

Thirty-five years of environmental policy in Japan: a call for environmental structural change

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Abstract: This paper examines 35 years of Japanese environmental policy with reference to the results of the past three Organization for Economic Cooperation and Development (OECD) environmental performance reviews and a policy stage analysis. A comparison with European Union (EU) and US environmental policies is used to evaluate current policy designed to attain the targets set by the Kyoto Protocol and consider future options for creating a Japanese society capable of meeting the challenges of climate change. In the 1980s, Japanese policy measures to decouple economic growth and the emission of pollutants met with great success, particularly in the case of sulphur dioxide emissions. However, this decoupling trend ceased in the 1990s and the emission of major greenhouse gases such as carbon dioxide continued to rise. This paper, therefore, advocates substantial structural changes in environmental policy that go far beyond the technological and voluntary measures employed in the 1970s and 1980s. These include wide-ranging incentives such as ecological tax reforms and domestic emissions trading, as well as calls for the empowering of local initiatives and the realization of environmental democracy.

Key words: OECD environmental performance review, decoupling, Kyoto Protocol, ecological tax reforms, emissions trading.

Introduction

How do we evaluate 35 years of Japanese environmental policy since 1970? This is a formidable question, best answered by a reappraisal of the major events relating to domestic environmental legislation and the development of environmental administration over the period. Beginning with the enactment of the Basic Law for Pollution Control in 1967, the period in question saw:

- the enactment and amendment of 14 pollution-related laws at the so-called “Pollution Diet”¹ in 1970,
- the inauguration of the Environment Agency in 1971,

- the enactment of the Nature Conservation Law in 1972,
- the enactment of the Basic Environment Law in 1993,
- the enactment of the Basic Environment Plan in 1994,
- the enactment of the Environmental Impact Assessment Law in 1997,
- the enactment of the Basic Law for Establishing a Recycling-Based Society and five other related laws in 2000, and
- the upgrading of the Environment Agency to the Ministry of the Environment in 2001.

In retrospect, the above constituted substantial and radical developments in environmental policy. In the 1970s, legislative efforts were centered on addressing industrial pollution whereas after the 1990s environmental administration tried to cover wider issues. Emerging issues included global environmental problems such as global warming as well as resource recovery and waste management at the domestic level. The policy measures developed in response to these issues widened in scope from their initial regulatory base to encompass planning, information and economic incentive measures.

Developments in environmental policy in Japan took place against a backdrop of dynamic developments in the international arena. These included the United Nations Conference on Human Environment held in Stockholm in 1972, the United Nations Environment Program's Nairobi Conference of 1982, the publication of the Brundtland Commission Report *Our Common Future* in 1987, and the UN Conference on Environment and Development (or Earth Summit) of 1992. More recent developments of particular importance include the signing of the UN Framework Convention on Climate Change and the Convention on Biological Diversity in 1992, the Third Conference of Parties (COP3) to the United Nations Framework Convention on Climate Change and the adoption of the Kyoto Protocol in 1997, the World Summit on Sustainable Development (WSSD) held in 2002, and last, but not least, the enactment of the Kyoto Protocol in February 2005.

Given the breadth of the legislation referred to above, it is clearly not going to be easy to review the development of environmental policy in Japan as a whole for the past 35 years, nor to contextualize it vis-à-vis developments within the international community. Fortunately, three environmental performance reviews conducted in Japan by the OECD during this period provide a useful analytical tool with which to review developments. Operating on the principle that the governments of market democracies can best work to tackle economic, social, environment and governance challenges when working together, the OECD compiles statistical, economic and social data on areas as diverse as migration, health, employment and the environment for each of its member countries. The OECD's pioneer work in evaluating and analyzing the environmental

policies of its member countries is conducted by experts equipped with substantial and wide-ranging knowledge and the ability to advise on the future direction of environmental policy for the industrialized countries that make up the organization's membership. Compiled systematically from a neutral viewpoint, the data and resulting analysis from the three environmental performance reviews conducted in Japan comprise an invaluable benchmark with which to evaluate Japanese environmental policy.

Throughout this paper, the policy areas examined focus on air pollution measures and measures addressing global warming. I would argue that the latter is, at present, the most important environmental policy issue. In addressing this issue, I discuss measures to attain the target of the Kyoto Protocol and possible directions with regard to arriving at a low carbon emissions society. An evaluation of the achievements and challenges of Japanese environmental policy through a comparison with EU and US policies provides the context for this discussion.

1. OECD environmental performance reviews

The OECD first conducted a review of environmental policy in Japan in 1977. Its findings were published in the same year as a report entitled *Environmental Policies in Japan* (OECD 1977). This first review was conducted on an ad hoc basis before the OECD Environmental Policy Committee institutionalized periodic environmental performance reviews for each of its member countries. Additional formal OECD performance reviews have been conducted twice to date: the first from 1992-93 and the second from 2001-02. In each case, published reports followed.

The aim of the OECD's environmental performance reviews is to review the progress of the environmental policies of each of its member governments and facilitate policy dialogues among its members. Naturally, since the OECD is, above all, an economic organization, the emphasis of the evaluation is focused on the use of economic measures. The latter depend on the integration of environmental considerations into other policy fields, such as energy, transportation and agriculture. Recently, the organization's focus has been on the social aspects of environmental policies such as employment, the disclosure of environmental information and public participation. OECD reviews evaluate the extent to which domestic policy objectives are attained, as well as look at a member country's performance with regard to international commitments. The actual improvement of the environment is also evaluated. In this way, OECD reviews act as a form of peer pressure by according accountability to the governments that make up the OECD's membership.

The significance for Japan as a recipient of the OECD's environmental performance reviews is two-fold. First, there is the resulting dissemination of Japanese experience and know-how to other countries. Second, the results of external experts' objective reviews can be used to improve future environmental policy in Japan.

2. Evaluation of Japanese environmental policy by the OECD

The first OECD environmental policy review revealed the following four characteristics of Japanese environmental policy: non-economic approaches, regulatory measures against only a few specific pollutants, heavy reliance on administrative guidance, and an important role played by local authorities. Attention was also given to the widening scope of environmental problems at the time. Accordingly, the review made a number of proposals with regard to comprehensive planning that sought to take environmental concerns into consideration during the process of development. The report's summary included a warning: "Japan has won many pollution abatement battles, but has not yet won the war for environmental quality" (OECD 1977: 83).

The Environment Agency's response was to set up a team to study the concept of the quality of the environment (amenity) and other possible related policy measures, as well as to examine land use regulations. In emphasizing the importance of the quality of the living environment, the concept of amenity went beyond the concept of living without pollution. In this, it was new to many Japanese. It could be argued that the agency's response was insufficient to meet the recommendations put forward by the OECD. Nevertheless, assessment of Japan's environmental performance in the period following the first performance review is, on the whole, positive. Helmut Weidner, for example, notes: "In order to verify the positive effects of structural industrial reform on the environment since 1973, the 32 most relevant cases were selected from the industrialized countries. Among them, we found that Japan was the most successful case" (Knoepfel and Weidner 1986: 85). In fact, between the latter half of the 1970s and the first half of the 1980s, Japan realized substantial economic growth, while, remarkably, reducing energy consumption and the emission of pollutants such as sulphur dioxides (SO_x).

These successes were given due credit in the second Japanese environmental performance review conducted by the OECD in 1993-94. The review's report stated:

Over the past two decades (1970 to 1990) Japan has had the largest economic growth among G7 countries, while substantially reducing emissions of a number of pollutants in the atmosphere and toxic substances in water, and further containing the growth of other pollutants and waste production. For instance, while economic growth increased over the period by 122 per cent, SO_x emissions decreased by 82

per cent and NO_x [nitrous oxide] emissions by 21 per cent, the best performance among OECD countries. This decoupling was achieved through economic structural changes, increased energy efficiency and effective environmental policies. These successes have proved that environmental policies and economic development can be mutually supportive; the competitiveness of Japanese industry has not suffered and has even benefited in some sectors (e.g. the automobile industry and the pollution equipment sector). (OECD 1994: 182)

In this period, several measures were introduced successively. At the national level, central government set environmental and emissions standards. In addition, depending on the local situation, stricter regulations were enforced by local authorities, including the total amount of emission control for SO_x and NO_x. Sophisticated monitoring facilities were established with the cooperation of local authorities. Local pollution prevention plans, as well as low-interest loans for pollution control investment, were introduced. These were backed up by a unique system of compensation for pollution victims, which, combined with levies on SO_x emissions, played an important role in restraining industrial excesses. Local authorities concluded voluntary agreements for pollution control with private companies. Taken as a whole, these measures constituted an effective package to address industrial pollution. By combining policy measures, active pollution control investment and technology development by the private sector, Japan achieved incomparable success in the battle against air pollution caused by industrial activities and reduced the emissions of pollutants such as SO_x and NO_x.²

Today, Germany and the Nordic countries are often cited for their successes in the arena of environmental policy. Before them, however, Japan was regarded as a pioneer in the field of environmental policy. In this role, Japan had a considerable impact on European and notably German environmental policies.

3. The changing structure of environmental problems and some global counter-measures

Japan had been successful in the battle against air pollution caused by industrial activities. Unfortunately, success was soon to give way to failure as Japan failed to adjust its environmental policies to changing circumstances.

In the 1980s, the structure of environmental problems changed gradually. Problems directly connected to the daily activities of citizens, such as traffic problems, drainage from households and waste problems, became conspicuous. By the late 1980s, global environmental issues such as ozone layer depletion and global warming were attracting international attention. In order to address these issues, the introduction of social mechanisms or incentives was required, in addition to individual regulatory measures and technological responses. Such incentives are necessary in order to bring about

fundamental social structural changes, since the issues they address are caused by daily and economic activities considered “normal”. Existing consumption and production patterns required fundamental modification through the introduction of economic instruments.

The 1997 OECD report commented that, in comparison with other OECD member countries, Japan used very few economic instruments such as environment-related taxes, charges and deposits. Favorable tax treatment for environmental investment and special landing fees levied on airplanes for noise pollution were cited as rare exceptions (OECD 1997: 20-22). Historically, the Japanese government had relied heavily on direct regulatory measures in order to cope with pressing pollution problems. These had met with some success in controlling industrial pollution in the 1970s, as we have already seen. However, this experience of success caused delays in incorporating new policy approaches with social incentive mechanisms aimed at continuous environmental improvements and technological innovation. By the 1990s, the decoupling of economic growth and pollution could be seen to have reached its limit.

The OECD environmental performance review in 2002 read as follows: “The decoupling achieved in the 1990s has not been sufficient in some areas. For instance, CO₂ emissions continue to grow at about the same rate as GDP. A number of pollution trends are still on the increase in absolute terms, most notably those related to traffic and energy use” (OECD 2002: 29). This is in contrast to the decoupling of the emission of pollutants and GDP growth achieved between the years 1970 to 1990.

Based on an analysis of Japanese climate-change policy, the 2002 OECD report recommended a number of radical measures to implement a fundamental restructuring of society. These included:

1. The further development of the national policy framework to combat climate change. This would involve a balanced mix of policy instruments (including an expanded use of economic instruments such as tax and charges) to facilitate international, domestic and international commitments and a review and further development of environment-related taxes where appropriate, from the viewpoint of greenhouse gas (GHG) reduction and other objectives.
2. The development and implementation of coordinated demand management measures (e.g., road pricing, parking charges, energy services) and measures to improve energy efficiency (energy efficiency standards and other measures) in the transport and residential/commercial sectors.
3. The review and revision of voluntary initiatives in industry to improve energy efficiency and to reduce GHG emissions (e.g., more explicit targets, expanded public access to relevant information).

4. Further measures to encourage the development and use of renewable forms of energy and to promote fuel switching where appropriate.

The next section examines to what extent current Japanese environmental policies responded to these recommendations.

4. The Kyoto Protocol Target Attainment Plan

In response to the coming into force of the Kyoto Protocol, the Japanese government adopted the Kyoto Protocol Target Attainment Plan at a cabinet meeting held on 28 April 2005.³ The plan set emission targets to be reached by 2010 with the aim of reducing emissions of greenhouse gases by 6% from the base year of 1990. Targets were set for each sector and included a 0.6% increase of CO₂ emissions from the energy sector; a 0.3% reduction of CO₂ emissions from the non-energy sector; a 0.2% reduction of methane emissions; a 0.5% reduction of N₂O (nitrous oxide) emissions, and a 0.1% increase in the emissions of the three gases: hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF₆). The plan set additional targets for a 1.6% reduction in greenhouse gases to be achieved by a combination of mechanisms including emission trading, joint implementation and the so-called “clean development” mechanism. A further 3.9% reduction of CO₂ emissions through absorption by so-called “carbon sinks” such as forests was proposed.

It is, naturally, too early to assess the plan’s success. It is not too early, however, to estimate the plan’s chances of success in attaining these targets in view of the new policy measures it put forward.

Of these, the most controversial measure proposed was the introduction of an environmental or carbon tax. However, the conclusion of discussions relating to its introduction was postponed in the attainment plan. Similarly, proposals for a domestic emission trading system have yet to be put into effect. Instead, the Ministry of the Environment initiated a pilot project of domestic emission trading with the participation of 34 private companies. A further advancement was the introduction of a “greenhouse gas emission calculation, reporting and publication system”. This system was introduced in the Kyoto Protocol Attainment Plan and enacted by a revision to the Law Concerning the Promotion of the Measures to Cope with Global Warming in May 2005. It forms the basis of future mitigation policies, particularly for encouraging voluntary activities by private companies and for emission reduction measures.

It remains to be seen how effectively these policy measures are implemented and how successful they will be. Matters become still more complicated if we attempt to

assess the contribution these measures may have – or may have had – in fostering a low carbon emitting economy through radical social and economic change. In reviewing the progress to date, the postponement of the introduction of an environmental tax and a domestic emissions trading system on the one hand, and a lack of supporting incentive mechanisms or financial backing on the other, would suggest the Japanese environmental administration continues to rely overly on the voluntary efforts of individuals and companies. This is unfortunate, given that past policy measures against global warming, which have relied primarily on voluntary efforts and awareness raising, have had only limited success in reducing greenhouse gas emissions. Past experience suggests that concrete measures and specific social mechanisms and incentives should be introduced to ensure the effectiveness of the plan and encourage positive behavior on the part of individuals and private companies.

In the summer of 2005, the government of Japan launched “Cool Biz”, a campaign encouraging business people not to wear ties or jackets and to set their office air conditioner thermostats higher, at 28°C. Initiatives such as this are to be welcomed as examples of voluntary public participation. They should not, however, distract attention from the work the government needs to undertake at the level of public policy. The government should introduce the necessary social regulations and modify market rules to be compatible with environmental sustainability. For this purpose, the government should promote environmental improvement by modifying existing taxes and fiscal systems to make them more ecologically sound.

Naturally, confrontation arises with vested interests that profit under the current system. It is the role of the political leadership to iron out any differences of opinion arising between environmental, economic and social sustainability interests, and to guide future directions. At present, policy making is essentially conducted through consultation between related government ministries, a process that is closed to the public. The results of these closed-door negotiations tend to favor vested interests, such as those represented by specific industry groups. Without fundamentally rectifying the current decision-making process relating to environmental policy formulation, the integration of environmental, economic and social concerns and the building of a sustainable society will not be possible.

The limitations outlined above regarding Japan’s efforts to meet the targets of the Kyoto Protocol are perhaps best understood in the context of international policy measures to address the global problem of climate change, introduced since the adoption of the Kyoto Protocol in 1997 by other industrialized nations (see Table 1). In 2002, for example, the United Kingdom pioneered the introduction of a domestic emissions trading system. The rest of Europe was quick to follow, with the introduction of an EU-wide emissions trading system (EU/ETS) in 2005. To date, environmental taxes to address global warming have been introduced in a total of eight European

Table 1 Climate change policies in some of the major countries
 (Source: Ministry of the Environment, Government of Japan, August 2005)

	EU	UK	Germany	US	Japan
Emission reporting and publications system	European pollutant emission register (EPER)	Pollution inventory (PI)	EPER	Voluntary reporting system (at state level: eg. Wisconsin)	Emission reporting and publication system (introduced in 2005)
Voluntary agreements between industry and government	None	Climate change agreement (CCA)	CCA	Climate leaders program (voluntary participation)	None (Nippon Keidanren/Japan Business Federations: Keidanren voluntary action plan on the environment shows targets set by different industries)
National emission trading system	EU emission trading scheme (EU-ETS)	EU-ETS UK emission trading system	EU-ETS	Ten eastern states considering introduction of a statewide emission trading system; the Chicago climate exchange (CCX)	None (domestic emission trading experiments in 2005)
Climate change tax (carbon tax)	Establishment depends on each country	Climate change levy (CCL)	Environmental tax reform (eg. increasing mineral oil tax, introducing energy consumption tax)	None	None

countries. These countries effectively combine tax systems, emissions trading and voluntary agreements between the private sector and government in order to reduce greenhouse gases. In the UK system, companies that attained emission reduction goals under voluntary agreements are exempted 80% of their climate change levies. Germany, Denmark and Spain introduced the Feed in Tariff (FIT) system for the promotion of renewable energy. FIT requires utility companies to buy electricity at a fixed price from renewable energy sources such as wind, solar and biomass. It has proved successful in promoting renewable energy, particularly wind power generation, in these countries.⁴

President George W. Bush withdrew the US from the Kyoto Protocol in March 2001. However, the US remained within the 1992 UN Framework Convention on Climate Change (UNFCCC) and is pursuing its own policy. Although the US did not commit to numerical targets limiting total emissions of greenhouse gases, it continues to focus on technological development such as hydrogen energy, fuel cells, clean coal, methane collection, carbon fixation and the fourth generation of nuclear power. The US federal government policy is characterized by the tendency to give a high priority to the free market and economic growth, voluntary actions by private companies, and scientific and technological development. One negative result of this is that, too often, economic growth and expansion come first and the environment comes later. However, it should be noted that at the state level, particularly in north-eastern and west coast states, various measures relating to the Kyoto Protocol have been introduced and are spreading. These include a greenhouse gas emission reporting system, the setting of emission reduction targets and emission trading.

These and other innovative policy measures already introduced give us a useful comparative context in which to consider Japanese policy. Evidently, effective and concrete policy measures must be implemented without delay – and long-term targets and objectives set – if Japan is to shoulder its share of the global burden in addressing climate change. For this, a clear vision for the future is necessary, as I show in the next section.

5. A long-term vision for a low carbon emitting economy

The numerical targets stipulated in the Kyoto Protocol present only a very small first step in attaining the ultimate objective of solid measures against global warming. Article 2 of the UNFCCC committed its 154 signatory nations to the common – albeit non binding and voluntary – goal of stabilizing greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.⁵ In order to stabilize greenhouse gas concentrations, it was considered ultimately necessary to equate emissions in the atmosphere with absorption by nature.

The Third Assessment Report (TAR)⁶ of the Intergovernmental Panel for Climate Change (IPCC) estimated anthropogenic emissions of CO₂ as totaling some 6.3 billion tons (carbon equivalent) at present. Absorption by nature, in contrast, was estimated at 3.1 billion tons. By these calculations, it was proposed that more than 50% of current emissions should be reduced globally. Today, however, emissions of CO₂ continue to rise and, with them, global temperatures. Even if the targets set by the Kyoto Protocol are met completely by 2012, the emissions of six greenhouse gases in the targeted industrialized countries will only have been cut by 5.2% in comparison with 1990 levels.

The Kyoto Protocol stipulates starting negotiations on future commitments beyond the first commitment period (2008–12) in 2005 and concluding these negotiations by the end of 2007 at the latest. Naturally, Japan's first priority should be to make the utmost effort to meet the target of the Kyoto Protocol. At the same time, it is vital that the long-term targets of counter-measures against global warming should be clarified, and a clear future vision of a low carbon emitting economy drawn up, which will promote sustainable development and delimit the damage from climate change. Without a clear vision of the future relating to climate change, Japan cannot expect to have the proper public infrastructure or large scale private investment designed to mitigate climate change. It is essential for the Japanese government to send a clear and reliable message to its public in order to address climate change and to promote private investment and technological development.

The EU set a long-term target in 1996, a year before COP3. The target aimed to keep the global mean temperature to within an increase of 2°C above pre-industrial levels. This would necessitate keeping the mean temperature rise within 1.4 degrees of the current average temperature, since the global mean temperature has already risen 0.6°C from the pre-industrial period. Based on this long-term target, the EU Summit Meeting in March 2005, specified a 15-30% reduction in GHG emission as being necessary for the industrialized countries by the year 2020 (taking 1990 as the base year). Also, in March 2005, the EU Council of Environment Ministers proposed a 60-80% reduction for the industrialized countries by 2050 (see Table 2).

According to the IPCC report, when the global temperature exceeds the current level by 2-3°C, the damage caused by global warming will become serious in many respects. Research indicates that the degree of damage will increase sharply at around an increase of 2°C. Therefore, in order to prevent serious damage, keeping the increase of the global temperature below 2°C is required. The national medium and long-term plans to address climate change announced by EU countries, notably the UK and Germany, have been made with this requirement in mind. These plans include long-term targets in

Table 2 Long-term stabilization and reduction targets in some of the major countries and regions (compiled from various sources)

	Reporting institute	Report (date)	Long-term stabilization targets	GHG reduction targets
Japan	Sub-committee for International Climate Change Strategy; Global Environmental Committee, Central Environmental Council; Ministry of Environment	Second Interim Report (5 May 2005)	For the long-term stabilization targets, limit global warming to 2°C and GHGs concentration to below 550ppm. (e.g. 475ppm)	Global emission of GHGs to be reduced 10% by 2050 and 75% by 2100, compared with 1990 levels.
EU	Summit Conference	EU Environmental Council conclusions (23 March 2005)	Limit global warming to 2°C compared with pre-industrial levels.	Industrialized countries to aim for cuts in GHG emissions of 15-30% by 2020.
	Council of Environment Ministers	EU Environmental Council conclusions (10 March 2005)	Same as above.	Industrialized countries to cut GHG emissions by 15-30% by 2020 and 60-80% by 2050, compared with 1990 levels.
	European Commission	Report (9 February 2005)	Limit global warming to less than 2°C above pre-industrial levels. Stabilize GHG concentration at much below 550ppm.	GHG emissions to be reduced 15% worldwide by 2050, compared with 1990 levels.
UK	Department of Trade and Industry (DTI)	Energy White Paper (February 2003)	Limit CO ₂ concentrations in the atmosphere to no more than 550ppm.	Reduce CO ₂ emissions by 60% of current levels by 2050.
Germany	Germany Advisory Council on Global Change (WBGU)	Report (October 2003)	Limit global warming to an at maximum 2°C increase on pre-industrial levels (below 0.2 °C per decade). Limit CO ₂ concentrations below 450ppm.	Reduce CO ₂ emissions by around 45-60% by 2050, compared with 1990 levels. Industrialized countries to reduce their CO ₂ emissions by 20% by 2020.
	Parliamentary Advisory Committee	Report (July 2002)	None	Reduce CO ₂ emissions by 80 per cent by 2050.
France	Inter-ministerial taskforce on climate change (MIES)	Radarme Report (May 2004)	Stabilize CO ₂ concentrations at 450ppm or less.	Limit per capita CO ₂ emissions to 0.5t by 2050. Reduce global emissions of CO ₂ to 3 billion tC by 2050.
Sweden	Swedish Environmental Protection Agency (SEPA)	Report (October 2002)	Stabilize all GHG concentrations at 550ppm (CO ₂ concentrations at 500ppm or less).	Reduce per capita emissions of CO ₂ and other GHGs of industrialized countries to 4.5t (now 8.3t) by 2050 and reduce more thereafter.
The Netherlands	Dutch National Research Program (NRP)	Long-term climate policy option (Cool Project) (June 2001)	None	Reduce GHGs to 80% compared with 1990 levels.

terms of temperature increases or GHG concentrations for climate change and a 45-80% reduction target of GHG emissions (see Table 2).

In Japan, the Sub-committee for International Climate Change Strategy, the Global Environment Committee, the Central Environmental Council and the Ministry of the Environment, published a second interim report, *Climate Regime Beyond 2012: Key Perspectives (Long-term Targets)* in May 2005. The report proposed limiting the global mean temperature increase to within a 2°C increase on pre-industrial revolution levels. In order to attain this target, the sub-committee recommended that global emissions of

GHGs be reduced by 10% by the year 2020, 50% by 2050 and 75% by 2100 in comparison with 1990 levels (see Table 2).⁷

At present, this is not a government position but a basis for further discussion. Nationwide public discussion will have to be conducted in order to arrive at a consensus for a long-term target.

6. Five stages of environmental policies

In this section, I evaluate Japanese environmental policy to date in reference to the five-stage classification of environmental policy theorized by Martin Janicke (1995) and Tsuneo Takeuchi (2004).

The first stage is defined in terms of an “economic growth supreme principle” or period of “development dictatorship”. Development dictatorship politics are a common occurrence in countries at the development-oriented stage, even today. The features of this stage are 1) economic growth as the first priority, and 2) the ignoring of environmental considerations. In order to attain social development through economic growth, attention to environmental problems and human rights is sacrificed. The frequent occurrence in Japan of industrial pollution damage and delays in taking necessary measures by private companies and government until the latter half of the 1960s was typical of the first stage of behavior.

The second stage represents a “symbolic reaction” to the environmental issues that arise out of the first stage. Reaction is presented via the enactments of legislation and the creation of organizations. In response to public pressure from residents and the media, the government sets up a department or an office with responsibility for the environment and enacts laws. However, due to lack of enforcement, the laws and organizations are not effective in controlling the environmental damage caused by industrial activities. In 1967 in Japan, the Basic Law for Pollution Control was enacted. However, there was a clause that stated that environmental conservation should be “harmonized” with economic activities.⁸ It essentially stipulated carrying out pollution control measures within a range that did not harm economic development. This showed a typical feature of the second stage, where legal effectiveness was severely restricted. The four major pollution cases – these involved incidents of methyl mercury poisoning in Minamata and Niigata, cadmium pollution in the Jinzu river basin in Toyama prefecture (“*itai-itai*” disease) and asthma-triggering pollution in Yokkaichi – for which Japan became infamous in the 1950s and 60s, each testified to the ineffectiveness of legislation at this stage of “symbolic reaction”.⁹

The third stage is an “end-of-pipe treatment” stage. This stage is characterized by technical fixes at the end of the production process such as sewerage treatment or flue gas desulphurization. This approach has proved to be effective in reducing air pollution, particularly sulphur oxide emissions (SO_x). However, it turns out that there are limitations to this approach when the scale of economic activity becomes larger and problems become more complex.

In 1970, at the “Pollution Diet”, 14 laws were enacted or amended and the clause calling for the harmonization of environmental conservation with economic activities was deleted from the Basic Law for Pollution Control. In the same year, the Environment Agency was also established. It was at this point that Japanese environmental policy moved from stage 2 to 3. During the high economic growth period that had preceded the Pollution Diet, Japanese society had paid a high price in tragic environmental disasters, notably the four largest pollution cases in its history (listed above).

The fourth stage addresses the integration of economy and environment and the internalization of environmental social costs. When economic scales become larger and sources of environmental problems become diversified and complex, environmental issues such as global warming, traffic pollution and waste are intensified. These problems are caused by common economic activities. As a result, these problems cannot be solved effectively by “end-of-pipe” technical processing. Instead, various innovative approaches are proposed to solve the common problems. For example, the “closed system” approach to water use and recycling, which economizes the use of water and natural resources; the “cleaner production” approach, which seeks to discharge fewer contaminants in production processes; the industrial ecology approach, which calls for cross-industrial collaboration and the mitigation of environmental load; and radical approaches such as the “zero emission”, “factor four” and “factor ten” policies, each of which aim to drastically increase environmental efficiency.

In each case, the approach taken aims at attaining economic development without degrading the environment. In order to institutionalize the internalization of environmental costs by the market, principles such as the polluter pays principle (PPP) and economic instruments such as compensation systems for pollution victims, environmental levies and environmental taxes, are implemented. The so-called “ecological modernization” approach that results seeks to combine the achievements of science and technology with the afore-mentioned market mechanisms in addressing environmental issues.¹⁰ The two oil crises in the 1970s, which resulted in a sharp rise in oil prices, contributed greatly to the improvement of Japanese industry’s environmental efficiency. The government of Japan formulated a legal and administrative system for industrial pollution control. In response, the industrial sector made efforts to invest in

pollution control and energy/resource saving measures. As a result, Japan was eventually regarded as a front-runner in technological responses to industrial pollution.

The fifth stage is the integration of the environment, economy and society. Concepts of “sustainable development”, “sustainable society” and “sustainable welfare society” all belong to the fifth stage. In this stage, a holistic approach is used to address environmental, economic and social issues while trying simultaneously to realize sustainable social and economic systems. Such systems seek to give due consideration to the sustainability of life and society as well as social equity, welfare and employment. Human welfare and environmental sustainability underpin a system in which the protection of human rights, the empowerment of women, indigenous people, young people and children, and the meaningful participation of local communities, are all deemed essential.

Clearly, there is still a long way to go before Japan can arrive at the fifth stage of environmental policy. Earnest efforts to tackle the challenges posed by climate change issues and the implementation of fundamental structural change represent two ways in which Japan can hasten that arrival. In the next section, I look at EU environmental policy to identify more approaches that Japan could take to best enter into the fifth stage.

7. EU environmental policy: heading for the fifth stage

To date, eight European countries, including the Nordic countries, the Netherlands, Germany and the UK, have introduced environmental taxes to address climate change. Of these, the Nordic countries and Germany are now regarded as advanced countries in environmental policy making. These countries are arguably heading for the fifth stage of environmental policy.

The EU introduced the EU-wide emissions trading system (EU/ETS) in January 2005 as part of a series of measures to address climate change. Actual trading has already begun. Under the EU/ETS, emission permits are allocated for energy intensive industries such as electricity and steel, together with GHG reduction obligations. If a company emits more than the allocated emissions permit, it has to pay 40 euros per ton of CO₂ as levies.¹¹ With the introduction of the EU/ETS, counter-measures against climate change have become an essential part of economic activities and the very survival of a company now depends on this system.

In addition to the introduction of environmental taxes and emission trading, there has been notable progress in mainstreaming environmental policy in the EU alongside its integration and expansion.¹² In the EU, with the passage of the Single European Act in

1987 and the Maastricht Treaty (Treaty on European Union) in 1992, the environment is now one of the four policy areas formally recognized as a component of all other EU policy activity. Policy principles such as the polluter pays principle (PPP), the principle of sustainable development, a high level of protection, the precautionary principle, the subsidiarity principle and the integration principle occupy a place in all the treaties drawn up in Europe today (McCormick 2001: 75-86).

How did policy in Europe reach this point? Let us look back the development of EU environmental policies in order to identify the processes by which Europe mainstreamed and expanded its environmental policy.

The so-called EU greens, such as the Nordic countries and the Netherlands, were the first to initiate a move towards harmonizing environmental regulations within the EU, driven by the realization that through the liberalization of trade within the EU, differing national rules on industrial pollution could distort competition. The EU greens then expanded by adding Germany and Austria. All potential applicants for EU membership such as eastern and central European countries have to accept environmental aquis – the body of laws developed by the EU, including EU regulations and directives – in total before being admitted as an EU member country. This requires potential members to upgrade their environmental policies and standards.

With the progress of EU integration and the establishment of EU policy, the European Commission has become a dominant actor on the international environmental stage. It is regular practice today for the EU to have a common position for international environmental negotiations and to become a signatory to multilateral environmental conventions, for example, the UNFCCC, the Convention on Biological Diversity and the Kyoto Protocol. Under the Kyoto Protocol, the EU has a commitment to reduce its overall emissions of GHG by 8%, but Article 4 of the Protocol (usually referred to as the “EU bubble”) allows the union and its member states to fulfill their commitments jointly, through differentiated commitments for member states. The US and Japan are critical of the EU bubble since the specific responsibilities for each member country are not clear and some countries are allowed to have large emission increases. However, this EU approach implies new possibilities for regional environmental governance. The EU Council of Environment Ministers exercises substantial powers in this respect.

8. Empowerment of local governments and local initiatives

How should environmental policy be integrated with other policy areas? One of the key components is the empowerment of local governments and local initiatives.

Successive OECD environmental performance reviews praised the active role played by local governments in Japan in addressing pollution problems. However, at present, a local government faces various barriers when it tries to initiate measures related to climate change issues.

In the case of pollution control, local governments, in the absence of national legislation, have enacted local ordinances and concluded voluntary agreements with companies. On the other hand, in the case of climate change counter-measures, most are categorized as energy or transport policy areas, which are firmly under the jurisdiction of central government. For example, local governments have no choice but to buy electricity from major utility companies, which have a local monopoly. Under the current system, local governments are unable to make their own choices in regard to energy supply and use. Local governments are severely handicapped by their policy measures, funding and authority in addressing climate change.

Since the late 1990s, institutional reorganization has been taking place in Japan to strengthen the decentralization of power and to empower local governments. In this process, it is necessary to make clear the roles and competences of local governments in addressing climate change. In this context, the importance of the principle of subsidiarity should be recognized. This principle advocates that decisions are taken as closely as possible to the citizen; in doing so, it suggests that public authorities should not act if citizens can do so adequately and effectively. The principle also introduces the concept of gradation, i.e., higher levels of government act only when lower levels of government cannot do so satisfactorily. The principle of subsidiarity is included in the Maastricht Treaty and European Charter for Local Autonomy.¹³

By expanding the participation of local communities and encouraging transparency in decision making, the principle of subsidiarity affords a useful basis for self-reliant, autonomous and sustainable communities. By extension, policies designed to form a sustainable society should integrate regional environmental and economic policies. For this to be done, it is necessary first to review the existing regional activities from an ecological viewpoint. Based on the review, regional energy, transport, industry and distribution should be redesigned with the active participation of multiple stakeholders in the region.

A precondition of the empowerment of local governments is a drastic transfer of authority and revenue sources from the central government. This would enable local self-determination and planning and the implementation of innovative policies.

A variety of initiatives are already under way in many parts of Japan. In the process of formulating policies and implementing them, it is essential to disclose information and keep access to information open so that awareness of the issues can be shared and wider public participation fostered. This depends upon the development of local

environmental governance and environmental democracy. Building a sustainable society and environmental democracy should go hand in hand.

Conclusions

Based on the above analysis, I propose that the following points are considered to reform Japanese environmental policy in order to arrive at a low carbon emitting and sustainable society.

1. Set up medium- and long-term targets and visions for the years 2030 and 2050. Based on the vision of the future society, identify necessary policy measures to realize the vision through back-casting analysis. This encourages long-term investment for a low carbon emission society and technological development.
2. Enact ecological tax reform. Ecological tax reform is essential for integrating environmental and economic policies. Ecological tax reform includes not only the introduction of a carbon tax but the removal of perverse subsidies and favorable tax treatment for environmentally disruptive activities. It also includes tax reform to encourage the further deployment of resources to renewable energy such as wind, solar and biomass. Special accounts such as the account for road construction should be abolished at this stage.
3. Empower local authorities and encourage local initiatives to enable effective measures to address climate change.
4. Pursue environmental democracy. Ensure information disclosure and access to environmental information, expand public participation in decision making and ensure judicial remedies.
5. Encourage proactive measures by corporations in order to make the environment and economy mutually reinforcing. Build an incentive system that rewards corporations that are proactive in addressing climate change. Make use of the emission reporting and publication system as well as the environmental management system.

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Notes

¹ “Diet” is the name for the National Parliament or Congress in Japan. In 1970, in response to escalating environmental problems, the Diet devoted itself to pollution issues, giving rise to the enactment of some 14 anti-pollution laws. For this reason, the Diet session of 1970 is commonly dubbed the “Pollution Diet”.

² See ‘Japan’s Experience in the Battle against Air Pollution: the Pollution-Related Health Damage Compensation and Prevention Association’, edited by the Committee on Japan’s Experience in the Battle against Air Pollution (1997).

³ Details on the Kyoto Protocol Attainment Plan can be found at:

http://www.env.go.jp/press/file_view.php3?serial=6699&hou_id=5937

⁴ For more information on global trends to expand the use of renewable energy, see:

<http://www.renewables2004.de/>

⁵ More specifically, the signatories to the UNFCCC committed their governments to the “stabilization of greenhouse gas concentrations in the atmosphere at a level that does not adversely affect natural ecosystems and human kind.” This level “should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.” (UNFCCC, Article 2: 1992).

⁶ Refer to table 2 on page 39 of the IPCC Third Assessment Report (2001), *Climate Change 2001: The Scientific Basis* (Technical Summary of Working Group I):

<http://www.ipcc.ch/pub/wg1TARTechsum.pdf>

⁷ See page 23 of the report.

⁸ Article 1 of the Basic Law for Pollution Control (1967) states as its objective that “in the preservation of the living environment, harmonization with sound economic development should be sought”.

⁹ See *Chikyu Kankyo Keizai Kenkyukai* (1991) *Nihon-no Kogai Keikan* [Pollution Experience of Japan], Godo shuppan.

¹⁰ Ecological modernization is broadly defined by Barret and Fisher (2005: 3) as a theory that “deals with the practicability of attaining environmental improvements through [the] transformation of production and consumption patterns”. For a more detailed discussion of ecological modernization, see Janicke and Weidner (1995), Mol (2001) and Mol and Sonnenfeld (2000).

¹¹ For more on the EU/ETS, see the following:

<http://europa.eu.int/comm/environment/climat/emission.htm>

¹² For a detailed discussion of EU environmental policy, see McCormick (2001), Jordan (2002), Weale (2003) and Vig and Faure (2004). See also

<http://europa.eu.int/comm/environment/climat/emission.htm>

¹³ Article 3b (now Article 5) of the Maastricht Treaty notes: “In areas which do not fall within its exclusive competence, the Community shall take action, in accordance with the principle of subsidiarity, only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States and can therefore, by reason of the scale or effects of the proposed action, be better achieved by the Community.” Similarly, Article 4, Section 3 of the European Charter on Self-Government, states: “Public responsibilities shall generally be exercised, in preference, by those authorities which are closest to the citizen. Allocation of responsibility to another authority should weigh up the extent and nature of the task and requirements of efficiency and economy.”

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