

# A Global Environmental Contribution

By Mitsuo Kono



The Earth Summit (the United Nations Conference on Environment and Development, or UNCED) is over, and the delegates have returned home to start work on drafting, adopting, and implementing the various laws and regulations needed to translate its lofty goals into actual policy results. We are now past the broad consensus on generalities and down to the hard bargaining on specifics.

Many observers have pointed out that Japan is slow to form a consensus but that government and industry join together in a concerted effort for the achievement of goals once they are agreed on. Typical are the response to localized pollution from industrialization and the way industry restructured for energy-saving and conservation in the wake of the oil crises.

Proud of the way Japan has moved to abate the worst of its pollution without sacrificing its standard of living, the Japanese people also recognize they have a responsibility to put this experience to work in the global context. Thus I will first look at how this localized pollution was abated and how the abatement was reconciled with economic development. Following that, I will report on efforts to protect the global environment and achieve sustainable development.

The issues before us are grave and there is considerable anxiety over how best to meet our goals. Even though Japan is determined to contribute both technology and capital to protecting the global environment, it is hard, for reasons that will be discussed below, to be sure that the Japanese contribution will have the impact it is intended to have.

## Abating localized pollution

By definition, localized pollution is that pollution in which the causal relationship between the pollution's generation and the victims' suffering is clear, where the sources of pollution are identifiable, where the ill effects are limited to a specif-



ic area, and where technological means for its abatement are available.

Typical are air pollution, water pollution, soil pollution and noise. Still a very common type of pollution in the industrial and the developing countries alike, it has—with a few exceptions—been largely eliminated in Japan. Yet to say it has been eliminated is not to say that all of the associated problems have been resolved or that its elimination was easy.

In fact, the abatement was a very long and arduous task. In the mid-1960s, there were emphatic public protests at pollution-caused tragedies—protests that got sympathetic coverage in the media—before industry and the government started to make a serious effort to come to grips with the pollution. Japanese industry, like industry elsewhere, was not green from the very beginning.

Yet once made aware of the problem's seriousness, industry and government did move with considerable speed. Once there was a national consensus on the need to eliminate the worst pollution, effective measures were taken, the crisis was overcome in the early 1970s, and Japan compiled one of the best reform records anywhere in the world. During the same period, Japanese GDP grew 4.4% per annum on average, indicating that it had been possible to achieve both environmental reforms and economic development.

The three main policy focuses were on: (i) the development of environmentally friendly technology, (ii) the promotion of environmentally friendly investment, and (iii) the education of people for preventing pollution. And industry was forced to concentrate on these three focuses by the very stiff—and quite justified—environmental standards set by the government.

In numerical terms, governmental and nongovernmental investment on research and development for protecting the environment totaled ¥2.6 trillion (\$20 billion at the rate of ¥130/\$) between 1960 and 1992. During the same period, the total private-sector investment on pollution prevention came to ¥9.79 trillion (\$75.3 billion). In addition, a total of ¥3.4 trillion (\$26.2 billion) has

been spent on energy conservation since the 1973 oil crisis.

Along with this, state licensing for experts on air, water, noise, dust and other pollution abatement has been stepped up. At present, a total of 410,000 people have passed the licensing examinations and are active in pollution abatement.

Space does not permit a detailed explanation of the efforts that specific companies have made to develop and install pollution-preventing technology, but it is worth briefing on the electric power industry by way of illustration.

Seeking to minimize sulfuric oxide pollution, the power companies moved to lower-sulfur coal, lighter oils and natural gas in the late 1960s. In 1972, they started burning naphtha, and in 1974 they installed massive wet scrubbers. Seeking also to minimize nitrogen oxide emissions, they adopted low-NO<sub>x</sub> burners in 1973 and smokestack desulfurization equipment in 1977. In addition, all power plants are now equipped with electrostatic dust collection devices to hold down dust pollution.

As a result of these and other measures, emissions of SO<sub>x</sub> and NO<sub>x</sub> per unit of energy generated at Japanese thermal power plants are now about one-eighth

and one-fifth, respectively, of those in Europe and North America.

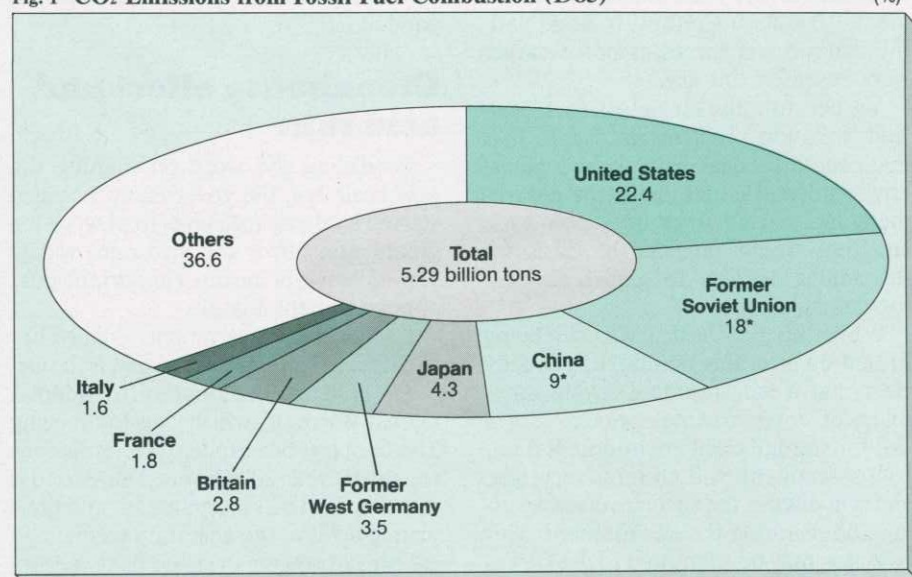
The point to be emphasized here is that it was possible to develop a number of very good "green" companies because this massive investment in pollution abatement was sustained. In other words, technology and expertise were developed because there was money to be made in pollution abatement. This is a lesson that would apply equally well on a global scale.

## Policy frameworks

Very broadly speaking, the global environmental problems that we face today may be divided into three categories. First are energy-related issues such as the CO<sub>2</sub>, SO<sub>x</sub>, NO<sub>x</sub>, and other gasses that accompany the burning of fossil fuels. This group conspicuously includes the greenhouse effect and acid rain. Second are non-energy environmental issues such as the depletion of the ozone layer, toxic chemicals and waste disposal. And third are ecosystemic issues such as the need to maintain the tropical rain forests, to reverse desertification, and to preserve biodiversity.

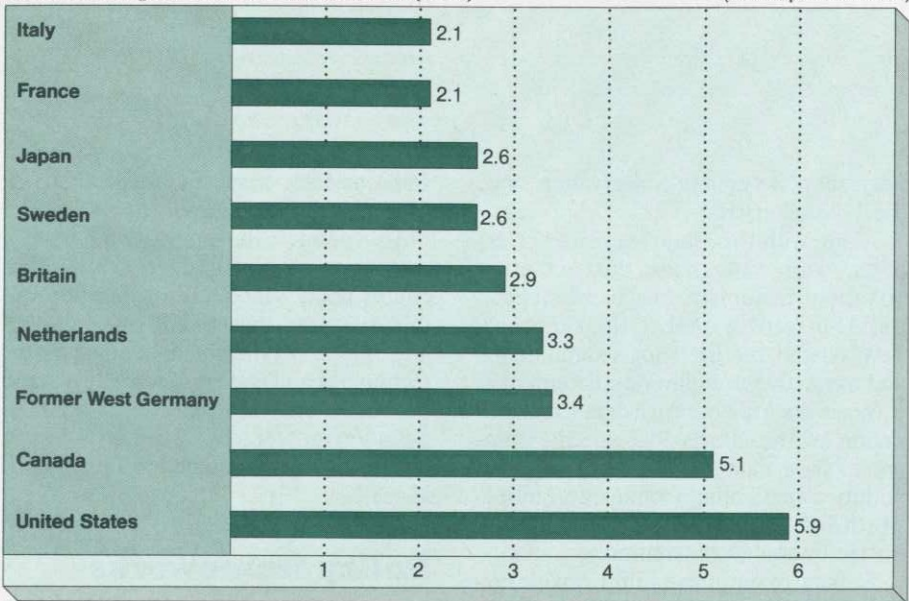
Measures still have to be worked out

Fig. 1 CO<sub>2</sub> Emissions from Fossil Fuel Combustion (1985)



Note: Figures marked with an asterisk are from the Environment Agency's report on global warming. Source: *White Paper on the Environment of Japan, 1988*, Environment Agency



Fig. 2 Per-capita CO<sub>2</sub> Emission Levels (1990)

Source: 1990 OECD report on energy

for groups one and three, but strict regulations are being enacted in group two under international agreements such as the one to stop the depletion of the ozone layer. Thus it is that group-one issues have been a top priority for the Japanese government in the wake of the Earth Summit. Yet before looking at these specific issues, it is well to pause here and look first at the Japanese government's basic stance toward the global environment as a whole.

When, 25 years ago, pollution got noticeably worse and became a major public and political issue in Japan, the government passed the Basic Law for Environmental Pollution Control. In large part, the conspicuous successes noted earlier were based on this law.

Yet because this law only covers localized pollution problems in Japan, it is inadequate to deal with today's global environmental issues. Thus the government has started work on a new basic law that would provide the basis for responding actively to global environmental issues.

While this new basic law is still being firmed up as of this writing, it is already clear that it will include a strong statement of environmental principles, will call for strengthened environmental impact assessment, will promote recycling, and will discuss the costs involved in using and restoring the environment. This basic law may be submitted to the Diet as early as this fall.

Although I do not have enough infor-

mation to say for sure how the other industrial countries are going to move from the Earth Summit's broad commitments to specific environmental-protection programs, I suspect that this Japanese effort to enact a new basic law and to study implementing the specific policies outlined below is more the exception than the rule.

Yet this is a very typically Japanese response. Once the basic directions have been agreed on, government and industry cooperate to make sure the appropriate laws and regulations are in place and that the necessary measures can be implemented. This is something Japan is good at.

## Greenhouse effect and acid rain

Paralleling the work on drafting the new basic law, the government has also started studying measures to prevent the greenhouse effect and acid rain—widely viewed as two of the most important global environmental issues.

In fact, the government already has two detailed programs. The first is the October 1990 Action Program to Address Global Warming, which calls for freezing 21st-century per-capita CO<sub>2</sub> emissions roughly at year-2000 levels. The second is the New Earth 21 program, an ambitious plan to achieve the necessary technological breakthroughs over the next century to rein in pollution and restore the global ecosystem to health. This New Earth 21

has been publicized at international conferences for the last two years, and its main outlines have generally had a good reception. As seen, the Action Program to Address Global Warming is domestic in orientation and New Earth 21 is global in scale.

Looking first at the domestic Action Program to freeze per-capita CO<sub>2</sub> emissions, it must be frankly admitted that this will be a very difficult target to attain. The strong economic growth of the past three years has meant that energy consumption has outpaced expectations by a wide margin. If we are to achieve the program's target, it will be necessary to hold the growth in energy consumption to 1% per annum for the years 1993–2000. Yet this will inevitably drag economic growth down by slightly over 1%—this at a time when the government has vowed to push for 3.5% per-annum growth over the next five years and when there is broad agreement among the industrial countries that this level of growth would be good for the world economy.

In effect, the Japanese government is face-to-face with the dilemma of trying to hold down CO<sub>2</sub> emissions and achieve sustainable development. Thorough energy-saving seems to be the textbook way out of this dilemma, but this would require a major transformation of the popular mindset. It is politically very difficult to mandate compulsory support from the people in a democracy.

The government wants to find a way out of this dilemma by the year-end, but it will not be easy. In passing, it should be noted that energy-frugal Japan is already one of the industrial countries and its per-capita CO<sub>2</sub> emission levels among the lowest—1990 figures being 5.9 tons for the United States, 5.1 tons for Canada, 3.4 tons for former West Germany, 3.3 tons for the Netherlands, 2.9 tons for Britain and 2.6 tons for Sweden and Japan (Figs 1 and 2).

## Enhanced ODA

For the international community, it is New Earth 21 that holds greater interest. Even before the Earth Summit, there were hopes that Japan would be commit-



ted to global environmental issues and would bring its outstanding technology and abundant capital resources to bear for their solution.

Although Prime Minister Kiichi Miyazawa was unable to attend the Earth Summit, he did send a message pledging \$7 billion to \$7.7 billion in environmental ODA (official development assistance) over the next five years. Of course, the other industrial nations have also promised help, but very few have pledged specific amounts and none has pledged as much as Japan.

The next question is where this money is going to come from. With the Western nations in the grips of a debilitating recession, politicians are increasingly preoccupied with domestic concerns. Most countries have neither the will nor the wherewithal to make a major contribution to protecting the global environment. The bursting of the speculative bubble of the late 1980s has also plunged Japan into a severe recession, making it very difficult for the Japanese government to go to the people and ask for more money for something like this.

While there is a strong body of Japanese opinion arguing for a stiff carbon tax to promote energy conservation and to generate new resources for global environmental assistance, opponents of such a tax argue that it would seriously undermine Japan's industrial competitiveness. Accordingly, the consensus among business and political leaders seems to be that a carbon tax is unlikely unless similar taxes are adopted in the other industrial countries.

At present, the Japanese government has ¥170 trillion (\$1.3 trillion) in national government bonds outstanding, and this high debt level makes it difficult to significantly enhance ODA. Sooner or later, the government will have to go to the people with an unpopular tax increase—perhaps citing the precedent set during the Gulf War, when Japan contributed \$13 billion in total through a combination of economic and tax increases.

Determined leadership will be needed to cut this Gordian knot. Although it is too soon to predict with certainty, there are a number of leaders within the ruling

Liberal Democratic Party who see taking the initiative on global environmental issues as the best way for Japan to fulfill its global responsibilities, and it is very likely that Japan will seek to fulfill its international pledges—even if that means higher taxes at home.

## Technological breakthroughs

New Earth 21 is premised on using innovative technology to solve humankind's problems. Although the details have yet to be worked out—this being more a conceptual framework than an actual program—the technology may be broadly divided into two types.

First is the innovative application of existing technology. This is an area in which Japan excels, especially in energy-saving technology. According to one estimate, it would cut world energy consumption by about 20% if the rest of the world were as energy-efficient as Japanese industry is.

Japan also has the technology to prevent air pollution. While urbanization is resulting in serious air pollution in most of the developing countries, this pollution could probably be halved if they adopted modern Japanese technology. Of course, adopting modern technology costs money—money that the developing countries do not have. Even when they have the money, they want to use it for expanding production more than for reducing pollution. Not only do they need technological help, they need financial help for adopting the technology.

One of the most serious issues is that of global warming. This is an area where Japan is still at the starting line with everyone else. Burning fossil fuels inevitably yields CO<sub>2</sub>. Thus researchers are looking for way to inexpensively solidify the CO<sub>2</sub>, for bioreactors that would absorb or convert massive amounts of CO<sub>2</sub>, and for other solutions to this seemingly insoluble riddle.

Even though no solution is at hand yet, the pace of scientific advances to date indicates that we may have an answer before long. Just as Japan is now a world leader in other antipollution technologies, it is hoped that it will be able to

achieve the technological breakthroughs needed to arrest global warming.

## Due burden

If the developing countries had the same energy consumption patterns as the industrial countries do, it is estimated, the earth's total energy reserves would be used up in only three and a half years. Although Japan has sought to model its lifestyle on the American pattern since World War II, it is imperative in the face of global environmental issues that we rethink this cycle of mass production, mass consumption and mass disposal.

Happily, more and more Japanese are aware of the need to rethink our lifestyle. The world population is inexorably increasing and will top 10 billion sometime in the next century. It is imperative that Japan draw on its technological and financial resources for the betterment of all peoples everywhere.

Interestingly, Prime Minister Miyazawa has used the rather conservative phrase "due burden" in referring to this global contribution—perhaps because he is a little awed by the size of the problem. He is not alone in this, as the Japanese people are also not sure what they can or should do.

Confident that they can do what is required, they are not sure what is required. It is this tentative determination that marks the Japanese response. Japan is committed to moving ahead with the other industrial countries, including both domestic policy measures and vigorous help for the developing countries.

Different people in the Japanese government are looking at everything from individual consumer lifestyles to reforming the industrial structure to make it more compatible with the global environment. While the world seems to expect a mostly financial contribution from Japan, Japan itself hopes to complement its due financial burden with technological and industrial leadership. ■

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