環境省
Ministry of the Environment
Government of Japan

Japan-Germany cooperation on

GHG emissions reduction scenarios and long-term strategies

Background

At the G7 Elmau Summit held in June 2015, each country affirmed to carry out reductions in the upper range of the latest IPCC recommendation of 40 to 70% compared to 2010 by 2050, as a common vision toward global greenhouse gas emissions reduction targets.

The Paris Agreement was adopted at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21) held from November to December 2015, as a new international framework for post-2020 greenhouse gas emissions reduction to replace the Kyoto Protocol. The objective of the Paris Agreement, historically the first fair and legally binding framework to be applied to all nations, is to maintain temperature rise to well under 2°C and pursue efforts to limit it to 1.5°C. To achieve this objective, the agreement aims for early reductions in line with the latest science in order to bring about an as early as possible peak in global emissions and to achieve a balance between anthropogenic GHG emissions and removal by absorption sources in the latter half of the century. Additionally, the Agreement stipulates that all countries including major emitters are to submit and update Nationally Determined Contributions (NDCs) every five years, and further giving heed to the objective of the Agreement, make efforts to create and submit long-term low emissions development strategies.

Japan, in keeping with the Paris Agreement, announced within the Plan for Global Warming Countermeasures decided by the Cabinet in May 2016 its aim to lead the world community by engaging in emissions reductions corresponding to its capacity as a major emitter under the fair and effective international framework in which all major industrial nations participate, and its aim to reduce GHG emissions 80% by 2050 as a long-term target, while balancing global warming countermeasures and economic growth.

In addition, at the G7 Environment Ministers Meeting in May 2016 chaired by Japan, G7 members recognised the importance of leading efforts in the formulation of long-term low GHG emissions development strategies, and further recognised the importance of research on each country's future scenarios, strategies and targets and knowledge sharing via researcher networks in the formulation of strategies. Strengthening of these types of exchanges from 2016 and beyond was incorporated into the Communique.

Based on the current state of affairs, in May 2016, Japan and Germany signed the "Joint Statement on the dissemination of low carbon technologies", agreeing to steadily engage in information exchange related to greenhouse gas emissions reduction scenarios and long-term strategies corresponding to the specific characteristics of each country.

The following bilateral cooperation between Japan and Germany on long-term low-carbon strategies has already begun.

Session at ISAP2017

At the 9th International Forum for Sustainable Asia and the Pacific (ISAP2017 in Minato Mirai, Yokohama) held on 25-26 July 2017, a session entitled, "Long-term Decarbonisation Strategies: Pathway to a Smooth Transformation" was held. Experts from Japan, France and Germany took the podium.

Dr. Stefan Lechtenböhmer of the Wuppertal Institute for Climate, Environment and Energy (WI) of Germany introduced a major change of direction taken in North Rhine Westphalia, a state in Germany that historically has been largely dependent on coal, towards creating a low-carbon and decarbonised society.

According to Dr. Lechtenböhmer, three indispensable elements for decarbonising society are the role of science, citizen and community participation, and support by government. The State Climate Protection Law of North Rhine Westphalia has set the target of an 80% reduction in emissions by 2050. WI was involved in a participatory process spanning two years and leading up to adoption of an action plan formulated to achieve this target. By providing scientific advice, WI made a considerable contribution to the plan's adoption. Dr. Lechtenböhmer described how through this process, a dialogue was born between different stakeholders that had never before spoken to each other, giving rise to a sense of mutual understanding and trust.

9th Annual Meeting of the LCS-RNet

The 9th Annual Meeting of the International Research Network for Low Carbon Societies (LCS-RNet) was held on 12-13 September 2017 at Warwick University in the United Kingdom. Held back-to-back with the Annual Research Conference of the UK Energy Research Centre (UKERC), the meeting garnered a total of approximately 200 participants over a two-day period. Participants engaged in active discussion on the topic of "Clean Growth and Innovation in a Changing World".

Dr. Stefan Lechtenböhmer of WI explained that although we have already started down a path towards decarbonisation, innovation in low-carbon technologies is essential to achieve this type of society. Moreover, while good business practices such as EVs, passive houses and hydroelectric power can serve as reference points, efforts must not be limited to making these into new growth sectors. Rather, shrewd process reform based on a long-term vision must be advanced and sustainability and decarbonisation must be further integrated and anchored to the core of priority policy items.

AIM International Workshop

On 27-28 November 2017, the 23rd AIM International Workshop was held by the Asia-Pacific Integrated Model (AIM) project team of the National Institute for Environmental Studies and Kyoto University. In addition to experts from Asia, experts from France and Germany also participated.

Mr. Sascha Samadi of WI reported on the interim results of meta-analysis and comparison of Japanese and German mid-century deep decarbonisation scenarios. Based on the results of comparison of multiple scenarios in Japan and Germany, Mr. Samadi pointed out that while there are similarities in Germany and Japan's scenarios, such as drastic improvements in energy efficiency, electrification and major expansion of power based on renewable energies, differences were also evident. These included the role of Carbon Capture and Storage (CCS), the contribution of biomass to energy supply, the role of behavioural changes, and the relative importance of direct versus indirect electrification. Furthermore, Mr. Samadi proposed five major research tasks for the future: the optimal ratio of direct and indirect electrification, the mitigation potential of behavioural changes, the necessity of CCS and CCU (Carbon Capture and Utilisation) in achieving deep decarbonisation, the need for carbon-free energy imports to Japan and Germany (import amounts and origins of imports), and the role of nuclear power use in Japan.

Further, Mr. Samadi suggested three major areas for joint energy systems research between Japan and Germany. These are: the need for and chances of a stepwise introduction of H2, issues related to decarbonisation of materials processing industries, and economic, technological and social issues related to energy imports.

COP23 Side Events

On 9 November 2017, a side event entitled, "Linkage between NDC and SDGs—synergies and trade-offs", was held at the COP23 Japan Pavilion. Experts from both Japan and German, as well as those from France and Indonesia, took the podium.

This side event presented on sectoral and concrete measures to tackle climate change under NDCs in each country and the prospects to achieve such measures, as well as the synergies and trade-offs between certain measures and SDGs. The aim of the side event was to facilitate the sharing of information contributing to achieving NDCs and raising targets in the future, and to elicit further discussion.

At this side event, Dr. Stefan Lechtenböhmer of WI stated that when considering strategies for deep decarbonisation of processing industries, not only resource efficiency and circular economy, but efficiency in emissions reduction must also be taken into account. Dr. Lechtenböhmer stressed the importance of integrated industrial policies in accordance with the two-degree target that encompass climate change, energy, innovation, resource circulation and trade and growth strategies. In addition, he noted that involvement of all relevant stakeholders is indispensable.

Further, at a side event jointly sponsored by WI and other organisations including the International Research Network for Low Carbon Societies (LCS-RNet), entitled, "Deep Decarbonisation of Materials Processing Industry—Implications for policy, industry and research", it was pointed out that rather than differentiated approaches by sector that have been advocated for some time, electrification of separate production processes or discussion of energy saving, the important issue is how partnerships between differing industries, for instance steel/cement/chemical industries and the energy industry, can be promoted.

Further, the opinion that CO_2 mitigation was equivalent to high costs was prevalent up to a few years ago, leading to an avoidance on the part of energy intensive industries. More consideration for the environment in recent years has led to the idea that development of low-carbon products (lower CO_2 emissions in the production process and lower resource consumption) could be the path to survival for industries. Moreover, remarks were made that discussions on the part of companies have begun on a structure for industry that can survive the introduction of a carbon price.

Future plans

A pamphlet on the outcomes of the previous Japan-German cooperation on scenarios was handed to Parliamentary State Secretary Rita Schwarzelühr-Sutter of the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) by State Minister of the Environment of Japan at a meeting on 8 February 2017. At the meeting, the Parliamentary State Secretary of BMUB remarked that she believed that building a cooperative relationship between IGES, NIES and WI would be an important step, adding that cooperation should be advanced in the future and outcomes achieved shared broadly around the world.

Going forward with the follow-up on the "Joint Statement on the dissemination of low carbon technologies", we will continue to advance Japan-Germany cooperation through information exchange on greenhouse gas emissions reduction scenarios and long-term strategies and via joint research by both research institutions.

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