Vision for International Cooperation on Climate Change Mitigation

Commission on International Cooperation for Climate Change Mitigation
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Exective Summary:

Vision for International Cooperation on Climate Change Mitigation

Since the Paris Agreement, countries around the world have positively viewed climate change mitigation strategy as a good opportunity instead of restriction that helps business and social structures transform into a decarbonized society.

This vision presents Japan's pursuit of international cooperation on climate change mitigation from a long-term perspective. In order to ensure the socioeconomic paradigm shift towards a decarbonization in developing countries – including today's newly emerging economies, the implementation must be self-directedly and steadily targeting net-zero greenhouse gas emissions can be achieved in the second half of this century.[1]

✧ Japan's Role in International Cooperation for Significant Global Greenhouse Gases reduction in 2050

The Paris Agreement is an international framework that seeks to strengthen the global response to climate change by setting a common goal of keeping the rise of the global average temperatures this century well below 2 degrees Celsius and above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to balance human emission and absorption of greenhouse gas in the latter half of this century to reach this goal.

A decarbonized society on a global scale is much needed to achieve that objective, and it is therefore crucial that in 2050 all countries, including today's developing countries, are self-directely undertaking climate change mitigation efforts and that processes are in place aimed at achieving net-zero greenhouse gas emissions.

To achieve this goal, Japan is aiming to reduce greenhouse gas emissions tremendously and also to demonstrate international leadership in driving global decarbonization. Building on the relationships of mutual trust it has developed to date, Japan will expand its cooperation based on its cooperation with partner countries[2]and will draw on its strength in environmental technologies to lead the way toward global economic growth and decarbonization.

Japan will utilize the innovations acquired through domestic efforts to make drastic and large-scale cuts to emissions and will deploy them **with the world through high-quality infrastructure, products, and services**, and Japan will contribute to the realization of a decarbonized society on a global scale through co-innovations that benefit the participating actors from both the partner country and Japan.

✧ Achieving a Decarbonized Society through Co-Innovation

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[1] This Visions targets the climate change mitigation. International Cooperation will be actively promoted for adaptive measures including perspectives on the promotion of measures based on sustainable development goals (SDGs).

[2] Japan and partner developing countries carrying out international cooperation related climate change mitigation.

The Co-Innovation that Japan aim for is not a one-way type of innovation whereby Japan's technologies and systems are unilaterally introduced and spread in partner countries, **but rather innovation developed through collaboration between Japan and the partner country that creates markets for decarbonized products, services, and technologies that are suited to the partner country and that bring about major transformations in socioeconomic systems and lifestyles.**

The governments and other relevant entities of Japan and partner countries will cooperate, and while enhancing the transparency of the status of greenhouse gas emissions, reduction efforts, investments in global warming measures, and other areas, and while jointly considering and identifying challenges and needs, innovations will be created that benefit the participating actors from both the partner countries and Japan and that help achieve a decarbonized society on global scale. By doing so, this will lead to the construction of a sustainable society and economic growth worldwide. In addition, the use of co-innovation to strengthen global emissions reductions and expand the market for decarbonization products, services, and technologies is in keeping with the mid- and long-term interests of Japan.

✧ **International Cooperation Efforts by 2030: Developing an Environment and Foundation that Enable Co-Innovation**

By 2030, which is the midpoint to 2050, efforts will be made to develop an environment and foundation that enables co-innovation and to increase the number of its successful models as much as possible. These efforts will contribute to the achievement of the Sustainable Development Goals (SDGs).

In order to realize co-innovation, efforts by nongovernmental entities from Japan and partner countries are indispensable both in terms of quality and quantity. To this end, the Japanese government will promote collaboration with diverse actors to tackle initiatives that are not found on the current trajectory of work towards decarbonized society.

Through the strengthening of partnerships with diverse actors and the continuous dialogue with the national and local governments, industrial organizations, companies, experts, NGOs, research organizations, and others in the partner country, the issues and needs of each partner country will be identified. By improving transparency regarding the status of greenhouse gas emission and reduction efforts, the potential and needs of measures taken by each country respectively can be visualized, and a foundation for creating decarbonization markets can be established. At the same time, support will be provided for the drafting of plans related to mitigation and construction of new systems. Also, the mainstreaming of climate change in public funds will be promoted, and at the same time, public funds will be effectively used to promote private sector investment. By accumulating these successful models and expanding them even more, an environment and foundation will be created that facilitates innovation.

(Initiatives to Establish Environment and Foundation by 2030)

Strengthening of Partnerships with Diverse Actors and Promotion of Cooperation

・Expansion of efforts of nongovernmental entities

・Promotion of collaboration among stakeholders focused on the cities

Build institutions in partner countries and strengthening of ownership

・Cooperation in building policies and institutions serving as the basis of emissions reduction

・Capacity-building for organizations/personnel carrying out initiatives self-directedly

・Improvement of transparency, the key to reducing emissions

・Clarification of totalse supply chain emissions and strengthening of efforts to reduce emissions

・Strengthening of efforts at sector-based international standardization and technical cooperation

Mainstreaming of climate change in public capital and increased mobilization of private capital

・Mainstreaming of climate change in public funds

・Promotion of investment in climate change mitigation by private funds, including use of public funds

・Increased investment in renewable energy

Creation and scaling up of “successful models”

1. Significant Global Greenhouse Gases Reduction in 2050

Since the Paris Agreement, countries around the world have positively viewed climate change mitigation strategy as a good opportunity instead of restriction that helps business and social structures transform into a decarbonized society.

This vision presents Japan's pursuit of international cooperation on climate change mitigation from a long-term perspective. In order to ensure the socioeconomic paradigm shift towards a decarbonization in developing countries – including today's newly emerging economies, the implementation must be self-directedly and steadily targeting net-zero greenhouse gas emissions can be achieved in the second half of this century. It is expected to contribute to the review and drafting of Japan's "long-term, low-greenhouse-gas emission development strategy".

(1) A world in which all countries are working self-directedly to address climate change

Climate change is a scientific fact that is already being observed. That may trigger the risk of irreversible changes to ecosystems and to human society in the future. Climate change is thus seen as one of the gravest threats to security and prosperity on a global scale.[3] In particular, the three years from 2014 through 2016 recorded the highest average global temperature on record. All over the world, there have been reports of extreme weather and concomitant economic and human damages on a massive scale.

As a common global long-term goal, the Paris Agreement aims to keep the rise in the global average temperature well below 2 degrees Celsius above pre-industrial levels and to continue efforts to limit the temperature increase even further to 1.5 degrees Celsius. To achieve this goal, efforts will be made to balance the anthropogenic emissions and absorption of greenhouse gases in the second half of this century in part through a global stocktake carried out every five years from 2023 on that will encourage countries to be more ambitious in terms of their nationally determined contributions (NDC).

The scenarios for reaching the goals of the Paris Agreement are being analyzed by the International Energy Agency (IEA), Intergovernmental Panel on Climate Change (IPCC), and other international organizations. Both have suggested the need for decarbonization. For instance, according to IPCC's analysis, there are several emissions scenarios with strong potential for suppressing temperature rise to under 2 degrees Celsius and the most economical of these has been shown to cut emissions tremendously over the next several decades, reduce greenhouse gas emissions by 40 to 70% by 2050 compared to 2010, and achieve emission levels that are more or less zero or less in 2100.

The future vision of 2050 when such sharp reductions are achieved is one where

[3] Global Risk Report 2018 (World Economic Forum), etc.

the economic and income disparity between countries is expected to have narrowed, and **countries are implementing self-directed and continuous mitigation efforts to drastically curtail emissions domestically**. Specifically, fundamental information related to the emissions of greenhouse gases would have been acquired, and the decarbonized market [4] would have spread worldwide. Under that scenario, decarbonization technologies[5] (including state-of-the-art technologies) would have been developed and improved and would be widely available on the market. Moreover, countries with minimal emissions such as small island developing states and least developed countries would at a minimum have been equipped with the basic capacity needed for climate change mitigation and adaptation.

In addition to the efforts of each country, international endeavors would be underway to transfer greenhouse gas emissions while preventing double counting to promote emissions reduction while ensuring environmental integrity (reduction effects as climate change mitigation), cooperation would be carried out within each sector to develop reduction measures based on common rules, and worldwide emissions reductions would be implemented efficiently while ensuring transparency.

In order to realize this future vision, the expansion of international cooperation is indispensable. When doing so, based on the achievements noted in the global vision outlined above, countries must work together in partnership rather than the past model of one-directional assistance from developed to developing countries. Based on a relationship of trust, they must contribute jointly to new knowledge, cooperate to produce innovation, and grow together.

The simultaneous resolution of climate change problems and socioeconomic issues is anticipated to contribute to the stability and prosperity of the international community under the responsible participation and partnership of governmental and nongovernmental entities.

(2) Decarbonized society driven by co-innovation

To realize the future vision for 2050—a future in which sharp emission reductions have been achieved—Japan will aim to substantially decrease emissions domestically while also spurring decarbonization worldwide and demonstrating leadership in the international community.

The innovations acquired by divers actors through these drastic and large-scale domestic emission reductions will be expanded to the rest of the world through high-quality infrastructure, products, and services. Japan will also aim to **create conditions**

[4] Market offering decarbonization technologies and services in various areas such as energy, industry, transportation, etc.

[5] Technologies necessary to achieve the long-term goal of Paris Agreement (well below 2 degree) and which significantly reduce GHGs emission in this vision.

in both Japan and its partner countries where co-innovations are continuously being produced in various arenas that will bring about major transformations in economic and social systems and lifestyles.

What is Co-Innovation?

The concept of “co-innovation” in this vision document is that of building a decarbonized society through innovations in technology, economic and social systems, and lifestyles born from the partnerships with developing countries including today’s emerging economies. Instead of the previous unilateral model of having partner countries adopt and disseminate Japan’s technologies and systems , it is innovation where technology, product, and service markets and business models that are suited to the partner countries are created through the joint efforts of the governments and other related entities of the partner country and Japan. Such efforts are already starting to sprout up.

Furthermore, the innovations achieved in partner countries will also be passed on to the diverse actors in Japan. By creating business models that can be expanded to a wider scope of countries, it will be possible to expand to maturing domestic markets as well as to markets of developing nations with potential for further growth, and so it benefits the participating actors of both countries.

Background necessary for co-innovation

Given that the world population as a whole will increase and the global economies will grow in the long run, greenhouse gas emissions will increase rapidly unless effective measures are implemented. To achieve the goals of the Paris Agreement, it is vital that the whole world shift to a socioeconomic system aimed at decarbonization. Relatively speaking, the economic disparities between developing and developed countries are expected to shrink, and instead of just the one-way assistance from developed to developing country, it can be thought that there is a movement underway that aims to create innovation through systems of collaboration that build partnerships between countries and jointly produce knowledge. Decarbonized markets are expected to be formed through this process of transformation.

Japan’s economy and society are both mature, and it has faced issues such as falling birthrates and the ageing population resulting in decreasing population. In contrast, developing countries are experiencing expanding markets in response to domestic demand. In addition to cost advantage, in recent years they are also seeing the acceleration of technological development and investment. For this reason, they are catching up with advanced nations like Japan and technological disparities are rapidly shrinking. For Japan to drive global decarbonization, there is a need for diverse actors including government to promote innovation in technology, the socioeconomic system,

and lifestyles while targeting long-term and drastic emission reductions in the country, and to foster industries possessing decarbonization technologies that boast the best performance, outstanding lifecycle costs, and highest quality in the world. **By further improving Japan's decarbonization technologies and industry as the country's "strength" and based on partnerships and fair and healthy competition, Japan will strive to increase opportunities for private companies to enter the decarbonization market and will expand its sales of high-quality infrastructure, products, and services worldwide.**

2. Global Collaboration Efforts by 2030: Developing Environment and Foundation that Enables Co-Innovation

Direction of international cooperation by 2030

Based on "Japan's Assistance Initiatives to Address Climate Change 2017," proposed by the Government of Japan in the 23rd session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP23), Japan will seek to establish the environment and foundation necessary to enable co-innovation and to increase successful cases of co-innovation as much as possible by 2030, which is the midpoint to 2050.

What are the environment and foundation needed to enable co-innovation

As mentioned thus far, for co-innovation to take place, there must be a process in place that allows diverse actors to working together to identify needs and jointly create the decarbonization market. Essential to this end are venues for "collaboration" and "ongoing dialogue" among diverse actors, "transparency" for needs and so on to surface, and the "construction of policies and institutions," "organizations and personnel," and "funds" to support the process through to market formation. These can be considered the environment and foundation for creating co-innovation.

In particular, from a long-term perspective, the improvement of transparency is the key to reducing emissions. To help actualize the challenges and needs faced by partner countries and facilitate innovation, it is vital to ensure transparency with regard to the actual status of greenhouse gas emissions by actors in partner countries (visualization), their reduction efforts, etc. This mechanism of visualizing and internationally evaluating the reduction efforts of diverse actors provides incentive to implement further reduction efforts. Already, international initiatives are spreading to monitor and manage reductions in the total supply chain, and they provide incentives for actions to monitor and reduce emissions not only in terms of the quantity of greenhouse gases emitted by companies in Japan but also by related companies in partner countries. In this way, co-innovation will be promoted in an environment with improved transparency, and this will not only lead to the further enhancement and global expansion of Japan's decarbonization technologies and industry but will also help promote a decarbonized society on a global

scale, including in partner countries.

How to carry out international cooperation

Japan will focus on supporting the transition to an economy and society capable of self-directed and continuous emissions reductions according to the development phase and needs of partner countries. Presently, the needs for adaptive support are becoming increasingly evident in least developed countries. For this reason, international cooperation will be carried out through a comprehensive approach that includes not only mitigation but also the establishment of infrastructure for climate risk information, and the promotion and support for adaptive measures based on scientific knowledge.

To carry out effective international cooperation, there is a need for tailor-made collaboration based on the growth stage and needs of partner countries. Given that relationships of trust and mutual understanding, the degree to which private sector companies have entered the country's market, and so on are important elements, efforts will be made to pay attention to these points and expand collaboration gradually.

For instance, in countries with low greenhouse gas emissions that are vulnerable to climate change (Least Developped countries), assistance will be given for infrastructure-building—including institution building and human resource development—and for resolving diverse issues in order to contribute to the achievement of SDGs including mitigation and adaptation due to strong needs for adaptation support.

In other countries, comprehensive assistance will be provided based on the situation within the concerned countries such as the expected increase in greenhouse gas emissions, the status of mitigation technology markets, and so on. That assistance will include introducing technologies using public funds according to the country's situation, support for institution building, support for improving transparency, support for building a decarbonized society, etc. In countries that have attained a certain level of economic growth, where mitigation technologies have spread and markets are gradually being formed, assistance will be provided centering on the improvement of transparency for understanding the progress and effects of mitigation so that self-directed efforts in mitigation can progress from an early stage.

Presently, Japan is promoting multilateral cooperation such as providing support to multilateral funding agencies such as the Green Climate Fund (GCF) in addition to bilateral cooperation such as the Joint Crediting Mechanism (JCM)[6]. In the future, to realize long-term and dramatic emissions reductions, there will be a need to carry out combine and carry out bilateral and multilateral international cooperation more

[6] Based on the draft of Japan's promises submitted in 2015 and greenhouse gas mitigation plan passed by the cabinet in 2016, international emissions reduction and absorption of a total of 50 million to 100 million is t-CO2 expected by 2030 through government projects. In addition to use for achieving the reduction targets of the Paris Agreement, it is hoped that the spread of low carbon technologies and MRV experience will accumulate in both Japan and countries participating in JCM.

strategically than ever. Especially in the case of multilateral collaboration, Japan will actively contribute to and participate in international cooperation efforts through international organizations centering on Japan's activities and will thereby promote the efficient establishment of an environment and foundation based on multilateral coordination. These efforts will be carried out while giving consideration to gender and socially vulnerable populations, etc.

Based on the above goals, the following initiatives will be carried out.

(1) Strengthening of partnerships with diverse actors and promotion of collaboration

Expansion of nongovermental activities

To achieve the goal of the Paris Agreement, there is a need to encourage the efforts of municipalities, companies, financial institutions, research organizations, and nongovernmental entities such as NGOs that are reinvigorating emissions-reduction efforts around the world. The Japanese government will enhance cooperation with these nongovernmental entities and will collaborate with diverse non-state actors on various initiatives, such as governmental and other financial assistance schemes and institution building assistance, and the establishment of the environment for expanding the decarbonization market, etc., and will dramatically expand mitigation measures both qualitatively and quantitatively.

Some of the co-innovation goals include those that do not fall on the Japan's current technological development and social systems trajectory. By tying up with partner countries to identify local challenges and needs, using each other's knowledge and knowhow to carry out joint research, joint verification, and create model businesses, innovations will be created that are suited to the characteristics of the partner countries, and this approach will benefit the participating actors of both Japan and the partner countries.

For instance, Japan is currently considering the enhancement of international scientific and technological cooperation with partner countries and introducing specific results to the market. There are also model cases of initiatives and social implementation such as joint research and development, verification of advanced technologies that have drawn on one another's knowledge and knowhow.

Promotion of collaboration with stakeholders mainly in cities

Local governments are the primary entities implementing policies and projects to address their region's issues. In the future, the population in cities of developing countries will increase, and that is expected to lead to a rise in greenhouse gas emissions from sectors such as urban infrastructure, households, businesses, transportation, and so on. For this reason, collaboration in various sectors led by local governments and

municipalities is a very effective approach for building a global-scale decarbonized society.

Within the framework of collaboration between cities in Japan and partner countries, there are efforts to reinforce institution building and capacity development through ongoing dialogue, and to create models for solving issues faced by the cities of both countries. Japan will further increase the opportunities for dialogue through meetings in which diverse nongovernmental entities participate, and in addition to increasing the number of cities actively participating in inter-city collaborations, it will increase the opportunities for these actors to play a leading role in the resolution of urban issues.

As the direction that will be pursued for the immediate future, in addition to efforts to date in inter-city collaboration, the capacity of Japanese cities to function as a hub for stakeholder cooperation will be strengthened by promoting cooperation with companies, financial institutions, research organizations, etc., while at the same time, collaboration with other stakeholders in areas that cannot be covered by cities alone will give them the ability to provide diverse solutions.

(2) Institution building in partner countries and strengthening a sense of ownership

Creation of policies and institutions as the basis for emissions reductions

The construction of policies and institutions not only helps spread decarbonization technologies that significantly constrain greenhouse gas emissions in partner countries through increased opportunities to reduce emissions, but also serves as the foundation for the widespread use in social and economic systems of co-innovation achievements from diverse actors. To establish decarbonization technologies in the concerned country requires that they be incorporated into the local social and economic systems, and for this reason, joint efforts by the public and private sectors is important.

As the time being, Japan will provide assistance to partner countries for the drafting of plans related to NDC and mitigation, as well as for institution building (regulations, standards, tax systems, greenhouse gas emissions and energy consumption reporting systems, energy-saving labels, fluorocarbon emission reduction systems, etc.) and the improvement/reinforcement of existing systems. This will reduce risks related to private funds, serve as incentive to private companies, and help energize the market for decarbonization technologies.

Strengthening of organizational and human-resource capacity to self-directedly carry out initiatives

When enforcing and operating the institutions that have been built, the lack of organizational governance, human resource, and capacity often create obstacles. To enable the diverse actors of partner countries to work on mitigation self-directedly over

the mid- to long term in a sustainable manner, Japan will promote cooperation in developing the institutional and human-resource capacity required for building institutions and running them appropriately and will strengthen the sense of ownership of these institutions within partner countries. Such collaborative experiences are expected to contribute to improved capacity among companies and municipalities in Japan as well.

Improving transparency as the key to reducing GHGs gas emissions

Many developing countries today lack data on actual emissions of greenhouse gases and other fundamental information on climate change mitigation. They face the challenge of being able to design the required measures in detail and accurately grasping the effects of measures that have been implemented. For the Paris Agreement to become an effective framework to achieve long-term goals, it is vital to improve the transparency of each country's basic data, systems, measures, and investments related to climate change mitigation. It is important to also inform partner countries that this is not just about measuring the amount of emissions, but that enhanced transparency provides incentives that encourage private-sector projects and investments.

Japan is therefore promoting the "visualization" of actual emissions in partner countries, reduction efforts, reduction needs and potential, domestic and foreign investments, etc. Furthermore, efforts will be made to quantitatively visualize the greenhouse gas reduction actions of Japanese companies abroad, enabling them to receive recognition and evaluation of the impact of those actions, the effects of technologies applied, and the sustainability of their business. As a result, it will become clearer to partner countries what must be done to reduce emissions, it will enhance incentives for private sector companies to increase reduction activities and will promote projects and investments by these companies. It should be noted, however, that the effects of reduction actions taken by domestic and foreign private companies within a partner countries are ultimately included in the emission reduction total of that partner country, and thus the quantitative visualization of reduction actions cannot be used for achieving each country's NDC when applying Article 6 of the Paris Agreement.

For the time being, based on "visualization partnership," Japan will apply its experience and knowhow, collaborate with relevant organizations, and support the development of skills and establishment of organizational systems in order to help establish the partner country's greenhouse gas emission reduction inventory that serves as the premise for its reduction measures; draw up specific plans for countries to achieve reduction goals and identify the required measures; build the required institutions for reaching the goals (greenhouse gas emissions calculation, reporting, and disclosure system, etc.); and evaluate the progress of the plan. In addition, through collaboration with the "Capacity Building Initiative for Transparency (CBIT)" of the Global Environment Facility (GEF), these efforts will be expanded globally.

Determining total supply chain emissions and strengthening emissions-reduction efforts

Around the world, companies are tracking greenhouse gas emissions from their total supply chain and carrying out efforts to reduce emissions. These efforts are being backed by related international initiatives including Science Based Target (SBT)—a joint initiative of the CDP,[7] the UN Global Compact,[8] World Resources Institute (WRI), and World Wide Fund for Nature (WWF)—RE100,[9] and others. These efforts influence not only the countries where these companies are located, but also emissions from related companies and plants in other countries.

Endeavors to enhance transparency and reduce emissions based on international initiatives enable private companies competing on the global market to gain international recognition and demonstrate that they have the ability to deal strongly with the shift of the economy and society to a decarbonized society over the long run. By enhancing corporate value vis-à-vis investors, the companies are able to gain a superior reputation in international comparisons, enhance their international competitiveness, and improve brand recognition, which are all beneficial to sustainable business operations.

Around the world, companies are also carrying out efforts to track and reduce greenhouse gas emissions of the total supply chain. For instance, CDP, which is supported by many institutional investors, requires the calculation and disclosure of Scope 3 emissions,[10] including those for a company's supply chain.

Efforts in sector-specific international standardization and technological cooperation

It is important to promote efforts in global warming measures applying standardization and international comparisons carried out by international federations and networks of specific industrial sectors as an effective international cooperation model. For instance, the Japan Iron and Steel Foundation is promoting the visualization of emissions by steel companies around the country and cooperation in the identification of specific emissions reduction method and technological cooperation based on internationally standardized greenhouse gas emissions calculation methods. Using such efforts as a model, it is hoped that other industrial sectors will also promote international cooperation to improve

[7] A nonprofit organization of institutional investors that jointly seeks information disclosure on climate change and greenhouse gas emissions from companies in which they have invested in and conducts surveys.

[8] A voluntary initiative that participates in the creation of a global framework for realizing sustainable growth through the demonstration of responsible and creative leadership by companies and organizations acting as good corporate citizens.

[9] Corporate organization aiming to cover business operations using 100% renewable energy.

[10] Indirect emissions other than Scope 1 (direct emissions: own plant/office/vehicle, etc.) and Scope 2 (indirect emissions from energy sources: energy used at company such as power, etc.)

the global reduction of emissions.

(3) Mainstreaming Climate Change in Public Funds and Increased Mobilization of Private Funds

Mainstreaming of climate change mitigation in public funds

In addition to official development assistance (ODA) and other official flows (OOF), it is important to work on expanding funding for climate change areas, take into account climate change mitigation more than ever, reflect these elements as much as possible, and promote the mainstreaming of climate change mitigation in various projects.

GCF and GEF, which are funding mechanisms under convention, place priority on local paradigm shifts more than a mere transfer of low-carbon technologies when selecting projects. Japan actively participates in GCF and GEF to improve accessibility to funds by partner countries, promotes understanding of the related funding mechanisms and project cycles, and builds networks with implementing organizations so that companies in Japan and partner countries can participate in GCF and GEF projects, which will lead to the production of co-innovations.

Promotion of investments in climate change mitigation based on private funds, including use of public funds

The major contribution of private-sector initiatives and private-sector funding in the construction of a decarbonized society is widely recognized, including by the Climate Change Summit. In addition to the strengthening of partnerships with the diverse actors mentioned above and efforts in institution building, Japan will carry out risk-reduction financing to encourage the use of private funds and other uses of public funds as effective leverage to promote private investment. Regarding ESG investments and other environmental financing, efforts will be made to further promote the understanding of institutional investors and others. Japan will also work to heighten interest in investing in environmental businesses such as through green bonds, and promote investment in climate change mitigation and renewable energy not only in Japan, but overseas as well, including in developing countries. In these efforts, collaboration with public and private financial organizations and the development of capabilities related to finances in the climate change area are important. By creating opportunities for dialogue among the World Bank (WB), Asian Development Bank (ADB), and municipalities, private companies, and financial institutions in Japan and partner countries, bilateral collaboration will be supported and the use of private funds by partner countries will be promoted.

Around the world, there is a growing trend to support climate change mitigation from the financial angle, through ESG investment, green bonds, and so on. In developing countries, the potential for climate change mitigation measures such as renewable

energy is large. In order to further invigorate the flow of private funds in this respect is important from the viewpoint of international cooperation. In recent years, ESG investment is spreading worldwide, centering on the United States and Europe. As part of the evaluation of corporate value from the long-term perspective, more and more institutional investors are focusing on companies' climate change efforts. Based on the requirements of the G20, the Task Force on Climate-related Financial Disclosures (TCFD) established by the G20 Financial Stability Board provides recommendations on the ideal ways of disclosing information required by investors to understand the influence of climate-related risks and opportunities in the corporate financial information (balance sheet, profit and loss statement, cash flow statement, etc.). It is thought that this will trigger a further increase in institutional investors and financial organizations focusing on environmental information when evaluating corporate value.

In Japan, the further promotion of understanding among institutional investors about green finance, such as ESG investments, will increase interest in investments in environmental businesses such as green bonds, and will promote investment in climate change mitigation and renewable energy, not only in Japan but overseas, including in developing countries.

Expansion of investments in renewable energy

In climate change mitigation, the energy sector in particular has the highest priority order in the realization of a decarbonized society, even in terms of the percentage of global emissions it comprises. As a result of global cost reductions for renewable energy, the needs and market for renewable energy are growing on a global scale. For Japan to lead in global decarbonization, efforts to expand renewable energy to developing countries are being carried out.

For the time being, efforts will be made to promote the use of renewable energy based on the situation of partner countries, in addition to geothermal energy that Japan has been promoting in other countries based on the increase in demands for renewable energy around the world. For example, Japan is promoting the use of smart cities, including waste power generation, cogeneration, offshore wind power generation, and net-zero energy building and houses (ZEB, ZEH). In addition, technologies for power systems and stored energy are also being expanded overseas based on the needs of partner countries following the increase in the use of renewable energy.

(4) Creation and scaling up of "successful models"

Looking ahead to 2030, which is the midpoint to 2050, efforts are being made to (1) strengthen partnerships with the above diverse actors and promote collaboration, (2) build institutions in partner countries and reinforce a sense of ownership over those institutions, and (3) increase mobilization of private funds by maximizing use of public

funds to gradually increase “successful models” and promote further developments in order to establish the environment and infrastructure for allowing co-innovation.

To realize sustainable and large-scale reductions in partner countries, in addition to various mitigation projects, it is important to aim at further reductions by introducing local standards following the launch of projects, expanding these to other countries, and taking advantage of their ripple effects. For instance, the adjustment of technologies applied in JCM projects to local standards and the exploration of new markets with the launch of projects have led to the reform of systems serving as the foundation of technical implementations and market reforms.[11] In addition to financial support, systems will also be constructed at the same time, aiming at dissemination to produce further effects.

By promoting cooperation with companies, research organizations, and other relevant organizations, efforts will be made to strengthen Japanese cities’ function as the intellectual hub for stakeholders. For the time being, the government will cooperate with diverse actors, with public financing organizations such as JICA and JBIC, and international funding support schemes such as ADB to create and expand “successful models” such as developments from JCM projects based on the three axes, (1) scaling up from pilot projects to large projects, (2) deployment of effective projects, and (3) building in of decarbonization technologies in large-scale infrastructure projects (including the reflections on institution and regulation), and this will be linked to the realization of co-innovation. In addition, based on inter-city collaboration, efforts will be made to jointly create and implement climate change master plans, etc., for cities based on local situations and needs, realize co-innovation for forming new city models, and link this to domestic efforts. Through the efforts of sector-based international federations and networks, successful cases will be increased and expanded.

Japan will accumulate successful cases linking to the co-innovation of social systems and technologies while enhancing the abilities of partner countries, and will work on linking successful models to even greater reforms of economic and social systems, and to the development of other partner countries and Japan.

Japan will reflect this vision on the strategies drown up by sectors in the “Basic Strategy for Overseas Development of Environmental Infrastructure [12]” and “Visialization partnership”, and promote specific politices and projects collaborated with diverse actors while announcind this vision internationally.

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[11] For example, in the case of using highly efficient transformers in distribution networks in Vietnam using JCM facilities subsidized projects, the impact on the reduction of greenhouse gas emissions and costs were proven, and by expanding the effects to other regions in Vietnam and other countries, power distribution companies in Vietnam were able to establish procurement standards for introducing the same transformer.

[12] By expanding Japan’s adavanced technologies, knowhow, and systems to developing countries, contribute to the environment improvement in developing countries. To contribute to the business developments in Japan, the Ministry of Environment drafted infrastructure system export strategies in July 2017 to promote the development of environment related technologies specifically.