

Promoting Global-Warming Countermeasures with Japan in a Leadership Role

by Masaru Machida

The problem encompasses the entire planet, and the victims are also the perpetrators. Energy-saving technologies developed in Japan can help.

At present there are four major issues that threaten peace in the world: (1) the fear of the occurrence of nuclear war; (2) the threat of intensified ethnic and religious confrontations; (3) the threat posed by AIDS-related diseases caused by the human immunodeficiency virus and new strains of influenza; and (4) delays in counteracting the sudden worsening of the global environment. The rapid worsening of the global environment, in particular—the effect of which has already been seen in the form of climate change—has created a sense of crisis in almost every country. Attention has become focused on global warming caused by greenhouse gases, especially CO₂, which are emitted with the consumption of fossil fuels.

It was in the context of this sense of crisis that last year's Nobel Peace Prize was awarded to the Intergovernmental Panel on Climate Change (IPCC) and to former U.S. vice president Al Gore. They were awarded the prize for raising public awareness of climate change caused by human activity and for their efforts in laying a foundation for measures necessary to counteract climate change.

Concerning global-warming countermeasures, at the Third Session of the Conference of the Parties (COP3) held at



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Kyoto in 1997, Japan was the chair and the Kyoto Protocol was adopted. The protocol determined target values for emission by the developed countries of greenhouse gases, and all of those countries are making efforts to attain those targets with the exception of the United States, which withdrew in midstream. Moreover, in July of this year, Japan will chair the Group of Eight (G-8) summit meeting to be held at Lake Toya in Hokkaido, and one of the main items to be taken up is to be global-warming countermeasures. It is oddly fortunate and with a deep sense of destiny that Japan should once again have been given the opportunity to be in the leadership position in steering countermeasures to global warming.

I would like to present my thoughts on why Japan should be taking the lead in moving forward with global-warming countermeasures, as well as on Japan's experience in controlling air pollution caused by harmful automotive exhaust gas and the Japanese energy-saving technology essential to counteracting global warming.

Japan Overcame Air Pollution Due to Exhaust Gas

In Japan in the 1960s, a lot of air pollution was being generated in places like Yokkaichi City and Kawasaki City, the result of the effects of harmful exhaust gas from factories, automobiles, and so on. The Environment Agency was formed in 1971 to deal with this issue, and after a variety of countermeasures were undertaken, air quality was improved to the point that in the 1980s air pollution from exhaust gas had been overcome. Figure 1 illustrates the change in the concentration levels of sulfur dioxide (SO₂), an indicator of exhaust gas, and the photographs comparing Yokkaichi City in 1970 and 1992 confirm the improved situation.

Air pollution owing to exhaust gas is a local problem that can be clearly seen in terms of the victims, or the residents, and the perpetrators, or the persons causing the emission of the exhaust gas. I will describe what roles were played by the victim-residents, the perpetrator-emitters, and the government and local authorities in tackling the problem.

First, the role of the victim-residents developed mainly through neighborhood protest actions. These took the form

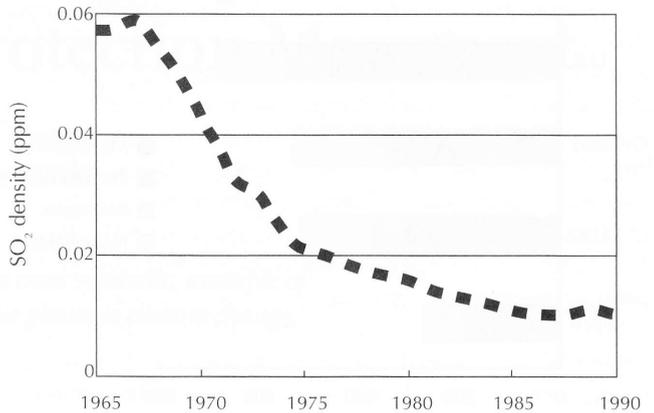
of such steps as petitions to the government and local authorities; demonstrations against the emitters' building of plants; actions to shut down the plants' operations; and citizens' lawsuits, claiming health injury against the government and the emitters. Next, what the emitter-perpetrators eventually did was to develop emission-control technology and install emission-control equipment to manage the emissions at their source. Last, what the government and local authorities did included regulating emissions through laws and ordinances, entering into agreements on pollution control with the individual emitters to limit emissions, and subsidizing the installation of emission-control equipment. Further, they performed on-site inspections of the sources of discharge and provided emitters with information on emission-control technology. It was through the roles and cooperation of these three groups that today the air pollution situation has improved.

It should be pointed out, however, that there is almost no record of any role played by people of religion. From what few records I can confirm, other than collective memorial services for those who had died from causes attributed to air pollution, it seems that their role was minimal.

Making Use of Japan's Energy-Saving Technologies to Counteract Global Warming

The problem of global warming, unlike the local problem of air pollution, encompasses the entire planet. Moreover, because the emission of greenhouse gases, the source of global warming, arises from human life itself, there is a problem in

Fig. 1 Change in Average SO₂ Concentration Over 15 Years (1992)
Source: White Paper on the Environment



that although all people are the victims, they are also the perpetrators.

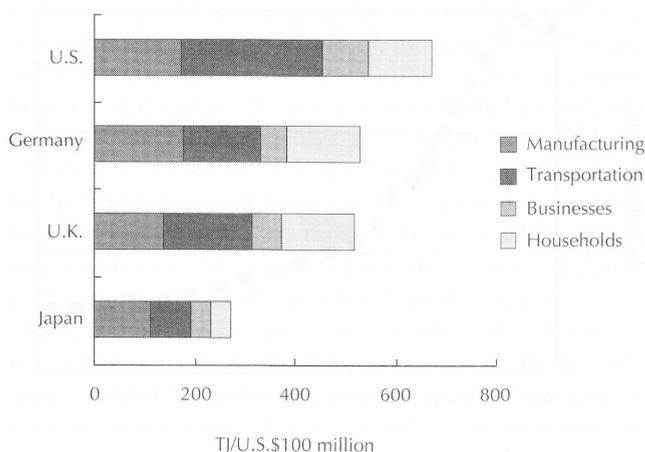
For that reason, countermeasures aimed at the reduction of greenhouse gases in Japan are divided into four fields—the manufacturing industry (electrical power generation, high-energy-consuming industries, and other industries), transportation, businesses (offices and the like), and households. Additionally, the fields of agriculture, forestry, and garbage/waste are being put forward. Countermeasures being promoted jointly by all of these fields are a reduction in energy consumption and the proactive introduction of energy-saving technologies.

Yomiuri Shimbun



Factories emit harmful exhaust gas in Yokkaichi City, Mie Prefecture, in December 1970.

Fig. 2 Energy Consumption per GDP by Category (2000)
 Source: Ministry of the Environment



Japan is a country with meager natural resources, including sources of energy. For this reason, Japan has moved ahead, since the two oil crises of the 1970s, with reductions in energy consumption and developments in energy-saving technologies.

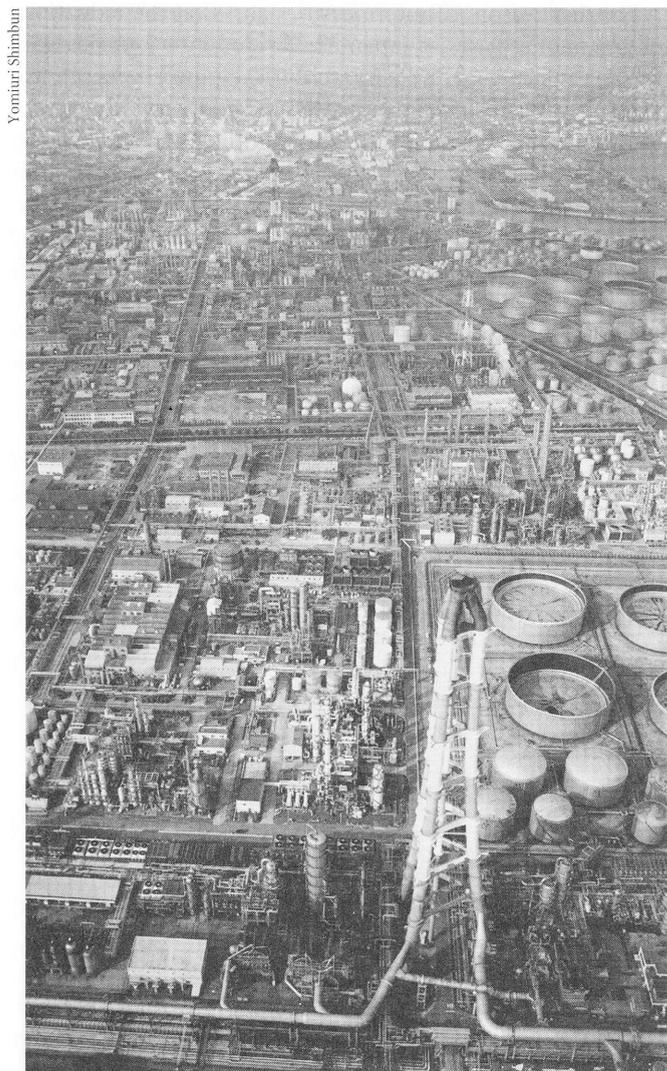
In order to measure the extent of Japan’s energy-saving technologies, in other words, its energy efficiency, I have compared Japan’s energy consumption per gross domestic product (GDP) with that of other Organization for Economic Cooperation and Development (OECD) member nations—Germany, the United Kingdom, and the United States. As Figure 2 shows, Japan’s energy efficiency is the highest, about twice that of Germany and the United Kingdom and two and a half times that of the United States. Japan will aggressively disseminate to high-energy-consuming countries such as the United States, China, Russia, and India the energy-saving technologies that have made this energy efficiency possible, and we can expect that this will greatly reduce the energy consumption of those countries.

Japan’s Role and the Role of People of Religion in Global-Warming Countermeasures

A topic of debate in Japan is when the “point of no return” for climate change might occur. The point of no return is approximately ten years prior to when it is estimated that the atmospheric temperature on earth will rise past a certain threshold. According to weather simulations computed in Japan, if a high degree of economic growth such as we are seeing today continues, a 1.5 degree Celsius (2.7 degree Fahrenheit) rise in temperature, compared with the average temperature during the thirty years from 1861 to 1890 before industrialization, that would imperil the preservation of living organisms other than humans will occur around 2016, and a 2 degree Celsius (3.6 degree Fahrenheit) rise, greatly increasing the part of the human population whose survival would be in grave peril, will occur around 2028. According to this, the 1.5 degree point of no return was reached in 2006; that is to say, we are already beyond the point of no return.

Japan recognizes that we have arrived at the point of no return. Japan has had past experience in conquering air pollution from exhaust gas and also has the technologies needed to counteract global warming. It would be perfectly natural for Japan to take a leading role in promoting global-warming countermeasures.

Finally, I believe that there are two important roles that people of religion can play with respect to countermeasures for global warming, a problem that confronts the entire planet. These may already be happening, but permit me to state them anyway. One is for the religious people of the world to act together and inform the governments of every country that they must aggressively undertake global-warming countermeasures. The other is to guide people so that each and every one of them can cooperate in the careful use of fossil fuels and foods, which are such limited resources on the planet. □



Yokkaichi City in October 1992. Air quality improved after many countermeasures to pollution were implemented.