

## Chapter 3

# The Pathway to the Environmental Century

As stated in Chapter 1 and 2, human activities that burden the environment are still expanding, including the advancement of the development of global warming, increases in resource consumption and deterioration of biodiversity.

We are now at the crossroads of whether the choices we make at the beginning of the 21st century will be seen as the right decision by human beings 100 years from now. Under such severe recognition, Japan is trying to take a leading role in international society in resolving environmental issues including global warming.

### Section 1 International Negotiations with a View to the Future, 100 Years from Now and Japan's Role in the Negotiations

Let us look at the discussion points in international negotiations that will decide the future of the earth and human beings and the role that Japan should play in international negotiations.

#### 1 The Results of the G8 Hokkaido Toyako Summit

The G8 Environment Ministers meeting, that was held in Kobe in May 2008, where G8 Ministers and other officials gathered, gave beneficial input towards the G8 Hokkaido Toyako Summit, held in July same year, in three areas—"Climate change", "Biodiversity" and "The 3Rs."

At the summit that was held in Hokkaido Toyako in July 2008, the G8 leaders came to an agreement on climate change issues including that all Parties to the United Nations Framework Convention on Climate Change will seek to share and adopt the long-term goal of at least halving global greenhouse gas emissions by 2050. The G8

leaders also acknowledged establishing ambitious mid-term goals for each country, while reflecting comparable efforts among all developed economies, in order to achieve absolute emissions reductions.

At the G8 Environment Ministers Meeting held in Syracuse, Italy in April 2009, the "Carta di Siracusa on Biodiversity" —the declaration on biodiversity was adopted, and discussions on the development and deployment of low carbon technologies, climate policy measures, biodiversity, and children's health and the environment proposed by Japan were held in the context of the current financial and economic crisis.

#### 2 The Framework for the Next Greenhouse Gas Emissions Reduction Agreement after the First Commitment Period of the Kyoto Protocol

The Kyoto Protocol sets a framework, insisting the advanced economies take the lead in reducing greenhouse gas emissions as an international approach during the first commitment period (from 2008 to 2012). The total carbon dioxide emissions resulting from energy sources among countries bearing reduction obligations was only approximately 30% of the total global emissions as of 2006. Therefore, in the framework after the first commitment period, all parties are strongly expected to participate under the "principle of common but differentiated responsibilities and respective capabilities."

(1) International negotiations for the framework for the next greenhouse gas emissions reduction agreement after the first commitment period of the Kyoto Protocol

At the 13th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP13) held in Bali, Indonesia in December 2007, the Bali Action Plan was adopted and agreed to reach an agreement by COP15 in 2009, in which all parties to the Convention should agree to the GHG emissions reduction framework starting from 2013, after the first commitment period of the Kyoto Protocol.

The Ad Hoc Working Group on Long-term

Cooperative Action (AWGLCA), set up under the United Nations Framework Convention on Climate Change (UNFCCC) will hold a conference in Bonn, Germany in next June, based on the Chair's negotiation text towards an agreement at COP15, to be held in December 2009.

(2) Japan's approaches based on the Kyoto Protocol Target Achievement Plan

A The Kyoto Protocol Target Achievement Plan

The Kyoto Protocol entered into force in 2005, under the United Nations Framework Convention on Climate Change, and Japan made a legally binding commitment to reduce GHG emissions by 6% compared to the base year during the first commitment period (2008-2012). In order to achieve the 6% reduction target, the Japanese government established the Kyoto Protocol Target Achievement Plan (Cabinet Decision of April 28, 2005, totally revised March 28, 2008) based on the revision of the Law Concerning the Promotion of the

Measures to Cope with Global Warming (Act No. 61 of 2005, hereinafter referred to as "Act on Promotion of Global Warming Countermeasures"). Japan's definite figures on GHG emissions in 2007 were 1,374 million tons (CO<sub>2</sub> equivalent), 9% increase from the total emissions in the base year (1,261 million tons) (Table3-1-1). Therefore, in order to achieve the 6% reduction target, Japan has to reduce the emissions by as much as 15.0% (including a 3.8% reduction through forest sink measures and 1.6% through the Kyoto Mechanism) (Figure3-1-1).

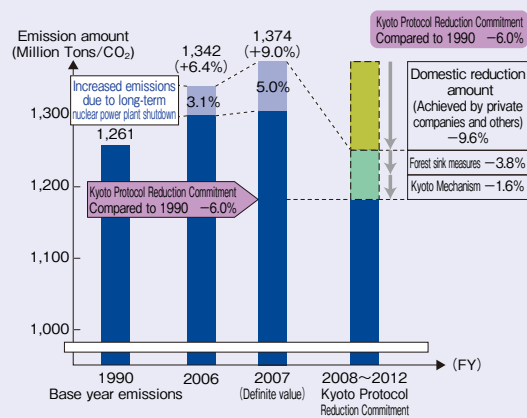
B Action Plan for Achieving a Low-carbon Society

At the G8 Hokkaido Toyako Summit, the G8 parties reached a common understanding that all parties to the convention to seek to share and adopt the goal of at least halving global greenhouse gas emissions by 2050. Japan has also set the long-term goal of a 60% to 80% reduction from the present situation by 2050, and the Action Plan for Achieving a Low-carbon Society was approved by the Cabinet on July 29, 2008.

The plan agreed to announce national emissions targets as the mid-term goal at a specific time in 2009, and to promote Japan's "Cool Earth Partnership," which will fund around 10 billion dollars over 5 years in international support. As a domestic measure, Japan will promote the development of innovative technologies and the dissemination of existing advanced technologies. Japan will also expand the use of renewable energies including geothermal energy as well as the trial implementation of an integrated domestic market for emissions trading, setting out a framework to move the entire society to a low-carbon society, such as greening of the tax system and to support local and national approaches including the creation of low-carbon cities (Figure3-1-2).

C Domestic Emissions Trading System

Figure3-1-1 Progress of the Kyoto Protocol Target Achievement Plan



Source: Ministry of the Environment

Table3-1-1 The Status of GHG Emissions and the Indicator for GHG Emissions in FY2010

(Unit: million tons CO<sub>2</sub>)

	Base FY (ratio to the overall)		FY2007 Achievements (increase and decrease from the base year)	The indicator for GHG emissions in FY2010 (note 2)	Difference of FY2007 results and FY2010 indicator for GHG emissions	
					GHG emissions needed to be reduced	Ratio to the FY2007 achievements (%)
CO <sub>2</sub> emissions resulting from energy sources	1,059	(84%)	1,219 +15.1%	1,076~1,089	144~131	11.8~10.7
Industrial sector	482	(38%)	471 -2.3%	424~428	47~43	10.0~9.2
Commercial and other sectors	164	(13%)	236 +43.8%	208~210	28~26	12.0~11.1
Residential sector	127	(10%)	180 +41.2%	138~141	42~39	23.1~21.5
Transport sector	217	(17%)	249 +14.6%	240~243	9~6	3.8~2.4
Energy conversion sector	67.9	(5%)	83.0 +22.2%	66.3	17	20.1
CO <sub>2</sub> emissions resulting from non-energy sources	85.1	(7%)	84.5 -0.6%	84.5	-0.004	-0.01*
Methane	33.4	(3%)	22.6 -32.3%	22.6	0.003	0.01*
Nitrous oxide	32.6	(3%)	23.8 -27.1%	24.7	-0.948	-4.0
Three CFC alternatives	51.2	(4%)	24.1 -53.0%	31.0	-6.9	-28.7
Total	1,261	(100%)	1,374 +9.0%	1,239~1,252	135~122	9.9~8.9

Note 1: The sum of each column's total in the above figure may not match, due to round-up errors.

2: The emissions indicators are set for both cases; the maximal and minimal envisioned effect of the measures. Naturally the aim is for the maximal, however, the minimal is still set to achieve the Kyoto Protocol Target Plan.

3: \* is calculated as CO<sub>2</sub> equivalent.

Source: Ministry of the Environment

Figure3-1-2 The Outline of Action Plan for Achieving a Low-carbon Society (Cabinet Decision of July 29, 2008)

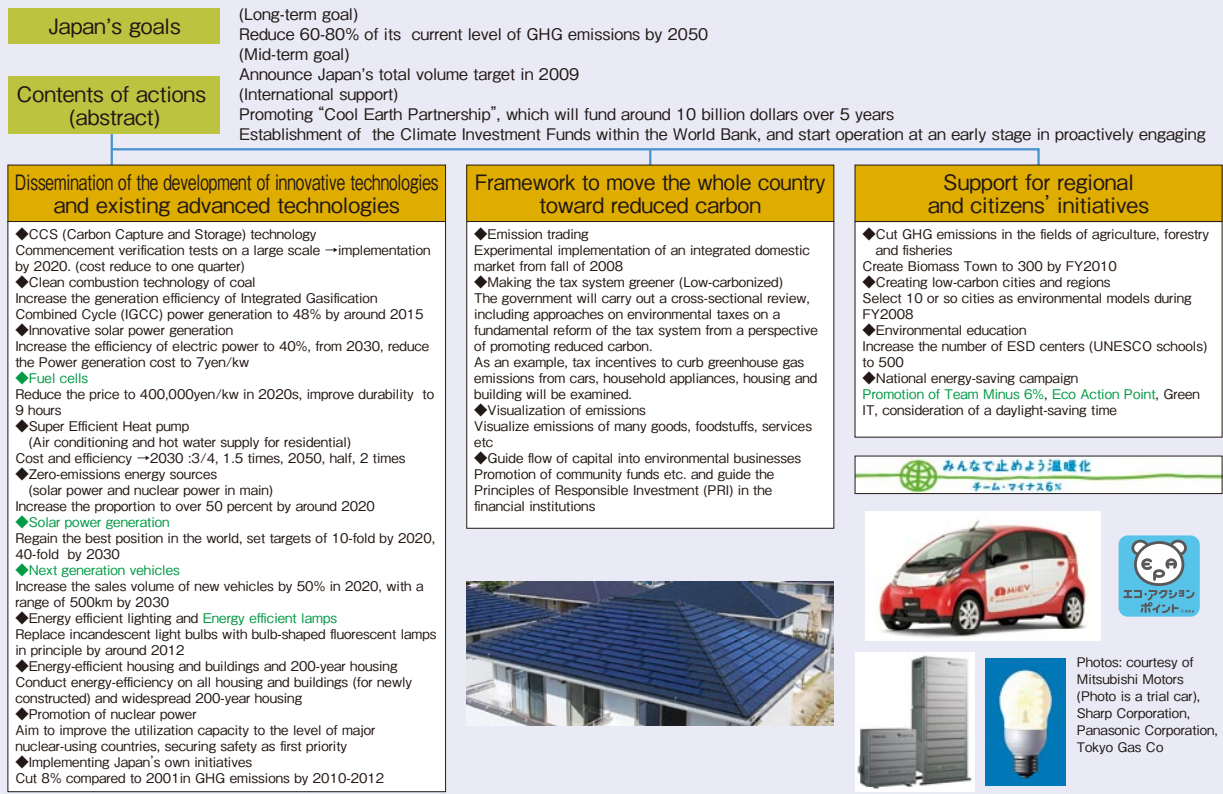
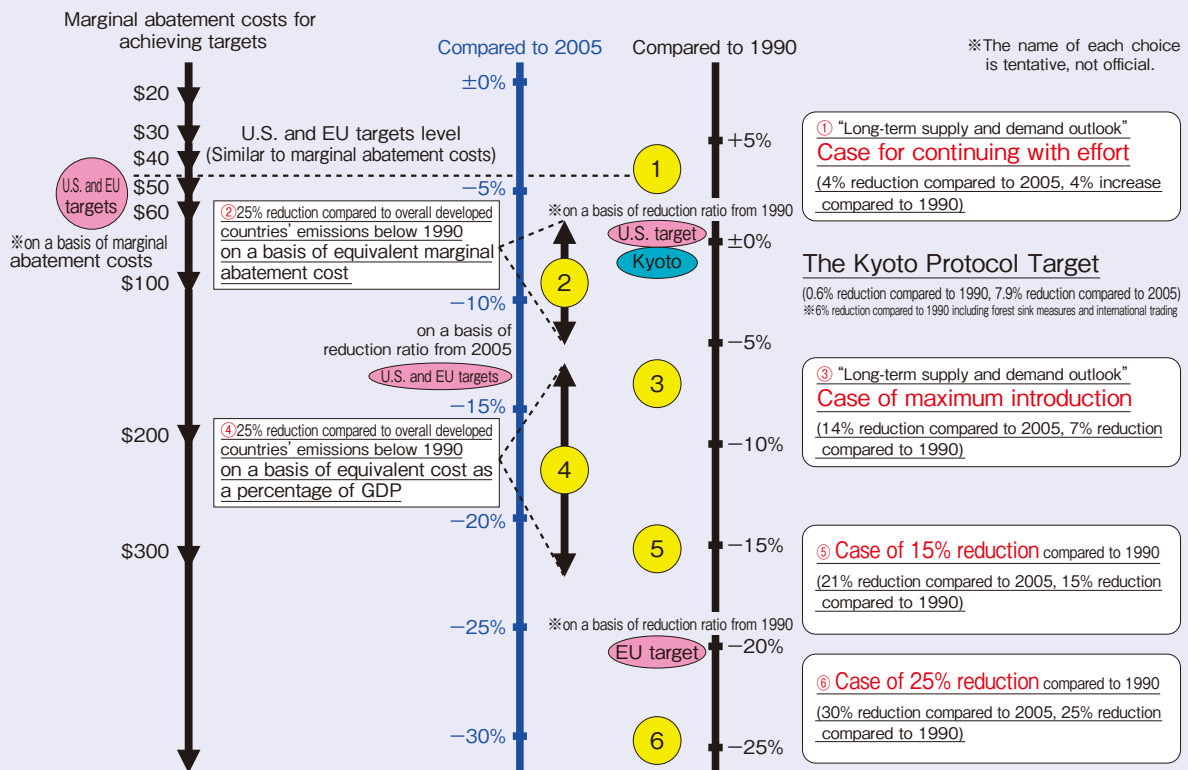


Figure3-1-3 6 Options for Mid-Term Targets



The Domestic Emissions Trading System is a system that first sets total emissions quotas, and then allocates emissions quotas to individual entities, as well as trading of emissions quotas with other entities and acknowledging the utilization of the Kyoto Mechanism Credit. "The trial implementation of an integrated

domestic market for emissions trading" has started based on the decision by the Global Warming Prevention Headquarters in October 2008. Total emissions of the businesses that requested inclusion participation covers nearly 70% of Japan's industrial sector's emissions, as of March 2009.

D Greening of the tax system

The government will carry out a cross-sectional review, including approaches on environmental taxes on a fundamental reform of the tax system from a perspective of promoting Low-carbon Society, regarding the greening of the tax system. Expansion and extension of greening of automobile-related taxes, including limited time exemption of motor vehicle weight tax and automobile acquisition tax, and tax system to promote energy-saving houses, such as creation of tax exemption system related to building of energy-saving houses were incorporated in the 171st Ordinary Diet Session.

(3) Japan's mid-term goal progress on GHG reduction

Annex I countries under the Kyoto Protocol are encouraged to provide information on their mid-term goal progress to the United Nations. In order to discuss Japan's mid-term goals scientifically and logically, the Mid-term Target Committee was set up under the Council on Global Warming Issue held at the Prime Minister's Office in October 2008. The Committee has met seven times and presented six options in April 2009 (Figure3-1-3).

(4) Technological outlook on long-term goal for GHG reduction

GHG reduction can not be achieved without technological progress, and various long-term goals on GHG reduction are based on the assumption of technological development. With the technological outlook on GHG reduction potential in mind, we need to emerge from a society where about 65% of the energy supply is covered by oil and coal.

The Stern Review expects the maximum overall costs for stabilizing the concentration of the GHG at 550ppm (CO<sub>2</sub> equivalent) by 2050, at around 1% of annual GDP.

The Working Group III to the IPCC Fourth Assessment Report has covered GHG reduction policies and has indicated key technologies expected to be utilized to 2030 and from 2030.

"A Dozen Actions Towards Low-Carbon Societies" (LCSs) released in May 2008 by the "2050 Japan Low-Carbon Society" scenario team, centralized by the National Institute for Environmental Studies, indicated the possibility of reducing Japan's CO<sub>2</sub> emissions by 70% by 2050, compared to 1990.

(5) Japan's international negotiations towards COP15

Regarding the international framework for reducing GHG emissions after the first commitment period of the Kyoto Protocol, Japan will aim to reach an agreement at the 15th meeting of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP15) and lead international negotiations on the basis of the following points.

- Establish an equitable and effective framework under the principle of common but differentiated responsibilities in which all major economies, including the United States, China and India will participate in addition to countries with a reduction obligation.
- Adopt the long-term goal under the United Nations Framework Convention on Climate Change by at least halving global GHG emissions by 2050, while referring to IPCC's scientific knowledge.
- Aim to peak out global emissions in the next 10 to 20 years, and to this end share the ways to reduce global emissions by 2050, including the creation of a low-carbon society and promotion of innovative technological development.

3 Japan's Efforts towards the 10th Meeting of the Conference of the Parties to the Convention on Biological Diversity (COP10)

As global environment that maintains biodiversity is necessary for human existence. Changing socio-economic rules and structures are necessary in order to maintain biodiversity in socio-economies.

(1) Background of the formation of the Basic Act on Biodiversity

The Basic Act on Biodiversity (Act No.58 of 2008) was enacted in May 2008 in order to realize a society in harmony with its natural environment. The act happened to coincide with a time when the 9th meeting of the Conference of the Parties to the Convention on Biological Diversity (COP9) that held in Bonn announced Nagoya city, Aichi prefecture to host the 10th meeting of the Conference of the Parties to the Convention on Biological Diversity (COP10) in October 2009 and has reached an opportunity to dramatically improve awareness and approaches on biodiversity in Japan.

(2) The reason why biodiversity is necessary

Most of the blessings we enjoy in our daily lives unconsciously, including rice and vegetables served on our tables, are brought by biodiversity. The current burden on biodiversity caused by human activities is impossible to ignore.

As seen in the trend of the Millennium Ecosystem

Table3-1-2 Result of the Trial Calculation of the Economic Value on Three Functions that Japan's Coral Reefs Possess

Ecosystem services of coral reefs	Economic value (100 million yen/ year)
Providing tourism and recreation	2,399
Providing commercial marine products	107
Protection from wave and erosion hazards	75~839

Source: Ministry of the Environment

Assessment (MA) and an interim report on the Economics of Ecosystems and Biodiversity (TEEB), recent attempts are to assess how we benefit from biodiversity and how they impact us, in case biodiversity degrades, from a global view and to link with policies.

The Ministry of the Environment made a trial calculation of the current economic value of the partial ecosystem services that coral reefs of Japan have in FY2008. According to the calculation (Table3-1-2), annual economic value of the coral reefs services were expected to be 239.9 billion yen on tourism and recreation, 10.7 billion yen on commercial marine products and 7.5 billion to 83.9 billion yen on protection from wave and erosion hazard. Although coral reefs are said to be important for conservation as a keystone species to ecosystem, recognizing that their existence will bring invaluable benefits to us are also necessary.

### (3) Japan's approaches towards the meeting of the 10th Conference of the Parties to the Convention on Biological Diversity (COP10)

Convention on Biological Diversity has three purposes: the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

Many agenda items will be discussed at COP10, such as the revision of the Strategic Plan for the Convention on Biological Diversity, including new targets for post 2010, and to finalize the international framework on Access and Benefit-Sharing (ABS), which are key agenda items. Regarding the ABS, Japan will take the reality use of international genetic resources into account, in order not to cause obstacles of the substantial use, and in order to bring the

framework that will take the conservation of the biodiversity and its sustainable use into consideration. Japan will contribute to the discussion through participation in the meetings.

Regarding the revision of the Strategic Plan for the Convention on Biological Diversity, it is important that the 2010 Biodiversity Target "to achieve by 2010 a significant reduction of the current rate of biodiversity loss" will be a more measurable target - recognizable by people from all walks of life as their own target - and to link the target to the promotion of approaches. In order to achieve the target, introducing indicators such as economic assessment of ecosystem services and interrelationship between nature and human beings, which were not incorporated in the Global Biodiversity Outlook 2 (GBO2) are necessary. Japan will participate in the second phase of the TEEB study being hosted, and from this point of view will propose indicators including the sustainable management of natural resources and understandable and measurable new targets.

Japan will also establish a coral reef reserve network centralized in East Asia, in order to promote the designation of marine protected areas, which has been an international challenge towards COP10.

In addition, Japan will propose and send out a global model of sustainable management of natural resources in the secondary natural environment, formed by the mutual interrelationship between human activities and the nature, centralized in the primary industry under the name of Japan's Satoyama as the "SATOYAMA Initiative" at COP10. Domestically, Japan will formulate voluntary guidelines, within businesses can act with biodiversity in mind, and to propose action lists to urge each nation to take biodiversity into account. Japan will support business activities to be active on considering biodiversity and to ensure higher public participation through these proposals.

## 4 3R that Secures Material Support for the Development of Human Beings

In accordance with population growth and economic development, including developing countries, concerns over increase in global demand for resources, depletion of natural resources and waste issues are expected to be more serious in the long-term. In such a situation, Japan has already taken the lead of the "3R Initiative," and international organizations such as OECD and UNEP have activated approaches towards reducing environmental impact related to the improvement of resource productivity and resource recycling.

### (1) 3R Initiative

Japan focused on 3R at the G8 Environment Ministers Meeting in 2008 and the G8 Ministers agreed on the "Kobe 3R Action Plan." With this Action Plan, recognition was shared that 3Rs activities will contribute to uncoupling of resource consumption and environmental pollution (decoupling) in accordance with improvement of resource productivity and economic activities. On that basis, "Prioritize 3Rs and Improve Resource Productivity and Set Targets" and

"Collaborate for 3Rs Capacity Development in Developing Countries" were listed as specific actions each G8 nation will approach. The Action Plan states that Japan will progress approaches based on the Action Plan and will follow up policies based on the Action Plan towards the G8 Environment Ministers Meeting in 2011.

Japan will launch the "Regional 3R Forum in Asia" in 2009 as an embodiment of the "Kobe 3R Action Plan." Japan considers creating and developing healthy specific 3R approaches in each Asian country and to activate regional cooperation in order to realize the "Sound Material-Cycle Society" through this forum.

### (2) International approaches on analysis of material flow and improvement of resource productivity

The OECD has adopted the "OECD Council Recommendation on Resource Productivity" in March 2008. This decision was based on the gathering

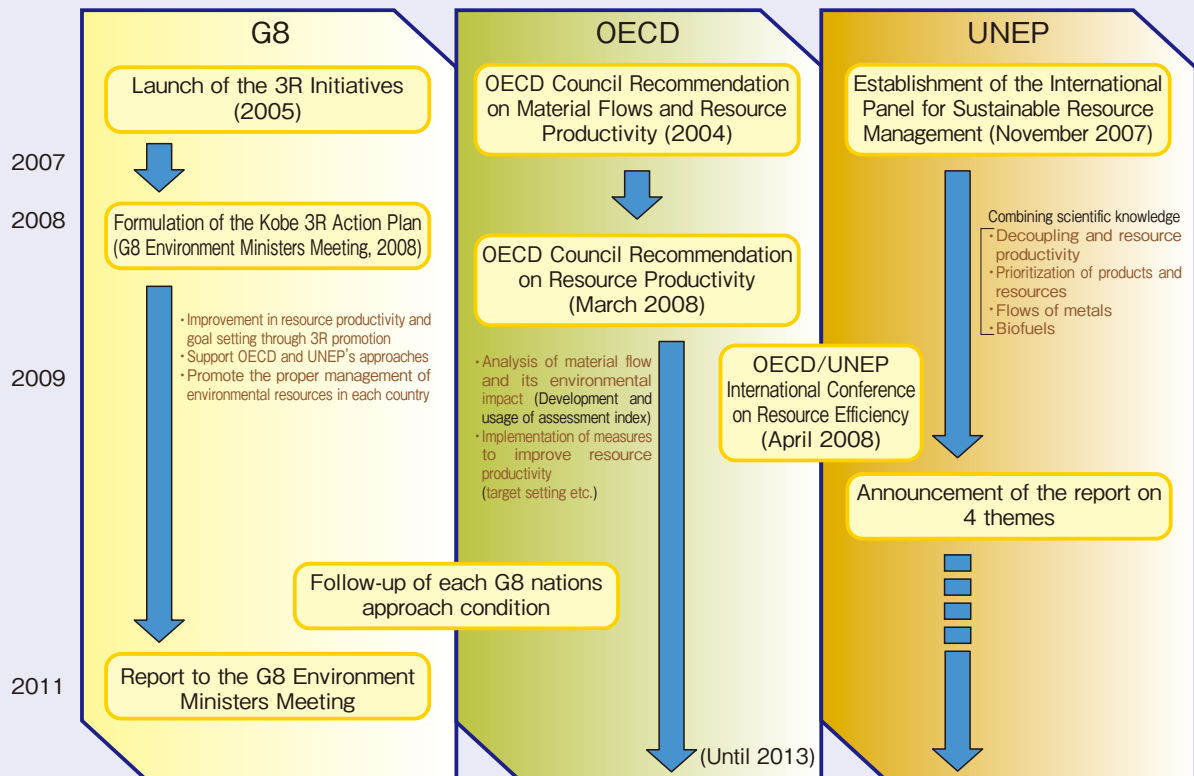
momentum of international approaches on the improvement of resource productivity, including the G8 agreement on setting targets “taking into account resource productivity.” OECD member countries are expected to strengthen analysis capability for material flow and environmental impact accompanied by the flow, while considering the planned target usage including the use of the information on setting targets, based on the recommendation. Japan has already incorporated such contents in the Fundamental Plan for Establishing a Sound Material-Cycle Society (Cabinet Decision of March 2008) and is promoting specific approaches.

3R Initiative and approaches by the OECD is that accumulation and assessment on scientific knowledge are the keys for realizing entire life cycle “Sustainable Resource Management,” including the extraction of natural resources, transportation, consumption and disposal. UNEP set up the “International Panel for Sustainable Resource Management” in November 2007 and is approaching to gather information on resource usage and environmental impact and sustainability. Japan is making great contributions to the international approaches on sustainable resource management (Figure3-1-4) through funding and hosting the “Asia Regional Seminar for Sustainable Resource Management.”

(3) International approaches on reducing environmental impact accompanied by resource usage

One of the challenges that has become clear through

Figure3-1-4 Global Trends Related to Resource Productivity and Sustainable Resource Management



Source: Ministry of the Environment