

The Political Economy of Japanese Pollution Regulation

Frances Rosenbluth, Yale University
Michael F. Thies, UCLA

Paper prepared for presentation at the Annual Meetings of the American Political Science Association, September 2-5, 1999, Atlanta, Georgia.

The authors wish to thank Linda Choi, Yoshiko Inoue, Ray Kawai, and especially Jun Saito for research assistance.

Abstract

Japan has long been commended for its quick and decisive action to clean up pollution and to impose strict anti-pollution regulations in the late 1960s and early 1970s. But recent reports indicate that Japan's pollution problem is worse than previously thought, and even worse than in most advanced industrial countries. Highly visible and relatively easily regulated air pollution has been curtailed (albeit not as well as reported), but less visible and trickier pollutants in the water and soil (e.g., dioxin) remain unchecked. In this paper, we argue that Japanese political institutions, especially before the 1994 Lower House electoral reform, were biased in favor of business interests, and against any serious, sustained effort to regulate environmental pollution. Gains in this area should have occurred via local politics, but even these have been modest. We close, however, with an optimistic note concerning the electoral reform. The higher probability of coalition governments and the higher electoral thresholds in the new single-member districts should combine to cause a moderation of traditional "business-first" policies, in favor of stronger anti-pollution laws.

Introduction

Japan is often praised for its excellent record on the environment. Despite expectations to the contrary, it has produced “one of the world’s strongest [environmental] policies,” (Reed 1981:253, 257). Particularly noted has been the government’s ability to act quickly when new problems are identified. Once the environmental costs of economic development were identified, the story goes, the Japanese government turned “pollution debacle” into “pollution miracle” in one bold stroke – the special legislative session known as the “Pollution Diet” – and initiated the most rapid reduction of environmental pollutants in the world (Broadbent 1998).

Recent observation of Japanese environmental standards, however, tells a different story. Allowable concentrations of dioxin exceed typical western standards by 80-800 times, and enforcement even of those lax standards has been poor. The Ministry of Health and Welfare released a report in July 1999, for example, indicating that the levels of dioxin in the breast milk of Japanese women were 26 times the maximum safe limit established in its own 1984 guidelines. Because of the dioxin scare, many Japanese have less confidence in the safety of their environment now than anytime since the early 1970s (Yokota 1998; Yomiuri Shimbun Kagakubu 1998; Saitama jikko iinkai 1998; Miyata 1998).

These contrasting views of Japanese environmental performance appear at the level of pop-theory as well. Anthropological accounts of Japanese culture stress the population’s keen awareness of its environmental challenges (“small island nation, devoid of natural resources”) deeply concerned about preserving its natural assets, and intent upon

harmonizing man's lifestyle with environmental responsibility. On the other hand, Japan is often depicted as an island factory – a national corporation (Japan, Inc.) that ruthlessly subordinates all other goals to the singular pursuit of increased production, increased exports, and national wealth.

Naturally, the pop-culture characterizations of Japan are nothing more than caricatures. But to sound as familiar as they do, they must contain elements of truth, which forces us to consider the fundamental tradeoff between industrial development and environmental protection that all governments must confront. In facing this tradeoff, no government can sustain an extreme position – either zero tolerance for pollution or zero control of pollution. The Japanese record on economic development in the postwar period is well known, so the questions become, what cost to the environment has the Japanese economic “miracle” wrought, and how well has the government responded to this dilemma?

For our purposes, the puzzle is why the scholarly community sends conflicting signals about the answer to these questions. Can we reconcile accounts that praise government performance on pollution regulation and environmental cleanup with those that claim the opposite? Inevitably, the answer must lie in the political realm. Executive agencies perform the actual legwork in terms of enforcement of environmental policies, but dealing with the aforementioned tradeoff, making the policies themselves, requires political decisions.

These days, it is equally important to ask whether political decisions taken in the past have changed or can be expected to change in the near future, given the 1994 overhaul of the Japanese electoral system. If environmental regulation reached some sort of “equilibrium” before 1994, have the new electoral imperatives faced by political decision makers upset that equilibrium?

In this paper, we examine three hypotheses. First, we expect to find that the Pollution Diet was an aberration, because Japan’s national political institutions, including the electoral system, should have conspired to discriminate against environmentalists and keep environmental issues off the agenda. Second, we expect environmental advocates and pollution victims to have been more successful at the local level, but ultimately with only limited effect on national policies, since local governments also are constitutionally disadvantaged in Japan. Third, we expect to find that the new electoral rules for the Lower House of the National Diet are pushing the LDP to favor business less by a) giving coalition partners bargaining leverage; and b) in the longer run, forcing candidates to be more responsive to the median voter.

Section 1: How Japanese Political Institutions Favored

Business

It is quite common to argue that business interests received favorable treatment in Japanese policy making. From import protection, export subsidies, and promotion of research and development to regulatory administration of cartels and buttressing of woefully inefficient firms, the Japanese government–business relationship has been so close as to spawn the nickname, “Japan, Incorporated.” While the most extreme versions

of this formulation – which suggest either that firms are run by the central government, or, conversely, that the government is run from boardrooms – are untenable, there is no doubt that many government policies have been designed to assist business interests at the expense of consumers, foreign competitors, and economic efficiency. But why?

Some observers contend that the source of pro-business policies is a central government bureaucracy bent on economic development. In this formulation, the policies are not necessarily designed to pander to business, but to build the economy, which just happens to be good for business, especially big business. Others point to the large number of policies that seem to benefit businesses while having apparently deleterious effects on the economy as a whole – profit-padding regulations that restrict competition and keep the inefficient in business, and wonder whether the tail is wagging the dog.

Recent models of Japanese politics find the answer to these seemingly contradictory mixture of pro-growth and anti-competitive policies in the incentives faced by the politicians who make the policies. This argument implies that politicians *do* pander to business interests, and that policies are made *for* business. While some of these policies are perfectly consistent with economic growth (which is good for business in general), others are designed to protect weaker firms and industries from the ravages of economic competition.

The argument runs as follows. From 1947 through 1993, the more powerful Lower House of the Japanese Diet was elected from multimember districts by the single, nontransferable vote (SNTV). Because the average district sent four members to the

Lower House, any party seeking a majority of Lower House seats had to win an average of just over two seats per district. However, because each voter could cast only a single vote, for a candidate, and because that vote was not transferable to a second-choice candidate in case the voter's first choice did not need the vote, co-partisan candidates were placed into direct competition with each other.¹ As co-partisans, these candidates shared a common party label and electoral platform, and were obliged to find some other way of differentiating themselves from each other in the eyes of voters. Candidates in this situation chose to compete on the basis of personal contacts and relationships, intense mobilization efforts, and the provision of gifts and favors to voters and local opinion leaders.

Moreover, district magnitudes of 2-6 seats meant that a candidate could win a seat with a relatively small share of the vote. For example, in a four-seat district, a candidate need only poll 20 percent of the vote (plus 1) to be guaranteed a seat, and might be able to win with even fewer votes.² So a candidate had no need to appeal broadly to the whole voting population of the district, and could instead build up the votes she needed by securing endorsements, one local group at a time. This electioneering gambit has been labeled a "niche" strategy, because each candidate would endeavor to find a unique (or at least easily defended) niche of voter support within her district, leaving other candidates (particularly copartisans) to build their own loyal coterie of local support groups.

¹ In terms familiar to students of U.S. politics, this system can be likened to holding partisan primaries and general elections simultaneously (Rosenbluth and Thies, Forthcoming).

² If candidate A wins 20%+1 votes, that leaves 80%-1 to be split up among all other candidates, no more than 3 of whom could possibly have more votes than candidate A. In 5-seat or 6-seat districts, this "threshold of exclusion" is even lower.

Sometimes these candidate niches were geographical in nature, with each winning candidate staking out a different “home turf” within the district. But more often, candidates constructed their support bases in other ways; candidates would win votes from all over the district, but from different types of voters. So one candidate might gain the endorsement of the local fishermen’s organization, while another wins over the district’s shopkeepers’ organization. One might sit on the LDP’s Construction and Transport committees, and claim credit for beneficial policies in these areas, while her rival uses his Telecommunications and Commerce committee positions to woo voters who have benefited in those areas. And so on.

In general, the simplest way for candidates to both garner blocks of votes *and* raise campaign funds was to appeal to business interests within the district. Simultaneously, their factional leaders would strong-arm businesses and organizations with a national presence into contributing large sums of money that could be filtered down to district candidates. Firms and other producer-oriented organizations have intense preferences in very specific areas of policy, and care very little about other areas of policy. This makes them easier to organize and to court than, say, consumers, whose low-intensity, diffuse interests work to their collective disadvantage. For example, a subsidy or a cartel arrangement that keeps employment high for fishermen might mean the difference between survival and bankruptcy for that group of producers. It might result in a general increase in the tax level, or in the cost of fish, but that cost is spread thinly and widely among all consumers, and is not likely to generate much in the way of concerted political action by consumers to overturn it.³

³ Of course, it is not inevitable that low electoral thresholds, personalistic campaigns, and niche strategies will produce business-oriented politics. Other groups with concentrated interests (e.g., labor) might

If consumers are unable to overturn pro-business policies at the ballot box, they might demand redress through the courts. They might be able to sue firms for producing negative externalities such as pollution, or sue agencies for failing to consider consumer rights when granting certain privileges to firms. But in Japan, consumers' disadvantages in the electoral arena were reinforced by their institutional weakness in the courts. Far from an independent "third branch" of government, the Japanese judiciary is under the thumb of the politicians who control the cabinet, which was the LDP from 1958 through 1994. Judges' careers depended on their not issuing decisions that rankled LDP interests or embarrassed the ruling party in any way. Judges who ignored this constraint had their careers derailed quickly and permanently (Ramseyer and Rosenbluth 1993).

The judicial system was purposefully rigged by the LDP to favor governmental and business interests over individual interests in other ways as well. Class-action suits were not allowed and obtaining judicial standing was made very difficult. The paucity of lawyers and judges meant that even one-sided cases could take years to filter through the apparatus, and this prospect, combined with high up-front court costs combined to dissuade many potential plaintiffs (Haley 1978). Finally, obtaining temporary injunctions against defendants was extremely difficult, so defendants could continue their offending activities until a final court decision forced them to stop, at which point the economic rationale behind them might have obsolesced in any case (see Cohen, McCubbins, and Rosenbluth 1995 on nuclear power plant regulation).

substitute just as easily. But what businesses could provide better than any other interest group was what politicians under SNTV craved most for their personalistic campaigns: money.

In summary, the institutions of Japanese politics created bias that favored business interests over any other. An electoral system forced politicians into expensive niche strategies that advantaged firms due to their concentrated interests and their financial resources. A feeble court system, for all intents and purposes, denied individuals the ability to sue either the government or firms for compensation or to stop pollution and other offending activities. Finally, the parliamentary and unitary (i.e., non-federal) structure of Japanese government made sovereign whatever party controlled the Diet, and for nearly four decades, that party was the pro-business LDP. Insofar as the policy-making system was tilted so far in favor of business, why would we ever expect anti-pollution policies to take hold in Japan?

Section 2: When Electoral Politics Forced LDP to Sacrifice

Business Interests

Japan's rapid industrial development in the 1960s worked miracles with the economy, more than fulfilling Prime Minister Ikeda's 1960 promise to double national income during the decade. But this economic growth came at the price of drastic increases in pollution of all sorts, as factories released toxins into the air, water, and soil, unhindered by government regulators or activist courts. Between 1960 and 1970, emissions of Nitrogen Dioxide (NO₂), Carbon Monoxide (CO), and Sulfur Dioxide (SO₂) each tripled. "More than ninety percent of this increase was attributed to greater fuel oil consumption" (Barrett and Therival 1991:34). By international standards, Japan's pollution was arguably the worst in the world. While air pollution was actually more dense in Britain, the "social intensity of pollution" was greatest in Japan, since the population density of its most polluted cities was much higher than in Britain (Broadbent 1998:335-6).

The impact on the welfare of citizens living closest to pollution sources was immediate, tragic, and widely known; some of the most notorious industrial poisoning cases date back to the early part of the decade. Victims protested and demanded redress and regulation, but to little effect. Years of non-response and denials from the government fueled as many as 3,000 local citizen protest movements (Krauss and Simcock 1980; McKean 1980; 1981).

The opposition parties, desperate for a winning issue to combat the LDP's ability to claim credit for economic growth, latched on to environmental issues very quickly. Their efforts began to bear fruit at the local level, where the LDP was forced to relinquish control over several prefectural governorships, mayoralities, and local legislatures (see section 3 below).

Local governments in Japan have limited budgetary and regulatory autonomy from the central government, falling far short of the "residual authority" that state governments typically possess in federal systems. Nonetheless, control by opposition parties frightened the LDP for at least two reasons. First, local political leaders were traditionally central figures in national LDP politicians' electoral campaign organizations. With local politicians pulling voters in other directions, LDP politicians would have to work harder to mobilize electoral support. The LDP feared that its national vote shares would follow the decline at the local level with a short lag.

Second, opposition-controlled local governments had every incentive to embarrass the central government with revelations about the extent of the LDP's pro-business bias. Newly elected progressive mayors and governors pushed through ordinances regulating pollution much more strictly than required under national law (Krauss and Simcock 1980:221-2). Opposition governments in Tokyo, Osaka, and Kyoto showcased pollution control measures in the 1960s that the central government claimed were technologically and economically infeasible.⁴ These measures tended to be as popular with the public and with much of the news media as they were unwelcome in the business community.⁵

Meanwhile, four highly visible court cases (commonly known as the "Big Four") in which pollution victims attempted to sue the offending corporations, made their way to the Supreme Court. After years of languishing in the maze of lower courts, district courts had in some instances ruled, on appeal, strongly in favor of the pollution victims. The Supreme Court, mindful of the strong public opinion in favor of redress, but also unwilling to establish strong precedents for the use of courts for environmental problems, issued brilliantly ambiguous judgments that provided these particular victims with relief without holding out hope to future plaintiffs (see Gresser et al. 1981 and Upham 1987 for thorough accounts of these cases).

At the national level, the LDP was concerned that environmental issues might resonate enough to cause them to lose seats in the Diet, and hoped to defuse the matter through Diet legislation. However, the LDP was also loath to alienate its business supporters.

⁴ A 1963 "amendment to the Law on the Emission Control of Smoke and Soot" gave local governments explicit permission to enact stricter pollution control measures than were required by national legislation. They had already begun to do so, with questionable constitutionality. See McKean (198: 243), Imura (1989: 59-60), and Shibata (1989: 107).

The result was the Basic Law for Environmental Pollution Control, passed in 1967. Early drafts by the Ministry of Health and Welfare were lambasted by the economics ministries and by the business community for putting higher priority on health and the environment than on economic growth (McKean 1981:19; Hashimoto 1988: 112; Broadbent 1998:118).⁶ Not surprisingly, given the LDP's mixed motives, Prime Minister Sato Eisaku gave in to the pressure from business community, and the Basic Law ended up being largely symbolic in nature. The law's notorious "harmony clause," stated that "preservation of the living environment shall be carried out in harmony with the healthy development of the economy." It failed to specify standards for the emission of various pollutants, and did not provide any mechanism for the relief of pollution or compensation of pollution victims (Broadbent 1998; McKean 1981).

The transparent flaws of the Basic Law outraged environmentalists even more, and fueled the campaigns of local progressive candidates. The national scope and the severity of pollution problems were magnified by the intense media coverage of particularly egregious cases of both pollution-related illnesses, court cases, and exposés of business and governmental intransigence. Clearly, the LDP would have to provide more than the lip service of the 1967 Basic Law if they were going to co-opt the issue, roll back progressive gains in local politics, and prevent a repeat at the national level.

LDP leadership began a rather rushed effort to overcome the party's reputation of passively standing by or making symbolic gestures as industries continued to pollute. In August, 1970, Prime Minister Sato established and chaired a cabinet level group, the

⁵ By 1975, every prefecture had enacted a pollution control ordinance (Barrett and Therival 1991: 75).

Central Pollution Countermeasures Conference (CPCC). This group included middle-ranking and junior officials seconded from the Ministries of International Trade and Industry, Health and Welfare, and Transportation (Broadbent 1998: 120-1). Without coordinating with the party's business clients, the CPCC decided to revise the Basic Law.

In November, the CPCC submitted fourteen anti-pollution bills to the Diet which were passed in a whirlwind session. This was what came to be known as the "Pollution Diet." The new laws did not specify emission standards or environmental quality standards. But they did remove the harmony clause, create financial responsibilities for pollution cleanup, and clarify the division of regulatory powers between national and local governments (Broadbent 1998: 120-21). The laws also expanded environmental quality standards for air pollution, and set emissions standards for automobiles.

In one bold stroke, Japan went from having among the most lax environmental standards in the OECD to among the most stringent. The Japanese government drew strong praise for its change of policy, and the LDP's hopes of stemming progressive gains were realized. It had robbed the opposition of its most successful appeal.

But was the legislation passed by the Pollution Diet all it appeared to be? It is undeniable that the new laws set more stringent standards, especially for air pollution. And Japanese air pollution was reduced more rapidly than in Germany, France, Britain, or the United States. In particular, sulfur dioxide emissions declined by almost 90 percent (Broadbent 1998: 333-8).

⁶ The MHW's draft recommended "strict industrial liability and the establishment of an administrative compensation fund and an Environmental Agency" (Broadbent 1998:118).

However, the laws contained serious shortcomings as well. In large part, they constituted an official government “passing of the buck” to local authorities. Details on emissions standards and enforcement were delegated to local and national government bureaucrats, in the form of unfunded mandates (Broadbent 1998:123).⁷

The flaws in Japanese environmental regulation even after the celebrated Pollution Diet are epitomized by the institutionally weak position held by the Environment Agency, supposedly the national government’s watchdog. Established in May 1971, the EA does not enjoy exclusive jurisdiction over pollution, but shares authority in various areas with the Ministries of International Trade and Industry, Transport, Health and Welfare, Agriculture Forestry and Fisheries, and Construction, among others. Areas outside the EA’s purview include aircraft noise; discharge of hazardous substances; generation, storage, and disposal of radioactive waste; pollution control in specified factories; special government financial measures for pollution control; settlement of pollution disputes; and pollution crimes relating to human health. It only has an advisory role on regulation of agricultural chemicals, waste disposal and sewerage, and marine pollution (Barrett and Therival 1991: 72). Moreover, the EA does not have sufficient staff or funding, even if it did have the authority to oversee.

Another glaring gap in Japanese pollution control concerns preventive measures. The absence of requirements for environmental impact statements for government funded

⁷ The lack of specific standards in the legislation also helps to insulate the government from lawsuits by concerned citizens. It is considerably more difficult to blame bureaucratic agencies for not adhering to legislative intent if that intent was purposefully vague, and the bureaucrats themselves were delegated the authority to set the standards.

industrial projects or of provisions for citizen participation are cases in point. The Pollution Diet's 14 laws contained no requirements for environmental impact studies. The Environment Agency tried to pass versions of an Environmental Impact Study bill on five separate occasions, but never succeeded in pushing one through the Diet.

In summary, the story of the Pollution Diet reveals both the importance and the limits of attempts to use electoral pressure to change LDP policies. The LDP maintained power by helping its candidates to divide and conquer their respective electoral districts, using big-business money to fuel local vote-mobilization machines, and dividing up the credit-claiming space for policy benefits. The opposition's best strategy was to unite behind a powerful issue for which "bad" governmental policy could be linked directly to LDP programs. Pollution, as a direct byproduct of economic growth, appeared on the agenda, but through the grassroots efforts of citizens' movements (and the power of the media), not because a somewhat ambivalent opposition came up with the idea.⁸ Once these parties saw a chance to unseat the LDP at the local level, they jumped onto the environmental bandwagon, only to have the LDP pile on as well, eliminating their advantage.

So the Pollution Diet constituted more a stopping point in Japanese environmental policy than a turning point.⁹ As the first serious national government effort to institute environmental pollution regulation, it was an important event, and one requiring explanation. But much was left undone in terms of coverage of various forms of pollution, and in terms of funding and enforcement. Indeed, in the midst of the LDP's

⁸ The largest opposition party, the JSP, was particularly hesitant to push green politics too far, due to its strong ties to organized labor. See section 3, below.

overwhelming electoral victories (nationally and locally) in the 1980's, the government actually rolled back some of the gains for the environmental movement.¹⁰ Just as the LDP and its business clients had hoped, the Pollution Diet's accomplishments were sufficient to stop the momentum of progressive parties in local politics,¹¹ and to drive a wedge between those parties and the citizens' movements that were the grassroots force behind environmental politics. We now turn to the details of local politics.

Section 3: Entrepreneurial Local Governments?

Given the importance of local governments in pushing the LDP towards the Pollution Diet of 1970, one might be tempted to infer that opposition-controlled localities have been a continued source of pressure on the central government to strengthen environmental regulation. However, both the statistical record and a close-range view through case studies suggest that this is true only in a limited sense. The rest of the section shows how and why.

Two factors have inhibited the role of opposition parties in control of local governments, one involving constraints on the opposition parties themselves, the other a result of the LDP's response to opposition gains at the local level. First, though this was also true in the 1960s, most opposition parties have remained closely tied to labor interests. Unlike the German Social Democratic Party, which made a conscious decision to cultivate the

⁹ Broadbent (1998:282ff) calls it a "Pyrrhic victory."

¹⁰ In 1986, the EA took air pollution off the list of items that qualify for compensation as "Class 1 pollution diseases," and no new certifications were issued to victims of air-pollution-related maladies (Barrett and Therival 1991:23,80).

¹¹ Of course, the relative decline of the LDP locally and nationally in the late 1960s and through the mid 1970s was due to more than environmental politics. Interestingly, it can also be argued that the LDP's creation of the Japanese welfare state in 1973 provides an analogous example of the ruling party defusing a successful opposition appeal by co-opting it with meaningful but minimal policy changes ("minimal" relative to the demands of advocates and the state of comparable policies in other OECD countries).

non-labor vote as early as 1958, and the British Labour Party, which made a similar decision in the 1990s, Japanese leftist parties continued to rely heavily on labor unions for organizational and electoral support. Once again, the electoral rules seem partly to blame. SNTV electoral rules place a premium on well-organized and loyal voters, lest the vote be spread too thinly across multiple candidates to win any seat at all. Under the circumstances, leftist parties can hardly be called unreasonable for relying on organized labor for their electoral niche.

To understand how labor-based parties were constrained by their labor constituents, we need to recognize labor's interests in the environmental issue. As Margaret McKean pointed out, "labor was reluctant to endorse citizens' movements, insofar as labor shared the interests of industrial management in expanding production and improving efficiency, and also in protecting firms from going bankrupt owing to high pollution-related expenses" (McKean 1981: 183). Japan's system of "enterprise unionism" no doubt exacerbated this inclination: because a firm-based union is essentially in competition with other firm-based unions within the same industry, labor's interests are closely tied to the success of the firm in which they work. Higher costs to contain pollution mean lower bonuses, sluggish wage increases, or at the worst, company failure.

In some cases, a dynamic and popular local executive, such as the three-term Socialist Governor Minobe Ryokichi of Tokyo during the 1970s, had a broad enough constituency to rise above narrow labor interests and strong enough backing in the prefectural assembly to push through progressive local ordinances. But more often than not, leftist parties championed environmental issues only when their labor constituency was not

directly affected. It was easier, for example, to oppose the siting of nuclear power plants, where no existing jobs were at stake, than to worry about heavily polluting fossil fuel plants where well organized unions would share in costs of pollution abatement (see, for example, Lesbirel 1998: 47).

Labor's grip on leftist parties can tell us why most of the opposition parties have always had a limited impact on the environmental issue. But this is a static explanation. To understand why the modest role declined further as the 1970s progressed, it is important to know that the LDP's response to the electoral threat posed from below was moderately swift and relatively effective. By the mid-1970s, the LDP had begun "riding the bandwagon" in local elections where the party could not win majorities on its own. Instead of fielding lone candidates who were sure to lose gubernatorial or mayoral elections, the LDP joined with several opposition parties in endorsing "independent" candidates who were at least minimally acceptable to all involved. Moreover, as Terry MacDougall noted in 1976, "[c]onservative mayors have shown a remarkable capacity for adopting innovations made by progressives in other cities..." (MacDougall 1976: 54). In the process, the conservatives also managed to limit the extent of policy reform. As a result, local governments controlled exclusively by politicians hostile to the LDP and its constituents are largely a thing of the past.

In the remainder of this section, we take a look at aggregate data to examine the importance of opposition strength in local governments for air quality regulations. Then we take a micro look at three specific attempts by local governments to push more stringent environmental measures than the central government desired. Not surprisingly,

given the multipartisan composition of most local executive and legislative branches starting in the 1970s, their results failed to match to their successes of the late 1960s and early 1970s. We consider three cases of local pressure on the central government: 1) the regulation of nitrogen oxides from automotive vehicles and factory smokestacks; 2) local initiatives in environmental assessment requirements; and 3) the regulation of dioxin, a pollutant from waste incineration and from some manufacturing processes.

3.1 The Statistical Evidence

Opposition parties went from a low point of controlling majorities in just two (out of 46) prefectural assemblies in 1959, to a high point of seven (of 47) in 1975. Similarly, seven of 47 prefectural and metropolitan governors were representatives of opposition parties at the end of 1974. While seven is still a low number, it included the principal metropolitan areas of Japan that together account for over one-fifth of the country's population (MacDougall 1980: 58). When we include smaller municipalities with "progressive" mayors, fully 40% of the Japanese population lived under opposition government in 1975. Beginning in about 1975, however, opposition parties began to lose their electoral momentum, for reasons we described above, resulting in a trend line for opposition control of local government that looks rather like an inverted V.¹²

In 1998, the Environment Agency published a compendium of local air quality ordinances (*Zenkoku kankyo gyosei binran*), from which we were able to ascertain which prefectures required stricter air quality measures than the national government standards. This list picks up in 1971, when national legislation explicitly allowed localities to

¹² These data were culled from newspaper (Asahi Shimbun) reports following each local election from 1955 through 1991.

impose more stringent anti-pollution measures, and therefore misses the constitutionally dubious (but historically important) cases of Kyoto, Osaka, and Tokyo in the late 1960s. It stops in 1974, after which there were no cases of prefectures passing stricter rules.¹³

According to these data, six out of seven prefectures with a leftist governor sometime between 1971 and 1974 passed stricter air quality rules than the national minimum.¹⁴ This compares to thirteen of 39 prefectures under a conservative governor – obviously a much smaller ratio – that also required cleaner air than nationally mandated.

It may be that opposition control of the prefectural legislature matters slightly less than an opposition executive, though the small number of cases makes this impossible to say with assurance. Four out of the six prefectures with an opposition majority imposed stricter air quality standards, compared to fifteen out of forty prefectures with conservative majorities. Another caveat here is that our data do not reveal whether or not the LDP was a member of the ruling coalition of parties, even when it was lacked a legislative majority.

In summary, we make two points. First, leftist parties at the local level did tend to take a more active stance on air quality than their conservative counterparts. Second, the LDP succeeded in its strategy to “take back local politics” by co-endorsing moderate executives with other parties and incorporating some of the opposition’s more popular planks into its own platform. After 1975 or so, according to these data, local governments were no longer in the forefront of environmental activism.

¹³ We do not have a comparable record for municipalities, other than for the cities with prefectural status.

3.2 Case Studies

Regulating Nitrogen Oxides

Oye and Maxwell (1995: 209) present Japanese and American timetables for reducing motor vehicle emissions following the passage of the U.S. Clean Air Act passed in 1970. As one might expect, given the large percentage of Japanese cars made for the U.S. market, the Japanese standards for the principal pollutants in auto emissions (carbon monoxide, hydrocarbons, and nitrogen oxides) closely follow U.S. standards. Their figures for nitrogen oxides, however, show the Japanese running ahead of the U.S. for a considerable period.¹⁵ The analytical point Oye and Maxwell draw from these and other data is that, given the typically adversarial government-business relations in the U.S., environmental regulation is often contested and delayed by industry pressure. In Japan, by contrast, government and business work together to implement a solution that is both acceptable to business and good for the country as a whole. Although making the deal acceptable to business often entails paying off industry with tax breaks and other inducements, the benefits to society of swift and sure implementation is worth the costs.

We find much of their analysis unobjectionable. Political feasibility is central to understanding what actually *does* happen as opposed to what one thinks *should* happen. But our focus on institutional incentives draws attention to variance in political feasibility across systems. Section one argued that Japanese industry has a structural advantage in pressing its claims on government, beyond the usual collective action advantage that well

¹⁴ The exception was Kagawa, a relatively rural prefecture in southern Shikoku that is famous for tangerine production and commercial fishing. Kagawa typically does not have a leftist governor.

organized groups enjoy in any political system. To be sure, Japan is a democracy and voters do have recourse to the electoral polls to change the direction of policy, as events leading to the Pollution Diet of 1970 demonstrated. But absent the unusually strong electoral pressure that arose for a time in the late 1960s and early 1970s, Japanese industry is able to dodge costs of pollution control with relative ease.¹⁶

More careful empirical investigation, in fact, shows that the Oye/Maxwell figures for nitrogen oxides were off the mark. The figure of 0.4 grams per kilometer was based on suggestions by the Environmental Agency that were ditched soon after the U.S. announced it would postpone the implementation of some emission standards in 1975. Business went to work on a number of levels. In July 1974, the Environmental Agency authorized a Special Committee on Automotive Pollution to consider requests by the Japanese carmakers to relax standards on grounds of technical difficulty. The committee, chaired by a vice president of a car manufacturer, found in favor of industry requests (Shibata 1989: 103). Meanwhile, Keidanren, a peak organization of Japanese industries, sponsored an international symposium in 1975 to which they invited foreign officials who testified against the wisdom of stringent emissions rules (Hashimoto 1988: 245). The government eventually agreed. Instead of 0.04 parts per million as a daily average, the new standards would allow a range from 0.04 to 0.06. This kept up with, but did not outpace, the U.S. standard of 0.05 ppm (Tsuru 1989: 36).

¹⁵ OECD figures (1974) for Japan were even more impressive, at 0.02 ppm. These figures, however, were based on the earliest and most optimistic projections of the Japanese Environmental Agency and never came close to being implemented.

¹⁶ As Michael Reich puts it, "...the history of pollution has been marked by corporate intransigence and callousness toward victims, until a court rules against the offending company..." (1991: 265).

At this point, the local governments of seven major cities became involved. Angry that the auto industry was getting a reprieve on emissions standards, the cities established a Research Group on Automobile Exhaust Gas Control, consisting of scholars and municipal officials in charge of pollution affairs. In October 1974, the committee concluded that stricter standards were indeed technically feasible and that the carmakers had a responsibility to society to clean up to the extent possible (Shibata 1989: 103).

The effects of the local governments' actions, however, were limited. In December 1974 the Environmental Agency concluded that for the fiscal year 1976 the looser standards should be enforced and that the issue could be reconsidered for the fiscal year 1978 (Shibata 1989: 105). But political winds continued to blow in favor of industry. In 1977 the Prime Minister appointed conservative politician Ishihara Shintaro to head the Environment Agency. One of his first acts in office was to declare that "the witch hunt against industry" must stop (Broadbent 1998: 293). Industry would have until 1985, the Agency announced, to reach the nitrogen oxide standards of 0.04-0.06 ppm. Then in 1985, the Agency announced that even the less strict nitrogen oxides regulation could not be reached on time. In 1993, the Agency announced hope that nitrogen oxides would be reduced to 0.04-0.06 ppm levels in 90% of Japan before long (Kakuhashi 1994: 42). In summary, Japanese automobile emission standards have stayed carefully in line with U.S. requirements, but due to the assiduous efforts of the auto industry, they have not moved ahead with the speed and grace that some reports suggest.

Environmental Impact Assessment

The story on environmental impact assessment in Japan is a short one: comprehensive national legislation does not exist. It is not for lack of trying on the part of the

Environment Agency. The Agency has drafted several bills over the years but the Diet has never passed one into law (Sagami 1989: 209). The opponents of environmental impact assessment legislation – industry and its allies in the LDP, MITI, Construction Ministry, and Transportation Ministry – have argued that business activity would be hopelessly curtailed and that lawsuits would paralyze public works (Sagami 1989: 209).

Lacking statutory backing, environmental impact assessment in Japan today remains legally informal. The Japanese government, including the ministries that opposed national legislation, undertakes some form of environmental impact assessment in its development planning process. But guidelines and criteria for assessment are developed ministry by ministry and are of no legal force (Upham 1987: 59-60; Gresser et al. 1981: 279). The government, moreover, retains discretion over when and how to conduct environmental assessments. In the case of nuclear plant sitings, for example, only local residents may attend hearings, speakers are allotted ten minutes each to speak, and written comments must be submitted to the government for review before the meeting. Once hearings are completed, no law requires the government to consider the content of the hearings in the decisions on the siting or design of the plant (Upham 1987: 61). Local communities can and sometimes do block nuclear plants or public works of various kinds. But they can do so only when they possess enough political clout to imperil the electoral chances of the politicians making the decisions.¹⁷

Following the Pollution Diet of 1970, the Diet passed legislation that expressly gave localities the authority to pass local pollution ordinances. Soon thereafter, many localities

¹⁷ See, for example, Broadbent (1998) on the struggles of some Oita residents to block unwanted landfills and Lesbirel (1998) on the mixed success of residents to block the siting of nuclear plants nearby.

took the opportunity to pass environmental impact assessment ordinances of their own (Nomura et al. 1989: 213-214). As with the informal hearings and mediation processes established by the national government, however, the effectiveness of local EIA ordinances rest principally on the political strength of the local opposition to pollution. Since the mid 1970s, the record shows, few municipalities run far ahead of the national government in pollution control.

Dioxin Pollution

Air pollution – at least in its more familiar forms as sulfur and nitrogen oxides – is relatively simple and inexpensive to combat, with taller smokestacks to disperse emissions and scrubbers to catch them before they leave the source. Much more difficult to prevent is pollution of water and soil. Accordingly, the cleanup of other forms of pollution has been much less thorough than in the case of air pollution. As late as the mid 1980s, roughly one-third of Japan's water failed to meet government standards, including up to sixty percent of lakes and reservoirs. Red tides (growth of algae sparked by release of chemical water pollutants) threaten coastal areas. Ground subsidence continues, and numerous toxic waste deposits have been discovered in areas previously home to industrial plants (Barrett and Therival 1991: 44).

One of the most serious air, ground, and water pollutants is dioxin. Dioxin is a highly toxic cluster of chemical substances, known to be carcinogenic and teratogenic (causing fetal abnormalities) in extremely small quantities. It is a byproduct of burning plastics containing polyvinyl chlorides (PVCs), and is also a residue in some manufacturing processes. Until recently, dioxin has been only loosely regulated in Japan. Ministry of Health and Welfare regulations passed in 1984 (and in force until a new law takes effect

in 2000) allow amounts in the soil up to 800 times what is allowed in Germany and about 100 times allowable limits in most other industrialized countries (*Asahi Shimbun* 4/23/96; Maeda 3/1999: 20). Needless to say, this loose regulation has been a boon to industry, which has been able to incinerate its wastes at a lower cost than if dioxin-minimization had been required.

Tokorozawa is a small town in Saitama Prefecture. Because of its proximity to Tokyo, it has become a favorite location for industrial waste incinerators. To its 320,000 residents, who chose the town because of its richly wooded vistas and its commuting access to Tokyo, its notoriety as “The Ginza of Industrial Waste” is dismaying (Maeda 3/99: 25). Although worried about the possible effects of so much soot and smoke, it was not until January 1995, when Professor Miyata Hideaki of Setsunan University discovered elevated dioxin levels in the soil surrounding the incinerators, that residents mobilized for action (Maeda 3/99: 28). Their efforts were slow going and poorly coordinated at first, but eventually the community formed an action committee, hired lawyers, and pressured their local assembly to act (Maeda 4/99: 21-22). In March 1997, the Tokorozawa City Council unanimously passed an ordinance to “make Tokorozawa clean again” (Maeda, 4/99: 23; *Asahi Shimbun*, 3/27/97). In September 1997, 13 employees in the Tokorozawa city government (including the mayor), as well as some co-conspirators in the prefectural government, had their salaries docked for hiding information about dioxin from the general public (*Asahi Shimbun* 9/6/97, 9/9/97, 9/13/97, 9/25/97, 10/1/97, 12/20/97).

The hortatory actions taken by the Tokorozawa assembly had little direct effect on the continued activities of the waste incinerators. Nonetheless, they helped propel dioxin

pollution to the front page of national newspapers. As a result, residents in scores of towns and cities began to worry about the safety of their own neighborhoods (*Asahi Shimbun*, various issues of local editions). Some local assemblies pressed the government for better information about dioxin levels. Others, not trusting Environment Agency or Ministry of Health and Welfare data, paid for their own scientific surveys of dioxin levels (*Asahi Shimbun* 9/2/97; 10/4/97). Still others lost no time in suing neighboring industrial plants for endangering public health (*Asahi Shimbun* 9/11/97).

As soon as dioxin became a national news item, the Ministry of Health and Welfare and the Environment Agency began making pronouncements about the need to tighten up dioxin regulation. But without first solving the underlying political issue of who was to pay for the increased costs of production that dioxin regulation would impose on manufacturers, statements by governmental agencies amounted to little more than hand-waving. Local governments and citizens' groups had raised the political salience of the dioxin issue. But tough measures actually forcing businesses to reduce dioxin pollution would have to await national legislation.

Summary

As the events of the 1970s and afterwards show, the early optimism about the ability of local government to change national policy was premature. Local governments are no longer the engine of change that they managed to be in the 1960s and early 1970s. And we emphasize that local governments mattered in the earlier period not because they enjoyed constitutionally guaranteed authority to make policy that supersedes national government policy (they do not), but because the progressive gains at the local level signaled to the national LDP that they had better adjust environmental policy, or risk

losing national level elections as well. As we noted, the LDP responded with both the Pollution Diet, and by joining small middle-of-the-road parties – and effectively dominating them – to stem the tide of leftist politics at the local level.

It is interesting to consider how trends might have been different under different institutional conditions. Had the electoral rules not placed a premium on niche strategies, leftist parties would probably have been more effective in taking up median-voter issues such as quality of life and environmental safety. Instead, their interests were tied too closely to those of organized labor to make that move to the middle. As a result, citizens' movements that had arisen and mobilized around local pollution problems never established strong national representation and tended to wither away as soon as the immediacy of their problems disappeared.

Section 4: New Electoral Rules

Japan's new electoral rules, adopted in 1994, give us a chance to consider the role formal institutions play in the politics of the environment. In place of the old multi-member districts and SNTV, the new rules combine 300 single-member-district seats with 200 seats allocated from regional party lists (by closed-list proportional representation). Parties seeking or maintaining a legislative majority, such as the LDP, no longer are faced with intra-party competition that forced politicians to rely on personalistic appeals. Opposition parties have a greater incentive to merge (although, admittedly, this is mitigated by the PR portion of the ballot), to form a larger and stronger counterweight to the LDP. Both sides of the political fence in this electoral environment should be more inclined to go after the median voter. Politicians, it would seem, would be wise to limit

the business-coddling practices that hobble economic efficiency and that reduce the general welfare of the population.

At this points, the major analytical problem is that only one national election has been held under the new rules and as a result politicians and parties are still adjusting to the new set of incentives. Comparative and historical evidence suggests that it typically takes several elections for politicians to sort themselves into ideologically coherent groups that are capable of making broad public appeals.¹⁸ In the short run, politicians still try assiduously to pull the center of political gravity closer to their own preferences while being jerked along toward the median voter in fits and starts.

In the longer run, our analysis suggests, the new electoral rules should push Japan towards a 2+alpha party system (something like Germany's) where both large parties are reluctant to stray too far from the political center. In the meantime, the greatest single moderating influence on the LDP is its minority status in the legislature. To stay in government, the LDP concedes as little as possible but as much as necessary to keep its coalition partners happy.¹⁹

In July 1999, the LDP-led coalition government passed new dioxin legislation that lowered permissible levels and tightened rules on waste incineration. This new bill finally puts Japan's standards for dioxin pollution roughly in line with other western democracies. Note, however, that the bill was not sponsored by the LDP but by the

¹⁸ See, for example, Cox's account of the effects of electoral reform in Britain in the mid 19th century (1987).

Komeito in January 1999. The Komeito is the only opposition party with weak ties both to business and labor, though its reliance on the religious Soka Gakkai group also weakens its appeal to the general public. Not to be electorally embarrassed, the Democratic Party put forward a similar bill in May 1999. But only when the LDP and the Komeito began serious talks to join together in an electoral coalition did the final bill pass. It did so with little legislative conflict and with the support of all Diet parties, on July 13, 1999, under the watchful eye of concerned public opinion (*Asahi Shimbun* 7/7/99; 7/13/99; 7/21/99).

Conclusion

This paper has taken up the question of how Japan's political institutions have shaped environmental politics in Japan. Specifically, we surmised that 1) Japan's old electoral rules should have inhibited strong anti-pollution rules, notwithstanding the press about Japan's ability to solve its pollution problem; 2) localities under opposition control should be at the forefront in anti-pollution activism; and 3) the new electoral rules should generate a more pro-environment stance in national politics. Our examination of the data, both aggregate and case-specific, suggest that all three of these hunches were right in a loose sense. Here, we summarize our findings and discuss where our results did not strictly support our hypotheses.

A retrospective of the events leading to and following the Pollution Diet of 1970 confirms what Upham (1987) and others have pointed out before: the LDP government took back the initiative from the political opposition by passing legislation to deal with severe environmental degradation. But at the same time, it set up administrative

¹⁹ On this point, see Hiwatari (1999). At this writing, the LDP has regained its Lower House majority, but is far short of a majority in the Upper House, which has equal power on all matters except budgets, treaties,

mediation procedures and relied on a subservient judicial system to limit the costs of environmental protection that business would potentially have to bear. Rather than racing ahead of other industrialized countries in cleaning up the environment, Japan acted cautiously. Its impressive record in reducing automobile emissions is merely a mirror image of U.S. standards, which govern Japan's largest single export market for cars. Japan has been much slower to regulate pollutants, such as dioxin, that have exclusively domestic effects.

More mixed were the results of our inquiry into the power of opposition-controlled local government to push the environmental agenda. Local politics played a crucial role in frightening the LDP into action in the early 1970s. But opposition parties have always been hampered from appealing to the general public by their strong ties to organized labor. Moreover, once the LDP regained some measure of control of local politics, the momentum from local activism slowed to a crawl. As a result, prefectures and municipalities have played a rather small role in environmental politics since the mid 1970s.

Our third hypothesis, that the new electoral rules should push mass-voter issues such as the environment into higher national profile, also met with mixed success. In favor of our argument is the fact that the Japanese government passed broad environmental legislation in 1994, following the change in electoral rules. More recently, in 1999, the government imposed stringent legal limits on dioxin pollution. A closer look, however, suggests that the primary impetus for the dioxin legislation came from the Komeito. This party, rather than the main opposition party (the Democrats), had the least to lose and

and the choice of prime minister.

most to gain from taking a tough stance on loosely regulated incinerating practices that the manufacturing community (and its labor force) has long enjoyed. It is not clear if the LDP would have had the stomach for these measures had it not been pressured by a party that it was in the process of wooing into a governing coalition.

In conclusion, we take issue with the glowing reports of Japan's environmental record to date. But our analysis suggests reasons for optimism about the future. If we are right that institutional incentives matter, Japanese citizens will not have to work so hard in the years to come to keep environmental health on the political agenda. Local citizens groups will not be stymied at every turn, and political parties will outdo each other to champion quality of life.

References

- Asahi Shimbun*. Various issues and local editions.
- Barrett, Brendan F.D., and Riki Therival. 1991. *Environmental Policy and Impact Assessment in Japan*. London: Routledge.
- Broadbent, Jeffrey. 1998. *Environmental Politics in Japan: Networks of Power and Protest*. Cambridge: Cambridge University Press.
- Cohen, Linda, Mathew D. McCubbins, and Frances M. Rosenbluth. 1995. "The Politics of Nuclear Power in Japan and the United States." In Cowhey, Peter F., and Mathew D. McCubbins, eds. *Structure and Policy in Japan and the United States*. New York: Cambridge University Press, 177-202.
- Gresser, Julian, Koichiro Fujikura, and Akio Morishima. 1981. *Environmental Law in Japan*. Cambridge, MA: The MIT Press.
- Hashimoto, Michio. 1988. *Shishi Kankyo Gyosei [Personal History: Environmental Administration]*. Tokyo: Asahi shimbunsha.
- Imura, Hidefumi. 1989. "Administration of Pollution Control at Local Level." In Tsuru, Shigeto and Helmut Weidner, eds., *Environmental Policy in Japan*. Berlin: Wissenschaftszentrum Berlin fur Sozialforschung, 54-96.
- Imura, Hidefumi. 1994. "Japan's Environmental Balancing Act." *Asian Survey* 34(4): 355-368.
- Kakuhashi, Tetsuya. 1994. *Datsu kuruma shakai [A Society Liberated from Cars]*. Tokyo: Jichitai Kenkyusha.
- Kankyo-cho. 1998. *Zenkoku kankyo gyosei binran [Roster of National Environmental Regulations]*. Tokyo: Okurasho insatsu kyoku.
- Krauss, Ellis S., and Bradford L. Simcock. 1980. "Citizens' Movements: The Growth and Impact of Environmental Protest in Japan." In Steiner, Kurt, Ellis S. Krauss, and Scott C. Flanagan, eds. *Political Opposition and Local Politics in Japan*. Princeton, N.J.: Princeton University Press, 187-227.
- Lesbirel, Hayden. 1998. *NIMBY Politics in Japan: Energy Siting and the Management of Environmental Conflict*. Ithaca, N.Y.: Cornell University Press.
- MacDougall, Terry Edward. 1976. "Japanese Urban Local Politics: Toward a Viable Progressive Political Opposition." In Austin, Lewis, ed., *Japan: The Paradox of Progress*. New Haven, Conn.: Yale University Press.
- MacDougall, Terry Edward. 1980. "Political Opposition and Big City Elections in Japan, 1947-1975." In Steiner, Kurt, Ellis S. Krauss, and Scott C. Flanagan, eds.

- Political Opposition and Local Politics in Japan*. Princeton, N.J.: Princeton University Press, 55-94.
- Maeda, Sunako. 1999. "Daiokishin ni oshoku sareta machi, Tokorozawa kara, sono ichi [From Tokorozawa, the Town Dioxin Polluted, Part One]." *Shakai Minshu* March Issue, 24-30.
- Maeda, Sunako. 1999. "Daiokishin ni oshoku sareta machi, Tokorozawa kara, sono ni [From Tokorozawa, the Town Dioxin Polluted, Part Two]." *Shakai Minshu* April Issue, 20-25.
- McKean, Margaret A. 1980. "Political Socialization Through Citizens' Movements." In Steiner, Kurt, Ellis S. Krauss, and Scott C. Flanagan, eds. *Political Opposition and Local Politics in Japan*. Princeton, N.J.: Princeton University Press, 228-273.
- McKean, Margaret A. 1981. *Environmental Protest and Citizen Politics in Japan*. Berkeley: University of California Press.
- Miyata, Hidenori. 1998. *Yokuwakaru daiokishin oshoku [A Primer on the Dioxin Scandal]*. Tokyo: Godo shuppan kabushiki gaisha.
- Muramatsu, Michio. 1997. *Local Power in the Japanese State*. Berkeley: University of California Press.
- Nomura, Yoshihiro, Hidenori Inoue, and Shoichi Ogano. 1989. "Environmental Impact Assessment." In Tsuru, Shigeto and Helmut Weidner, eds., *Environmental Policy in Japan*. Berlin: Wissenschaftszentrum Berlin für Sozialforschung, 207-220.
- Oye, Kenneth A., and James H. Maxwell. 1995. "Self-interest and Environmental Management." In Keohane, Robert O. and Elinor Ostrom, eds. *Local Commons and Global Interdependence*. London: Sage, 191-221.
- Reed, Steven R. 1981. "Environmental Politics: Some Reflections Based on the Japanese Case." *Comparative Politics* 14(2):253-270.
- Reich, Michael. 1984. "Mobilizing for Environmental Policy in Italy and Japan." *Comparative Politics* 17(3): 379-402.
- Reich, Michael. 1991. *Toxic Politics*. Ithaca, N.Y.: Cornell University Press.
- Rosenbluth, Frances M., and Michael F. Thies. Forthcoming. "Politics in Japan." In Almond, Gabriel A., G. Bingham Powell, Russell Dalton, and Kaare Strøm, eds. *Comparative Politics Today, 7th Edition*. New York: Addison Wesley Longman.
- Sagami, Yoshikazu. 1989. "The Environmental Pollution Dispute Settlement System." In Tsuru, Shigeto and Helmut Weidner, eds., *Environmental Policy in Japan*. Berlin: Wissenschaftszentrum Berlin für Sozialforschung, 196-206.

- Saitama jikko iinkai, eds. 1998. "Tomeyo! Daiokishin oshoku" [Stop! Dioxin Scandal]. *Gomi shokyaku ga akachan o korosu toki [When Waste Incineration Kills Babies]*. Tokyo: Godo shuppan gaisha.
- Shibata, Tokue. 1989. "The Influence of Big Industries on Environmental Policies: The Case of Car Exhaust Standards." Tsuru, Shigeto and Helmut Weidner, eds., *Environmental Policy in Japan*. Berlin: Wissenschaftszentrum Berlin fur Sozialforschung, 99-108.
- Tsuru, Shigeto. 1989. "History of Pollution Control Policy." In Tsuru, Shigeto and Helmut Weidner, eds., *Environmental Policy in Japan*. Berlin: Wissenschaftszentrum Berlin fur Sozialforschung, 15-42.
- Upham, Frank K. 1987. *Law and Social Change in Postwar Japan*. Cambridge, Mass.: Harvard University Press.
- Watanabe, Ko, ed. 1999. *Jidosha sangyo handobukku [The Automobile Industry Handbook]*. Tokyo: Nikkan jidosha shinbunsha.
- Yokota Hajime. 1998. *Daiokishin oshoku chitai [The Dioxin Pollution Belt]*. Tokyo: Ryoku fu shuppan.
- Yomiuri shimbun kagaku bu, eds. 1998. *Kankyo horumon, nani ga doko made wakattaka [What Do We Know About Environmental Hormones?]*. Tokyo: Yomiuri shimbunsha.¹