Approach to Establishment of the Fourth Basic Environment Plan (Interim Report of the Plan)

Introduction

○ The Basic Environment Plan determines the general outline of comprehensive and long-term policies related to conservation of environment, and has been established three times to date (1994, 2000, and 2006) based on the Basic Environment Law. The most recent Third Plan specified the direction of deployment of environmental policies such as “integrated improvements of the environment, economy and society” along with policy programs in ten key areas, and management of progress through targets and indicators.

○ Shortly after preparation for the formulation of the Fourth Plan kicked off this March, the Great East Japan Earthquake, occurred on March 11, not only resulted in many dead and missing, but also had an enormous impact on the society and economy of Japan, such as a slowdown of economic activity due to damage to housing and factories and a shortage of electric power, and evacuation of residents because of radioactive material being leaked into the general environment as a result of the nuclear power plant accident. This reminded many people of the frailty and limitations of the power of human society and systems in the face of the overwhelming power of nature. Thus there has been a great change in the values and thoughts of the people of Japan; citizens reconsider today’s society that consumes large amounts of resources and energy, and recognize the need to review and build sustainable society, including interaction with nature. Such changes would have significant impacts on future environmental policies.

○ Five years have passed since the formulation of the Third Plan. According to the results of annual reviews of the Third Plan, while there has been certain progress in environmental policy measures, the limits of environmental constraints are becoming more evident on a global level, such as climate change, depletion of resources and loss of biodiversity, and many issues remain unresolved. In addition, the internal and external socioeconomic conditions to be taken into account, when addressing environmental issues, are also changing significantly.

○ In order to formulate the Fourth Plan, the government will accurately understand a broad range of current environmental conditions and issues, and indicate the direction of Japan’s environmental policy from a long-term

perspective, taking into account the current social conditions after the Great East Japan Earthquake and the United Nations Conference on Sustainable Development in 2012, so-called “Rio+20”.

I. Current Conditions and Issues to be Considered to Prepare the Fourth Basic Environment Plan

1. Environmental Conditions

(1) Global Conditions

<Global Warming>

○ Emissions of greenhouse gases are increasing mainly in emerging countries, and, according to the IPCC Fourth Assessment Report, the world’s average temperature rose by 0.74°C over the hundred years until 2005, and the average sea level rose by 17cm throughout the 20th century. The linear warming trend over the last 50 years is nearly twice that for the last 100 years, and most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHGs concentrations.

○ The report states that even the most stringent mitigation efforts cannot avoid further impacts of climate change in the next few decades, which makes adaptation essential, particularly in addressing near-term impacts. Furthermore, the frequency of recent extreme weather and climate events such as heavy precipitations and heat waves over most areas is very likely to continue to increase with global warming. Considering this situation, adaptation measures are necessary.

<Recycling and Waste Policies>

○ Waste generation is increasing with economic growth and increased population, and the total amount of waste generation over the world in 2050 is estimated to be more than double that in 2000. In developing countries, environmental contamination occurred due to inappropriate waste treatment and recycling.

○ Resource productivity (GDP divided by domestic material consumption (DMC)) is generally low in emerging countries such as India and China, which had rapid economic growth in recent years. If industry keeps this development rate, the pressure on the environment is likely to increase due to the exploitation and transportation of large volumes of resources, and this is very likely to cause resource constraints such as pretty high prices in the future.

○Under such conditions, whole international society focuses on addressing resource constraint, for instance, the EU published the Raw Material Initiative in 2008, with a view to secure raw material and reduce its consumption through recycling.

<Ambient Air Environment, Water Environment and Policy Measures for Chemical Substances>

○ In recent years, air pollution and others, stem from rapid economic growth caused health hazards in developing countries especially in East Asia. Moreover, there are concerns about worsening transboundary pollution such as acid rain, ozone, yellow sand and ocean pollution in Japan.

○ According to the "OECD Environmental Outlook to 2030", unless more measures are implemented, health hazards caused by air pollution will increase worldwide, and the number of early deaths due to ozone and particulate matter pollution at ground level will increase more than fourfold and twofold respectively by 2030.

○ Water issue is becoming more and more serious on a global scale, for example, approximately 900 million people lack regular access to safe drinking water, and 2.5 billion are without regular access to basic sanitary facilities. The main forms of pollution that have an impact on human health include microorganisms, overabundance of nutrients, arsenic (in Bangladesh and India), and contaminated groundwater by fluorides in many other areas.

○ According to the WHO report "Global Health Risks" in 2009, one in four child deaths in developing countries are caused by environmental factors such as water pollution, air pollution and exposure to lead.

○ Introduction of standards and regulations on the manufacture and use of a wide range of harmful substances is progressing, such as the European Union's RoHS regulations and REACH regulations.

<Natural Environment and Biodiversity>

○ While progress such as the Aichi Targets and Nagoya Protocol was made at the Tenth Meeting of the Conference of the Parties (COP10) to the Convention on Biological Diversity , a loss of biodiversity continued to occur on the three levels; ecosystems, species and genes, according to the Global Biodiversity Outlook 3 (GBO3). The five principal pressures directly leading to the loss of biodiversity ((i) Habitat loss and degradation, (ii) Over-exploitation and unsustainable use, (iii) Excessive nutrient load and other forms of pollution, (iv) Invasive alien species, *and* (v) climate change) remain unchanged or increased. If the condition of the ecosystem exceeds a certain threshold or tipping point, it is very likely to result in a great loss of biodiversity, therefore lead to a degradation of ecosystem services (a variety of benefits that people can receive from the environment, such as food, water and climate

stabilization).

○ The world's forests continue to decline and deteriorate mainly in tropical forests in Africa, South America and Southeast Asia, at a rate of approximately 5.2 million hectares per year (net decrease) from 2000 to 2010. In addition, 10 to 20 % of the world's arid regions have already undergone desertification.

○ As mentioned above, the possibility that the entire world will face more severe environmental constraints in the future is growing. Addressing global environmental issues such as global warming and biodiversity is important because the protection of the global environment would secure world's interests (the aspect of global interests). At the same time, as it has become evident that the approach to address the issues is directly linked to the various interests of individual countries, the relationship between securing global interests and fairly securing the each country's interests is increasingly important.

(2) Conditions in Japan

<Global Warming>

○ Japan's greenhouse gases emissions in 2008[1] and 2009 were below the Kyoto target; 6 % reduction with absorption by forests and the acquisition of credits from other countries.

○ As worldwide CO_2 emissions increase, the average temperature rose by approximately 1.2°C per century in Japan (statistical period: 1898-2010), and rose particularly in urban areas such as Tokyo (3°C) and Sapporo, Nagoya, Osaka and Fukuoka (over 2°C) due to the heat island effect. The number of days with over 100mm of precipitation and extremely hot days increased in Japan, and this is expected to affect agriculture and people's lives in the future.

<Material Recycling and Waste>

○ Regarding to the overall material flow in Japan, newly used natural resources decreased and recycled material increased, which can be seen as improvements toward resource efficient society. Among targets in the Fundamental Plan for Establishing a Sound Material-Cycle Society, the targets for the cyclical use rate and the final disposal amount were reached as of 2008, resource productivity steadily improved, on track to meet the targets. On the other hand, resource productivity per natural resource input excluding earth and rock resources input and resource productivity of fossil resources did not

[1] Fiscal year is applied in Japan, which starts in April.

improved. The national average of remaining years in final disposal sites is 18.7 years (2009) for general waste, nevertheless, many municipalities do not have final disposal sites yet. That for industrial waste is 10.6 years (2008), but this is particularly short in the Tokyo metropolitan area, only 4.7 years, and construction of new sites is difficult.

○ Of the 3Rs, measures for “reduce” and “reuse” are particularly insufficient. Main stream of recycling in Japan is cascade recycling, which results in decline in quality of material, and horizontal recycling, which keep the quality remain insufficient.

○ Some circulative resources such as used products are exported overseas without being reused within Japan. If the dependence on overseas increases, domestic recycling industry will hollow out, and there are concerns that stable and sustainable recycling system will be at risk, such as domestic waste treatment being slowed through external factors such as volatility in resource markets. In addition, since products and waste are transported across borders, products with harmful substances and electronic appliance waste (E-waste) may cause environmental contamination due to inappropriate treatment after international transport.

< Ambient Air Environment, Water Environment and Policy Measures for Chemical Substances>

○ The condition of the ambient air environment in Japan is generally improving overall. However in major cities, there are still places that have not reached environmental standards for nitrogen dioxide, and the achievement rate of environmental standards for photochemical oxidants is extremely low, and the average concentration is gradually increasing in recent years. Moreover, measures to meet the newly established environmental standards for particulate matter under 2.5μm are needed.

○ Regarding to water environment, environmental quality standards for human health are generally met. While the state of organic contamination among the environmental standards related to living environment is gradually improving overall, the achievement rate remains low in closed water areas such as lakes, bays and inland sea. Besides, more efforts are needed to secure an environmentally sound water cycle including water quantity, aquatic ecosystems and riparian areas, apart from water quality.

○ The number of cases of soil contamination exceeding environment standards in urban areas is increasing in the long term despite decreases in 2008 and 2009. This could be the result of increases in investigations not only based on the Soil Contamination Countermeasures Act, but also voluntarily conducted by business operators when redeveloping or selling former factory sites and

as a part of environmental management. The number is expected to increase further due to the revelation of natural contamination.

○ With regard to the regional living environment, achievement rate of environmental standards for noise is improving, and complaints about noise, vibration and offensive odors have been decreasing in recent years. However, the total number of these complaints is accounted for half of that of7 typical pollution complaints (28,889 of 56,665), still at high level.

○ The residual amount of particularly harmful chemical substances such as persistent and highly accumulative PCB in the environment is generally decreasing. Emissions of chemical substances reported in accordance with the PRTR system are also decreasing. However, information on the impact of many of the wide variety of chemical substances on health and the ecosystem is not sufficient, neither well organized, therefore measures such as risk assessment and management should be implemented. Measures should be strengthen along with policy-mix in order to establish policy measures taking into account the entire life cycle of chemical substances from manufacture to disposal, based on the principle; protecting human health and environment.

<The Natural Environment and Biodiversity>

○ Two thirds of Japan's land is covered in forest with multifaceted functions including the supply of forestry products such as timber, contributions to the prevention of global warming and the conservation of biodiversity. In addition, Japan has an approximately 35,000 km of long coastline and one of the world's largest territorial sea and exclusive economic zones, about 4.47 million km^2. It is increasingly revealed that these sea areas have not only with fishery resources, but also energy and mineral resources.

○ The Japan Biodiversity Outlook, published in 2010, reported the loss of biodiversity affected, and is still affecting, all ecosystems, with particularly great losses in river, lake, coast, ocean and island. Moreover, in addition to the impact on ecosystems resulting from the loss and fragmentation of habitats caused by development and alteration, the prominent impact of alien species and the impact of global warming on ecosystems in recent years raised concerns about certain fragile ecosystems.

○ Farmland and secondary forests, so-called "Satoyama" are areas where unique secondary natural environments have been created through many years of human activities such as agriculture and forestry, and important for conserving biodiversity. However, such activity reduced and withdrew because of the decreased population and the ageing society, therefore, there are concerns about deterioration of such areas as habitats. The resulting increase in damage caused by wild animals is also getting more serious effect on human lives.

<Environmental Issues Caused by the Great East Japan Earthquake>

○ The high tsunami that devastated a wide area generated a normally inconceivable amount of waste; an estimated 22.6 million tons of rubble from destroyed buildings, etc. Its appropriate and rapid treatment is a major issue in the recovery of the residents' lives and economic activities.

○ Asbestos and a variety of other harmful substances dispersed or leaked from damaged factories and the rubble raised concerns about health hazards.

○ A large amount of radioactive material was released into the environment due to the nuclear power plant accident. Many residents evacuated following instructions issued by national and local government authorities.

○ As a result of the nuclear power plant accident, greenhouse gas emissions can be affected due to a decrease in nuclear power generation that emits few greenhouse gases, promotion of the introduction of renewable energy sources, and energy saving efforts.

2. Socioeconomic Conditions Related to Environmental Issues

(1) Global Conditions

<The Population, the Economy, Resources and Energy>

○ The world's population was some 6.9 billion in 2010, and continues to grow. Nearly half of the population lived in urban areas in 2010, and is the urban population is expected to increase in the future.

○ As a result of rapid economic growth in emerging countries, the proportion of developing countries in the world's overall GDP is increasing, and it had already reached about 50 % in 2010. In particular, emerging countries such as China, India, Brazil, Russia and South Africa, which have population and resources, has been rising remarkably, on the other, Japan has fewer shares in the world economy. The increased demand for resources caused by the development of emerging countries results in the increase in worldwide environmental pressure.

○ While the proportion of people living in poverty at under US$1.25 per day greatly declined in East Asia and the Pacific, it did not decrease so much in sub-Saharan Africa, and the wealth disparity is increasing even among developing countries. In regions with a high proportion of the poor, basic resources such as food and water are not distributed fairly, causing socioeconomic instability.

○ Global energy demand is expected to stay increasing, and reach approximately 1.5 times from 2010 level in 2035 according to the IEA's current scenario. International competition for resources including other

natural resources such as water, minerals, biological resources is anticipated to intensify; constraints on trade and rising prices, which raises concerns that the environmental pressure will increase due to exploitation at new locations shifts to lower quality resources.

<The Environment and the Economy>

○ Conventionally, environmental conservation was thought to be a constraint upon economic activities. However after the economic downturn in 2008, environmental conservation is more widely recognized to be a driver of economic growth, for instance, reflected in the Green New Deal and Green Growth strategy with a view to create jobs and stimulate economic growth in foreign countries such as the United States. Green economy is being discussed as an effective policy for sustainable development in the preparation for the United Nations Conference on Sustainable Development (Rio+20).

○ As the introduction of regulations and standards concerning environmental conservation progressed, one country's environmental conservation policies have impacts on other countries policies and economies. As environmental constraints define the shape of economic activities when responding to climate change and the loss of biodiversity, the "environment" element has greater impacts on international competition.

○ Environmental issues include complex interests between countries, which provokes extremely intensive negotiations, since environmental issues are directly linked to the economic interests of each country, as seen in the divisive conflict of opinions between genetic resources users (primarily developed countries) and suppliers (primarily developing countries) in the negotiation process for the Convention on Biological Diversity, and the debate on the next international framework in the field of climate change.

○ In COP10 for the Convention on Biological Diversity, the final report of The Economics of Ecosystems and Biodiversity (TEEB) study, called" the Stern Review" in biodiversity, was published. The World Bank announced the launch of a global partnership for incorporating the economic value of the ecosystem into national economic accounting based on the TEEB. Exercises to review the value of biodiversity as a natural asset are progressing.

<Diversification of Values>

○ The values that form the basis for considering environmental conservation are diversifying as seen in recent trends to recognize "wealth" using indicators replacing GDP, such as the "Beyond GDP", and the position of GDP is becoming relative as an indicator of wealth.

(2) Conditions in Japan

<The Population, the Economy, Resources and Energy>

○ Japan is an ageing society with a low birthrate; the population peaked out and the elderly surpassed 20 % in 2005. In 2009, the population was 127.51 million, of which 22.7 % were elderly. A decrease in the productive population raised concerns about the negative impacts on economic growth.

○ Japan's nominal GDP was JPY474 trillion in 2009, and according to the Cabinet's calculations, future economic growth is expected to be around 1 % in the modest scenario, and around 2 % in the growth strategy. Total long-term debt of national and local governments was JPY 800 trillion as of the end of 2009, putting pressure on financing policy measures.

○ Japan's energy self-sufficiency was only four percent in 2007, and a mere 18 % even if nuclear power is classified as a domestic energy. The country also depends on imports for most metal resources. Food self-sufficiency (on a calorie basis) was about 40 % in 2009. Japan depends on foreign countries for much of the necessary energy, resources and food to maintain the economy and society, therefore, the international perspective has more importance when considering the Japan's sustainability.

<The Environment and the Economy>

○ It is widely recognized that the constraints of the environmental capacity will have a significant impact on future economic activities, and various efforts to ensure the sustainability of the economy taking resource and environmental constraints into account are spreading.

○ The strong recognition that the environment and the economy are closely related is reflected in policy and economy as following;

- The field of environment and energy is one of the growth areas in the new growth strategy (Cabinet decision of June 18, 2010).
- A variety of steps were taken, such as climate change related tax (under discussion in Diet as of July 2011).
- Various efforts to ensure the sustainability of the economy taking resource and environmental constraints into account are spreading, such as companies producing environmentally friendly products, and consumers selecting energy-saving and resource-saving products.
- As financial institutions' tendency; pursuing short-term profits, was reviewed after "the Lehman Shock", the environment has been incorporated into finance as a valuation criterion, and corporate management is required of sustainability in medium- to long-term instead of short-term.

○ Japan has the top level of technologies in the fields of energy– efficiency, water treatment and waste treatment. On the other, some Japanese companies have lost market share

in technological fields where previously Japan was dominant as international competition got fierce along with the development of the global environmental industry.

<Land Usage>

- The increased use of vehicles and the gap in land prices between urban and suburban areas led diffusion of urban functions, such as housing and large commercial facilities, to the suburbs and unorganized development of suburban farmland. Moreover, as the diffusion, the shift of the primary mode of transport from public transportation to private cars increased environmental pressure, e.g. increased CO_2 emissions.
- It is indicated that the forests and farmland management would be insufficient due to further depopulation in farming and mountain villages.

<Impact of the Great East Japan Earthquake on the Economy and Society>

○ The Great East Japan Earthquake and the following nuclear power plant accident caused damage to many factories, and the stagnant supply of parts and products had a significant impact on global economic activities.

○ Many nuclear power plants stopped due to the nuclear power plant accident in Fukushima, and the electricity supply was expected to fall short this summer. While this tremendously affected economic activities, citizens were motivated to actively save energy since the earthquake, and there are signs of change in mind about environment and sustainability from energy and resources demand point of view.

○ The nuclear power plant accident raised necessity to review energy supply and demand based on the results of examination of the accident.

3. Issues to Be Addressed

In light of the environmental and socioeconomic conditions mentioned in sections 1 and 2, the central issues to be addressed in the Fourth Basic Environment Plan when deploying future environmental policy are shown below. These issues are summarized as general issues, and concrete issues in individual areas would be discussed in priority fields.

○ While the environmental conservation progressed to some extent in Japan, the global environmental pressure will certainly increase further in the future, posing a crisis for global environment. Consequently, even in Japan, addressing issues with bearing global sustainability in mind is essential.

○ In this regard, the integral improvements of the environment, economy and society are needed. Apart from exercises based on the relationship between the environment and the economy, it is necessary to further promote green innovation for the creation of a sustainable society and environmental research and technological development as the foundation of green innovation, taking into account that new green investment will not only resolve

environmental issues, but also drive economic growth.

○ When developing international frameworks and international environmental cooperation a strategic approach is needed with a clearer awareness of the following points and consideration of the complex international relationships between countries.

- When developing international frameworks and rules, effective and fair frameworks and rules are definitely important to ensure global sustainability.
- In this regard, excellent Japanese technologies are effective to ensure global sustainability in many cases. In such cases, actively incorporating these into frameworks and rules could significantly contribute to the global interests as a whole.
- In addition, it is necessary to make environmental policy considering that environment is becoming an important element in the competition principle in the international economy.
- The active transfer of Japanese environmental technology to developing countries is not only important to ensure the sustainability of the receiving countries and even whole world, but also beneficial for our country's economic development. In doing so, the promotion and dissemination of environmental research and technological development are required in order to maintain the advantage of Japanese technology.
- Japan should recognize the importance of international cooperation for polluted areas and prevention of environmental damage, and take readership.
- As various countries pay more attention to green growth, the realization of green growth in rapidly growing economies is extremely important for global sustainability, and appropriate steps should be taken for this.
- Securing and appropriate and sustainable use of resources such as energy, mineral and biological resources, are important issues for ensuring socioeconomic sustainability in Japan and the world. These have become inextricably linked with environmental issues. Appropriate steps are needed for this.

○ Considering the dependence of Japan's economy and society such as energy, resources and food on foreign countries, it is necessary to keep in mind that the global sustainability is essential for the Japan's sustainability when implementing environmental policy. As more shortages of resources necessary for the human existence are anticipated, improving the dependence would increases our security and sustainability. Therefore, recyclable resources such as used products, assets that our land and exclusive economic zone have as stock, and together with assets as ecosystem services derived from these territories should be effectively used

in sustainable manner.

○ Various artificially developed stocks, such as urban infrastructure, should be maintained, renewed to improve those function through environmentally friendly urban development and the establishment of low-carbon, and independent distributed energy supply systems. Systems to appropriately manage both natural stock and artificial stock are needed in order to improve the Japan's dependency and sustainability. This perspective is also important in the process of recovery after the Great East Japan Earthquake.

○ The increased environmental pressure stems from the activities of various actors including companies, therefore, both companies and individuals must incorporate environmental consideration into their activities, and more actively engage in actions for environmental conservation. Action and cooperation between actors should be promoted through measures such as incentives for environmentally friendly actions, raising awareness through environmental education, establishment of environment for encouraging collaboration and disclosing information.

○ Review of the energy supply-demand structure introduction throughout society is required, such as large expansion of renewable energy introduction that was already promoted and further energy-saving measures based on the current exercises to save massive energy in companies and households.

○ When addressing the issues above, measures must be implemented efficiently, keeping in mind cost effectiveness and the cost reduction in a whole society.

* The response to the radioactive material that was released into the general environment due to the nuclear power plant accident will be reflected in the plan based upon the status of the government's response and consideration until the establish ment of the Basic Plan .

II. Direction of Deployment of Environmental Policy

1. Points to Be Noted in Consideration of the pursued Sustainable Society

○ The establishment of a sustainable society is the fundamental philosophy of the Environment Basic Act and the Basic Environment Plan, and has been an ideal society to which Japan should aspire and a challenge in environmental policy so far .

○ The Third Basic Environment Plan, adopted in April 2006, defined the envisioned sustainable society as "a society in which a healthy and rich

environment is maintained from the global level to a local community level, and each citizen can enjoy a fulfilling life and pass it on to future generations," and indicated the necessity of integral improvements of the environment, economy and society.

○ "Becoming a Leading Environmental Nation in the 21st Century: Japan's Strategy for a Sustainable Society", adopted in June 2007, stipulated, from the perspectives of the global environmental issues; threat of Climate Change, threat resulting from the unsustainable use of resources,, and threat to ecosystem, that a sustainable society has three aspects ; a low carbon society, a sound material-cycle society and a society in harmony with nature, and that integral implementation of measures for these society is needed.

○ While environmental conservation measures have been steadily implemented in various fields since the establishment of the Third Basic Environment Plan, global environmental issues continue to worsen.

○ "Safety and security" is growing in importance after the Great East Japan Earthquake and the nuclear power plant accident. Ensuring safety is the original point for environmental policy because it involves protecting the human health and lives from pollution such as contamination by chemical substances, and safety and security are the foundation for a low-carbon society, a sound material-cycle society, and a society in harmony with nature.

○ Therefore, the sustainable society envisioned in the Fourth Basic Environment Plan integrally views the environment, economy and society based on this context, and can be defined as a society in which people can live with a sense of security through the integral achievement of the three societies based on the condition that risks on human health and the ecosystem are sufficiently lowered and safety is ensured.

○ Furthermore, a sustainable society is a society that "meets the needs of the present without compromising the ability of future generations to meet their own needs" (1987 Brundtland Commission Report). Measures to ensure fairness with future generations are important to achieve such a society.

○ Creation of a sustainable society requires to draft and implement policies in various situations, according to the nature of the issues, and from a short- and long-term perspective. For example, policy measures in biodiversity conservation should be reviewed and implemented in a 50 or 100 years of term; a climate change related target has been set to cut GHGs emissions by 80% by 2050 compared to 1990 level; and possibility of depletion of resources and domestic industrial structure shifts should be considered in the creation of a sound material-cycle society.

○ Important elements in the consideration of a sustainable society, such as the development of society and happiness, have normally been evaluated by

economic indicators such as GDP so far. However, maintaining and enhancing values such as a rich natural environment, a good living environment and spiritual fulfillment, which cannot be assessed by conventional economic indicators, are more focused now that resources and the environment constraints are increasingly evident.

○ Furthermore, when drawing concrete pictures of a sustainable society in environmental areas and taking steps for them, review and modification of policies are required in response to socioeconomic changes, availability of innovative knowledge and technology, international trends such as discussion on sustainability indicators in OECD, and changes in the citizens' perceptions (values) regarding the environment and the sustainability of society.

2. Focused Directions in the Future of Environmental Policy

As mentioned above, the sustainable society to which Japan aspires is considered to have changed significantly after the Great East Japan Earthquake. Focused directions in the implementation of environmental policy that suitably adapts to changes in the citizens' perceptions and values are;

(1) Creation of a sustainable society through policy integration
(2) Strengthening strategic policy measures that appropriately responds to international trends
(3) Maintaining and forming land and nature as the Foundation for a Sustainable Society
(4) Promotion of action and cooperation by various actors in local communities and other occasions

(1) Creation of a Sustainable Society through Policy Integration

○ Promotion of policy measures Based on the Inextricably Linkage between the Environment and the Economy

- Due to the increasing world's population and economic activity, the environmental pressure is increasing, all types of vulnerability are noticeable in Japan and the rest of the world, and the limits on the environmental capacity are problematic. Environmental conservation widely has impacts on economic activities as well. Reducing the environmental pressure has growing importance not only for the purpose of protecting human health and lives by preventing the contamination and deterioration of the environment and resulting damage, but also for the purpose of making economic activity sustainable, avoiding interference resulting from delays in addressing issues such as climate change, biodiversity loss, and the increase of waste and the depletion of resources caused by the increased environmental pressure.
- Other countries and international society are advancing in establishment of environmental regulations and international standards for environmental issues, therefore the appropriate and active implementation of environmental policy measures is essential to sustain and stimulate economic activities from a point of view of international economic competition.
- As such measures are globally required, the pioneering and active development and dissemination of environmental technologies and products would significantly promote Japan's economic growth and contribute to improvement of the environmental and economic sustainability in the whole world. Those are increasingly recognized as a growth driver which creates the virtuous cycle for environment economy.

- As described above, since the relationship between the environment and the economy has been broader and deeper, and now that it has become clearer and more evident that efforts to incorporate environmental conservation into economic activities are more evident for environmental conservation, and economic activities themselves, the environment and economy integration approach is needed. To this end, environmental policies with consciousness of the relationship with the economy are important, such as incorporation of environmental consideration into all aspects of economic activity.
- As all forms of economic activity involve money as a medium, in order to allow consideration of the environment in economic activities to take root among companies and individuals, contribution of the capital flow to creation of sustainable society is important to establish incorporation of environmental consideration into economic activity through incentives which environmental finance, evaluating economic activities with environmental criteria, provides .

○ Creation of a Sustainable Society through Green Innovation

- As seen in the OECD's projects for green growth, economic growth driven by environmentally friendly activities is essential in order to realize a sustainable society. Environmental constraints are envisaged to get tighter. In this regard, further development and dissemination of environmentally friendly technologies and products, and fosterage of environmental industry are necessary. This will be pursued through development of environmental conservation policy , such as climate change related taxes, implementation of measures that spur supply and demand for environmentally friendly products, and namely, promoting green innovation pursuing economic development through technological innovation in environmental fields.
- Like in Japan, active measures for green growth and the promotion of green innovation are major economic policies in other countries. Japan should continue to engage in green innovation without delay. Green innovation would stimulate investments in environmental areas, which leads a virtuous cycle for environment and economy.
- Japan should contribute to the sustainable improvements of environment and economy, the entire world as well through dissemination of knowledge about Japanese technology, products, systems and voluntary practices to the world.

○ Improvement and Utilization of Environmental Research and Technological Development from a Long-term Perspective

- Envisioning sustainable society and the perspective of how to incorporate the outcome into society are important in research and development, when

promoting environmental research and technological development that form the foundation for green innovation. - Necessary measures for environmental research and technological development include: (i) collaboration between fields to ensure overall optimization of socioeconomic systems combining individual research and development, (ii) collaboration between industry, academic and the government, between related government institutions , and between national and local governments, (iii) creation of international frameworks such as within Asian countries, (iv) improvement of technology and research and development on at local level, (v) reflection of R&D outcomes to policy measures,(vi) and communication with citizens for good understanding .

- Selection of the best options among various policy measures requires not only technological development, but also development of research in social sciences such as the relationship between environment and economy and the scenario toward a low-carbon society, accumulation of knowledge, and creation of scientific methodology for drafting policy.

○Measures with collaboration across fields

- In the creation of a sustainable society, collaboration across fields taking those interactions into account is needed in order to integrally perceive a low-carbon society, a sound material-cycle society, and a nature-harmonious society, based on safety. The Fundamental Plan for Establishing the Sound material-cycle Society and the National Biodiversity Strategy have already incorporated this perspective. Collaboration between fields are still needed for issues in which synergies can be expected from consideration across multiple fields and issues that are difficult to address without dealing with in several fields.
- In addition, as measures pursuing reduction of environmental pressure could affect other environmental fields, comprehensive assessment and consideration of impacts of the measures on environment in their drafting and implementation should be conducted.

(2) Strengthening strategic policy measures that appropriately responds to international trends

○ Strategic measures for Both of National Interest and Global Environment interests.

- Environmental issues are closely linked to the development of the world economy and energy and resources, a big challenge for politics and

diplomacy. Further, various countries have the complex interests in international actions for environmental issues such as climate change and conservation of biodiversity.

- The fair and effective international frameworks are important in international environmental conservation. Japan must play a leading role in the establishment of international rules.
- As described above, strategic measures for both of national interests and global environment interests, from a long-term perspective, are important in international negotiations related to environmental issues and international environmental cooperation.

○ Creation of Reciprocal Relations through the Promotion of International Environmental Cooperation

- As securing the resources, energy and ecosystem services required to maintain quality of life in the limited capacity of the earth and the sustainable use of the global environment are essential. It must be noted that in the future international environmental cooperation, the pursuit of global interests could contribute leads to national security in the broader sense both physically and substantively, such as preventing the harmful impacts of transboundary pollution and climate change on our country. In addition, raising Japan's profile in international society through international environmental cooperation is the key to improve Japan's security and enhancing national interests. International environmental cooperation must be carried out based on both of these perspectives.
- Japan, as an advanced environmental country, has conducted international environmental cooperation focusing on the transfer of expertise and technology through primarily ODA. There are now new needs for international environmental cooperation based on situation changes such as the worsening and diversification of environmental problems in emerging countries, the expansion of environmental industries into foreign markets, and the development of green growth policy measures to achieve economic growth in environmental constraints.
- In particular, green growth in emerging countries is essential for conservation of the global environment, and cooperation for this is urgent not only for the partner countries but also for Japan to ensure Japan's national security. Various countries including Japan are implementing policy measures for green growth. In order to introduce developed countries' experience and the most advanced technologies into developing countries, reciprocal relations for new ways to achieve growth together through joint projects between developed countries and emerging countries, Including private sectors, not

merely the conventional relationships of cloner countries and recipient countries. Japan could greatly contribute with its historical environmental conservation experience including the legal systems, execution and technology. Reflecting overseas experiences to our own environmental policy is also important.

(3) Maintaining and forming land and nature as the Foundation for a Sustainable Society

○ Measures to Increase the Value of Land as Stock

- Japan has a diverse natural environment including forests, rivers and the ocean, which provides a variety of benefits such as conservation of biodiversity, supply of water resources, absorption of CO_2, and alleviation of damage from disasters although the natural environment could be a threat to us. Japan should maintain and restore the natural environment that provides such ecosystem services, increase the value of land as stock, and use a sustainably created flow. Appropriate assessment of the value the natural environment has is important.
- In order to preserve the multifaceted value of the land, appropriate maintenance and effective use of secondary natural environments, such as farmland and planted forests that have been formed through human activities. For example, agriculture and forestry have vital functions in the conservation and use of secondary natural environments in the supply of renewable energy; biomass resources, as one of the measures for climate change. The management of such secondary natural environments with the participation of a variety of actors should be reviewed, taking into consideration of the current trend such as decreasing and ageing population.
- Maintenance and renewal, improving quality as well, are needed for urban infrastructure which has been accumulated so far and which is under planning as well, and the housing stock, including newly-built, with a view to reduce environmental pressure.

○ Establishment of Mechanisms to Land Use for Environmental Conservation

- The population has already peaked out in Japan, and reductions of the environmental pressure are required, therefore, the environmental pressure from urban socioeconomic activities should be reduced through centralization of urban functions to maximize the utility of existing urban stock and modal shift from private cars to public transportation, seen in the approach of centralized urban structure, for instance. In this regard, the land use planning including farming, mountain and fishing villages surrounding cities that have complementary relationships with the cities should be considered.

- When considering urban development and land use planning, it should be noted that while not all damage caused by natural disasters can be prevented; nature has functions to mitigate damage from such disasters.
- In the recovery from the Great East Japan Earthquake, apart from disaster prevention, environmentally friendly urban development which suits to local characteristics, such as the establishment of independent distributed energy systems utilizing unused resources and energy is needed, and expanding this advanced practice, as a model, to other regions.

○ Measures for the Conservation of Good Environments

- The conservation of good environments is important for enhancing the value of the land as stock. Today, the importance of protecting human health, lives and the ecosystem from environmental contamination caused by harmful substances is acknowledged, Therefore, in order to ensure that current and future generations can benefit from healthy and rich environment through strengthening measures to protect human health and environment, further measures for conservation of environment and enhancement of the land value are needed.

(4) Promotion of action and cooperation by various actors in local communities and other occasions

○ Establishment of the Environmental consciousness into the Actions of Individuals through Environmental Education and Awareness Campaign

- The environmental pressure which stems from the activities of individuals significantly affects the local environment and the global environment. The promotion of citizens' active practices, such as changing their lifestyles, is essential in the environmental conservation. To this and, environmental education and awareness campaign are important for capacity building so that government bodies, companies, NPOs and citizens can consider the substance of the problems and how to deal with it, obtain the skills and ability to address issues, and voluntarily take actions .
- Furthermore, effective implementation of measures to provide economic incentives to encourage such efforts mentioned above would be worthwhile.
- In this regard, development of information provision according to the users' needs is necessary.

○ Collaboration between Various Actors to address Environmental Issues

- In order to improve and address environmental issues, utilization of a wide range of expertise on environment and knowledge from local lives are

important. Collaboration and cooperation among various actors such as government bodies, companies NPOs and citizens, who have such expertise and knowledge, are necessary.

3. Principles and Methods for the Implementation of Environmental Policy

The points to be focused, when implementing environmental policy, include;

(1) Principles of Environmental Policy

- When implementing environmental policy, the approaches of “the polluter pays principle”, “eco-efficiency”, “precautionary approach”, “environmental risk”, and “extended producer responsibility” set in the Third Basic Environment Plan, should be incorporated.
- In this regard, reviewing the meaning of these approaches in response to new situations and condition changes since the Third Basic Environment Plan was established.

(2) Selection of the Optimal Methods

- When addressing environmental issues, The optimal methods should be chosen from a variety of policy methods (direct methods, regulatory framework methods, economic methods, voluntary methods, informative methods and procedural methods) taking into account the priority and cost effectiveness of policies, the cost reduction in while society as well.

III. Structure of the Fourth Basic Environment Plan

1. Setting Priority fields

(1) Approach of priority fields

○ Various measures are needed to achieve the envisioned society, but in order to effectively utilize limited financial resources, focuses should be put on urgent and important issues, and effective and steady implementation of measures are needed. To do this, continuing from the Third Basic Environment Plan, priority fields will be set along with the specific measures.

○ The descriptions of priority fields will be based upon, in addition to the Direction of Deployment of Environmental Policy described in section II, the following points;

- Procedure of past measures and current challenges, medium- to long-term

targets, the basic direction of policy measures, indicators for promotion of implementation and concrete targets must be shown. When setting indicators and targets, the meaning of each indicator and target must be clarified.

- With regard to the basic direction of policy measures, efforts must be made to clarify the desired actions of each actor including national and local governments, business sectors, citizens, and other private organizations, and the governments' policy measures to achieve this. Furthermore, efforts must be made to clarify relationships with other areas in order to integrally implement measures with those areas.

○ Further consideration would be given to the sequence of the listing of (2) Cross-cutting priority fields and (3) individual priority fields (e.g. climate change, biodiversity) before the final draft.

(2) Cross-cutting priority fields

○ Three cross-cutting priority fields for the realization of "II. Direction of Deployment of Environmental Policy" includes;

(i) Greening economy and society and Promotion of green innovation

The following items must be stipulated in this field.

- Measures to incorporate the environmental consciousness into all activities
  (Such as decision of policies/ measures, business activities, consumer behavior, taxation systems, finance, and green products and services)
- Promotion of environmental research and technological development based on a vision of sustainable society
  (Such as promotion of environmental research and technological development forming the foundation of green innovation and promotion of research on environmental and economic policies for green growth)

etc.

(ii) Strategic measures to appropriately respond to international situations

The following items must be stipulated in this field.

- Strategic policy measures for both national interest and global interests
  (Such as the leadership in the establishment of international rules)
- Promotion of reciprocal international environmental cooperation.
  (Such as measures for achieving green grown together with emerging countries)

etc.

(iii) Promotion of local community-building, capacity building and establishment of infrastructure for the realization of a sustainable society

The following items must be stipulated in this field.

- Local Community-building utilizing the resources and characteristics of each community

  (Such as maintaining local environments through the conservation and management of land as stock, and the realization of concentrated urban structure)

- Capacity building for environmental conservation through environmental education and others.

  (Such as promotion of environmental education and environmental learning, and support for private environmental conservation activities)

- Promotion of the establishment of infrastructure for environmental conservation

  (Such as consideration of strategic environmental assessments and improvement of environmental impact assessment systems, and preparation of statistical information on the environment)

Etc.

(3) Individual priority fields

○ Six priority fields, taking into account “II. Direction of Deployment of Environmental Policy“ and the relationships between fields, and rearranging the sequence, include;

(iv) Measures for climate change

The world’s average temperature rose by approximately 0.74°C in a century until 2005, and Japan experienced an increase of extremely hot days and heavy precipitations exceeding 100mm per day, leading to the rise of problems affecting agriculture, the ecosystem and human lives. Because of this, establishment of a fair and effective international framework in which all major countries participate is needed. Furthermore, based on the internationally shared recognition that significant emission reductions on a global level are required to ensure the world’s average temperature does not rise by more than 2°C compared to the temperature before the industrialization, various domestic measures to build a low-carbon society should be seamlessly executed. Adaptation measures for unavoidable impacts of climate change are needed as well. Therefore, this field should to be positioned as a priority field.

(v) Measures for the biodiversity conservation and sustainable use

According to the Global Biodiversity Outlook 3 (GBO3) published by the

secretariat of the Convention on Biological Diversity in 2010, and the Japan Biodiversity Outlook (JBO) published by the Ministry of the Environment the same year, biodiversity loss continued globally and in Japan, and enormous change to biodiversity will take place if the loss continues at this rate. Furthermore, in addition to biodiversity conservation, because of the growing importance of the transition to a biodiversity conscious society and economy, this field needs to be positioned as a priority field.

(vi)Measures to secure the material cycle and create a sound material-cycle society

While global resources constraints are anticipated to get more severe, Japan inputs about 1.5 billion tons of natural resources and generates about 475 million tons of waste per year, and has problems such as difficulties with waste treatment and the tight capacity of final disposal sites. A variety of measures are necessary to ensure the major actors voluntarily or collaboratively promote the 3Rs further and ensure appropriate waste treatment through changing their lifestyles and improving business activities. Therefore, this field needs to be positioned as a priority field.

(vii) Measures for Water Environment Conservation

While Japan’s water environment has been improving in recent years compared to the past, the achievement rate of environmental quality standards for living environment items (BOD, COD) in lakes and closed water areas is still low. Securing an environmentally sound water cycle and creating a water environment that gives consideration to biodiversity are also important. Therefore this field needs to be positioned as a priority field.

(vii) Measures for Ambient Air Environment conservation

While air quality has been improving in recent years compared to the past, challenges such as some polluted areas which exceed environmental quality standards, new environmental standards concern PM2.5 to be achieved, and the extremely the low achieving rate of environmental standards concerning photochemical oxidants. Furthermore he total number of complaints about so-called sensory nuisances such as noise, vibration and offensive odors account for around half of that of complaints about the seven typical pollutions and still remains high. Due to these factors, this field needs to be positioned as a priority field.

(ix) Establishing and promoting comprehensive measures for chemical substances

Many of pollution-related health damages such as Minamata disease are

caused by chemical substances. Preventing environmental contamination by chemical substances is the basic mission of environmental policy. Because of this, systematic promotion of comprehensive measures for chemical substances , including measures based on the perspective of affected citizens, measures that take into account the entire life cycle, and strengthening measures for unresolved issues, combining a variety of methods, in order to achieve the international targets (WSSD2020 targets) agreed at the World Summit on Sustainable Development in Johannesburg. This field also needs to be positioned as a priority field to alleviate the citizens' concerns through the implementation of measures.

2. The organization of Environmental Conservation Measures and The Effective Implementation of the Plan

The overall structure of the Fourth Basic Environment Plan will be (1) priority fields, then (2) an organized description of environmental policy measures, and finally (3) clarification of the effective implementation of the plan.