Postwar Environmental Changes in Japan

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Japan's postwar economic development made a tremendous impact on the national and global environment. Like China today, Japan in the 1950s and 1960s expanded rapidly and pursued growth at almost any cost. Rapid growth and unbridled pollution led to Japanese citizens demanding change and environmental protection in the 1970s. By the mid-1970s, extensive programs for environmental protection were implemented. Japan succeeded in protecting the environment and continued to grow during the 1970s and 1980s until the burst of the bubble economy in the late 1980s slowed allocation of resources for environmental protection.

Since the 1990s, Japan has played an active international role in global environmental protection. Japan's Overseas Development Agency (ODA) began to pay special attention to environmental protection in its foreign aid programs. Several international conferences and events, such as the 1986 Montreal Protocol on Substances that Deplete the Ozone Layer, the 1987 United Nations Environment Program report *Our Common Futures*, formation of the Intergovernmental Panel on Climate Change in 1992, and the 1992 *Rio de Janeiro Conference on Environment and Development*, stimulated Japan's concern for worldwide environmental problems. In 1997, Japan hosted the UN Conference on Climate Change in Kyoto that reinvigorated attention to global environmental problems. At the beginning of the twenty-first century, Japan faces several persistent and new environmental challenges. Among these are how to approach sustainable development, mitigate climate change, and reduce the risks posed by the growing use of chemicals.

Japan's postwar environmental policy can be divided into three phases: 1945 to 1970 was a period of rapid economic growth and unbridled pollution, 1970 to 1989 was characterized by successful implementation of environmental protection laws, and, since 1990, there has been a shift toward a major focus on global environmental issues (Table 1).

Table 1. Environment Pollution Events and Environmental Protection Policy 1945–2010

PHASE I: ECONOMIC DEVELOPMENT FIRST, ENVIRONMENTAL PROTECTION LATER 1945–70	
1953	Symptoms of what will be called "Minamata Disease" appear in Kumamoto Prefecture
1955	First public reports of itai-itai disease, previously diagnosed by a doctor in Toyama Prefecture
1963	Marked increase in the number of cases of asthma in Yokkaichi, Mie Prefecture is first conected to air pollution from an industrial complex
1967	Basic Law for Environmental Pollution passed
PHASE II: EXTENSIVE PROGRAM FOR ENVIRONMENTAL PROTECTION ESTABLISHED 1970–1989	
1971	Environmental Agency established
1972	Nature Conservation Law passed
1972	UN Conference on the Human Environment in Stockholm
1973	Pollution related Health Damage Law passed
1974	Air Pollution Control Law amended to include area-wide pollutant load
1978	Law to protect the environment of Seto Inland Sea passed
1987	World Commission on Environment and Development report *Our Common Future* proposed the concept of sustainable development to protect the environment
1988	Law to protect Ozone Layer put into effect in Japan
PHASE III: ACTIVE ROLE IN GLOBAL ENVIRONMENTAL PROTECTION SINCE 1990	
1992	UN Conference on Environment and Development (Earth Summit) in Rio de Janeiro.
1993	The Japan Fund for Global Environment established
1995	Minamata disease victim organizations accept government offer to provide support to victims
	Sodium leak occurs at fast breeder reactor "Monju"
1997	Environment Impact Assessment Law implemented
	Radiation leak occurs at the Tokai nuclear fuel reprocessing plant
	UN Convention on Climate Change in Kyoto
1998	Law for the Promotion of Measures to cope with Global Warming passed
2000	Ministry of Environment created
2003	Laws to encourage environmental preservation and promotion of environmental education passed
2007	Revised Act on Promotion of Global Warming Countermeasures passed
	"Cool Earth 50" announced by Japan to cut greenhouse emissions by half from the current level by 2050
2008	Commitment under the Kyoto Protocol to reduce Japan's total greenhouse emissions by six percent in the first period (2008–2012)
2009	UN Climate Conference in Copenhagen
2010	UN Climate Change Conference in Tianjin, China

The First Phase: 1945–1970

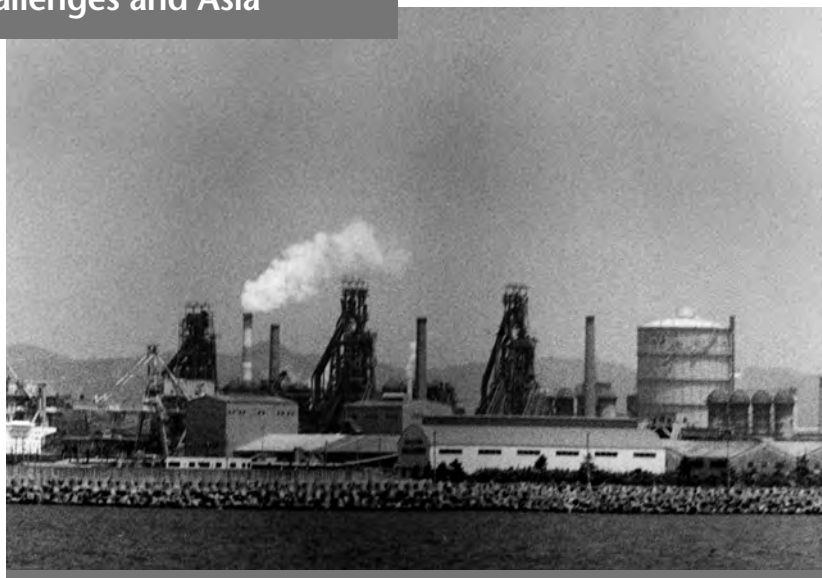
In the years following the end of the Pacific War, government-industry cooperation, a strong work ethic, and mastery of high technology helped Japan rapidly become a major world economy. This period was characterized by major industrial and urban development in Japan without regard for environmental protection. Industrial pollution and the resulting public health problems were largely ignored in pursuit of rapid and sustained industrial development. The early postwar period was marked by the single-minded concentration of the national government on economic reconstruction and catching up with the West. With the rapid economic growth of the 1960s and 1970s, industrialization caused heavy air and water pollution, and unchecked development destroyed the natural environment.

During the 1950s and 1960s, the government consistently refused to acknowledge or take responsibility for major environmental disasters such as mercury poisoning in Minamata and Niigata, cadmium poisoning in Toyama, and asthma cases in Yokkaichi. Finally, in 1968, Japan's government owned up to the tragedy in Minamata, where for decades the Chisso Corporation had been causing devastating human deformities by flushing mercury into Minamata Bay. In addition to Minamata, the most severe cases of direct environmental problems resulting from industrial pollution were the asthma epidemic in Yokkaichi caused by sulfur dioxide emissions from petrochemical industrial complexes in the 1950s and early 1960s and soil pollution from cadmium wastewater discharged into the Takahara River in the upper stream of Jinzu by the Kamioka Mining Station.

There are three basic reasons for the intensity of environmental destruction in Japan. First, commercial enterprises based company decisions on economic growth and disregarded social responsibility. This was made possible partly because the Japanese government nurtured industrial capital, and partly because Japanese society values the organization above the individual. With a state-defined national goal of rapid industrialization, ethical considerations to restrain expanding corporate entities were meager. Second, the symbiotic relationship between the Japanese political system and government and business organizations exacerbated finding solutions to environmental problems. Third, the introduction of modern technologies used for land reclamation and other development projects frequently aggravated environmental pollution.

In particular, exceptional congestion arising from the location of heavily concentrated industrial activities in crowded urban areas led to some of the most acute environmental pollution anywhere in the world. Over eighty percent of Japan's industrial production and most of the population are concentrated in a narrow zone stretching from the Kantō plain to northern Kyushu. This zone, termed the Japanese Megalopolis, contains the three large industrial regions of Keihin, Hanshin, and Chūkyō, which center respectively on the cities of Tokyo, Osaka, and Nagoya. Southwestward from Hanshin, this zone includes large industrial nuclei in Hiroshima and Kita Kyushu. Within each major industrial region, rapid industrial expansion was accompanied by fast population growth. The mounting geographical concentration of pollution-producing industry and the growing population was widely recognized as one of the major causes of serious environmental problems, ranging from air and water pollution to soil contamination.

Major environmental disasters created an awareness of the need to protect Japan's environment. In 1967, the government moved to counteract the damage by passing the Basic Law for Environmental Pollu-



Air and water pollution have been a devastating side effect of Japan's rapid industrialization in the 1960s and 1970s. Heavy industrial growth along the Inland Sea seen in this photo (near Takamatsu) led to severe pollution of the seawater. Environmental regulations have resulted in a much improved situation. (Photo: P. P. Karan)

A section of the Japanese Megalopolis in the Kantō Plain. The Megalopolis, stretching from Tokyo to Fukuoka, contains over eighty percent of Japan's population on nearly three percent of the nation's land area. The heavy concentration of people and industry in a limited area has produced environmental problems. Japan's adoption of regulations controlling emission of pollutants and use of fossil fuels has improved the urban environment. (Photo: P. P. Karan)

tion Control. The Air Pollution Control Law followed in 1968, and in 1972, the Natural Environment Conservation Law was enacted. These measures strengthened pollution control efforts by local governments and increased industry expenditures for pollution control measures.

The 1967 Basic Environment Law specifies three environmental principles. First, it acknowledges that the condition of the environment affects the survival of human beings; it is finite and depends on the fragile balance of the ecosystem. Second, the law recognizes that all sectors of society must shoulder their fair share of the burden for ensuring that social and economic activities place as little strain on the environment as possible, maintain sound economic development that takes into account environmental protection, and creates a sustainable society that integrates the environment with the economy. The law also recognizes the need to increase scientific knowledge to prevent environmental degradation. Third, the law states that Japan should be actively involved in conservation and use its economic and technological resources to promote international cooperation in the global community. The law mandated the creation of a Basic Environment Plan by the Prime Minister in consultation with the Central Environment Council to provide a comprehensive, long-term framework for environmental programs. The state plan would reinforce the local prefectural and metropolitan governments' environmental management plans for promoting environmental policies.

Japan's Ministry of Construction built dams such as this one in central Japan on most of the nation's rivers. While some Japanese residents have opposed construction on financial grounds, many others objected to the environmental damage the projects might cause. (Photo: P. P. Karan)

A new task facing Japan's local governments concerned with environmental protection is to raise awareness of the problem. In recent years, many schools such as this one in Shikoku have introduced environmental education in the curriculum. Students go on field trips to observe nature and study the environment. (Photo: P. P. Karan)

The Basic Environment Law stressed the importance of environmental impact assessments and other measures to ensure that corporations forecast the environmental impact of their projects. The law also recognized the importance of economic measures such as environment taxes, charges on wastes, and deposit-refund systems that reduce burdens on the environment by imposing economic surcharges. The law encourages the government and all other sectors to use environmentally friendly products and services, particularly those that promote recycling. It provides for promotion of environmental education in schools, communities, and government activities ranging from recycling to volunteer efforts to increase greenery. It also expands the scope of infrastructure improvements beyond traditional pollution control facilities to cover public transportation, bypasses to redirect through-traffic out of congested urban areas, forests, parks, and green zones, and other projects that will lessen the strain on the environment.

The Second Phase of Environmental Policy: 1970 to1989

The Basic Environment Law enforced a radical cleanup that began to address its legacy of environmental destruction. By the early 1980s, Japan had succeeded in hammering down critical pollution levels. Yokkaichi City in Mie Prefecture had been known for its high rate of asthma patients whose afflictions were caused by air pollution released from factories. By 1980, the city met the environmental quality standard, and the asthma problem abated.

During this period, grassroots environmental movements were important actors in the protection of Japan's environment. Rooted in local communities, they confronted Japan's socio-political structure in an effort to preserve local environments and ways of life from pollution and technological hazards. Japanese environmental movements represented an amalgam of new political energy composed of old conservationists, young deep ecologists, former socialists, and thousands of local activists and concerned citizens protesting against the ever-increasing number of cases of environmental destruction. These grassroots movements in Japan embraced a new kind of politics, replacing the old politics of the industrial society with new values. They stood for a post-modern environmental consciousness signaling new relations between society and nature, and emphasizing the combination of thought and action.

During the 1970s, there were nearly 3,000 citizen environmental movements, with estimates of between 60,000 and 135,000 people involved.[1] These numbers declined during the 1980s but began to rise again in the 1990s. Japanese grassroots environmental groups focused on single issues and local goals. They were typically made up of adults in their thirties or older, as opposed to the younger people and students who dominate environmental groups in the United States and Europe. Many professionals were involved, and women played a primary role. The environmental groups used a variety of methods in their efforts to change government policy, including direct actions, petitions, and law suits. The impact of these

groups on enacting changes in Japan's environmental laws and politics has been unique and striking.[2] As political historian Masumi Junnosuke notes, in Japan "pollution control legislation had its roots in antipollution movements."[3] Several of these movements involved citizen activism after the Tokai Village nuclear disaster. These included the work of local groups to preserve farming and farm land in Tokyo, efforts by farmers to work toward an environmentally friendly society in Ogata, the movement to preserve the urban landscape of Kyoto, efforts to save the Sanbanze tidelands of Tokyo Bay and Fujimae tidal flats in Nagoya, and the movement to protect the coral reefs of the Shiraho Sea at Ishigaki Island. These events are discussed in the 2008 *Local Environmental Movements: A Comparative Study of the United States and Japan*.[4]

By the early 1980s, Japan had succeeded in reducing critical pollution levels, especially air pollutants, ozone, and greenhouse gases. However, during the steady economic growth of the 1980s (until the 1989 bubble burst), mass production, mass consumption, and mass waste prevailed, with populations becoming more concentrated in urban areas. Greenery diminished in Japanese cities, and rural forests and farms faced major problems. Environmental assessments indicate that although Japan had largely improved its air quality, water quality, and energy efficiency, nature protection was still in poor condition during the 1980s.

Through development of energy-saving technologies, corporate Japan has managed to keep its overall annual energy consumption at the equivalent of about 200 million tons of oil since the early 1970s. The results are visible at many Japanese plants where massive steel ducts snake from furnaces and surrounding buildings to capture heat and gases that had previously been released into the air or burned off as waste. Now, they are used to power generators that produce the electricity used by the plants, but even with efficiency gains, Japan's emissions of carbon dioxide, the main greenhouse-gas emission from human activities, has continued to grow because of reliance on coal.[5]

During the late 1980s and early 1990s, many Japanese began to ask, "How much should this new prosperity be allowed to change the country's landscape and environment?" Driven by environmentalism and the need to preserve nature, citizens across Japan opposed construction of new golf courses. In 1990, six prefectures banned or severely restricted golf course development and many localities enacted laws to ban new courses because citizens opposed the agricultural chemicals used to maintain acres of golf greens that polluted the environment. The landscape of woodland and neat terraced rice paddies dotted with bamboo and straw scarecrows being transformed into fairways, bunkers and greens, with concrete clubhouses, left many Japanese uneasy about the cultural price the country paid for these expensive golf courses.

The Third Phase: An Active Role in Global Environmental Protection since 1990

Having overcome serious environmental problems through a program of antipollution and energy saving investments, it seems natural for Japan to transfer the resulting environmental policies and technologies to other Asian countries. There are good reasons for Japan to play an active role in looking for solutions to international environmental problems. Rapid industrialization of China and South Korea is responsible for the acid rain falling on Japan. It is in Japan's national interest to work on measures to deal with this problem.

Further, Japan's imports of energy and resources was responsible, in part, for the deteriorating marine environment, the loss of tropical forests and biological diversity, and threats to the atmosphere and other shared resources. As a major industrial nation with factories and overseas investments, particularly in Southeast Asia, Japan has made a major impact on the environment of developing countries.

Japanese commercial fishing boats in Noboribetsu Harbor, Hokkaido. Japanese fishing policies, particularly whaling, continue to cause controversy. Japan has resisted the adoption of preservationist approaches to international wildlife species. This has resulted in considerable international criticism of Japan's support of whaling. (Photo: P. P. Karan)

In 1962, Rachel Carson's *Silent Spring* provided a stirring account of environmental pollution and industry's reckless use of natural resources and handling of toxic chemicals. *Silent Spring* was written at a time when Japan was already deeply engaged in environmental degradation. Carson did not directly address the situation in Japan, but her book certainly had an impact on Norie Huddle and Michael Reich, who wrote *Islands of Dreams* in the early 1970s.[6]

The rapid environmental degradation in the 1960s and strong movement in the 1970s by Japanese industries to mount rapid and successful pollution abatement strategies led to the international image of Japan's environmental policy as a model for successful pollution control. Japan's early economic development gave the nation financial and technological means to support environmental policies in neighboring countries.

At about the same time, Japan's Overseas Development Agency, funded by the Japan International Cooperation Agency (JICA) and the Japan Bank for International Cooperation (JBIC), became more responsive to global environmental change. Japan began to consider environmental protection when implementing international assistance projects. The Green Aid Program was designed by the Ministry of Economy, Trade and Industry to formulate pollution control measures for developing nations that had benefited from Japanese industrial technology transfer. In the 1990s, Japan's Environmental Agency established a Global Environment Department to lead international environmental negotiations. The major area of international cooperation in environmental protection has been East and Southeast Asia. China has been the major recipient of Japan's environmental aid because of its serious pollution problem. The aid started between 1990 and 1995 and was cut off briefly in response to the Tiananmen incident, but resumed in 1996. Environmental Ministers of Japan, China, and Korea have met annually since 1999 to discuss cooperation in the promotion of environmental protection activities. Although Japan is currently supporting many environmental projects throughout Asia, these environmental diplomacy

Japanese lawmakers today reflect the disconnect between the public's ideological aspirations and their material desires.

efforts within the region are not fully coordinated, as government agencies and ministries often act in a spirit of competition rather than cooperation.

Future Challenges

Despite success dealing with air and water pollution, Japan continues to face new and persistent environmental challenges. These challenges include how to approach sustainable development, mitigate climate change, reduce risks posed by increased chemical use, and deal with economic stagnation. Today's environmental challenges are far different from those fifty years ago, and the solutions must change as well. During the 1960s, the Japanese had enough of environmental disasters (Minamata, Toyama, and Yokkaichi) and demanded action. The nation responded with laws designed to clean the environment. Considerable progress was made thanks to the early laws. Air and water pollution were driven to much lower concentrations, and the public health and environment have benefitted greatly. Yesterday's solutions worked well on yesterday's problems, but the solutions which Japan devised back in the 1970s may not make much of a dent in the environmental problems it faces today.

The problems of the current generation are much more subtle, much less visible—and often not nearly as susceptible to the top-down, standard-setting enforcement process of the 1970s. The rise of climate change as a major national and global problem offers a vivid example. Climate change is difficult to deal with politically because the people who benefit—future generations—are not the same as those who pay—the present generation. On these kinds of issues where payer and beneficiary are not the same, the Japanese people are ideological liberals and operational conservatives. They are in favor of reducing the impact of current human activities on future generations, but they offer limited support for policies that will accomplish the objective. Japan's emission-cut push is one of the several initiatives making Japanese businesses uneasy. Japanese lawmakers today reflect the disconnect between the public's ideological aspirations and their material desires.

So what does this all mean for the present? What does it mean for protecting the environment over forty years after the Environment Agency was established? Japan is perfectly capable of harmonizing human prosperity and growth with environmental protection, but solving problems like climate change and non-point-source pollution will be quite a task. It will require a greater level of public understanding and knowledge of the relationship between current lifestyle and natural systems, coupled with a sense of responsibility for the stewardship of our planet. ■

NOTES

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4. Pradyumna P. Karan and Unryu Suganuma, eds., *Local Environmental* Movements: A Comparative Study of the United States and Japan (University Press of Kentucky, 2008).
5. *Japan's Fifth National Communication Under the United Nations Framework Convention on Climate Change* (Tokyo: The Government of Japan, 2010), 239, http://unfccc.int/resource/docs/natc/jpn_nc5.pdf.
6. Huddle Norie and Michael Reich, *Islands of Dreams—Environmental Crisis in Japan* (New York and Tokyo; Autumn Press, 1975).

FURTHER RESOURCES

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