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FROM TECHNICAL FIX TO REGULATORY MIX:
JAPAN’S NEW ENVIRONMENTAL LAW

Lara Fowler

Abstract: In post-industrial countries like Japan, modern environmental problems defy easy clean up solutions. Thus, effective clean up depends on diverse regulation. Historically, the Japanese government has relied on statutes that mandated technical “fixes” to clean up highly publicized pollution problems. Although such regulations have been successful in areas like air pollution, recent newspaper headlines highlight the extent to which environmental issues continue to affect densely populated Japan.

Beginning with the passage of the Environmental Impact Assessment Law in 1997, however, Japan has significantly diversified its environmental policy. Along with strict new regulatory standards, new national laws now allow public access to information held by the government and private companies and foster public participation through non-profit organizations and environmental impact assessment processes. By closely examining three issues of public concern—the disposal of waste, the control of dioxin, and the clean up of contaminated soils from industrial areas—this Comment suggests that Japan’s more diverse, open and transparent regulation will better address current and future environmental problems. While it may not provide another “pollution miracle,” Japan’s shift from a reactive regulatory system with limited review to a more open and proactive regulatory system is a step in the right direction.

I. INTRODUCTION

During the 1970s, Japan transformed itself from “the most polluted nation on earth”¹ to a “pacesetter of environmental policy”² by implementing strict technical regulations.³ While these laws significantly reduced pollutants like sulfur dioxide,⁴ this densely populated country⁵ still has a variety of environmental issues not readily solved through the application of technological controls.⁶ Rather than smokestack emissions, Japan is now...
grappling with more difficult and dispersed kinds of pollution. Examples include "lifestyle" pollution resulting from too much garbage, dioxin as a byproduct of waste incineration, and contaminated soil found at industrial sites. Because these environmental problems are diffuse in both space and time—the contamination is widespread and the harm may linger into future generations—technical solutions alone no longer suffice.

Japan's environmental laws are important for a variety of reasons. First, Japan, the world's second largest economy, imports the bulk of its raw materials. As a result, any environmental policy change here is likely to ripple across the globe. In addition, Japan is one of the world's largest providers of official development assistance ("ODA"). Because such ODA includes the export of environmental services and technology, modifications in Japan's environmental norms may seriously impact developing nations. Finally, other countries viewed Japan's pollution problems during the 1960s as a portent of issues likely to impact them. Similarly, Japan's current national response to its on-going environmental issues may be informative to the rest of the world, especially given its long-term economic crisis.

Japan's new environmental laws, adopted between May 1997 and January 2003, comprise the most significant set of legal changes to its national environmental policy since the 1970s. Recent changes include

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7 Lifestyle pollution also includes household sewage; automobile exhaust is another issue of concern. Koichiro Fukui, Global Benefits from Private Sector Initiatives: Lessons on the Environment from Japan, in WORLD BANK INSTITUTE & DEVELOPMENT BANK OF JAPAN, PROTECTING THE GLOBAL ENVIRONMENT: INITIATIVES BY JAPANESE BUSINESS 4 (Wilfrido Cruz et al. eds., 2002).


11 End-of-pipe technologies, like desulfurization of stack emissions, focus on cleaning up pollution after it is already produced but often fail to prevent problems. E.g., Fukui, supra note 7, at 8.

12 See, e.g., FUMIKAZU YOSHIDA, THE ECONOMICS OF WASTE AND POLLUTION MANAGEMENT IN JAPAN 5-6 (2002).


14 Id.

15 Paul R. Ehrlich, Foreword to NORIE HUDDLE & MICHAEL REICH, ISLAND OF DREAMS: ENVIRONMENTAL CRISIS IN JAPAN 9, 11 (1975).


17 This Comment explores national trends, not local changes. Under Japan's unitary system, local governments may enact regulations stricter than the national standards as long as the national regulations
new statutes, new public access to information, and new avenues for public participation. Because modern pollution problems are difficult to assess, contain, and clean up, these new laws are not likely to result in another "pollution miracle." However, this Comment argues that these new laws will aid the environment over the long term through the new transparency and openness apparent in Japan today.

Part II of this Comment explores Japan’s first statutory response to its post-World War II pollution problems, its subsequent domestic and international policy concerns, and its modern environmental issues. Part III generally examines the environmental statutory changes enacted by the Japanese legislature, the Diet, from 1997 to 2003. Part IV reviews the impact of these legislative changes in more detail by examining the issues of waste, dioxin, and industrial soil contamination. Part V develops the common themes presented by these legislative changes. Finally, this Comment concludes that these changes will positively impact Japan’s environment, but that their effectiveness remains to be seen.

II. THE ENVIRONMENT IN JAPAN: PROBLEM AND RESPONSE

Since World War II, Japan’s response to its environmental problems has had varying degrees of effect. Although considered the most polluted country in the world in the late 1960s, Japan implemented sweeping environmental regulations to achieve a "pollution miracle" of dramatic environmental benefits with no apparent economic detriment by the end of

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are set as a minimum, and not maximum, standard. HIROSHI ODA, JAPANESE LAW 59 (2d ed. Oxford Univ. Press 1999) (1992). As a result, laws like the local environmental impact assessment requirements were enacted long before they achieved legal permanence at the national level. E.g., JEFFREY BROADBENT, ENVIRONMENTAL POLITICS IN JAPAN, NETWORKS OF POWER AND PROTEST 101-06 (1998).

18 This Comment addresses the period from 1997 to January 2003. Although the 1993 Basic Environment Law, discussed infra in Part II.C, is an important law, Japan's passage of the long-awaited Environmental Impact Assessment Law in 1997 signaled the most significant step towards implementing the policy changes envisioned by the 1993 Basic Environment Law. See discussion infra Part III.C.2.

19 See discussion infra Part III.A.

20 Under Japan's Information Disclosure Law, the public may now access information held by governmental entities while the Pollution Release and Transfer Registry allows public access to privately held information about hazardous chemical releases. See discussion infra Part III.B.

21 Avenues for public participation include new legal recognition for non-profit organizations and public input through the Environmental Impact Assessment process. See discussion infra Part III.C.

22 See Adam & Van Loon, supra note 10, at 3, 6.

23 BROADBENT, supra note 17, at 19.

24 MCKEAN, supra note 1, at 17-19.
the 1970s.\textsuperscript{25} While end-of-pipe regulations significantly reduced air and water pollution,\textsuperscript{26} environmental problems at home and abroad still remain.\textsuperscript{27}

\textbf{A. Post-World War II Industrial Pollution, Legislative Mandates for Technical Fixes, and the Pollution Miracle of the 1970s}

The post-World War II emphasis on industrial development allowed Japan’s economy to rebound quickly,\textsuperscript{28} but at the high cost of pollution-related health problems. Although fishermen first reported symptoms of mercury poisoning in Minamata Bay in the early 1950s,\textsuperscript{29} such “local” problems did not become national issues until the discovery of more pollution-related diseases during the 1960s.\textsuperscript{30} In Fuchu, cadmium-tainted rice led to \textit{Itai-Itai} Disease.\textsuperscript{31} In Yokkaichi, air pollution from a newly built industrial plant resulted in widespread asthma.\textsuperscript{32} In Niigata, mercury from a factory led to another outbreak of Minamata Disease.\textsuperscript{33} In southwestern Japan, PCB-contaminated cooking oil inflicted thousands of people with incurable health problems.\textsuperscript{34} Finally, in 1970, reports of lead poisoning and photochemical smog in Tokyo further inflamed a citizenry already concerned by publicity about the other pollution-related diseases.\textsuperscript{35}

Catalyzed by a growing awareness of pollution problems, citizen protest movements and lawsuits began to impact environmental policy. Three thousand local citizen protest movements forced companies to clean up existing problems and helped prevent future pollution problems.\textsuperscript{36}

\begin{itemize}
\item[26] See infra note 50 and accompanying text.
\item[27] See, e.g., id. at 44-45; ANNY WONG, THE ROOTS OF JAPAN’S INTERNATIONAL ENVIRONMENTAL POLICIES 89-256 (2001) (analyzing the issues of whaling, deforestation in the Tropics, and acid deposition in Asia as important international environmental issues affecting Japan).
\item[28] See, e.g., NORI E HUDDLE & MICHAEL REICH, ISLAND OF DREAMS: ENVIRONMENTAL CRISIS IN JAPAN 81-84 (1975); FRANK UPHAM, LAW AND SOCIAL CHANGE IN POSTWAR JAPAN 28-29 (1987).
\item[29] HUDDLE & REICH, supra note 28, at 106-10.
\item[30] There is a wealth of information about these pollution-related diseases. See, e.g., TIMOTHY S. GEORGE, MINAMATA: POLLUTION AND THE STRUGGLE FOR DEMOCRACY IN POSTWAR JAPAN (2001); GRESSER ET AL., supra note 25, at 4-16, 29-132; Jun Ui, Minamata Disease, in INDUSTRIAL POLLUTION IN JAPAN 103-32, 154-72 (Jun Ui ed., 1992); UPHAM, supra note 28, at 28-53.
\item[31] \textit{Itai-Itai} literally means that “it hurts, it hurts.” Such pain is caused by the decalcification of bones which then become brittle and break easily. HUDDLE & REICH, supra note 28, at 187.
\item[32] Id. at 59-77 (discussing Yokkaichi’s industrial development and the subsequent health problems).
\item[33] Id. at 122.
\item[34] Id. at 133-34. Polychlorinated biphenyls (“PCBs”) are chlorinated hydrocarbons once used in industrial processes. Id. at 133-34. Non-degradable, PCBs continue to cause physical abnormalities, skin discoloration and disease, and other health problems for both the victim and any offspring. Id. at 150-51.
\item[35] GRESSER ET AL., supra note 25, at 25, 47-48.
\item[36] MCKEAN, supra note 1, at 19; Miranda A. Schreurs, Domestic Institutions and International Environmental Agendas in Japan and Germany, in THE INTERNATIONALIZATION OF ENVIRONMENTAL PROTECTION 138 (Miranda A. Schreurs & Elizabeth Economy eds., 1997). For more information on
Protesters in Numazu, for example, stopped the construction of an electrical power plant by convincing local officials to remove their support from an already approved industrial plan.\textsuperscript{37} In addition to protests, lawsuits decided in favor of pollution victims also affected Japan’s environmental policy.\textsuperscript{38} These decisions liberalized the traditional negligence standard of proof for victims by shifting the burden to companies to prove they did not cause health problems, emphasizing a company’s duty to use care in selecting an industrial site, mandating the use of the best feasible technology regardless of cost, and requiring polluters to suspend operations immediately whenever any doubt arose concerning the toxicity of their effluents.\textsuperscript{39} Under the “highly charged atmosphere of crisis” created by the publicity, protest movements, and lawsuits,\textsuperscript{40} the national government finally began to acknowledge the pollution problems.

Beginning in 1970, the Diet enacted multiple important national environmental laws.\textsuperscript{41} Unlike the 1967 Basic Law for the Environment,\textsuperscript{42} the fourteen laws passed by the 1970 “Pollution Diet” removed economics from consideration and mandated strict environmental clean up under the idea that “the polluter pays” for environmental degradation.\textsuperscript{43} Accordingly, these laws required the installation of technological controls for smokestack emissions\textsuperscript{44} and effluent releases,\textsuperscript{45} regardless of cost. Subsequently, the
Diet also adopted a much-lauded victim compensation law, approved criminal sanctions for polluters, and created the Environment Agency to coordinate government responses to pollution-related problems. These measures, along with the energy conservation measures prompted by the 1970s oil crises, reduced some kinds of air and water pollution by more than eighty percent in a decade. By 1981, commentators were willing to note that “Japan has apparently succeeded in meeting some of the world’s most stringent environmental requirements without adversely affecting employment, economic growth, and energy supply. This will challenge those who argue that nations must choose between environmental protection and industrial development.”

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46 Kōgai kenkō higai no hoshō to ni kansuru hōritsu [The Law for the Compensation of Pollution Related Health Injury], Law No. 111 of 1973, discussed in GRESSER ET AL., supra note 25, at 285-319. While lauded as an innovative law designed to pay victims’ compensation once they were “certified” as suffering from a qualifying disease, UPHAM, supra note 28, at 58-59, this system has its limitations. Out of Japan’s numerous pollution problems, only victims from the “Big Four” cases, discussed supra note 38 and accompanying text, ever qualified. UPHAM, supra note 28, at 59. In addition, many victims were never certified by the local boards or never received compensation because of delays from litigation. Kawashima, supra note 41, at 258-59. Finally, although the government certified a total of 99,000 victims by 1987, the Diet denied further certification of any air pollution victims in 1988. Weidner, supra note 2, at 490. See also Helmut Weidner, An Administrative Compensation System for Pollution-Related Health Damages, in ENVIRONMENTAL POLICY IN JAPAN 161-63 (Shigeto Tsuru & Helmut Weidner eds., 1989).
49 In 1973, oil constituted 73% of Japan’s energy, 99% of which was imported. BARRETT AND THERIVEL, supra note 4, at 40-41. Because of the 1973 and 1979 oil crises, Japan diversified its energy sources and implemented such strict energy conservation programs that further conservation would be difficult. Id.
50 From 1970 to 1980, these regulations mandated installation of technology that reduced air pollutants like sulfur dioxide and carbon monoxide by 80% and 60%, respectively; during the same period, the percentage of water samples that did not meet human health standards fell by more than 98%. BARRETT & THERIVEL, supra note 4, at 41-42. See also BROADBENT, supra note 17, at 334 (measuring successful pollution reduction by the rapidity and thoroughness of Japan’s response).
51 GRESSER ET AL., supra note 25, at xv.
Despite this optimism, Japan’s industrial development continued to exact an environmental toll. While the technology-forcing laws of the 1970s continued to achieve “impressive successes” in controlling pollution that affected human health, the end-of-pipe solutions failed to protect the natural world or prevent future pollution by changing human behavior. During the 1970s, for example, “lifestyle” problems associated with a consumer society increased while citizens began protesting the impact that issues like noise pollution and loss of sunlight had on their quality of life.

In the 1980s, attention largely turned away from environmental issues. The government relied heavily on negotiated agreements with polluters while more serious kinds of enforcement like criminal sanctions decreased. Some viewed the Environment Agency as an ineffective body incapable of protecting the environment. Citizen protest movements lost their momentum. Already-limited standing to sue became increasingly restricted; meanwhile, judicial decisions no longer favored environmental protection. In 1988, the lauded victim compensation law was severely restricted. At the same time, pollution victims who had won lower court victories still struggled to finalize the appeals on their cases nearly forty years later. The overall environmental policy during this time has been characterized as reactive and driven by international arm-twisting.

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52 Wong, supra note 27, at 47. In 1999, 99.2% of the national measurement points for surface water met health-related environmental quality standards. OECD, supra note 6, at 89.
53 See Barrett & Therivel, supra note 4, at 44-45.
54 See, e.g., Fukui, supra note 7, at 4.
55 In Osaka, citizens filed a lawsuit to prevent the physical and psychological impacts of noise from a new airport. Upham, supra note 28, at 63.
56 Gresser et al., supra note 25, at 145-46.
57 See, e.g., Schreurs, supra note 36, at 147-49.
59 Kondrat, supra note 47, at 379 (noting that many of Japan’s 1970s-era environmental laws include criminal sanctions for violations, but enforcement greatly decreased between 1978 and 1998).
60 See, e.g., Broadbent, supra note 17, at 293-95; Wong, supra note 27, at 53-57.
61 Broadbent, supra note 17, at 254.
62 In Japan, standing to sue is usually limited to direct victims; few legal avenues exist for interested citizens to protect their concerns in the environment and/or sustainable development. Kato & Ray, supra note 5, at 185. See also Kawashima, supra note 41, at 263-64.
63 Upham, supra note 28, at 62.
65 Tsuru, supra note 64, at 92-95.
66 See, e.g., Schreurs, supra note 36, at 147-48.
C. Japan's Response to International Pressure During the 1990s

Global environmental concerns have begun to impact Japan. Since the 1970s, Japan has been internationally criticized because some of its industries, rather than cease polluting, simply moved to other countries with less strict environmental laws. Japan has also adversely affected the global environment through its import of raw materials, the extent and impact of its fishing industry, and its disposal of waste in other countries. Nor is it immune to environmental problems that arise outside its borders: Japan is increasingly concerned about issues like global warming and acid rain. In addition, international pressure from the global marketplace has encouraged Japanese businesses to seek voluntary compliance with international environmental standards.

Such global environmental pressure helped set the stage for Japan's recent environmental policy changes. Although a participant in the 1972 Stockholm Conference on the Environment, Japan adopted a prominent role in international environmental discussions only after substantial international criticism in the late 1980s. In 1989, Japan substantiated its endeavor to gain such a leadership role by pledging ¥300 billion toward environmental official development assistance. In addition to funding international environmental initiatives, Japan began changing its domestic policies. After the 1992 United Nations Conference on Environment and Development, for example, Japan allowed public comment on a national...
environmental policy draft for the first time ever. Soon after, Japan also adopted a new Basic Environment Law.

The Basic Environment Law is an important precursor to Japan's recent environmental policy changes. This 1993 law's broad provisions seek to secure "the enjoyment and future success of environmental blessings," create a society that "ensur[es] sustainable development with [a] reduced environmental load," and to actively promote conservation of the global environment through international cooperation. To implement these principles, the law outlines the responsibility of the state, local governments, corporations, and the people, however, it has been criticized for a lack of public participation. While some viewed the law as too abstract to be successfully implemented, its mandate for future government action is being realized through legislation passed since 1997.

D. Japan's Environmental Problems Today

Despite an increasingly global focus on environmental problems, Japan still faces numerous domestic issues. Such concerns include issues like the disposal of excessive waste, the widespread presence of dioxins, potential nuclear contamination, buried chemicals left from World War II, buildings built with toxic compounds, and polluted soil, water, and

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77 WONG, supra note 27, at 49.
79 The Basic Environment Law, supra note 78, art. 3.
80 Id. art. 4.
81 Id. art. 5.
82 Id. arts. 6-9.
83 WONG, supra note 27, at 49.
84 Kawashima, supra note 41, at 252.
85 The Basic Environment Law, supra note 78, art. 11.
86 Kazuhiro Uela & Harumi Koizumi, Reducing Household Waste: Japan Learns from Germany, ENVIRONMENT, Nov. 1, 2001, LEXIS, News Group File. See also OECD, supra note 6, at 105-28.
87 Osaka Towns Face Long Haul to Solve Dioxin Problem, supra note 8; Record-High Concentrations of Dioxin Detected in Osaka, supra note 8.
In addition, some problems thought solved, like rice tainted with cadmium, have reappeared. Like many post-industrial countries, Japan is finding that such environmental problems are caused by a combination of political, economic, and social factors not readily solved through technical fixes. These problems are exacerbated by their diffusion through both space and time: contamination is widespread and the harm may linger into the future.

III. FROM 1997 TO 2003: JAPAN’S NEW PHASE IN ENVIRONMENTAL POLICY

In 1989, one commentator suggested that only a severe environmental catastrophe could give the Japanese government the necessary incentive to enter a new phase of environmental policy. However, Japan has recently made significant changes to its environmental policy without the catalyst of catastrophe. These changes have been prompted by both international and domestic concerns and opportunities.

Along with the international criticism that encouraged more thorough cooperation on environmental issues, international innovations have been adopted in Japan. One example is the German Extended Producer Responsibility Law, which requires manufacturers to pay for all production and disposal costs associated with a product and its packaging. Another example is the U.S. Toxic Release Inventory Law that requires firms to report information on the use, storage, and release of hazardous chemicals. After these laws were passed, the Organisation for Economic Cooperation and Development (“OECD”), an organization known for its

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93 Hyogo Residents Seek Mediation in Air Pollution Row, JAPAN ECON. NEWSWIRE, Oct. 15, 2002, LEXIS, News Group File (residents seeking to enforce vehicle emissions settlement). Part IV of this Comment explores three of these issues—excessive waste, regulation of dioxin, and industrially contaminated soils—in more detail.
95 See Adam & Van Loon, supra note 10, at 7.
96 Weidner, supra note 2, at 498.
97 See supra note 74 and accompanying text.
98 BARRETT & THERIVEL, supra note 4, at 27.
99 Weidner, supra note 2, at 498.
100 Schreurs, supra note 36, at 150-51. See also supra note 74 and accompanying text.
101 See, e.g., Portney & Stavins, supra note 99, at 3.
emphasis on uniform regulations that affect trade,\textsuperscript{102} encouraged their adoption in other member countries.\textsuperscript{103}

On a national level, Japan's long-lasting economic downturn has shaken the government's historic stability\textsuperscript{104} and led to general reform.\textsuperscript{105} These reforms have re-emphasized concern for environmental issues.\textsuperscript{106} This emphasis is exemplified by the transformation of the Environmental Agency into the Ministry of Environment in 2001,\textsuperscript{107} a move that ostensibly placed environmental issues on an equal footing with economic concerns.\textsuperscript{108} In addition, the marketing of "green" products and services is seen as an excellent economic opportunity.\textsuperscript{109} Although smaller businesses are less interested in environmental issues,\textsuperscript{110} many large companies have recognized the importance of a pro-environmental image to better compete in the international marketplace.\textsuperscript{111} Accordingly, more Japanese companies have sought certification of international environmental standards than companies from other countries.\textsuperscript{112} Along with the persistent environmental problems

\begin{thebibliography}{112}
\bibitem{102} JOHN BRAITHWAITE \& PETER DRAHOS, \textit{GLOBAL BUSINESS REGULATION} 276 (2000).
\bibitem{104} The Liberal Democratic Party lost power for the first time since World War II in 1993, but regained power in 1994 in a coalition government by promising reform. \textit{GERALD L. CURTIS, THE LOGIC OF JAPANESE POLITICS: LEADERS, INSTITUTIONS, AND THE LIMITS OF CHANGE} 20-21 (1999). The subsequent coalition governments have continued to be reform-minded in many areas of law. \textit{Id. at 21.}
\bibitem{106} \textit{Id.}
\bibitem{107} Kankyôshô setchi hô [Environment Ministry Law], Law No. 101 of 1999 (effective 2001).
\bibitem{108} \textit{See, e.g.,} Kato \& Ray, \textit{supra note 5, at 158-60. See also discussion supra note 48.}
\bibitem{109} \textit{See, e.g.,} Cabinet Report, \textit{supra note 105.}
\bibitem{1010} WONG, \textit{supra note 27, at 65 ("These medium- and small-sized Japanese firms find little to be interested in the international market because they produce mainly for the domestic market where green consumption is still insignificant.").}
\bibitem{111} \textit{Id. at 68.}
\bibitem{112} The International Standards Organization's ("ISO") 14000-series standards, released in 1996, are the primary mechanisms for environmental certification. \textit{See, e.g.,} Kato \& Ray, \textit{supra note 5, at 196.} From 1996 to December 2000, 5222 enterprises acquired certification in Japan, as compared with 2400 in Germany and 1500 in Britain. \textit{Id.} In order to be ISO-14000 certified, companies must review their practices and create an environmental management system that includes a comprehensive policy, review, and feedback system. \textit{MAKIKO YASHIRO \& HARI SRINIVAS, LEVELING THE PLAYING FIELD: ISO 14001 AND LOCAL GOVERNMENTS IN JAPAN} (U.N. Univ. Working Paper No. 5, 2000), \url{http://202.253.138.71/Scripts/dbm.exe?template=ENV/publication1.dbm&type=1&ID=269} (last visited Feb. 26, 2003). Because a certified entity must simply strive for "continual improvement" in environmental management, some fear corporate "green washing": using the ISO label as an international sales tool without actual clean up of environmental problems. \textit{See, e.g.,} ISO 14000: \textit{A Factsheet for NGOs}, \textit{ECOLOGIA} (2002),
\end{thebibliography}
outlined above, these factors have given Japan the necessary incentive to enter a new phase in its environmental policy.

Beginning with the long-awaited adoption of the Environmental Impact Assessment Law in 1997, Japan's new environmental laws represent a shift away from sole reliance on command and control laws towards an emphasis on transparency and openness. New regulatory tools still rely on technical mandates, but now incorporate elements of public information and public participation. Instead of a presumption against public access to information, there are now statutes that protect the public's right to learn about environmental issues affecting them. Instead of the limited voice of local citizen protest movements, more national non-profit organizations are incorporating under now easier-to-meet legal standards. Instead of limited mechanisms for public input, public opinion is sought through environmental impact assessments. Combined, these legal changes represent a significant shift in Japan's environmental policy.

A. Japan's New Environmental Statutes: Technical Fixes and a Regulatory Mix

From May 1997 to January 2003, Japan amended or adopted nearly thirty new laws affecting environmental policy. The amended laws control traditional areas of environmental regulation like nitrogen dioxide emissions from cars and energy conservation. At the same time, the new laws address both emerging local and global concerns and range from a law governing sustainable agriculture to the world's first national global climate change law. Many of these new laws not only require technology-


113 See discussion infra Part III.C.2.


115 Jidosha kara haishutsusarem chisso sankabutsu oyobi ryūshijō busshitsu no tokutei chiiki ni okeru sōryō no sakugen tō ni kansuru tokubetsu sochihō [Law Concerning Special Measures for Total Emission Reduction of Nitrogen Oxide from Automobiles in Specific Areas], Law No. 70 of 1992, amended by Law No. 77 of 2002, discussed in OECD, supra note 6, at 81-82.

116 Enerugi no shiyō no gōrika ni kansuru hōritsu [Law Concerning the Rationalization of Energy Use], Law No. 49 of 1979, amended by Law No. 145 of 2002, discussed in OECD, supra note 6, at 80.

117 Jizokusei no takai nōgyō seisai hōshiki no dōnyū ni sokushin ni kansuru hōritsu [Law Concerning the Promotion and Introduction of Sustainable Methods of Agricultural Production], Law No. 110 of 1999, amended by Law No. 51 of 2002, discussed in OECD, supra note 6 at 282.

based standards similar to those under the 1970s era laws, but also mandate public access to information. For example, the emission standards under the Dioxin Control Law work in conjunction with the Pollution Release and Transfer Registry Law’s mandate for public access to information about a company’s release of hazardous substances. Another example is the Soil Contamination Law’s mandate for the clean up of industrial soil contamination and public disclosure requirement. Other laws take a more proactive approach. For example, the new recycling laws seek to regulate behavior and prevent future problems with waste management. This effort is further bolstered by a legal mandate for the government to purchase “green products.” Although each individual law focuses narrowly on clean up or prevention of particular problems, the new laws collectively signify an important change in Japan’s environmental policy. New requirements for public information and participation reinforce this change.

B. Public Access to Information

Historically, public access to information has been limited in Japan. Key government decisions have not required formal hearings or preparation of a record. At the same time, enforcement has primarily been through informal “administrative guidance” and negotiated agreements. While these tools have been credited with encouraging faster and less adversarial clean up of environmental problems, they have also been criticized for a lack of institutional review, arbitrary or discriminatory application, vulnerability to political influence, potential conflicts with statutory objectives, and possible incompatibility with international commerce and

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119 See discussion infra Part IV.B.
120 The PRTR Law is discussed infra notes 139 to 144 and accompanying text.
121 See infra notes 249, 252 and accompanying text.
122 See discussion infra Part IV.A.
124 WONG, supra note 27, at 51.
125 GRESSER ET AL., supra note 25, at 232.
127 Ridgley, supra note 58.
The use of administrative guidance has allowed public officials to maintain an "almost overwhelming legal presumption" that has protected the "integrity of the system from public intrusion." Although the 1993 Administrative Process Act was meant to promote administrative clarity and fairness, some argue that it simply codified the status quo. However, new laws are shifting the custom towards public access to information held by both the government and private companies.

After more than twenty years of debate and adoption of similar laws by local governments, the Diet adopted a national information disclosure law in 1999. Meant to "ensure that the government is accountable to the people for its various operations," this law requires that government agencies release all information except that concerning individuals, corporations, administrative decisions, criminal investigations, public and national security, and "certain administrative operations." Public interest in this law was immediate: more than four thousand disclosure requests were filed in the first few weeks of operation. While the release of information has been slow, it has been asserted that "[t]he government is cleaning up its act by virtue of the fact that there's scrutiny at all."

Along with access to government-held information, information from individual companies is becoming more transparent. As of 1999, the Pollutant Release and Transfer Register ("PRTR") requires companies to submit information about chemical releases that are hazardous to human

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129 GRESSER ET AL., supra note 25, at 234.
130 Id. at 232.
134 Schultz, supra note 132, at 147.
135 Id. at 153.
After the government publishes a compilation of the quantity of hazardous materials released, members of the public may request information about releases from individual companies. With its provisions becoming effective over time, the PRTR will eventually include all major polluting industries like manufacturing, power production, and mining. In response to increased consumer access to such information, industry is expected to reduce its use and production of hazardous chemicals. After the United States passed a similar law in 1986, release of toxic chemicals dropped from 10.4 billion pounds in 1987 to 2.577 billion pounds in 1997. A similar effect is expected in Japan. Combined, the information disclosure and the PRTR laws provide public access to information to a degree previously unknown.

C. Avenues of Public Input

Except for the citizen protest movements of the 1970s, public input in policy decisions has also been limited. Recent legislation, however, increased avenues for public participation and comment in two ways: first, by making it easier for non-profit organizations to incorporate, and second, by implementing a long-awaited environmental impact assessment process.

1. The Re-creation of Japanese Non-Profit Organizations

Despite the strength of the 1970s citizen protest movements, non-profit organizations (“NPOs”) are only now becoming legally established in Japan. Local citizen movements helped change Japan’s environmental

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140 PRTR Manual, supra note 103, at 197-98.
141 Id. See also OECD, supra note 6, at 45. Categories of affected businesses and designated chemical substances are listed in the Cabinet Order for Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management, Cabinet Order No. 138 of 2000, http://www.env.go.jp/chemi/prtr/e-co.html (last visited Feb. 26, 2003).
142 See OECD, supra note 6, at 199.
144 OECD, supra note 6, at 199.
145 See, e.g., BARRETT & THERIVEL, supra note 4, at 75-76.
policy during the 1970s, but the apparent environmental success of that decade "stole the thunder of many local anti-pollution movements." Unlike the movements in Europe or the United States, Japanese movements never coalesced into effective non-profit organizations. Those that did survive remained relatively limited in scope, number, and legal status. By the late 1990s, such groups had faded so significantly that people felt that citizens' movements could not affect environmental policy.

Citizen input through non-profit organizations is likely to become easier since the passage of a new NPO law. Prior to 1998, the standards to become a non-profit corporation were prohibitive: a ¥300 million endowment (around US$3 million), an annual budget of ¥30 million, an activity plan, a board of "publicly esteemed individuals," the often reluctant approval of a national ministry, and a purpose of "promot[ing] the general interest." The 1998 standards removed many of these requirements and now allow local governments to legally recognize groups as NPOs. Although tax exemption for NPOs remains under debate, more than six thousand NPOs have incorporated since 1998. While NPOs are expected to develop the political power and voice necessary to influence Japanese policy, the extent of their impact remains unclear.

2. Environmental Impact Assessment

In addition to NPO organization, public comment on projects with an environmental impact is expected to change environmental policy. Although other countries like the United States passed environmental impact
assessment laws more than thirty years ago, Japan’s attempts to pass similar national legislation failed. While the government held hearings on contentious issues like the placement of nuclear facilities, no one really expected citizens to participate in making the decision. Rather, such events have been described as “explanatory hearings.” Although local prefectures adopted environmental impact assessment requirements and the national government developed general guidelines, the Diet did not formalize any legal parameters until 1997.

The 1997 Environmental Impact Assessment (“EIA”) Law provides a significant avenue for public input into national environmental policy. Enacted after more than thirty years of debate, an EIA is now required for large projects like the construction of roads, power plants, railways, dams, airports, industrial complexes, and waste disposal sites. For such projects, environmental impacts must be assessed through surveying, predicting and assessing the likely impact of the project, studying possible environmental protection measures, and assessing the impact of those measures. Important for fostering public participation, a project proponent must release documents for public review in the affected area, accept and review public comments, and wait until after a public announcement to implement a project. The EIA law also strengthens the role of the Ministry of the Environment by requiring consideration of the Minister’s opinion.

Although this law has already been applied to ninety-seven projects, its effectiveness remains uncertain. Because it applies only prospectively, controversial projects commenced before the enactment

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160 See, e.g., UPHAM, supra note 28, at 60.
161 Id. at 66.
162 Id. at 61.
163 BARRETT & THERIVEL, supra note 4, at 101-07.
164 OECD, supra note 6, at 52.
166 See, e.g., BARRETT & THERIVEL, supra note 4, at 93-148 (reviewing the efforts in Japan to pass a national environmental assessment law); TSURU, supra note 64, at 150-57.
167 EIA Law, supra note 165, art. 2, ¶2(1)-(2).
168 Id. art. 2, ¶(1)(a)-(c).
169 A project proponent must release the scoping document, any draft environmental impact statements (“EIS”), and the final EIS. Id. arts. 7, 16, 27. A scoping document must include information about the project’s proponent; the location, purpose, content, and general conditions of the project; the items to be considered through the EIA; and the methods to be used in making determinations. Id. art. 5.
170 Id. arts. 8, 14(1)(1).
171 Id. art. 31(1).
172 Id. art. 24.
173 OECD, supra note 6, at 52.
174 EIA Law, supra note 165, art. 54.
date are not covered. Further, NPOs have suggested that overall evaluation has been difficult because larger projects are often split into smaller pieces that do not require assessments of environmental plans or programs. Regardless, like the NPO Law, the EIA process may become a powerful tool to implement change in environmental policy.

IV. LEGISLATIVE IMPACTS EXAMINED: WASTE DISPOSAL, DIOXIN CONTROL, AND INDUSTRIAL SOIL CONTAMINATION

The recent changes in Japan’s environmental law could be illustrated by exploring various topics. However, three issues of recent concern—waste disposal, dioxin control and industrial soil contamination—have been highlighted by the press, the national government, and the OECD. Although much has been written about Japan’s waste and dioxin problems, the extent and impact of industrial soil contamination is only just beginning to be understood. Despite the varying levels of knowledge, the recent legislative changes impact all three of these areas of concern.

A. Excessive Waste

Despite the costly fact that it imports more than ninety percent of its resources, Japan still produces a prodigious amount of garbage. Each year, Japan produces an average of 51 million tons of municipal waste, 22% of which ends up in landfills. Four hundred million tons of non-municipal waste is also generated, including sewage sludge, slag, livestock excrement, and construction debris. Although municipal waste is 18%
below the average per capita for OECD countries.\textsuperscript{187} Japan suffers from extremely limited disposal space.\textsuperscript{188} Meanwhile, citizen protests have blocked the construction of new landfills\textsuperscript{189} and rising disposal costs have substantially increased problems with illegal dumping.\textsuperscript{190}

In order to reduce this waste problem, Japan is endeavoring to create a "recycling based society."\textsuperscript{191} While the 1970 Waste Management and Public Cleansing Law\textsuperscript{192} and the 1991 Law for Promotion of Utilization of Recyclable Resources\textsuperscript{193} provided standards and incentives for recycling, Japan has only recently extended its focus from conventional waste to addressing all materials generated by human activities.\textsuperscript{194} Accordingly, the government now mandates waste recovery from food,\textsuperscript{195} household appliances,\textsuperscript{196} containers and packaging,\textsuperscript{197} construction and demolition materials,\textsuperscript{198} and computers.\textsuperscript{199} A bill for recycling automobiles is also under

\textsuperscript{187}Id. at 108.
\textsuperscript{188}According to the OECD, Tokyo has only the equivalent of 0.8 year left in its municipal landfill. \textit{Id.} at 126.
\textsuperscript{189}Uela & Koizumi, \textit{supra} note 86.
\textsuperscript{190}Illegal dumping resulted in more than 460,000 square meters of PCB, lead, and dioxin contaminated waste on Teshima Island in Japan's Seto Inland Sea. \textit{Yoshida, supra} note 12, at 32-33.
\textsuperscript{191}Junkangata shakai keisei suishin kihonohō [The Basic Law for Establishing the Recycling-Based Society], Law No. 110 of 2000, \textit{discussed in OECD, supra} note 6, at 124 [hereinafter The Basic Recycling Law].
\textsuperscript{193}Shigen no yūkōna riisō no sokushin ni kansuru hōritsu [Law for Promotion of Utilization of Recyclable Resources], Law No. 48 of 1991, \textit{amended by Law No. 1 of 2002, discussed in OECD, supra} note 6, at 106.
\textsuperscript{194}See OECD, \textit{supra} note 6, at 106, citing The Basic Recycling Law, \textit{supra} note 191.
\textsuperscript{195}Shokuhin junkan shigen no saisei riisō to no sokushin ni kansuru hōritsu [Food Recycling Law], Law No. 176 of 2001, \textit{discussed in OECD, supra} note 6, at 106.
\textsuperscript{196}Tokutei kateiyō kiki sai-shōhinkahō [The Law Requiring the Recycling of Home Appliances], Law No. 97 of 1998, \textit{discussed in OECD, supra} note 6, at 106, 118.
\textsuperscript{197}Yōki hōsō ni kakaru bunbetsu shūshū oyobi sai-shōhinka no sokushin to ni kansuru hōritsu [The Law for the Promotion of Sorted Collection and Recycling of Containers and Packages], Law No. 112 of 1995, \textit{discussed in OECD, supra} note 6, at 113. This law is similar to Germany's Extended Producer Responsibility Law, \textit{supra} note 100 and accompanying text.
\textsuperscript{198}Kensetu kōji ni kakaru shizai no sai-shigenka to ni kansuru hōritsu [Construction Material Recycling Law], Law No. 104 of 2000, \textit{amended by Law No. 45 of 2002, discussed in OECD, supra} note 6, at 106.
\textsuperscript{199}Pasonaru konpyūta no seizō to no jigyō o okonau mono no shiyōzai pasonaru konpyūta no jinushi kaishō oyobi sai-shigenka ni kansuru hanadan no kijin to narubeki jikō o sadameru shōrei. [Manufacturer's Standard for Conservation and Private Owner Reuse of Personal Computers], METI & MoE, Ministerial Ordinance No. 1 of 2001.
These laws establish recycling quotas, taxes, and assessment fees on garbage producers, increase enforcement, encourage investment in recycling technology, and require the government to buy products made with recycled material.

The effects of Japan's waste reduction efforts are already noticeable. Between 1990 and 1998, overall municipal waste production stabilized, recycling ratios increased from 5% to 12%, and the amount of waste put in landfills was reduced by 32%. Overall, the recovery rate for non-municipal waste has also increased from 38% in 1990 to 42% in 1998. Some of the recycling laws had an immediate effect. For example, under the requirements of Appliances Recycling Law, thirty-eight new facilities recovered 2.7 million appliances in the first four months. The need for recycling facilities is encouraging redevelopment; for example, NKK Japan turned an under-utilized steel factory into a recycling plant for used household appliances. However, Japan is still generating waste products; for example, plastic waste production nearly doubled between 1990 and 1998. Also problematic is that waste producers, like consumers, do not yet pay the true cost of disposal. While the effort to build a "recycling based society" is helping Japan reduce its waste, deeply ingrained patterns of societal consumption change slowly.
B. Japan's Dioxin Problem

Dioxin is another pervasive problem in Japan. A compound that causes cancer and birth defects, dioxin has been found in places as diverse as Osaka’s ground-water or Tokorozawa’s vegetables. Known sources of dioxin include many older or smaller incinerators, but even recently built facilities are not immune to dioxin problems. For example, the Nose Incinerator, built in 1988, was shut down in 1997 for heavily polluting Osaka and its environs with dioxin. After widespread negative publicity associated with this problem, the government disclosed the full extent of the dioxin problem: reminiscent of its pollution problems of the 1960s, Japan is currently more polluted with dioxin than any other country in the world.

In response to growing public concern, Japan has adopted increasingly strict standards governing dioxin releases. In 1990, the Environment Agency initially set guidelines for the reduction of dioxin emissions. The 1997 amendments to the Air Pollution Control Law and the Waste Management and Public Cleansing Law included stricter regulations. However, these regulations lacked any penalty for exceeding emission standards. Even so, between 1997 and 1999, four thousand small waste incinerators that could not comply with the standards shut down and dioxin emissions decreased by more than sixty percent. Finally, after continued public outcry, the Diet passed the world’s strictest dioxin standards in 1999.

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212 See also YOSHIDA, supra note 12, at 46-49. Dioxin is a generic name for a group of chlorinated chemical compounds known to cause health problems if present in sufficient quantities. Id.
213 OECD, supra note 6, at 201.
216 Ochi, supra note 214.
217 Id.
218 See YOSHIDA, supra note 12, at 48.
219 Id. at 46.
220 OECD, supra note 6, at 73, 201.
221 Id. at 201.
222 Id.
223 Id.
224 Id. at 65.
225 Id. at 73.
The new dioxin law epitomizes Japan's new regulatory mix. Technical emission standards combine with a requirement for citizen cooperation. New regulations, reducing releases to one-eighthieth the amount previously allowed, now provide for strict enforcement mechanisms that include fines and possible imprisonment. Government guidelines also emphasize the need for accurate public information disclosure. Even without government-mandated disclosure, however, citizens may now use the PRTR law to determine how much dioxin their local incinerator produces, and then act accordingly. Although the long-term impact of these laws is not yet known, the decreasing dioxin levels are encouraging.

C. Soil Contamination and the Clean Up of Industrial Sites

While pollution of agricultural lands has long been a concern, industrial soil contamination is now becoming a critical issue. Due to the drop in land prices during the economic recession, industrial land is being redeveloped into non-industrial uses. In addition, potential investors, particularly those familiar with the U.S. "Superfund" liability law, have become increasingly wary of buying property without a detailed soil analysis. To the frustration of the public, such redevelopment and analyses have turned up widespread soil contamination. In Osaka, for example, residents accused Mitsubishi of a breach of trust by not disclosing arsenic and selenium discovered below a recently built apartment and hotel.

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227 Id. arts. 8-11.
228 Id. art. 5.
230 Dioxin Control Law, supra note 226, arts. 44-45.
232 See discussion about the PRTR Law, supra Part III.B.
236 Dawson, supra notes 9, 91.
238 Id.
complex. Such incidents are not isolated. In contrast to the estimated 43,000 listed "hazardous" sites in the United States, Japan hosts at least 574 confirmed sites and as many as 93,000 potentially polluted sites in an area smaller than California. Although local governments had previously enacted some soil pollution laws, national management of soil contamination at former industrial sites was "rather weak" until recently.

In May 2002, the Diet passed the Soil Contamination Law. Effective in January 2003, this law provides for measures to detect and clean up industrial soil contamination in order to protect the public health. First, local officials may appoint an accredited entity to assess sites where hazardous material was formerly used and designate contaminated areas. If this assessment reveals soil contamination, the current landowner may be ordered to clean it up. The local government may also require landowners to assess and clean up any contamination on their land prior to redevelopment or sale. Although the responsibility for clean up costs usually belongs to the current landowner, an innocent owner—one who did not contribute to the existing pollution—may demand clean up and removal costs from a polluting party. If an innocent landowner is a victim of "midnight dumping" and the perpetrator cannot be found, a local government may use a national fund to pay for clean up costs. In general, landowners must disseminate public information about contaminated land.

Although this law may help clean up soil contamination, the liability for current landowners comes at a time when the value of Japanese real estate is uncertain. At peak valuation during the late 1980s, real estate

239 Mitsubishi Firms Conceal Water Contamination at Osaka Projects, supra note 92.
241 See, e.g., Dawson, supra notes 9, 91.
243 OECD, supra note 6, at 45. The OECD suggested the first step to addressing this was the creation of clear liability rules and a legal framework to systematically detect and remediate contaminated sites. Id.
244 Doj6 osen taisakuho [Soil Contamination Law], Law No. 53 of 2002 (effective Jan. 2003) (provisional translation by Grant Smith on file with author) [hereinafter Soil Contamination Law].
245 Id. art. 1.
246 Id. art. 2. Article 6 sets out the requirements for an accredited entity. Id. art. 6.
247 Id. art. 3.
248 Id. art. 4.
249 Id. art. 4.
250 Soil Contamination Law, supra note 244, art. 4(8).
251 Fees from Owners of Polluted Land, Businesses Set, JAPAN ECON. NEWSWIRE, Nov. 7, 2002, LEXIS, News Group File. The Ministry of Environment and Keidanren (the Federation of Economic Organizations) agreed this fund would be created from a ¥700 per truckload fee paid by owners or operators on whose land contaminated soil has been dumped.
252 Soil Contamination Law, supra note 244, art. 7(35).
values were four times greater than those of the United States.\textsuperscript{253} Even prior to the discovery of soil contamination, however, land prices had steadily declined every year since 1991.\textsuperscript{254} As these dropping land prices and the economic downturn made investment in Japan more affordable, foreign direct investment increased from less than one percent in 1991\textsuperscript{255} to record highs by the year 2000.\textsuperscript{256} As a result, "bargain hunting foreigners" have been "snapping up cheap loan portfolios" backed by real estate without appreciating the potential liability from contaminated soil.\textsuperscript{257} Such surprise is likely exacerbated by the difficulty in conducting due diligence\textsuperscript{258} because records of previous owners and land uses have historically not been kept.\textsuperscript{259} Because current owners face such significant liability for polluted soils—an estimated one hundred billion dollars in potential clean up costs\textsuperscript{260}—property is no longer as prized an asset.\textsuperscript{261}

V. \textbf{THE CHANGES AND IMPACTS OF JAPAN'S NEW REGULATORY MIX}

Since the 1997 passage of the Environmental Impact Assessment Law, Japan's environmental policy has significantly shifted. Japan is now seeking to prevent environmental problems, rather than to just clean them up. For example, the "recycling based society" promotes recycling of numerous kinds of material in order to prevent the need for waste disposal.\textsuperscript{262} Ideally, an environmental impact assessment will also help identify and prevent environmental problems before they occur.\textsuperscript{263}

Laws that would have been once solely technical now include elements of public awareness and participation. The Dioxin Control Law, for example, mandates strict emission controls similar to those required by the 1970 Air Pollution Law.\textsuperscript{264} Although enforcement of these standards

\textsuperscript{253} Curtis, supra note 104, at 20-21.
\textsuperscript{254} Land Prices Continue to Fall, Japan Times Online, Jan. 10, 2003, at http://www.japantimes.co.jp/cgi-bin/getarticle.pl?nb20030110a8.htm.
\textsuperscript{257} Dawson, supra notes 9, 91.
\textsuperscript{258} Due diligence is a prospective buyer's or broker's investigation and analysis of a target company, a piece of property, or a newly issued security. Black's Law Dictionary 468 (7th ed. 1999)
\textsuperscript{259} Dawson, supra notes 9, 91.
\textsuperscript{260} Id.
\textsuperscript{261} Id. See also Soil-Cleaning Costs to be Reflected in Value of Real Estate, supra note 235.
\textsuperscript{262} The Basic Recycling Law, supra note 191.
\textsuperscript{263} EIA Law, supra note 165, art. 1.
\textsuperscript{264} Air Pollution Control Law, supra note 44.
still requires government action, the public must now be provided with accurate information under both the dioxin law and through the Pollution Release and Transfer Registry system. Likewise, the Soil Contamination Law not only mandates clean up according to the standards set by the Ministry of the Environment, but also requires public disclosure of contaminated areas. Because of the requirements for both technical "fixes" and public disclosure of information, these new environmental laws may better promote long-term environmental protection.

General laws governing the public's access to information and right to participate in decision making should also help Japan deal with its environmental issues. Information held by the government, once inaccessible to the public, is now available through the Information Disclosure Law. Information held by private companies is now also accessible. Access to public information will allow more individual and collective scrutiny and input into environmental processes, especially through the increasing numbers of non-profit organizations. Instead of an ad hoc system that presumes no public participation, the Environmental Impact Assessment process mandates public involvement with large projects. Although citizen standing to sue remains limited, public outrage and protest have been effective in changing policy decisions affecting Japan's environment before and can do so again.

The resurgence of Japan's environmental legislation has also created a market for environmental goods and services. Government agencies are now required to buy goods made from recycled materials. Companies have changed their facilities to accommodate environmental mandates; for example, manufacturers required to take back used appliances have reinvested in underutilized facilities. Environmental services are also extremely important. For example, the ¥1.623 billion pollution abatement equipment industry was already one of Japan's largest manufacturing sectors.

265 Dioxin Control Law, supra note 226, arts. 44-45.
266 See PRTR Law, supra note 139; PRTR Manual, supra note 103.
267 Soil Contamination Law, supra note 244, art. 7(35).
268 See discussion supra Part III.B.
269 See discussion supra Part III.B.
270 See discussion supra Part III.C.1.
271 See discussion supra Part III.C.2.
272 See supra note 62 and accompanying text.
273 See discussion supra Part II.A.
274 See, e.g., Cabinet Report, supra note 105.
275 The Green Procurement Law, supra note 123.
by 1995.²⁷⁷ Although the Soil Pollution Law impacts the value of property, it is predicted to further increase the need for environmental services.²⁷⁸ More than two hundred general contractors have already entered the soil remediation field²⁷⁹ while Japanese trade organizations continue to broadcast the possibility of a lucrative market to foreign investors.²⁸⁰

VI. CONCLUSION

The environmental policy changes that have occurred from 1997 to 2003 reflect the general trend towards transparency and openness in Japan.²⁸¹ Where Japanese environmental policy once emphasized a technical regulatory framework to clean up existing pollution, it now also focuses on prevention. A historical lack of available public information has evolved into a more transparent system, where the public may access both government records and some kinds of privately held information. Instead of a policy process closed to public input except through protest, the new environmental laws require a degree of openness and public participation heretofore unseen in Japan. These changes are bolstered by the new ease for interested groups to become legally recognized NPOs, international pressure for environmental action, and Japan's desire to resurrect its economy. Because of the difficulty in cleaning up modern environmental problems, Japan's new laws are not comprehensive solutions. Over the long run, however, the new laws should allow Japan to more readily deal with its modern environmental problems.

²⁷⁷ Ryo Fujikura, Integration of Environment into Sectoral Politics, in URBAN AND INDUSTRIAL MANAGEMENT IN DEVELOPING COUNTRIES: LESSONS FROM JAPANESE EXPERIENCE 13 (Wilfrido Cruz et al. eds., 1998).
²⁷⁹ Estimates range from ¥2.3 to ¥60 trillion to survey and clean up polluted sites. See Soil-Cleaning Costs to be Reflected in Value of Real Estate, supra note 235; Asaba, supra note 278.
²⁸⁰ See, e.g., JETRO, supra note 201.