Aligning Climate Change and Sustainable Development Policies in Asia

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Kyushu University, Ito Campus

QPIT

Interdisciplinary Graduate School of Engineering Sciences IGSES
Kyushu University

IGES
Institute for Global Environmental Strategies

環境省
Ministry of the Environment

ACP ASIAN Co-benefits Partnership

Background:

Climate change is becoming an increasing threat to the health and well-being of more than 1 billion people in Asia. Climate change mitigation strategies such as the deployment of renewable energy, energy efficiency, and other sectoral policies can create some additional benefits. These benefits, termed as co-benefits, may involve but are not limited to improved air quality, better public health, and socio-economic development. These benefits could offset the cost of climate control programs and help to realize sustainable development in Asia. Policymakers often lack the analytical methods and practical experience to assess the potential of the co-benefits. To address this issue, in collaboration with researchers of this field, a book titled "Aligning Climate Change and Sustainable Development Policies in Asia: quantifying, integrating, and advancing co-benefits" is compiled.

Workshop Objectives:

The objective of the workshop was to discuss the concept of the co-benefits, tools, and methods needed to quantify co-benefits, the case studies from different countries, and future prospects of co-benefits. The future roadmap of research in this field was also conveyed.

Organizers and Participants:

The Workshop was streamlined online on Youtube and was attended by professors and scholars worldwide. The speakers joined the workshop through the online platform ZOOM.

Chairs and moderators:

- Assoc. Prof. Hooman Farzaneh, Interdisciplinary Graduate School of Engineering Sciences, Kyushu University (IGSES), Japan
- Dr. Eric Zusman, Institute for Global Environmental Strategies, Japan
- Dr. Satoshi Kojima, Institute for Global Environmental Strategies, Japan
- Dr. Subhes Bhattacharyya, De Monfort University, United Kingdom

local committee:

- Ababr Sajid, Energy and Environmental Systems Laboratory, IGSES, Kyushu University.
- Malehmirchegini Ladan, Energy and Environmental Systems Laboratory, IGSES, Kyushu University.
- Maiko Kawabata, Platform of Inter/Transdisciplinary Energy Research (Q-PIT), Kyushu University.

Workshop Secretary:

- Yukiko Takahara, Energy and Environmental Systems Laboratory, IGSES, Kyushu University.

Workshop Program

Time	Program and Speaker
14:00-14:10	**Welcoming remarks** *Mr. Toshiyuki YAMASAKI, Director, Office of International Cooperation in Air and Water Quality Management, Ministry of the Environment, Japan*
14:10-14:30	**Introductory Session** Co-benefits: Core Concepts and Applications *Dr. Eric Zusman, IGES, Japan* Moderator: Assoc Prof. Hooman Farzaneh, Kyushu University, Japan
14:30-15:10	**Session I: Quantitative Modeling of Climate co-benefits and Sustainable Development** -Integrated energy-environment-public health-economy assessment of the utilization of high-efficiency Heat Only Boilers in Ulaanbaatar, Mongolia *Assoc Prof. Hooman Farzaneh, Kyushu University, Japan* -Co-benefits of policies on the market for energy efficiency and the environment in Iran *Prof. Yadollah Saboohi, Sharif University of Technology, Tehran, Iran* Moderator: Dr. Eric Zusman, IGES, Japan
15:10–15:30	Short break
15:30-16:00	**Special Keynote:** Interactions between urban and rural air pollution in Asia, and the multiple development benefits of coordinated action *Dr. Zbigniew Klimont, International Institute for Applied Systems Analysis (IIASA), Austria*
16:00-17:00	**Session 2: Co-benefits of Climate Change Mitigation Strategies** -Co-benefits of renewable energy policies in South Korea *Dr. Yeora Chae, Korea Environment Institute, South Korea* - Co-benefits of renewable energy policies in Japan *Dr. Etsujiro Takai, IGES,, Japan* -Co-benefits of renewable energy policies in China *Prof. Mao Xianqiang , Beijing Normal University China* Moderator: Dr. Satoshi Kojima, IGES
17:00-17:10	Short break
17:10-18:10	**Session 3: New Perspectives on Co-benefits** - Japan's low-carbon technology collaboration with Southeast Asia: Co-innovation and Co-benefits *Dr. Nandakumar Janardhanan, IGES,, Japan* Biodiversity Co-benefits: From Analytical to Action-Oriented Research *Dr. Kaoru Akahoshi, IGES, Japan* Creating Social Co-benefits for Sustainable and Just Society *Dr. So-Young Lee, IGES, Japan* Moderator: Dr. Subhes Bhattacharyya, De Monfort University, United Kingdom
18:10-18:30	**Closing Remarks** *Dr. Eric Zusman, IGES, Japan*

Welcoming remarks

The Workshop started with a welcome address by Mr. Toshiyuki Yamasaki, Director, Office of International Cooperation in Air and Water Quality Management, Ministry of Environment of Japan (MOEJ). Referring to the Japanese target of Carbon-Neutrality by 2050, he shared the mission of MOEJ to realize this objective by employing the co-benefit approach through the implementation of projects in the Asian region.

Introductory Session

Dr. Eric Zusman introduced the book entitled “Aligning Climate Change and Sustainable Development Policies in Asia: quantifying, integrating, and advancing co-benefits” and laid down the foundation of the workshop by discussing the concept of co-benefits. He argued that, in developing countries, the implementation of climate change mitigation strategies is constrained economically, and linking climate change with the local development programs can help persuade the local governments and policymakers.

Session 1 (Quantitative Modeling of Climate Change co-benefits and Sustainable Development)

The first session was moderated by Dr. Eric Zusman, IGES, Japan, which focused on quantitative modeling of Climate co-benefits and Sustainable Development. The session started with Prof. Yadollah Saboohi, Sharif University of Technology, Tehran, Iran, discussing co-benefits of policies on the market for energy efficiency and Iran's environment. He briefly explained the energy situation and challenges in Iran including energy usage, pricing, greenhouse gas emission, and the potential of energy-saving and associated emission reduction in Iran. Later, he Introduced the policies that will be implemented in the market for energy efficiency and the environment, indicated as M3E. Then he illustrated an example of implementing the policy and showed the results, including energy efficiency and reduction of GHGs emissions in a case study of the steel industry in Iran. He also explained the long-term approach of employing hydrogen in industry, its results, and potential opportunities.

Next, Assoc. Prof. Hooman Farzaneh, Kyushu University, Japan, discussed Integrated energy-environment-public health-economy assessment of high-efficiency Heat Utilization Boilers in Ulaanbaatar, Mongolia, to counter air pollution. The study was based on the joined project between Kyushu University and IGES in alignment with the Japan-Mongolia partnership to promote the JCM for low-carbon development. He demonstrated the quantification model and outcomes of the study in reducing local air pollution, improvement in public health, and well-being. Then estimated the co-benefit of extending the project to model to whole available HOBs in Ulaanbaatar. He concluded by explaining the project's future scope briefly, which will be to complete the assessment, including technical and institutional dimensions of co-benefits. At the end of his presentation, he introduced his recent book entitled “Aligning Climate Change and Sustainable Development Policies.

As the last speaker of this session, Dr. Zbigniew Klimont from IIASA focused on the air pollution, mostly particulate matter 2.5 (PM2.25), caused in the Asian cities and illustrated that a major share of air pollution is contributed from the neighboring areas. He analyzed that measures such as energy efficiency, electrification of the transport system, sustainable agriculture, and waste management can effectively help control air pollution as a co-benefit to their desired sustainable goals. He also appreciated the collaboration between IIASA and MOEJ Japan to realize such projects to combat contemporary environmental challenges. He concluded by emphasizing that air quality management requires an integrated approach and a better understanding of multiple benefits of policy interventions and their distribution across different groups in society could enhance public support for changes as are necessary for these long-term transformations.

Session II (Co-benefits of Climate Change Mitigation Strategies)

The second session, moderated by Dr. Satoshi Kojima, focused on “Co-benefits of the Climate Change Mitigation Strategies”. The session started with Dr. Yeora Chae from Korea Environment Institute (KIA), South Korea, presented the case study covering South Korean Renewable Energy Policy 2030 to figure out the associated co-benefits. She addressed a strong need to have a transformational approach to sustainable development pathways to tackle climate risks. According to her analysis related to the RE Policy 2030, there is a potential of 25,926 Billion KRW on account of the co-benefits. She concluded by stating that the main barrier to the deployment of renewable technologies is their comparatively higher costs, but the co-benefits' consideration can offset a reasonable share of these costs to make them more attractive and competitive.

Next, Dr. Etsujiro Takai, IGES, Japan, discussed “Co-benefits of renewable energy policies in Japan and barriers and ways forward”. First, he briefly explained the potential for co-benefits from renewable energy in japan by presenting the renewable energy policies and the future outlook of energy until 2050. Then, he discussed technical, social, and political barriers for renewable energy deployment and suggested the solutions for clearing them, such as technological innovations, cost reduction, and evaluation of co-benefits. Finally, he explained the Regional Circular and Economic Sphere (Regional CES) concept and role to establish linkages between multiple social, economic, and environmental issues and gave Shimokawa Town.

As the last presenter of the session, Prof. Mao Xianqiang targeted solar energy policy as a case study to realize the potential associated reduction of carbon emissions. Based on the stated national energy policy scenario, it was estimated that 1600 Billion RMB could be saved as the co-benefits of deploying solar renewable energy for electricity and heating purpose. Being the largest manufacturer and contributor in PV panels export, China is also supporting climate change programs and realizing the associated co-benefits on a global scale. In the end, he briefly addressed the challenges related to renewable deployment and suggestions to counter them.

Session III (New perspectives on Co-benefits)

The last session of the workshop moderated by Dr. Subhes Bhattacharyya, De Monfort University, United Kingdom, discussed new perspectives on co-benefits. The session started with Dr.Kohei Hibino, IGES, Japan, by presenting “Japan’s low-carbon technology collaboration with Southeast Asia”. He explained the co-innovation network concept that consists of scaling up and co-learning, co-monitoring and evaluation, co-production and co-manufacturing, and co-design and co-development. In the context of environment, economy, and society, he demonstrated the relationship between co-innovation and co-benefits. In the following, he explained the methodological approach of three city-city collaboration case studies of the research involving Takakura Composting Method in Indonesia, addressing water security challenges in Danang city of Vietnam and the installation of a water distribution block system Phnom Penh of Cambodia. Based on his discussion, while advanced technology is critical for helping developing countries move towards low carbon development, making these technologies locally adaptive is essential.

The next presenter, Dr. Kaoru Akahoshi presented the linkage between the co-benefits and biodiversity. She started by the global efforts to safeguard biodiversity and its positioning and climate change, i.e., Paris Agreement 2015. She also argued the importance of biodiversity co-benefits from natural science, biodiversity, and economic perspective. She also introduced the mechanism and framework that can help connect biodiversity with climate change mitigation strategies. She concluded by emphasizing that there is a need to integrate local, national/global levels on this issue to advance actions of biodiversity co-benefits.

The last presenter of this session was Dr. So-Young Lee, IGES, Japan, presenting "Creating Social Co-benefits for Sustainable and Just Society". First, she explained social co-benefits in climate negotiations like clean development mechanism, sustainable development goals, and green climate fund. Then she discussed the implementations of the social co-benefits initiatives, including ridership for low-income and elderly citizens, energy creation with women and locals, and low-carbon city through participatory governance. She mentioned that the ultimate goal of social co-benefits is to provide benefits to locals and society; hence, solutions should vary to engage those affected rather than one-fits-all. She also mentioned that key means of implementation to open potentials of last long result could be multi-level and multi-benefits approach and citizen participation.

Wrap-up:

The workshop was attended by speakers from well-known international universities and institutes sharing their research and experiences related to the context of Co-benefits. It addressed the framework for realizing the co-benefits, including developing new technologies (i.e., hydrogen-based) and managing the institutional policy issues related to co-benefits and how they can be incorporated in the analytical modeling framework. The need for coordination between urban and nearby areas was emphasized. The idea of co-innovation was introduced for mutual technological development. Finally, the new perspective of co-benefits such as biodiversity and natural resources were demonstrated.