



Japan's Assistance Initiatives to Address Climate Change

Responding to Needs of the Developing Countries

I. Japan's Representative Examples of Contributions to the Implementation towards the Paris Agreement by developing countries, Taking Advantage of Its Strengths

1. Diffusion of Advanced Low-carbon Technologies via JCM, etc.
2. Enhancement of Adaptive Capacity through Sharing Knowledge and Experience
3. Improvement of Measurement, Reporting, and Verification (MRV) Capabilities through Human Resource Development That Will Lead to a Transparency Framework
4. Promotion of Building of a System for Comprehensive Measures for Controlling Emission of Fluorocarbons
5. Support for Sustainable Societies in Conjunction with measures addressing Climate Change

II. Japan's Assistance Initiatives to address Climate Change

(Annex)

Introduction

Japan has so far undertaken various international support activities based on its technologies and experience in the area of climate change. Japan will continue to develop and enhance them in accordance with each nation's needs.

It is also important to deploy support activities effectively under international cooperation, when implementing the Paris Agreement. For this reason, Japan will participate in a number of international partnerships and initiatives including the NDC Partnership (which is planned to be launched at the COP22), and support the implementation of the Paris Agreement, which is a framework applicable to all parties, through cooperation and collaboration with research, support, and other organizations in and out of Japan.

(Main Areas of Japanese Contribution)

- Mitigation: Diffusion of superior low-carbon-emission technologies
- Adaptation: Sharing of Japan's experience and cases
- Transparency: Human resource development for inventory enhancement, etc.
- Measures against fluorocarbons: Comprehensive measures for controlling emission of fluorocarbons
- SDGs: Support for sustainable societies

I. Japan's Representative Examples of Contributions to the Implementation towards the Paris Agreement by developing countries, Taking Advantage of Its Strengths

1. Diffusion of Advanced Low-carbon Technologies via JCM, etc.

When all the parties implement their NDCs and earnestly strive to reduce greenhouse gas emissions under the Paris Agreement from now, supporting the diffusion of advanced low-carbon technologies will become one of the important

factors. Japan has been working on the diffusion of such technologies, which do not generally promise investment-return to developing countries, through implementation of the Joint Crediting Mechanism (JCM), etc. while lowering burdens of those countries. So far, about 100 JCM projects and pipelines have been selected, and Japan will continue to extend technological assistance based on the needs of the developing countries. Moreover, Japan will contribute actively to the development of rules concerning the use of the market mechanism (Article 6 of the Paris Agreement), utilizing the knowledge and experience accumulated from establishing JCM schemes as well as issuance of its credits.

In addition, Japan will continue to engage in the diffusion of energy-saving technologies and the promotion of appropriate development and usage of renewable energy sources. At the same time, it will assist developing countries in their efforts to reduce emissions from deforestation and forest degradation and promote sustainable forest management through such measures as official development assistance (ODA).

2. Enhancement of Adaptive Capacity through Sharing Knowledge and Experience

One characteristic of the Paris Agreement is that the parties agreed to deal with adaptation, support and other factors in a comprehensive and balanced manner, in addition to mitigation. In particular, many developing countries have greater needs for adaptation measures.

Japan has so far supported sharing knowledge and good practices of adaptation beyond the national borders, and contributed to the promotion of understanding of adaptation and assistance of progress in terms of policy measures on the global and regional levels, through such fora as the Global Adaptation Network (GAN), Asia Pacific Adaptation Network (APAN), and Global Earth Observation System of Systems (GEOSS) Asia-pacific Symposium. Going forward, Japan will newly deploy a bilateral cooperation with the United States of America, to share the knowledge and develop more technologies. In addition, Japan will utilize its knowledge and technologies to

continue and enhance its assistance to developing countries in the area of climate change impact assessment, a foundation for developing their adaptation plans, and thus contribute to the development and improvement of their planning.

Japan will promote the research and the development of climate models, the infrastructure enhancement for the Earth observation data and other measures in order to strengthen the system for steady implementation of national adaptation plans. In this regard, in August this year, Japan established its Climate Change Adaptation Information Platform in the National Institute for Environmental Studies as a platform to promote the undertakings by municipalities and businesses. Going forward, Japan will collate the information on the impact of climate change in the Asia-pacific region in partnership with GAN and APAN so that the developing countries in the region may be able to implement the adaptation measures under the Paris Agreement effectively. Japan is also aiming to develop the said Platform into an Asia-pacific Adaptation Information Platform equipped with the capability of an international hub for adaptation.

Further, based on the development co-benefit approach, Japan will continue to assist the developing countries with their infrastructure enhancement that will facilitate the reinforcement of their resilience against climate change.

By sharing these knowledge and experience with the rest of the world, Japan will contribute to the worldwide adaptation goals advocated by the Paris Agreement, namely, the enhancement of adaptive capacity, the strengthening of resilience, and the reduction of vulnerability of individual nations.

3. Improvement of Measurement, Reporting, and Verification (MRV) Capabilities through Human Resource Development That Will Lead to a Transparency Framework

A transparency framework is one of the important elements to ensure the functioning of the mechanisms that will raise the level of ambition in the Paris Agreement. From now on, the development of each country's capability to set national reduction targets and submit and review reports on climate change actions based on

reasonable data will be increasingly important.

Japan has so far organized workshops in the Asian region over the past 14 years to improve the accuracy of the national greenhouse gas (GHG) inventories, which form the foundation to promote emission-reducing measures, and contributed to the improvement of each nation's understanding of, and capability to build, GHG inventories that will form a scientific foundation for emission reduction. In this effort, Japan has transferred its knowledge to the developing countries, implemented mutual learning sessions for developing countries to have them share their best practices, and assisted them with building of their GHG inventories and preparation of their Biennial Update Reports (BURs). In order to ensure effective functioning of a transparency framework under the Paris Agreement, Japan will actively contribute in enhancing the developing countries' undertakings to improve their capabilities of measurement, reporting, and verification (MRV). In addition, Japan will reflect the knowledge and experiences from the above activities on the negotiation for a rule book of transparency framework under the Paris Agreement, to promote steady reduction of emissions worldwide.

4. Promotion of Building of a System for Comprehensive Measures for Controlling Emission of Fluorocarbons

The HFC amendment to the Montreal Protocol was adopted at the Meeting of the Parties in October. Emission control of fluorocarbons is one area where Japan can make its active international contribution utilizing its many years of experience. Japan intends to further enhance this line of effort based on the amendment to the Protocol.

What will be the basis for emission reduction of fluorocarbons is the building of emission inventories. By enhancing our assistance for inventories as stated above, Japan will contribute to the developing countries' building of fluorocarbon inventories and improvement of measurement, reporting and verification (MRV) capabilities. In addition, based on our nation's experience, Japan has so far supported the

development of capabilities of wide-ranging entities including national government-related and industry organizations to reduce emissions throughout the lifecycle of fluorocarbons, including their recovery, destruction, and recycling processes. From now, Japan will further enhance its support and promote the understanding of the importance of such initiatives in the developing countries. In future, Japan will contribute to global emission control in a phased manner, by connecting its current undertakings to the support of the building of a comprehensive system for emission control of fluorocarbons.

5. Support for Sustainable Societies in Conjunction with Climate Change Countermeasures

Last year, the 2030 Agenda for Sustainable Development was adopted, with the Sustainable Development Goals (SDGs) as its core. A view that is increasingly widely accepted today is that the transition to a post-carbon society advocated by the Paris Agreement aims for regional and global sustainability including that of economic activities, and that it is imperative to have integrative undertakings incorporating the solutions to various issues pointed out by the SDGs.

Looking at Japan's environmental policy measures, the national government has already advocated, in its Basic Environmental Plan, the building of a society sustainable in terms of the environmental, economic, and societal aspects, and developed a number of undertakings matching the SDG principles within each item of the national policy measures. Japan has shared, with the developing countries, its knowledge and experience of tackling pollutions and conserving the natural environment, and assisted them with their effort to develop their capabilities. Now, it is necessary to take more integrative approach, with the awareness of the SDGs. More specifically, Japan will develop the Model City Program into a program to achieve the SDGs in the areas of activities concerning the development of environmentally sustainable cities, a collaborative effort with ASEAN countries. Also with the environmental improvement projects undertaken by Japan's and developing countries'

city-to-city collaboration, Japan will evaluate and promote the developing countries' urban projects from the multiple aspects of SDGs, and assist the developing countries in their transition to, and construction of, a sustainable decarbonized society.

Further, Japan will nurture an Asia-pacific researcher community on the use of the Earth observation data relating to global-scale issues that are mentioned in the SDGs, such as agriculture, food security, and water cycle.

II. Japan's Assistance Initiatives to address Climate Change

We have collated the information on the Japan's major initiatives as a support for policies and measures in the developing countries to address climate change, including its areas of contribution as stated in the above chapter I, based on the five pillars as described above (See the Annex). Japan will continue to implement its assistance corresponding to the various needs of the developing countries.

Japan's Assistance Initiatives to address Climate Change

Annex

1. Mitigation : Diffusion of advanced low carbon technologies

- (1) Joint Crediting Mechanism (JCM)
- (2) Feasibility study for JCM projects by city to city collaboration
- (3) Promotion of Co-benefits Approach
- (4) Promotion of mitigation measures in waste management; Promotion of Waste to Energy through transferring of Japan's Advanced Technology, bilateral and multilateral Cooperation
- (5) Promoting Japan's Eco-City Development in emerging countries
- (6) Developing Climate Change Measures Technology (Mitigation)
- (7) Hosting the Global Research Alliance on Agricultural Greenhouse gases (GRA) Council Meeting and its Science Conference in Japan
- (8) Support to promotion of forest conservation and sustainable forest management
- (9) Research cooperation on long-term scenario harnessing International Research Network for Low Carbon Scientists and Low Carbon Scientists
- (10) Introduction of Renewable Energy and Improvement of Power Supply System

Japan's Assistance Initiatives to address Climate Change

2. Adaptation : Mobilization and sharing of Japan's knowledge and experience

- (1) Asia-Pacific Adaptation Information Platform
 - (2) Multilateral Support Harnessing Global Network
 - (3) Bilateral Support for Adaptation Planning and Climate Change Impact Assessment
 - (4) Climate Change Adaptation Strategy Initiative
 - (5) Promoting international contribution by Climate Change Adaptation Measures of Water-Related Disasters
 - (6) Development of Climate Change Measures Technology (Adaptation)
 - (7) GEOSS Asia-Pacific Symposium
 - (8) Strengthening Resilience through Infrastructure Development and Improvement
- (reshown)
- Hosting the Global Research Alliance on Agricultural Greenhouse gases (GRA) Council Meeting and its Science Conference in Japan
 - Support to promotion of forest conservation and sustainable forest management

Japan's Assistance Initiatives to address Climate Change

3. Transparency : Enhancing capacity building

- (1) *Workshop on Greenhouse Gas Inventories in Asia*
- (2) *Asia- Pacific Seminar on Climate Change (AP Seminar)*
- (3) Monitoring national GHG emissions with satellite
- (4) Human Resources Development in terms of MRV

(reshown)

- Support to promotion of forest conservation and sustainable forest management

Japan's Assistance Initiatives to address Climate Change

4. Comprehensive Management of Fluorocarbons

- (1) The Feasibility Study on Promotion of Energy Saving Equipment with Natural Refrigerants and Establishment of Environmentally Sound Management of Used Fluorocarbons

5. Sustainable Development Goals (SDGs)

- (1) International Cooperation for Realising ESCs
 - (2) Regional 3R Forum in Asia and the Pacific
 - (3) Science and Technology Research Partnership for Sustainable Development (SATREPS)
 - (4) Assistance for institution-building to achieve green growth
- (reshown)
- Feasibility study for JCM projects by city to city collaboration
 - Support to promotion of forest conservation and sustainable forest management
 - Promoting international contribution by Climate Change Adaptation Measures of Water-Related Disasters
 - GEOSS Asia-Pacific Symposium

1. Mitigation : Diffusion of advanced low carbon technologies

1-1 Joint Crediting Mechanism (JCM)

Overview

- To appropriately evaluate contributions from Japan to GHG emission reductions or removals in a quantitative manner achieved through the diffusion of low carbon technologies in developing countries, and to use them to achieve Japan's emission reduction target.

Accomplishments

- The JCM is implemented with 16 partner countries where 101 pipeline projects are ongoing (among those 15 projects have been registered as JCM projects)
- In total 197tCO₂ credits have been issued (6 to 8 months) from 4 projects
- 28 MRV (measurement, reporting and verification) methodologies have been approved



[Waste Heat Recovery in Cement Industry]
(Indonesia)
Install WHR boiler steam turbine generator system at a cement production plant in Tuban, East Java.
122,000tCO₂/y. Start operation: Mar. 2017.



[High efficient amorphous transformers]
(Viet Nam)
Install high efficient transformers to reduce transmission and distribution losses in southern and central network. 4,360tCO₂/y. Start operation: Feb. 2017



[Energy-efficient data center]
(Laos)
Install and demonstrate high quality and energy efficient data servers which can endure hot and humid environment in Laos. 1,074tCO₂/y. Start operation Jan. 2017



[Low carbon hotel by development of BEMS]
(Viet Nam)
Install high efficient equipment (boiler, heat pump, LED) and BEMS designed for a hotel in Viet Nam and demonstrate energy efficiency in the building as a whole. 605tCO₂/y. Start operation: Jan. 2017

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1. Mitigation : Diffusion of advanced low carbon technologies

1-2 Feasibility study for JCM projects by city to city collaboration (relevant field- 5. SDGs)

Overview

- The feasibility study supports overseas cities' projects to create the low-carbon society by means of the sufficient experience and know how that Japanese cities have
- The project is built by JCM financial support scheme and other support.
- The effect for SDGs from the projects is verified and promoted.

Accomplishments

- The collaboration study started in 2013. the feasibility study through 18 collaboration Japanese cities and overseas in order to realize the co-benefit for GHG reduction and pollution control. 15 JCM projects were developed by the city to city collaboration study.
- (ex.1) Digital tachograph → the eco driving reduce the traffic accident. It contributes the goal 3 "healthy lives and well-being".
- (ex.2) PV solar power → the renewable energy contributes the goal 7 "energy".

JCM Model Projects developed by the city to city collaboration study

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Digital tachograph
(Vietnam)



PV solar power
(Malaysia)



Waste to Energy
(Myanmar)

1. Mitigation : Diffusion of advanced low carbon technologies

1-3 Promotion of Co-benefits Approach

Overview

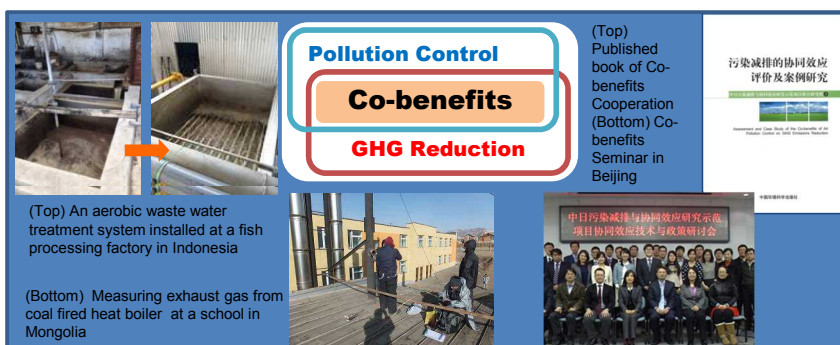
- Promoting Co-benefits Approach which contributes for reducing both GHG emission and environment pollution by utilizing existing regional frameworks, and strategically encouraging pollution controls and its capacity based on knowledge and technology of Japan for future JCM projects

Accomplishments

- Conducted feasibility studies and model projects based on knowledge and technology of Japan for quantitative co-benefits , and promoted those technologies through seminars and workshops
- Encouraged policy and enforcement of environmental management by sharing latest scientific knowledge, and conducting training programs and seminars at cities through International organization and NGO, and preparing instruction manual for pollution control, in Asian countries

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1. Mitigation : Diffusion of advanced low carbon technologies

1-4 Promotion of mitigation measures in waste management; Promotion of Waste to Energy through transferring of Japan's Advanced Technology, bilateral and multilateral Cooperation

Overview

- Japan supports developing countries and emergent economies in decarbonizing by promoting Waste to Energy and other low carbon technology, which has become a serious problem in Asia, packaging system, technology and operation know-how with the cooperation between government, municipalities, and private corporation, following the Toyama Framework agreed in the G7 Environment Ministers Meeting in 2016.

Accomplishments

- Conducting feasibility studies for private projects that contribute to GHG reduction and improvement of waste management in developing countries with Japanese advanced technology since 2011.
 - Myanmar
Waste-to-energy power plant (60t/d) is starting operation from 2017 by JFE Engineering Corporation
 - Vietnam
Ichikawa Kankyo Engineering has started manufacturing and sales/provision of regenerated fuel (RPF) and joint venture corporation has developed in May 2016.
- Supporting for developing guidelines, regarding waste management as waste to energy in Vietnam, Philippines and other countries.

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waste-to-energy power plant in Myanmar

1. Mitigation : Diffusion of advanced low carbon technologies

1-5 Promoting Japan's Eco-City Development in emerging countries

Overview

- Trying to help other countries overcoming their problems such as environmental issues by sharing Japan's solution on urban development.
- Establishing Governmental cooperation frameworks with emerging countries in Asia and other areas in order to introduce Japan's various technology and know-how for tackling the environmental problems etc.
- Supporting the approach of Japan Conference on Overseas Development of Eco-Cities(J-CODE) for promotion of their Eco-city development from the earlier stage of urban development, through proposing Master Plans based on Japan's technology and know-how, spreading information by hosting seminars etc.

Accomplishments

- Advertised advantages of Japan's technology and know-how on urban development such as energy saving, low life cycle cost, through cooperation on development of legal framework on urban development, domestic and overseas seminar for Transit Oriented Development (TOD) and urban transportation system.
- In July 2016, J-CODE, Japan-China Economic Association and China Center for Urban Development(CCUD) signed memorandum of cooperation for developing smart cities.

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J-CODE, Japan-China Economic Association and CCUD signed MOC.



Kashiwa No Ha Smart City
(An example of Eco-City development)

1. Mitigation : Diffusion of advanced low carbon technologies

1-6 Developing Climate Change Measures Technology (Mitigation)

Overview

- With the aim to support activities for climate change measures and sustainable stable food supply in developing countries, we will develop technology for mitigating ①global warming by using agricultural waste in developing countries, ②emissions of agricultural greenhouse gases in Asia region in cooperation with each country's research institutes.

Developing technology for mitigating global warming by using agricultural waste in developing countries

- We are developing a technology for efficient ethanol production from agricultural waste (cassava pulp) in cooperation with Nigeria University in Africa. In order to increase the ethanol production efficiency, several yeast strains with a high ethanol-producing ability have been isolated from locally collected samples.

Developing technology for reducing emissions of agricultural greenhouse gases from rice paddies in Asia region

- We measured GHG emissions from the experimental fields and analyzed the emission reduction effect of GHGs by the introduction of improved water-saving cultivation technology in the four Southeast Asian countries (Vietnam, Thailand, the Philippines, Indonesia). We also measured the growth of rice and the change of the yield and analyzed physical and chemical properties of the soil. In addition, through the results of the measurement of GHGs at the local sites, we have developed guidelines for measuring GHGs from rice paddies.

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Agricultural waste in developing countries



Measuring of GHG from a paddy field.

1. Mitigation : Diffusion of advanced low carbon technologies

1-7 Hosting the Global Research Alliance on Agricultural Greenhouse gases (GRA) Council Meeting and its Science Conference in Japan (relevant field – 2. Adaptation)

Overview

- With the aim to share the GRA members' research achievements and developed technologies for reducing emissions of agricultural greenhouse gases among developed and developing countries and to contribute to practices in the member countries, Japan will host the 7th GRA Council Meeting and its Science Conference.
- In the meeting, we will show our research results, especially guidelines for “measuring, reporting and validating” emissions of greenhouse gases, aiming at the future dissemination of the technologies and guidelines in other countries.

Accomplishments

- In the 6th GRA Council Meeting (Mexico, October 2016), Japan was elected as the vice-chair. And we declared that Japan would host the next Council Meeting and obtained a consensus of the member countries in the meeting.

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the 6th GRA Council Meeting (Mexico, October 2016)

1. Mitigation : Diffusion of advanced low carbon technologies

1- 8 Support for curbing deforestation and forest degradation and promoting sustainable forest management (relevant field – 2. Adaptation, 3. Transparency, 5. SDGs)

Overview

Promote REDD+ activities through developing techniques to measure forest carbon stock changes as well as business models to incentivize forest conservation and building human resources.

Accomplishments

- Have developed methods to evaluate/calculate forest carbon stock changes and published their practical guide “REDD-plus COOKBOOK”. Have also developed rules/guidelines for REDD+ implementation under JCM.
- Have established “Japan Public-Private Platform for REDD+” as the overarching forum for sharing information and experience and enhancing synergy among diverse Japanese actors, including private businesses, NGOs and government agencies (82 organizations (as of Oct. 2016)).
- Have disseminated business models on forest conservation through sustainable utilization of forest resources in a way that will create added economic value (2015FY: 6 models).
- 19 technical cooperation projects related to forest and forestry by JICA, including REDD+ related projects in Vietnam and PNG, are under way in many parts of the world (as of Dec. 2015).

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REDD-plus
COOKBOOK



Transfer of grafting technology
(Kenya)



Monitoring forest degradation
(Myanmar)

1. Mitigation : Diffusion of advanced low carbon technologies

1-9 Research cooperation on long-term scenario harnessing International Research Network for Low Carbon Scientists and Low Carbon Scientists

Overview

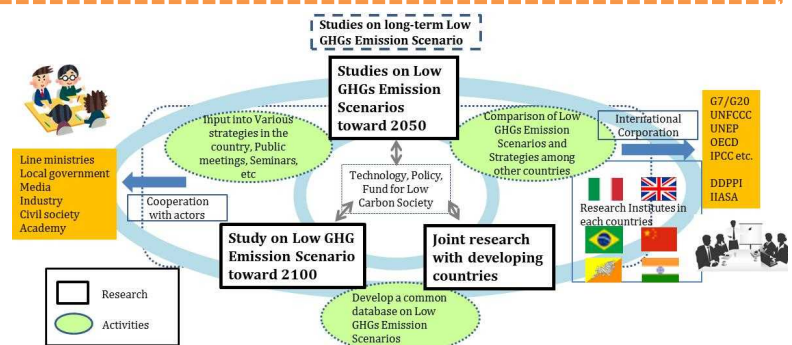
- Generate scientific findings for the argument of the long-term low GHG emission development strategy by conducting long-term low carbon scenario study with a view to targeting 2050 and 2100. In add, under cooperation with G7 countries, lead global community aiming for low carbon society, and contribute to low carbon development strategy in developing countries utilizing Japan's experience

Accomplishments

- Since establishment International Research Network for Low Carbon Societies (LCS-RNet) has shared knowledge in annual meeting, conducted science policy dialogue, submitted policy recommendations to UNFCCC.
- Started sharing information with a view to formulate the long-term low GHG emission development strategy.

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1. Mitigation : Diffusion of advanced low carbon technologies

1-10 Introduction of Renewable Energy and Improvement of Power Supply System

Overview

- Support realization of stable power supply with Low-Cost , Low-Carbon, Low-Risk through promoting the introduction of renewable energy and improving efficiency of power supply system.

Accomplishments

- Introduction of renewable energy including geothermal energy is promoted with assistance at both the hard and soft aspects. In case of geothermal power utilization, assistance for power plant construction, human resources development and investment environment improvement are expanded in an integrated manner especially in the Great Rift Valley Area in Africa and South and Central America.
- In Small Island Developing States (e.g. the Pacific countries), assistance are provided for power system development by improving efficiency of existing power supply and introducing renewable energy in appropriate scale, aiming to low carbon development and energy security improvement. Establishment of power supply system utilizing solar energy and wind energy, formulation of master plan and human resource development are supported.
- Various efforts are made for establishment of high-efficiency power supply system as well as enhancement of National-grid by introducing high-efficiency power plant, reducing electricity loss and promoting energy saving with support at both the hard and soft aspects. Assistance are provided for formulation of master plan and improvement of efficiencies of power plant, electrical substation and power transmission line.

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Photovoltaic panel introduced by Grant aid (Tonga)



Geothermal Power Plant introduced by ODA Loan (Olkaria · Kenya)

2. Adaptation : Mobilization and sharing of Japan's knowledge and experience

2-1 Asia-Pacific Adaptation Information Platform

Overview

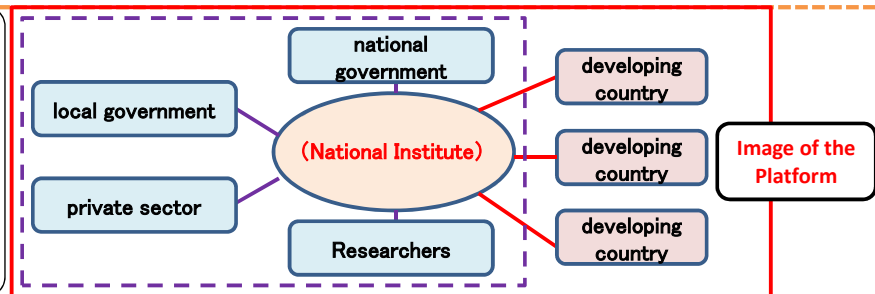
- In order to support implementation of adaptation measures in developing countries under Paris Agreement, Ministry of the Environment Japan and National Institute for Environmental Studies Japan will establish "Asia-Pacific Adaptation Information Platform" by 2020.
- This platform collects various products, such as joint research and bilateral cooperation outcomes between Japan and developing countries, and functions as an international hub for adaptation measures.
- This platform contributes developing countries to plan and implement adaptation measures under scientific knowledge. In addition, it promote private sectors investments in Asia-pacific countries by providing climate risk information.

Accomplishments

- Climate Change Adaptation Information Platform was established in National Institute for Environmental Studies Japan in this August, based on the NAP.
- This provides various climate risk information and good practices for adaption, in order to support adaptation actions by local government and private sector.

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2. Adaptation : Mobilization and sharing of Japan's knowledge and experience

2-2 Multilateral Support Harnessing Global Network

Overview

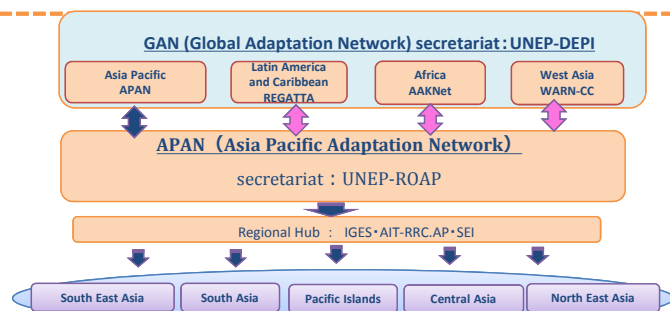
- Support Global Adaptation Network (GAN), Asia Pacific Adaptation Network (APAN) with a view to improve access to and mobilize existing knowledge and good practices at the global, regional and national levels.

Accomplishments

- Developed capacity of national/local government officials and researchers by providing various training workshops, namely, climate change downscaler training, workshop for capacity building on climate change impact assessments and adaptation planning in the Asia-Pacific Region under the collaboration with UNEP, AIT, IGES etc.
- Contributed to the global forum event such as 1st GAN Forum in Panama and latest 5th APAN forum in Sri Lanka with over 800 participants including policy makers, researchers, private sectors, media etc.

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2. Adaptation : Mobilization and sharing of Japan's knowledge and experience

2-3 Bilateral Support for Adaptation Planning and Climate Change Impact Assessment

Overview

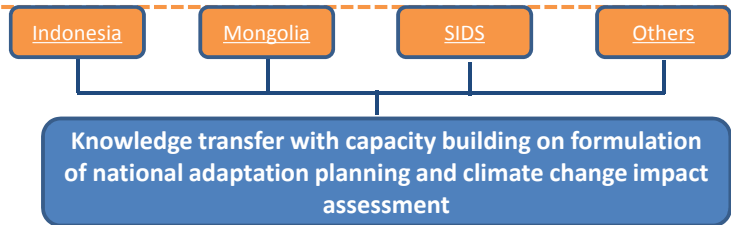
- On a basis of extensive experiences of formulation of national adaptation planning, Japan has been promoting international cooperation in developing countries for their national adaptation planning and climate change impact assessment with a view to promoting one of the basic strategies of Japan's National Adaptation Planning.

Accomplishments

- Under inter-ministerial agreement on cooperation on climate change impact assessment for national/local adaptation planning, climate change experts committee consisted of government officials and researchers both Japan and developing countries (Indonesia, Mongolia etc) have been developing scientific evidence on the impact of climate change in specific sectors, such as water resource, agriculture, livestock, health with demand based approaches.
- Contributed to UNFCCC Adaptation Technical Expert Meeting on SB44 in May 2016 by providing presentation of Japan's experience of formulation of national adaptation planning.

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2. Adaptation : Mobilization and sharing of Japan's knowledge and experience

2-4 Climate Change Adaptation Strategy Initiative

Overview

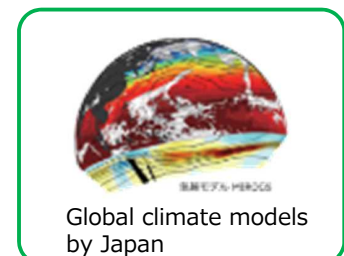
- To tackle climate change, Japan promotes climate change related studies and R&D of climate models which are essential to the establishment of the mitigation and adaptation plans. We also develop the Global Environmental Information Platform which consolidates Earth Observation data and information in one place.

Accomplishments

- This initiative has been supporting the global efforts to fight climate change. As a fact, the research results using the climate models developed in this initiative were adopted in the IPCC assessment reports and cited as a scientific evidence in the decisions at the international fora such as UNFCCC-COP.
- The climate models developed in this initiative are utilized in southeast Asian countries and also assisting capacity-building in those countries.
- This initiative's achievements are open and shared to all over the countries through the Data Integration & Analysis System (DIAS).

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2. Adaptation : Mobilization and sharing of Japan's knowledge and experience

2-5 Promoting international contribution by Climate Change Adaptation Measures of Water-Related Disasters (relevant field -5.SDGs)

Overview

- Contribution for mitigating risks of water-related disasters around the world caused by climate change associated with global warming , through disseminating knowledge, experiences, and technique of Japan.

Accomplishments

- Taking an initiative of the discussion about “Mainstreaming Disaster Risk Reduction” including measures of water-related disasters in the progress of establishing “The Sendai Framework for Disaster Risk Reduction 2015-2030” adopted at the 3rd UN World Conference on Disaster Risk Reduction(March, 2015), and Sustainable Development Goals (SDGs) (September, 2015).
- Establishing the collaborative relationship in the field of disaster management with developing countries (Disaster Management Collaboration Dialogue) and holding intergovernmental workshops regarding to water and disaster management including climate change adaptation after 2015 (Vietnam:3 times, Indonesia:2 times, Myanmar:2 times, Turkey:2 times, South Africa: 1 time).
- Holding technical meeting about climate change adaptation with U.S.A, EU, Korea and China (once every year individually).
- Sharing advanced knowledge and fostering of human resources through trainings by JICA.

※as at October 2016

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Disaster Management Collaboration Dialogue with In Vietnam (2015.12)



Disaster Management Collaboration Dialogue with Indonesia (2016.3)

2. Adaptation : Mobilization and sharing of Japan's knowledge and experience

2-6 Development of Climate Change Measures Technology (Adaptation) Developing drought tolerant crops for developing countries

Overview

- With the aim to support activities for climate change measures and sustainable stable food supply in developing countries, we will develop drought tolerant rice and wheat by improving varieties that have been already cultivated in developing countries in cooperation with each country's research institute.

Accomplishments

- We introduced valuable drought tolerant genes into IR64 (irrigated rice variety), Curinga (upland rice variety) and NERICA (upland rice variety) that have already been disseminated in South East Asia, Mexico and Africa, respectively. Then, we selected valuable drought tolerant lines.
- Also, we introduced valuable drought tolerant genes into Fielder (wheat variety), and we conducted drought evaluation experiments in the field. Currently, we are developing a higher drought tolerant wheat by crossing the transgenic drought tolerant lines of Fielder with Reeding, the commercialized drought tolerant variety.

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Drought evaluation experiments



Verification of effectivity of drought tolerant genes

2. Adaptation : Mobilization and sharing of Japan's knowledge and experience

2-7 GEOSS Asia-Pacific Symposium (relevant field -5.SDGs)

Overview

Japan has been holding GEOSS Asia Pacific Symposium annually since 2007 with Group on Earth Observations(GEO) Secretariat to foster the community of researchers and to enhance shared understanding on environmental issues particular to the Asia-Pacific region.

Accomplishments

- The symposium was held 8 times previously and convened 1,617 participants. 9th Symposium will be held in Tokyo in January, 2017.
- 8th Symposium was held in Beijing last November and there were 194 participants. Participants reported the latest efforts regarding the Earth Observations in their countries. Also, there were discussions how to leverage the Earth Observations data and information to address global challenges related to SDGs such as Agriculture and Food Security, Biodiversity Observation, Water Cycle, Global Carbon Monitoring . These discussions contributed to strengthen the network and the capacity building in this region.

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8th GEOSS Asia-Pacific Symposium in Beijing, China

2. Adaptation : Mobilization and sharing of Japan's knowledge and experience

2-8 Strengthening Resilience through Infrastructure Development and Improvement

Overview

- Provide multifaceted assistance for infrastructure development and improvement in developing countries to strengthen resilience to climate change, utilizing Japan's knowledge and experience.

Accomplishments

- Assistance are provided for infrastructure development and improvement in various sectors such as irrigation, flood control and meteorological observation. Followings are some of the examples of assistance committed after year 2013.
- **Construction and Rehabilitation of Irrigation System**
Myanmar, India, Pakistan, Afghanistan, Tanzania, Bhutan, Eastern Timor
- **Construction of Flood Control Facilities**
Tunisia, Indonesia, Philippines, Peru
- **Installation and Replacement of Meteorological Observation Facilities**
Myanmar, Bangladesh, Pakistan, Mauritius, Lao PDR

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Conceptual image of meteorological radar to be installed in Bangladesh

3. Transparency : Enhancing capacity building

3-1 Workshop on Greenhouse Gas Inventories in Asia

Overview

- Japan and the National Institute for Environmental Studies (NIES) have convened the "Workshop on Greenhouse Gas (GHG) Inventories in Asia (WGIA)" since 2003 in order to support non-Annex I (NAI) Parties in Asia region to develop and improve their GHG inventories and to facilitate the enhancement of cooperative relationships.

Accomplishments

- Fifteen countries (including Japan) have participated in WGIA as of fiscal year 2016. Until now, fourteen workshops have been held and representatives from government, research institutions, and international organizations have attended the workshops.
- 93 participants attended WGIA14 in Mongolia in fiscal year 2016. Mutual Learning sessions on GHG inventories were conducted; and good practices related to Biennial Update Reports (BURs) and their International Consultation and Analysis (ICA), were shared. This workshop has succeeded in enhancing capacity-building on Measurement, Reporting and Verification (MRV) and strengthening the cooperative relationships of the Asian countries.

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3. Transparency : Enhancing capacity-building

3-2 Asia- Pacific Seminar on Climate Change (AP Seminar)

Overview

- We hold a seminar mainly for policy makers regarding climate change in Asia-Pacific region, aiming at enhancing each country's actions for climate change, further understanding climate change, sharing experiences relating to mitigation/adaptation actions and facilitating international cooperation

Accomplishments

- The seminar has been held every year (25times so far) since 1991.
- The 25th seminar was held in Phuket, Thailand for two days (20th to 21st June) in 2016. Approximately 50 policy makers and experts from 16 countries participated in the seminar. They discussed the progress of preparation of (I)NDC, the post-2020 enhanced transparency framework and support for NDC implementation and the enhanced transparency framework from technical and practical aspects.

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3. Transparency : Enhancing capacity-building

3-3 Monitoring national GHG emissions with satellite relevant field – 5.SDGs

Overview

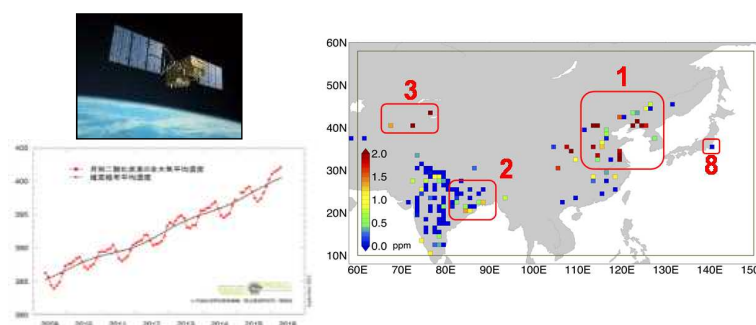
- Japan, NIES, and JAXA have been jointly monitoring GHGs such as CO₂ and CH₄ by the Greenhouse gases Observing SATellite (GOSAT).
- To develop the method for monitoring national anthropogenic GHG emissions by GOSAT series, including the successor of GOSAT (GOSAT-2) launching in 2018.
- To show the availability of the methods of verifying GHG emissions, insert this methods to “IPCC Guidelines for National Greenhouse Gas Inventories” refining in 2019. And to promote capacity building with the methods to improve inventory accuracy.

Accomplishments

- The global atmospheric monthly mean CO₂ concentration has been continuously increasing and exceeded 400 ppm in December 2015 for the first time (May 2016).
- To estimate anthropogenic CO₂ concentrations over mega-cities in the world using GOSAT data. And in Japan, this estimation roughly matches with estimation from inventories (Sep 2016).

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3. Transparency : Enhancing capacity-building

3-4 Human Resources Development in terms of MRV

Overview

- Provide assistance for human resource development and capacity building in terms of MRV (Measurement, Reporting, Verification) to strengthen transparency framework for climate actions through technical cooperation projects implemented in developing countries and training courses conducted in Japan.

Accomplishments

- Japanese technical cooperation project “Project to Support the Planning and Implementation of NAMAs” (SPI-NAMA) (2015~2018) is implemented in Vietnam with participation of Department of Meteorology, Hydrology and Climate Change, Ministry of Natural Resources and Environment as Vietnamese counter part. The Project enhances capacity of the government of Vietnam and promote planning and implementation of NAMAs (National Appropriate Mitigation Actions) in a MRV manner.
- Training courses of “Capacity Development for NAMA /MRV” are conducted in Kitakyusyu city from year 2012 to 2014. 29 participants in total from all around the world joined the courses and acquired knowledge and experience of MRV.

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Partners of the "Project to Support the Planning and Implementation of NAMAs"

4. Comprehensive Management of Fluorocarbons

4-1 The Feasibility Study on Promotion of Energy Saving Equipment with Natural Refrigerants and Establishment of Environmentally Sound Management of Used Fluorocarbons

Overview

- This study is to contribute to transfer and spread Japan's energy-efficient technologies and establishment of a recovery and proper management of used fluorocarbons, protect the ozone layer and prevent global warming, and promote the introduction of energy-efficient refrigeration equipment with natural refrigerant, thereby contributing to the development of recycling-oriented society and conservation of global environment.

Accomplishments

- Study on the diffusion of R/AC, regulatory trends, and recovery, destruction and reclamation status of fluorocarbons, demonstration, and capacity building activity etc. have been conducted in Indonesia, Malaysia, Thailand, and Vietnam since 2015 and in Sri-Lanka since 2016.

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Demonstration for Recovery from Air-Conditioner

5. Sustainable Development Goals (SDGs)

5-1 International Cooperation for Realising ESCs

Outline

- In 2008, the East Asia Summit Environment Ministers Meeting agreed that Environmentally Sustainable Cities (ESCs) was an immediate priority issue.
- Japan has supported implementation of model projects and capacity building by the ESC model cities programme as well as the High Level Seminar on ESC for achievement of SDGs in ASEAN countries.

Accomplishments

- The High Level Seminar on ESC started in 2010. The SDGs have been focused since the 7th HLS in 2016.
- ESC Model Cities Programme funded by the Japan-ASEAN Integration Fund (JAIF) has supported pilot projects especially in the solid waste management and wastewater treatment.
- A total of 35 cities have been supported by the past 2 Phases. The 3rd Phase started in 2016 supports local activities aiming to achieve SDGs.

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Samples of past activities



Waste separate collection and composting project in Siem Reap, Cambodia



Training for organic waste composting in North Kuching, Malaysia

5. Sustainable Development Goals (SDGs)

5-2 Regional 3R Forum in Asia and the Pacific

Overview

- Japan organizes “Regional 3R Forum in Asia and the Pacific”, with the host country and UNCRD every year, which was established by proposition by Japan at the East Asian Environment Ministers’ Summit, so as to be a foundation for high level policy talks on the 3R and sharing of information that assist in the promotion of the 3R.

Accomplishments

- Government representatives (incl. ministers) from more than thirty Asia-Pacific countries, international organizations, aid agencies, private sector and other stakeholders participated to the forum.
- In the fourth forum, Hanoi 3R Declaration was adopted. For the follow-up of the declaration, “State of 3R” is in the process of drafting.
- The Sixth Forum was held in Malé, Maldives, in August 16th to 19th in 2015. Government representatives from 39 Asia-Pacific countries including State Minister of the Environment Ozato from Japan participated.
- The seventh meeting is being held in Adelaide, Australia in November 2016.

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The Sixth Forum in Maldives

5. Sustainable Development Goals (SDGs)

5-3 Science and Technology Research Partnership for Sustainable Development (SATREPS)

Overview

- SATREPS is an international joint research program with the developing countries that aims to address global issues, such as environment and energy, bioresources, disaster prevention and mitigation, and infectious diseases control, and aims to lead to research outcomes of practical benefit to both local and global society. The program is structured as a collaboration between the Japan Science and Technology Agency(JST), the Japan Agency for Medical Research and Development(AMED), and the Japan International Cooperation Agency(JICA).

Accomplishments

- A total of 115 projects have been selected by FY2016 in 46 countries. (Terminated projects are included.)

[Example of achievement]

- In Indonesia, the large amounts of CO₂ associated with the natural gas production at the gas fields have simply been emitted into the atmosphere until now. Participation of Asian Development Bank(ADB) for development of technology to separate, collect, and store CO₂ into the underground, which is known as Carbon dioxide Capture and Storage(CCS), is allowing to progress its social implementation as a first example in Southeast Asia.

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Pilot Study for Carbon Sequestration and Monitoring in Gundiuh Area,
Central Java Province, Indonesia

5. Sustainable Development Goals (SDGs)

5-4 Assistance for institution-building to achieve green growth

Overview

- Provide technical assistance for institution-building necessary for promoting green growth in developing countries, utilizing Japan's knowledge and experiences aiming to realization of sustainable society.

Accomplishments

- In Halong Bay Area of Vietnam that is renowned as a World Heritage site, Japanese technical cooperation project "Project for Green Growth Promotion in Halong Bay Area, Quang Ninh Province" is implemented. The project aims to promote green growth in Halong Bay Area through development of relevant institutions, mechanisms and organizations. Concrete operation plan have been formulated through mutual consultation and collaboration between Vietnamese side and Japanese side from 2015 to 2016. The project activities are planned to be conducted until 2019.

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Vietnamese stakeholders
of during their visit to
Japan



Japan's Assistance Initiatives to Address Climate Change

Responding to Needs of the Developing Countries



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