

1. Summary

Extreme weather events, such as heavy rains, droughts and heat waves, have been observed worldwide and have caused significant damage. If climate change becomes more serious, risks of such extreme weather events will further increase. The IPCC special report "Global Warming of 1.5°C," released this October, emphasizes the significance for the whole world to take mitigation actions immediately. The special report also underlines the importance that each country develop adaptation measure and promote international cooperation and mutual knowledge sharing.

In order to achieve the 2-degree goal (and pursue efforts for 1.5-degrees) of the Paris Agreement and to establish a decarbonized society with balance between anthropogenic emissions by sources and removals by sinks of GHGs in the second half of this century, the whole world must reduce GHG emissions drastically. Additionally, reducing vulnerability to climate change, establishing a resilient society, and pursuing the Sustainable Development Goals (SDGs) are of importance. The importance of the Green Climate Fund (GCF) is increasing in the context of the implementation of the Paris Agreement from 2020 onward. At present, Japan is the top donor to the GCF and continues to fulfill its responsibilities appropriately for effective and efficient management of the GCF.

For steady implementation of NDCs and significant reduction of GHG emissions, Japan will strengthen mobilization of public and private finances to further disseminate low-carbon and decarbonization technologies and assist the development of high-quality infrastructure. We will promote scale-up from pilot to large projects and market development by making use of the achievement of the Joint Crediting Mechanism (JCM), and facilitate co-innovation that delivers innovation jointly with developing countries.

Sharing information among countries through the enhanced transparency framework under the Paris Agreement will be the basis of effective implementation of the Paris Agreement. Japan will contribute to further enhancing transparency by monitoring whole-atmosphere CO₂ and methane concentrations with the GHG Observing Satellite "GOSAT- 2." Japan will host the IPCC Session to support the refinement of the IPCC Guidelines for National Greenhouse Gas Inventories. Climate actions by not only the public sector but also private companies are fundamental for promoting climate change countermeasures all over the world. The Japanese government will support capacity development of private companies on transparency actions through the development of tools and partnerships, aiming to ascertain potential emission reduction potentials and create opportunities for innovation.

Regarding support for adaptation, priority will be placed on small island developing states (SIDSs) and least developed countries (LDCs), which are especially vulnerable to climate change, and Japan will offer cooperation for the assessment of climate change impacts and formulation of adaptation plans through building collaboration with the national governments and relevant organizations in those countries. Additionally, Japan will provide comprehensive support for relevant infrastructure development, food and health-related fields with a view to contributing to strengthening their resilience to climate change. Japan will also promote efforts for sharing and using data and information based on scientific knowledge, which are essential to carry out effective programs, and for actions that operationalize adaptation activities and secure business opportunities.

2. Progress from 2017 and new programs

(1) Adaptation

- ✓ Japan has developed the Climate Change Adaptation Plan (Cabinet decision in November 2018). Based on this experience, Japan will cooperate with the countries in Southeast Asia (such as Indonesia and Philippines), SIDSs (Fiji, Vanuatu, and Samoa) and others for the assessment of climate change impacts and formulation of adaptation plans.
- ✓ Japan advocates the Japan-ASEAN Climate Change Action Agenda based on the Japan-ASEAN Environment Cooperation Initiative (July 2018). Japan will strengthen regional cooperation with ASEAN member countries in the three climate change fields of adaptation, mitigation and transparency (*) with this action agenda.

* Adaptation: Asia-Pacific Adaptation Information Platform (AP-PLAT); Mitigation: JCM; Transparency: Partnership to Strengthen Transparency for Co-Innovation (PaSTI) (Visualization Partnership)

(2) Mitigation

- ✓ Japan will start projects with developing countries jointly to achieve co-innovation, which is beneficial both for developing countries and Japan, through the means of multiple packages of Japan's advanced low-carbon technologies, and their localization and dissemination.
- ✓ The Japan Bank of International Cooperation (JBIC) will establish a new financial framework, aiming to raise a total of approximately 50 billion dollars from the public and private sectors in the next three years, to support development of high-quality infrastructure including the construction of geothermal and wind power plants and the development of highly energy efficient smart cities in developing countries (announced by Prime Minister Abe in June 2018).
- ✓ The Japan International Cooperation Agency (JICA) and the Large Cities Climate Leadership Group (C40) signed the Memorandum of Cooperation to promote and carry out cooperative activities related to climate change in megacities in Southeast Asia (June 2018).

JICA will work together with the C40 to share project information and hold side events and workshops.

(3) Transparency

- ✓ Japan successfully launched GHG Observing Satellite "GOSAT-2" (October 2018). Using this satellite, Japan will observe whole-atmosphere CO₂ and methane concentrations from space continuously with high accuracy, and will estimate anthropogenic emissions from large city and large-scale emission source, thereby contributing to further enhancing transparency and GHG emission reductions.
- ✓ Japan is going to host the 49th Session of the IPCC in Kyoto in May 2019. Through hosting the IPCC Session to refine the methodologies for the inventory, Japan will support an appropriate measurement of each country's GHG emissions and steady implementation of the Paris Agreement.
- ✓ Japan signed the first bilateral letter of intent with the government of Indonesia concerning the cooperation for the Partnership to Strengthen Transparency for Co-Innovation (PaSTI) (Visualization Partnership) (October 2018).

3. Specific programs related to adaptation

(1) Assistance for developing countries based on Japan's knowledge

The IPCC special report "Global Warming of 1.5°C" states that SIDSs and LDCs are areas exposed to disproportionately higher risks due to 1.5°C and beyond of global warming, like the Arctic ecosystem and dry areas, and points out disproportionately higher risk of adverse consequences of 1.5°C and beyond of global warming especially in local communities that mainly depend on agriculture or fisheries for their livelihood. The report further states that international cooperation is a critical enabler for these developing countries and vulnerable regions to implement ambitious actions in the context of sustainable development.

Regarding assistance for, in particular, developing countries vulnerable to climate change including SIDSs, Japan will, based on its experience of formulating its Climate Change Adaptation Plan, support the assessment of climate change impacts and formulation of adaptation plans through building collaboration with the national governments and relevant organizations in those partner countries in considering their respective needs and political priorities while paying attention to gender issues and promoting local citizens' participation in line with guidelines and guidance on the national adaptation plan.

Japan will take advantage of its technology for international cooperation in adaptation projects, including productivity enhancement through plant variety improvement in farmland harmed by salt in Asian coastal areas, the formulation of disaster prevention plans for flood and investment for disaster risk reduction measures, recommendation on coastal protection by utilizing local ecosystems such as coral reefs and mangroves, promotion of collaborative communications for disaster risk reduction, provision of global environmental data (climate

change projection data created by the Integrated Research Program for Advancing Climate Models and the Social Implementation Program on Climate Change Adaptation Technology and earth observation data, etc.) through the Data Integration and Analysis System (DIAS), and provision of technologies and know-how in industry-government-academia collaboration.

In addition, Japan will contribute to human resources development in adaptation by broadly sharing Japan's experience and knowledge through international networks, including the Asia-Pacific Adaptation Network (APAN), the Global Adaptation Network (GAN), the Group on Earth Observations (GEO), and the Global Earth Observation System of Systems (GEOSS) Asia-Pacific Symposium.

Furthermore, Japan will promote each country's climate change policy measures, their programs for mainstreaming disaster risk reduction and the Future Earth initiative with the aim of achieving the Sendai Framework for Disaster Risk Reduction 2015-2030 and the SDGs. Japan will contribute to knowledge sharing on adaptation projects, disaster risk reduction, and measures against climate vulnerability risks, in line with various international frameworks including the UNFCCC, the SDGs, and the Sendai Framework for Disaster Risk Reduction 2015-2030, on occasions such as G7, G20 and other international conferences.

« Events during COP24 »

- Achieving a Resilient Economy and Industry through the Climate Risk Fund and Improved Investment - Disclosure of Financial Information Pertaining to Climate Risks - (December 11 at Japan Pavilion¹)

(2) Implementation of adaptation projects

Through collaboration with Japanese cooperation organizations and governmental financial institutions including the Japan International Cooperation Agency (JICA) and Japan Bank of International Cooperation (JBIC), as well as international development and financial institutions, Japan will support adaptation projects based on the priorities and needs of each country, while diversifying the financial resources, including mobilization of private finance.

In order to enhance the resilience to climate change, Japan will support infrastructure development, including the fields of irrigation, waterworks, and disaster risk reduction. Japan will also support the dissemination of drought-resistant and short-duration rice varieties for sustainable and stable food supply, and provide support to agricultural insurance for smallholder farmers vulnerable to climate change. Japan's support extends to ecosystem-based adaptation for coastal protection by utilizing ecosystems such as coral reefs and mangroves. Japan will also provide information using DIAS for forecasting an epidemic of malaria in South Africa and reducing flood disaster risk in Sri Lanka. Being mindful of the situation among SIDS, which are vulnerable to climate change, Japan will carry out

¹ See the following website for the details including schedule of the Japan Pavilion (<http://copjapan.env.go.jp/>).

comprehensive support focused on disaster risk reduction by integrating the provision of necessary equipment, such as meteorological observation and disaster early warning equipment, and technical cooperation.

Japan will also assist the capacity building to improve access to funds such as the Green Climate Fund (GCF) and the Global Environment Facility (GEF) by providing learning and training sessions. The GCF, to which Japan has contributed USD 1.5 billion, aims for a 50:50 balance between mitigation and adaptation and for a floor of fifty per cent of the adaptation allocation particularly for LDCs, SIDSs and African states. In light of this fact, Japan will proactively be engaged in ensuring appropriate implementation of the projects.

Data and information based on scientific knowledge are crucial for formulating and implementing effective adaptation projects. Therefore, Japan will establish the Asia-Pacific Adaptation Information Platform (AP-PLAT) by 2020 to provide climate risk information and assistance tools to geographically close and economically tied developing countries in the Asia-Pacific region. By fully utilizing this platform, Japan will launch the AP-PLAT Partnership Initiative, aiming to encourage organic collaboration of information and businesses with diverse stakeholders and to facilitate efforts to reach out to funds and secure business opportunities.

« Events during COP24 »

- Establishment of AP-PLAT Partnership - For Adaptation Actions Utilizing Scientific Knowledge - (December 11 at Japan Pavilion)

(3) Promotion of adaptation actions by non-state actors

The private sector and local governments play prominent roles in responding to the diverse needs of each country for adaptation and implementation of detailed adaptation policy in accordance with local circumstances.

The Japanese government will enhance engagement with the private sector and promote adaptation business through matching the needs of developing countries and advanced technologies and services owned by private companies in Japan, including disaster risk reduction infrastructure technology, early-warning technology and weather index insurance utilizing rainfall data estimated by satellites. Japan will promote adaptation actions of local governments in developing countries by supporting assessment of climate change impacts and development of local adaptation plans, through human resources development, etc. while involving local researchers, local governments, and communities.

4. Specific programs related to mitigation

(1) Assistance for formulation, implementation and revision of NDCs

The Paris Agreement requires each country to prepare and submit an NDC as well as to pursue domestic mitigation measures to achieve the emission reduction target presented in the

NDC. Each country is further requested to revise their NDC and submit the revised NDC by 2020, and needs have been increasing for institutional development and capacity building in developing countries toward implementation of the Paris Agreement.

As for the basis for emission reductions, Japan will support the formulation of NDCs and mitigation policy plans, the establishment of systems that enhance GHG emission reductions, such as regulations, standards, taxation, reporting systems of GHG emissions and energy consumption, energy-saving labels, systems to curb chlorofluorocarbon (CFC) emissions, and improvement and strengthening of the existing systems.

In order to achieve sustainable and large-scale emission reductions in partner countries, it is important to generate further emission reductions through multiplied effects such as establishment of local standards and institutional arrangements including dissemination of the projects to other countries based on the project implementation. The JCM has already succeeded in establishing standards for further dissemination and market development of leading low-carbon technologies. Japan will cooperate with various stakeholders to create and expand good practices for the development of JCM projects, through (i) scaling-up from pilot projects to large-scale projects, (ii) effective horizontal expansion of the projects, and (iii) incorporation of decarbonization technologies in large-scale infrastructure projects including reflection on institutional arrangements and regulations.

As promoting innovation and implementing mitigation measures in developing countries is vital for achieving significant global emission reductions, Japan will facilitate so-called “co-innovation” to create innovation jointly with partner countries by utilizing Japan's leading technologies and know-how.

For land use measures, Japan is promoting Reduced Emissions from Deforestation and Forest Degradation (REDD+) through public-private partnerships and will also continue to promote the improvement of low-carbon irrigation technology and its dissemination in developing countries while actively participating in the Global Research Alliance on Agricultural Greenhouse Gases (GRA).

«Events during COP24»

- COP24 JCM Partner Countries' High-Level Meeting (December 11 at Japan Pavilion)
- Addressing Climate Change Issues through Innovation: Release Event of the Roadmap Developed by Innovation for Cool Earth Forum (ICEF) (December 11 at Japan Pavilion)
- Challenges for Net Zero Emissions through Innovative Initiatives of Climate Technologies (provisional title) (December 12 at Japan Pavilion)
- Progressive Practice on Quantifying the Avoided Emissions (provisional title) (13:15-14:45, December 12, UNFCCC Official Side Event)

- Implementation of REDD+ by Eco-friendly Approach (December 13 at Japan Pavilion)
- Restoring Degraded Tropical Forests: Reconciling Carbon, Biodiversity and Community Resilience (16:15-18:15, December 13, UNFCCC Official Side Event)
- COP24 Side Event by the Ministry of the Environment and the World Bank: For the Implementation of Article 6 of the Paris Agreement (December 14 at Japan Pavilion)

(2) Promotion of investment in climate change actions

Aiming to achieve the 2°C goal, major developing countries have set their own goals to reduce GHG emissions by 20 to 30% from the projected business-as-usual (BAU) level by 2030. In achieving those goals, investment opportunities in emerging countries in renewable energy and energy saving are expected to exceed 23 trillion dollars². Japan will strengthen collaboration with public finance including JICA and JBIC, etc. and mobilization of private finance in order to advance wider dissemination of low-carbon and decarbonization technologies.

Japan will be proactively engaged to ensure effective and efficient implementation of projects through the GCF and GEF, which are the operating entities of the Financial Mechanisms of UNFCCC, and will conduct capacity building and feasibility studies for project development in pursuance of improving access to the GCF by the developing countries. Additionally, Japan will promote understanding of the financial mechanism and project cycles, etc. and build a network with implementing organizations so that companies in Japan and developing countries can participate in GCF and GEF projects and contribute in creating co-innovation.

The Japan Bank for International Cooperation (JBIC) established a new financing facility in July 2018. It provides support for a variety of high-quality infrastructure projects, including renewable energy systems such as geothermal and wind power facilities as well as the development of highly energy efficient smart cities in regions including the Indo-Pacific area. It aims to mobilize 50 billion US dollars from private and public finance in the coming three years.

Towards building a decarbonized society, contribution of private companies and finance is significant. The Japanese government will encourage private investment by effectively leveraging public finance, for instance, through lowering risks. Japan will also enhance understanding of institutional investors concerning environmental finance such as ESG investment so as to increase motivation for investment in environmental projects such as green bonds, thereby facilitating finance in climate change countermeasures and renewable energy in foreign countries including developing countries. Collaboration with local public and private financial institutions as well as capacity building in climate finance in partner countries are also vitally important. Therefore, Japan will work with the World Bank (WB), the Asian

² Estimation by the International Finance Corporation

Development Bank (ADB) and others to encourage collaboration with partner countries by dialogues with local governments, private companies and financial institutions, with the aim of promoting the use of private funds in partner countries.

(3) Promotion of mitigation actions by non-state actors

In order to achieve the goals under the Paris Agreement, it is necessary to support activities of non-state actors such as local governments, companies, financial institutions, research organizations, NGOs, etc.

In particular, GHG emissions from urban infrastructure, the residential sector, commercial activities, the transportation sector and others are projected to rise as the urban population in developing countries is expected to increase. Therefore, collaboration among diverse stakeholders including local governments and cities is a highly effective approach for building a decarbonized society on a global scale. Demonstration projects to solve challenges in Japanese and partner countries' cities will be developed by advancing inter-city collaboration between Japan and developing countries and strengthening institutional development and capacity building through continuous dialogue.

Based on the Memorandum of Cooperation signed between JICA and the C40 to promote and carry out cooperative activities on climate change in megacities in Southeast Asia, Japan will cooperate with the C40 to share information at project levels and holding side events and workshops. In Thailand, JICA will support the implementation of its Climate Change Master Plan while fully utilizing the inter-city cooperation between Yokohama City and the Bangkok Metropolitan Administration.

- «Events during COP24»
- Public Companies' Innovation through International Contributions in Developing Countries (December 10 at Japan Pavilion)
 - Cities and Regions in the Decarbonization Era: Localization of SDGs and Ideal Environment, Society and Economy in Cities and Regions Presented by the Concept of Regional Circulation Symbiotic Area (December 10 at Japan Pavilion)
 - Climate Change Countermeasures Led by Non-state Actors - Opportunities for New Growth and Development toward Decarbonized Society - (December 10 at Japan Pavilion)
 - Japan/China/Korea Joint Research Initiative: Toward Decarbonization (15:00-16:30, December 12 at UNFCCC Official Pavilion, December 10 at Japan Pavilion)
 - Development of New Technologies for Achieving a Decarbonized Society; Challenge in the Mitigation and Adaptation-related Fields with the World First Magnus Vertical Axis Wind Power Generator That Can Generate Power Even During Typhoons (December 12 at Japan Pavilion)
 - LIMEX - Path toward a Decarbonized Recycling-oriented Society by the Use of

Limestone (December 12 at Japan Pavilion)

- Visions and Problems Looking toward 2050 of Japan's Automobile Industry as It Aims to Achieve the World's Top Environmental Performance (December 12 at Japan Pavilion)
- Carbon Footprints of Glass Manufacturers - Contribution to Mitigation of Climate Change with Glass - (December 12 at Japan Pavilion)
- "Change with Technologies!" CCS International Workshop (December 12 at Japan Pavilion)

5. Contribution for enhancing transparency in implementing the Paris Agreement

Sharing information on actions and assistance among countries through the enhanced transparency framework of the Paris Agreement leads to mutual trust building, learning and enrichment, which will be the basis of effective implementation of the Paris Agreement with the participation of all countries. Since some countries find difficulty in reporting due to lack of capacities depending upon specific sections of the report, Japan will continue assistance for capacity building in such countries.

Japan operates the GHG Observing Satellite "GOSAT-2" to observe whole-atmosphere CO₂ and methane concentrations from space continuously with high accuracy, and measure anthropogenic emissions from large cities and large-scale emission sources thereby contributing to further enhancing transparency and GHG emission reductions.

Development of their national GHG inventory and capacity building in private companies to measure and report their emissions would help detection of further potential GHG emission reductions and will certainly facilitate the revision of NDCs. The IPCC Guidelines for National Greenhouse Gas Inventories serve as its foundation, and Japan will host the 49th Session of the IPCC in Kyoto to support the preparation and refinement of the Guidelines thereby supporting appropriate measurement of each country's GHG emissions and steady implementation of the Paris Agreement.

Japan will also move forward in capacity building for the enhancement of transparency in the private sector based on the Partnership to Strengthen Transparency for Co-Innovation (PaSTI) (Visualization Partnership), which was launched at COP23. Specifically, assistance covers areas such as provision of incentives for emission reporting by the private sector, development of the MRV (measurement, reporting and verification) system, and strengthening of transparency actions by relevant countries and regions. Enhanced transparency enables visualization of potentials and needs for actions for each country, and applicable technologies and know-how of private companies and local governments of the Japanese side. These will turn out to enhance the private sector's engagement, investment and further cooperation, and consequently lead to the creation of co-innovation.

« Events during COP24 »

- GHG Monitoring Using Satellites: How Satellites Contribute to the Paris Agreement (December 5 at Japan Pavilion)
- Promotion of Private Sector Engagement through the Partnership to Strengthen Transparency for Co-Innovation (December 11 at Japan Pavilion)