Overview 1

The World Has Reached a Turning Point in the Creation of a Low Carbon Society, and Japan's Efforts

Chapter 1

Countries Joining Forces to Tackle Global Warming

The Bali Action Plan and other agreements were concluded at the 13th Conference of the Parties to the United Nations Framework Convention on Climate Change (hereinafter referred to as "UNFCCC"), held in Bali, Indonesia in December 2007. It was agreed upon by the global community to make efforts so that an agreement will be reached by the Conference of the Parties to be held in 2009 regarding global warming measures for 2013 and beyond, following the end of the Kyoto Protocol's first commitment period. The Bali Action Plan has especially an important meaning. It is the first step for countries in the world to work together in overcoming conflicting interests and in forging effective agreements to combat global warming.

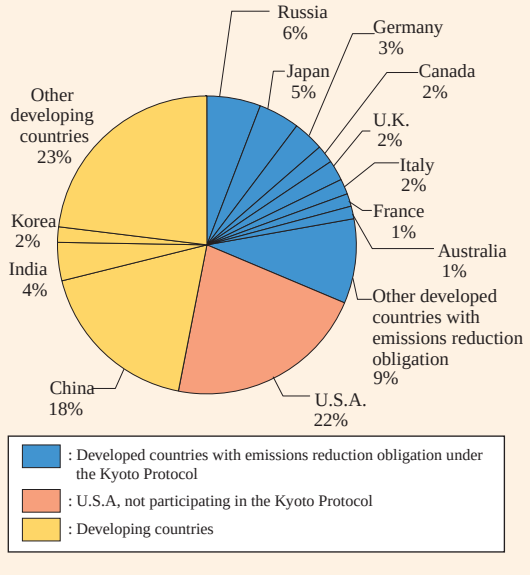
The Inter-governmental Panel on Climate Change (IPCC) predicts that the effects of global warming will bring many changes to the world's climate system and will have a tremendous impact on the future of humankind. As the chair of the G8 Summit, Japan will take up environmental issues, including global warming, as an important agenda item at the G8 Hokkaido Toyako Summit, slated for July this year. It needs to take the initiative in tackling global warming in line with the Bali Action Plan.

Section 1 Significance of the Bali Action Plan

In December 2007, the 13th Conference of the Parties to the UNFCCC and the 3rd Meeting of the Parties to the Kyoto Protocol (hereinafter referred to as "Bali Conference") were held in Bali, Indonesia, as the Kyoto Protocol's first commitment period (2008-2012) under the UNFCCC was about to start. It was also in the year 2007 that the IPCC confirmed with high confidence the serious impact of greenhouse gases (GHGs) on the global environment. According to the Fourth IPCC Assessment Report "Climate Change 2007," most of the increases in global average temperature observed in the second half of the 20th century are likely caused by the increase in GHGs resulting from human activities. This assessment had tremendous influence on deliberations at the Bali Conference.

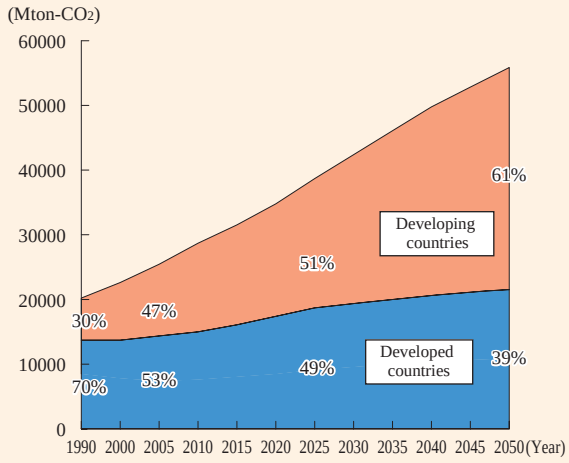
The Kyoto Protocol, which was adopted in 1997 and entered into force in 2005, was a groundbreaking achievement. It committed developed countries and countries in transition (hereinafter referred to as "Annex I countries") to GHG emissions reduction obligations. Based on the "principle of common but differentiated responsibilities and respective capabilities," it obliged Annex I countries

Figure 1-1-1 World CO_2 Emissions from Fuel Combustion



Source: IEA, *CO_2 Emissions from Fuel Combustion*, 2007

Figure 1-1-2 Projections of Future CO_2 Emissions



Source: Compiled by the Ministry of the Environment from the data of the United States Department of Energy

to take initiatives but did not go as far as to require non-Annex I countries to reduce emissions. Furthermore, since the United States, the world's largest single emitter, did not ratify the Protocol, the countries that have committed to emissions reduction under the Kyoto Protocol account for only about 30% of the world's overall emissions (Figure 1-1-1). The world has undergone and continues to undergo many changes since the adoption of the Kyoto Protocol in 1997. Developing countries, which do not have GHG emissions reduction obligations under the Kyoto Protocol, have experienced an increase in emissions because of economic growth. As their GHG emissions are expected to rise further in the future (Figure 1-1-2), to drastically reduce GHG emissions and avert dire consequences as called for by the IPCC and other concerned parties, it is critical that all major GHG emitting countries work together.

At the Bali Conference, the timeline, course of action, and agenda for the creation of a new international framework for 2013 and beyond (hereinafter referred to as "post-2013 framework") were discussed. The negotiation made little headway due to considerable differences in the opinions among nations. Developing countries had long held the position that developed countries were responsible for the increase in GHG emissions since the Industrial Revolution. They are strongly opposed to sharing the same responsibility as the developed countries, believing that it is the developed countries that must first be obliged to the emissions reduction. The United States, on the other hand, argued that participation of the developing countries in the framework would be crucial for it to be effective. Against this backdrop of differences in opinions among countries, Japan made clear its basic stance, which was based on its "Cool Earth 50" initiative, and proactively

Adoption of the Bali Action Plan

(Photo: Courtesy of the UNFCCC Secretariat)

mediated among the Parties for the post-2013 framework. Japan emphasized the need 1) to build consensus by 2009, and 2) to set up a new special working group under UNFCCC with the participation of all major GHG emitting countries and to continue collaboration and negotiation with special working groups under the Kyoto Protocol.

All parties hoping to iron out an agreement continued their efforts even after the sessions ended on December 14. On December 15, H.E. Susilo Bambang Yudhoyono, President of the Republic of Indonesia, and H.E. Mr. Ban Ki-Moon, Secretary General of the United Nations, attended the plenary meeting and appealed to the Parties to make concessions. The negotiations finally ended with the adoption of the Bali Action Plan that afternoon.

It was agreed upon in the Bali Action Plan that in order for all parties to the UNFCCC to participate in deliberations on a post-2013 framework, the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (hereinafter referred to as "AWGLCA") should be set up to work in conjunction with the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (hereinafter referred to as "AWG-KP") toward the adoption of a new framework by 2009. As the agreements are in line with the basic stance of Japan, we can compliment ourselves on having made a significant contribution to the adoption of the Bali Action Plan.

The AWG-KP adopted conclusions referring to some of the key findings of the IPCC Working Group III. The AWG-KP noted the following: IPCC pointed out that in order to stabilize atmospheric GHG concentrations at the lowest level presented in its scenarios, the global GHG emissions need to peak in the next 10-15 years and then be reduced drastically to well below half of 2000 levels by the middle of the 21st century. The AWG further recognized the following: IPCC pointed out that to achieve that level, Annex I parties as a group would be required to employ all possible means to reduce GHG emissions up to

25–40% of the 1990 levels by 2020. It was decided that by 2009, the same year when the AWGLCA presents the outcomes of its work, the AWG-KP should also come up with new emissions reduction targets for the Annex I countries for 2013 and beyond.

At the 3rd Meeting of the Parties to the Kyoto Protocol, a decision was made on an operating system for managing the "Adaptation Fund," including the establishment of the Executive Board of the Adaptation Fund. The Adaptation Fund is to be financed with 2% of the proceeds from clean development mechanism (CDM) projects. It was set up to support adaptation projects (measures to avert/reduce the unavoidable impacts of global warming) in developing countries.

These agreements aimed at seeking maximum protection from the impacts of global warming through the creation of an effective framework that will enable all countries with different positions and opinions to participate. Besides developed countries, such as Japan and the EU, that have already committed to emissions reduction under the Kyoto Protocol, the framework will include the United States, the biggest emitter that has not ratified the Kyoto Protocol; China and India that have seen a drastic increase in emissions in recent years; small island states that are concerned about the submersion of their countries under water; and African countries that are suffering from drought. As science has shed light on the fact that it will not be possible to arrest the progression of global warming without the developing countries also making effort to reduce emissions, the developing countries have started to take a more cooperative stance in accord with the UNFCCC principle of "common but differentiated responsibilities and respective capabilities" and under the condition of receiving assistance from developed countries. In this way, a new venue has become available for parties to the UNFCCC to discuss the emissions reduction target for 2013 and beyond and the means for achieving it. It can be said that global warming policies and measures worldwide have entered a new stage.

Section 2 The World Has Reached the Turning Point and the Days Ahead

1 The Road to the Bali Action Plan

(1) Actions Taken by the International Community in Tackling Global Warming Issues

A United Nations Conference on the Human Environment

The international community first took up discussion of environmental issues in 1972, at the United Nations Conference on the Human Environment (hereinafter referred to as "Stockholm Conference").

The conference was called for by Sweden, a developed country that had started to notice damages from pollutants such as acid rain, caused by soot and smoke emitted from coal fired power plants in far-away Western European countries. At the time, similar problems were also causing serious social issues in other developed countries. Since then, developed countries have taken note of the destruction of nature by pollution from industrialization and development, and their serious impacts on the global environment. On the other hand, developing countries also came to realize that underdevelopment and poverty were the most challenging issues to the human environment and that development of their countries offered the solution. This stance put the developing countries and the developed countries in direct opposition to each other. While the Stockholm Conference made the international community realize for the first time that environmental problems are indeed international problems, it also illustrated a deep divide in the handling of global environmental problems due to the income gap between the northern and southern hemispheres.

At that time in society, there was the idea that all elements on "Spacecraft Earth" (the earth was called as such then), including populations and resources, were interrelated in a complex and subtle way as one entity and that all countries should cooperate to protect it. It was with this kind of idea that the Declaration of the United Nations Conference on Human Environment (Stockholm Declaration) and the Action Plan for the Human Environment were adopted. These statements, however, included the widely divided assertions made by the developed and developing countries.

B Concept of "Sustainable Development"

The concept of "sustainable development," advocated by the Brundtland Commission in its final report "Our Common Future" in 1987, was an answer given to provide a framework that integrates environmental policies and development strategies. The concept of "development

that meets the needs of the present without compromising the ability of future generations to meet their own needs" has served as an important guidepost for global environmental conservation ever since.

This concept found its voice in the Rio Declaration on Environment and Development (Rio Declaration) and its comprehensive action plan adopted at the United Nations Conference on Environment and Development, also known as the "Earth Summit," in 1992, twenty years after the Stockholm Conference. Ten years later in 2002, the concept again emerged in the Johannesburg Plan of Implementation and the Johannesburg Declaration adopted at the World Summit on Sustainable Development.

C UNFCCC and the Kyoto Protocol

The first world conference on global warming issues was an international conference convened in Villach, Austria in 1985 to sort out scientific findings on climate change. Thanks to its statement calling for policymakers to start cooperating on policies to prevent global warming, a specific target for cutting GHG emissions by 20% of the 1986 level by the year 2005 was declared three years later (1988) at the Toronto Conference on the Changing Atmosphere (Toronto Conference).

The UNFCCC, an international framework designed to prevent the various adverse effects caused by global warming, was adopted in 1992 and came into force in 1994. Recognizing that the per-capita GHG emissions in developing countries is less than that in the developed countries, that the developed countries are responsible for most of the increase in the world's overall GHG emissions after the Industrial Revolution, and that there are differences among countries in their respective situations and capabilities for implementing global warming measures, the UNFCCC based on the basic principle of "common but differentiated responsibilities and respective capabilities" agreed that all parties, including developing countries, developed countries, countries of the former Soviet Union, and East European countries, take responsibility for implementing global warming measures at different levels. A total of 189 countries, including the United States, participate in the convention.

As the first step to achieve the objective of the UNFCCC, the Kyoto Protocol, which incorporated binding targets of GHG emissions reduction for developed countries, was adopted in the 3rd Conference of the Parties to the UNFCCC held in Kyoto, Japan in 1997. Since the United States refused to take part and international negotiations on operational details stalled, the Kyoto Protocol did not go into effect for quite a while.

In the meantime, Japan actively appealed to countries that had not ratified the Protocol, including the United States, and tenaciously continued international negotiations in order to put in place the conditions for the Protocol to enter into force. As a result, the Marrakesh Accords, which provided detailed operating regulations, were adopted in 2001, creating the environment for the ratification of the Protocol by various countries. After Russia decided to ratify the Protocol in 2004, the Kyoto Protocol entered into force in 2005.

(2) Future Challenges

As described above, in the thirty-some years since the Stockholm Conference in 1972, the international community has held many conferences to try to resolve global environmental issues. Numerous discussions have been held, covering differences dividing the northern and southern hemispheres. For example, in the discussion about a post-2013 framework at the 2002 Johannesburg Summit (attended by heads of States from 104 countries and representatives from over 190 countries), while the developed countries sought a framework that would require the participation of all countries, the Group of 77 (G77) and China (a group of developing states in the UN) were worried about missing out on their countries' opportunity for economic development and took an opposing stance, saying that until the developed countries could fully implement the Kyoto Protocol, they should not ask other countries for new commitments.

The difference in position and opinion also exists within the camps of the developed countries and the developing countries. Among the developed countries, there were debates on how to formulate a post-2013 framework, including methods to determine the national emissions targets and the base year. The developing countries, represented by the G77 and China, are made up of many groups; namely, emerging economies such as China, India, and Brazil; OPEC countries that export oil to developed countries and Arabian oil-producing countries; the Alliance of Small Island States (AOSIS) that are most vulnerable to the impacts (rise in sea level) of global warming; and African countries that have low GHG emissions but are most susceptible to the impacts of global warming. Thus, the groups advocated different claims based on their different positions. For example, the AOSIS, wary of the rise of the emerging economies, asserted that differentiated responsibilities among developing countries should be incorporated into the post-2013 framework.

The position and opinion held by different countries are becoming increasingly complicated. As a result, interna-

tional negotiations of global warming issues have also become extremely difficult. In order to reduce GHG emissions drastically on a global scale and find a solution to global warming issues, the post-2013 framework must have the participation of all major GHG emitting countries for it to be effective. To this end, developed countries must step up their efforts and developing countries, especially the emerging economies, must cooperate.

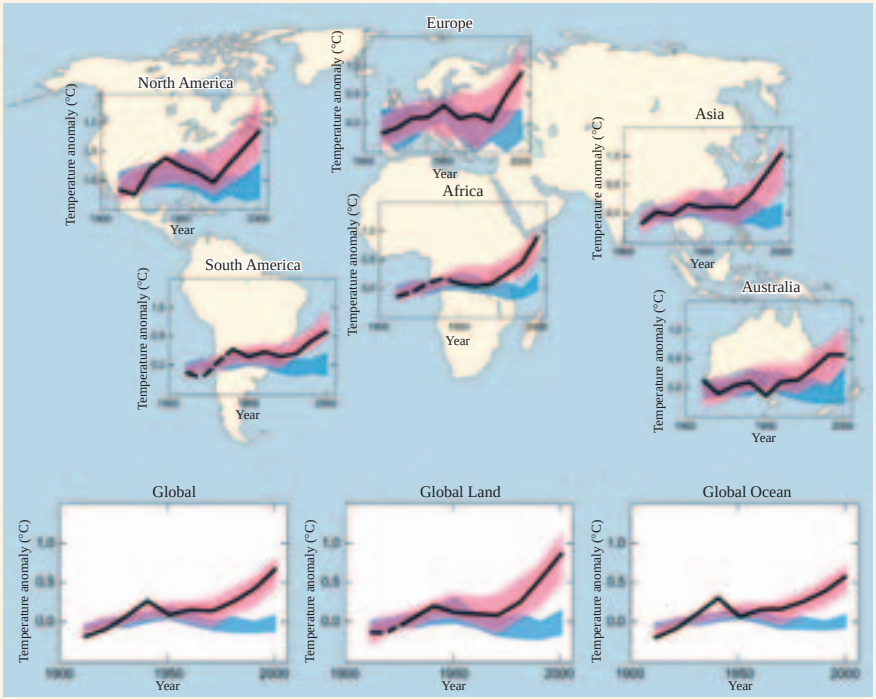
2 A Call for Immediate Action

The IPCC is an organization established by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) in 1988 to conduct comprehensive assessment of climate change resulting from human activities. It evaluates the impacts of climate change and recommends adaptation and mitigation measures from the scientific, technical, and socio-economic perspectives. Its assessment is widely used by policymakers and the public. So far, the IPCC has issued four assessment reports.

The IPCC First Assessment Report, published in 1990, declared that the continued emissions of anthropogenic GHGs into the atmosphere at the current rate might cause climate change that would seriously affect ecosystems and humankind. The 1995 Second Assessment Report pointed out that ample evidence suggested a discernible influence of human activities on the progression of global warming. The 2001 Third Assessment Report mentioned that findings in recent years showed that most phenomena related to global warming that were observed in the last fifty years were caused by human activities. As knowledge and data with greater accuracy are accumulated, the relationship between human activities and global warming has become ever more apparent.

Stating the following– “Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global mean sea level,” “Anthropogenic greenhouse gas concentrations in the atmosphere now far exceed the levels

Figure1-2-1 Global and Continental Temperature Change



Note 1:
: Models using only natural radiative forcings
: Models using both natural and anthropogenic radiative forcings
: Observations (Lines are dashed where spatial coverage is less than 50%.)

Note 2: Comparison of observed changes in surface temperature for the period 1906-2005 (decadal averages) relative to the corresponding average for 1901-1950 with results simulated by climate models.

Note 3: Radiative forcing is a measure of the influence a factor has in altering the balance of incoming and outgoing energy in the Earth-atmosphere system and is an index of the importance of the factor as a potential climate change mechanism. The radiative forcing produced by increasing concentrations of greenhouse gases is a positive forcing of climate, tending to warm the surface.

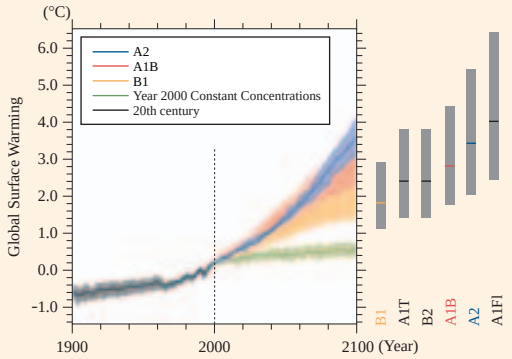
Source: *IPCC Fourth Assessment Report (AR4)*

before the Industrial Revolution," and "Most of the observed increase in globally averaged temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations." – the 2007 Fourth Assessment Report could almost confirm scientifically that global warming is advancing and that it is caused by human activities. Figure 1-2-1 shows that natural causes such as solar activities and volcanoes alone are not enough to scientifically explain the rise in world temperatures that has taken place so far.

Among the simulations compiled by the IPCC to predict future climate change, even the most optimistic scenario (B1: a society that can balance environmental protection and economic development on a global scale) says it is inevitable that the average global temperature at the end of this century (2090~2099) will rise approximately 1.8˚C (1.1-2.9˚C) from the average seen at the end of the 20th century (1980-1999) (Figure 1-2-2) because the GHGs emitted in the past will not stabilize immediately and will remain in the atmosphere. The IPCC pointed out that mitigation measures alone, such as reducing GHG emissions, would not be able to avert the risk of climate change. Adaptation measures must also be taken to help alleviate the negative impacts of climate change, including the construction of protective walls against high tides, adjusting the sowing time for agricultural production, and appropriate water management such as efficient use of water.

The Fourth Assessment Report pointed out clearly the imminent risks of global warming. In order to avert the risks that might bring irreversible consequences, the world as a whole must take immediate, concrete, and effective measures based on a precautionary approach. Humankind is called to action, now!

Figure 1-2-2 Projections of Global Warming



Note: The Emission Scenarios of the IPCC Special Report on Emission Scenarios (SRES)

A1. The A1 storyline and scenario family describes a future world of very rapid economic growth, global population that peaks in mid-century and declines thereafter, and the rapid introduction of new and more efficient technologies. Major underlying themes are convergence among regions, capacity building and increased cultural and social interactions, with a substantial reduction in regional differences in per capita income. The A1 scenario family develops into three groups that describe alternative directions of technological change in the energy system. The three A1 groups are distinguished by their technological emphasis: fossil-intensive (A1FI), non-fossil energy sources (A1T) or a balance across all sources (A1B) (where balanced is defined as not relying too heavily on one particular energy source, on the assumption that similar improvement rates apply to all energy supply and end use technologies).

A2. The A2 storyline and scenario family describes a very heterogeneous world. The underlying theme is self-reliance and preservation of local identities. Fertility patterns across regions converge very slowly, which results in continuously increasing population. Economic development is primarily regionally oriented and per capita economic growth and technological change more fragmented and slower than other storylines.

B1. The B1 storyline and scenario family describes a convergent world with the same global population, that peaks in mid-century and declines thereafter, as in the A1 storyline, but with rapid change in economic structures toward a service and information economy, with reductions in material intensity and the introduction of clean and resource-efficient technologies. The emphasis is on global solutions to economic, social and environmental sustainability, including improved equity, but without additional climate initiatives.

B2. The B2 storyline and scenario family describes a world in which the emphasis is on local solutions to economic, social and environmental sustainability. It is a world with continuously increasing global population, at a rate lower than A2, intermediate levels of economic development, and less rapid and more diverse technological change than in the B1 and A1 storylines. While the scenario is also oriented towards environmental protection and social equity, it focuses on local and regional levels.

An illustrative scenario was chosen for each of the six scenario groups A1B, A1FI, A1T, A2, B1 and B2. All should be considered equally sound.

The SRES scenarios do not include additional climate initiatives, which means that no scenarios are included that explicitly assume implementation of the United Nations Framework Convention on Climate Change or the emissions targets of the Kyoto Protocol.
Source: *IPCC Fourth Assessment Report (AR4)*

Column

Stop! Global Warming Children's Message Relay

Team Minus 6% is exhibiting panels related to the impact of global warming and hosting the "Stop! Global Warming Children's Message Relay" events that invite children to write messages about preventing global warming, at the environmental event forums and facilities held for children throughout Japan from February 2008 up until the beginning of July, just before the start of the G8 Hokkaido Toyako Summit. At these events, a "Red Globe," representing the earth with progressing global warming, is set up and is made to turn blue by attaching blue seals as messages (declarations) increase. As of May 7, 2008, there are messages from 4,086 children. The atmosphere of the Message Relay Campaign at each location can be seen on the Team Minus 6% website.

Children attaching blue seals on the "Red Globe"
(Photo: Ministry of the Environment)

3 Towards the Establishment of Low Carbon Society

At the Bali Conference, the Bali Action Plan and other agreements were made aimed at drawing up a new framework by 2009 for reducing greenhouse gases to succeed that of the current Kyoto Protocol. Discussions on the subject have already begun. Mountains of issues need to be resolved. All countries must cooperate to overcome their differences in opinion and position in order to tackle this global crisis.

(1) Japan's Prime Minister Fukuda's Special Address at the Davos Meeting

Every year, the World Economic Forum convenes its annual meeting at Davos, Switzerland (hereinafter referred to as "Davos Meeting"). At the January 2008 Davos Meeting, as the chair of the July 2008 G8 Hokkaido Toyako Summit, Prime Minister Fukuda gave a special address on global warming, which was selected as one of the Summit's major agenda items. The Prime Minister presented the concept "Cool Earth Promotion Programme" and the following three means to translate the concept into concrete actions:

1) Under the post-2013 framework, as the world's GHG emissions must peak (hit the highest level and then decrease) in the next ten to twenty years, the Prime Minister called on the United Nations to examine at the earliest possible time strategies and measures to halve this peak by 2050. To follow up on the agreements made at the Bali Conference, the Prime Minister said that Japan is resolved to work with major emitters to set quantified national emissions reduction targets to reduce GHG emissions in the future. To ensure that the reduction obligations are "fair and equitable," Japan proposed setting the target based on sectoral basis energy efficiency and reduction volume that would be achieved based on the technology to be in use in subsequent years to provide a scientific and transparent measurement (sectoral approach).
2) As for international environmental cooperation, the Prime Minister proposed setting up a common goal for the world to improve energy efficiency by 30%, cooperating actively with developing countries' efforts to reduce emissions, such as those to enhance energy efficiency, and creating a 10-billion dollar funding mechanism (Cool Earth Partnership) to extend assistance to developing countries suffering severe adverse impact as a result of climate change.
3) In terms of the development of innovative technologies that are vital to realizing drastic reduction of GHG emissions and facilitating the transition to a low carbon society, the Prime Minister disclosed that Japan would invest about 30 billion US dollars in the next five years for research and development in the areas of the environment and energy. He also said that Japan would conduct a fundamental review of its societal systems to facilitate its transition to a low carbon society.

(2) The Fourth G20 Dialogue

In March 2008, the Fourth Gleneagles Dialogue on Climate Change, Clean Energy and Sustainable Development (the so called "G20 Dialogue") was held in Chiba, Japan. This Dialogue was launched as a result of an agreement from the Gleneagles Summit held in the United Kingdom in 2005. The Fourth Dialogue was the last of the Dialogue series. Ministers and senior officials responsible for energy and environmental issues from the European Commission and 20 countries, including G8, emerging economies such as India and China, and other developing countries, participated in the Dialogue to discuss global warming issues. The 20 countries account for 80% of the world's GHG emissions. The ministerial level meeting, co-chaired by Ichiro Kamoshita, Minister of the Environment and Akira Amari, Minister of Economy, Trade and Industry, focused discussions on the issues of "Technology," "Finance and Investments", and "Post-2013 Framework." The meeting ended gaining political momentum and awareness among both developing and developed countries to cooperate in establishing an effective post-2013 framework. In accordance with the agreement from the Gleneagles Summit, the outcome of the G20 Dialogue will be reported at the G8 Hokkaido Toyako Summit to be held in July 2008.

(3) Toward the G8 Hokkaido Toyako Summit

Thanks to the adoption of the Bali Action Plan, the world has come to a consensus to start seeking solutions to global warming issues. Although differences in opinion and position among countries still exist, encouraging signs have emerged. For example, Australia, which had not ratified the Kyoto Protocol, agreed to do so at the Bali Conference.

The G8 Hokkaido Toyako Summit will be held in Japan this July. Continuing from last year, global warming will be one of the major agenda items. Japan has made prepa-

rations for the Summit, including a meeting of the G8 environmental ministers in Kobe this May and proposing the Kobe Initiative at the meeting*. Major developing countries will also attend the meeting. We must make a greater effort to resolve global warming issues by laying the groundwork for the developed countries to take the initiative to reduce emissions and to provide assistance to the developing countries to balance the environment and the economy and to countries threatened by the adverse impacts of global warming. Being the chair of the G8 Summit, Japan will take responsibility for establishing an environment conducive to the participation of all major GHG emitting countries.

* In addition to gaining extensive support for the Kobe Initiative, the meeting ended with G8 countries agreeing on the Kobe Call for Action for Biodiversity and the Kobe 3R Action Plan(Please see the appendixes).