viewed as a bad. Indeed, in the Delhi pollution case, the controversy turned on the correct identification of the principal pollution sources and the attribution of badness to them. The competing sides argued over whether the industrial pollutants or vehicular emissions were the *real* problem, and advocates and the affected workers who protested the factory closures implied that tolerable levels of pollution from factories in practice allowed for the jobs that enabled the very survival of many of the city's poor. Similarly, in the Louisiana case, the question turned centrally on the level of aggregation at which the bads were to be assessed; seen in the broader context of "American interests," the polluters and their supporters presumably saw an environmental benefit in concentrating the problem by dumping the waste in one repository area, whereas from the host community's point of view (and from an environmental justice viewpoint) the bads are overwhelming.

Second, as I argued above, it is difficult to circumscribe resource use and industrial pollution as wholly distinct categories in the first place. In the Japanese, American, and Indian resource-depletion cases, the resource had to be protected from nearby people's own polluting activities, from detergent and wastewater releases, from urban runoff and emissions into ground water, and from industrial emissions into the ocean, respectively.

Third, it is important to note that the struggle over a resource may not be among local actors; the Sanjiang Plain case, in particular, shows that incentives to act on both types of problems may be primarily external and not principally driven by local people's values at all. As noted above (for Benxi as well as Sanjiang), one key aspect in the initial identification of the need for environmental

action was in response to external, international incentives and pressure, as well as to China's leaders' desire to see China acknowledged as an upstanding member of the international community.

A further important analytic possibility is the interpretation of the cases in terms of the postmaterialism thesis—the idea that members of society generally attend to postmaterial values, such as landscape value and habitat protection, only once material needs have been met. According to this view, greater concern with environmental protection is anticipated in wealthier societies. Of late this idea has been criticized on the grounds that it makes environmental protection appear a "luxury" good, whereas certain forms of environmental harm have an incontestably material content.[8] In other words, in the context of the lives of citizens of developing countries, certain environmental protection measures (such as the provision of clean water and the mitigation of air pollution) may be material rather than postmaterial benefits. They have a direct interest in environmental improvement.

Our cases raise questions about the power of the postmaterialism thesis. In the pollution cases, action is spurred by disclosures over the seriousness of the contamination, though whether that concern then develops into a general orientation in favor of environmental protection cannot be determined from these case studies. At the same time, we can see that the way in which crises or other triggering events, which characterize the pollution cases in particular (as with the contaminated fish in Minamata or Benxi's invisibility from space), seem to stimulate environment-related activism in these cases is subtly at odds with the generational changes anticipated by postmaterialism theory.

Furthermore, the postmaterialism thesis is often used to account for abstracted environmental concern, where people at the stage of postmaterialism manifest consideration for environments with which they have little or no direct connection. We would expect to see this effect most visibly in the resource use cases. In the Sanjiang case, for example, the only local actors who support the wetlands reserve are the employees of the Reserve Bureau and the PLA, whose job it is to protect them. Thus the response appears to be fully material, as the postmaterialism thesis might predict. In the Civano case, by contrast, where we would expect to find postmaterialist values, it is initially instrumental values unrelated to nature—such as a desire for community, for amenities (such as feelings of space), and material interests (such as lower energy bills)—that attracted home buyers to the development. Only after they move in and see what is possible in terms of an environmentalist lifestyle do many of the residents embrace the conservation goals. In the Lake Biwa case, the impetus for residents to question comprehensive development comes not from the emergence of a general concern for the environment, but from a crisis in the forms of algae blooms, the government mismanagement of the Kobe earthquake, and rising budget deficits. The interplay of these factors caused people to question the reliability of national policies and control. The anti-dam movement in the Nagara River case may be seen as an example of postmaterialism in that the members of the movement are leisure fisherman, although it is similar to Civano in that a material interest (in the form of sport fishing) draws them into a concern for water quality.

What we find, then, is that people assess environmental issues in a more complex manner than the single hierarchy of postmaterialism would imply. As the case studies make clear, albeit in different ways, values are heavily dependent on local context, which weakens the reliability of more generalized value dispositions, such as those that might be picked up in surveys of postmaterial attitudes. For example, in the two China cases, local perceptions that wetland protection and pollution

[8] See Steven R. Brechin and Willett Kempton, "Global Environmentalism: A Challenge to the Postmaterialism Thesis?" *Social Science Quarterly* 75, no. 2 (1994), pp. 245–69.

control involved corruption meant that the language of environmental values could easily be viewed with distrust. Thus, residents of Benxi and Fuyuan County similarly regarded official talk of environmental values as hollow because each believed that officials' devotion to environmental goals could be overridden by judicious bribes or other kinds of political favor; consequently, while people may value the environment, the expression of environmental value by residents may be obscured by other considerations or expressed through those considerations. By contrast, in the Minamata case the community leaders developed an innovative expression of value—the notion of "Bringing Together the Sea and the Mountains"—as an explicit effort to restore the trust between local people and the administrative authorities. The makeup of the value complexes that are critical to the outcome of local environmental problems are more nuanced and less uniform than the postmaterialism thesis envisages. This observation coincides with a finding from a study of measures of "environmental concern," which found that respondents' answers formed along "four dimensions dealing with trust, responsibility, complexity, and economic trade-off aspects of environmental problems and protection."[9]

Revisiting the Industrial Pollution/Resource Use Distinction

The studies in this volume do more than allow us to reflect on the industrial pollution/resource use divide, since they provide comparative information about pollution and natural resource politics across four different contexts. But an analysis of the distinction allows us to consider the implication of different forms of environmental problems for political action and outcomes. The four pollution cases differ in the form of pollution, in the social distribution of responsibility for the pollutants, and in the politics of the construction (or denial) of the pollution threat. In one sense these differences complicate comparisons across political and policy cultures. Seen another way, these differences allow the studies to elaborate how, in the shared context of political mobilization to protect the environment, the value basis of the actions differs from one case to the other. It is unclear that a generalized opposition to environmental harm becomes an established value in each case, although this is most nearly the case in the Minamata example, in part thanks to deliberate attempts to foster normative innovations through the process of *moyanaoishi*, or social "healing."

Similarly, in the analysis of the resource use cases a key question is whether the value that is being introduced is in fact an environmental one. One could take an exclusively economic and resource management–led attitude toward water stocks, still wish to preserve them, and even agree with environmentalists about leading policy measures without explicitly adopting the general values espoused by mainstream environmentalists. In Civano, for example, objectives related to community values—of neighborliness and so on—rank alongside (and occasionally trumped) environmental goals, so that the majority values in the community could readily conform with certain environmental protection orientations without themselves being explicitly environmentalist. This fact echoes a larger dilemma identified in the environmental philosophy literature, where the question persistently arises: Is the institutionalization of environmental protection goals sufficient to deliver environmental sustainability? In other words, the question persistently arises whether environmental *reforms* of the sorts currently in place and proposed will be sufficient to bring about the changes needed to maintain the natural environment we experience today. Most commentators appear to think not,[10] and the studies in this volume appear to support that position.

[9] See the review of survey assessments of environmental concern by Riley E. Dunlap and Robert Emmet Jones, "Environmental Concern: Conceptual and Measurement Issues," in Dunlap and Michelson, eds., *Handbook of Environmental Sociology*, p. 504.
[10] Dobson, *Green Political Thought*, pp. 35–36.

The studies therefore lead to further skepticism regarding the accepted distinction between resource use and industrial pollution. On the one hand, the categorization tends to imply more homogeneity in each category than is justified either in theory or practice. Pollution problems may be relatively simple (with a single polluter emitting vast amounts of a demonstrably harmful substance) or complex (with multiple emitters of small amounts of substances whose harms are more contentious). In a sense, the Delhi case represents the clash between these two paradigms of pollution. These different types of problem pose very different types of challenges to policy-makers and activists and tend to be associated with different types of political activity. To classify them as the same phenomenon is thus only partially correct. At the same time, many resources are also subject to despoliation through pollution so that resource- and pollution-related anxieties may often be inseparable. The dichotomy can thus be practically misleading.

Accordingly, other approaches to the categorization of environmental problems, such as the three-tiered classification introduced earlier, may need to be considered as well. The adoption of that approach would lead us to view the Japanese and Chinese industrial pollution cases as similar—because they deal with the mass production of chemically straightforward pollutants—while the Indian case illustrates the complications arising from attempts to regulate multisourced and interacting pollutants. Even this clarification system breaks down, however, because it is insufficiently attentive to the social and economic dimensions of environmental problems. The Louisiana oil industry case demonstrates that some environmental problems achieve resonance and local political character from the sense that someone else's waste is being imposed on a remote community. And the Delhi case reminds us that claims about the responsibility for pollution may be interpreted by local actors along class lines, though also potentially in light of ethnic or other sociopolitical differences.

One final analytical insight from this study arises directly from this point. As noted above, demands for environmental protection are not in fact narrowly "environmental" as commonly understood. Some sociologists claim that modern environmental concern is not so much a concern about the external environment as an anxiety about a "humanized nature"; as Ulrich Beck slightly gnomically puts it, "The ecological movement is not an environmental movement but a social, inward movement which utilizes 'nature' as a parameter for certain questions."[11] For Beck and Anthony Giddens, environmental anxieties are more a response to the creeping, unplanned, and often unaccountable human intervention in the management of nature—from genetic engineering to climate change—than about concern for the environment per se. This plausible view is gaining in popularity, perhaps fueled by the undoubted unease that has greeted the spread of genetically engineered crops and other examples of human domination over biological nature. What these studies show, by contrast, is that environmental concern arises not from concern about the environment itself, but from the desire to avoid the loss of economic opportunities and jobs or the manifest quality of life (as reflected in the availability of clean water). Concern with the protection of resources is barely a concern about human impact upon nature, but more a part of figuring out how to get by in a fast-changing world.

[11] See Ulrich Beck, *Ecological Politics in an Age of Risk* (Cambridge: Polity Press, 1995), p. 55; see also Anthony Giddens, *Beyond Left and Right: The Future of Radical Politics* (Cambridge: Polity Press, 1994).