

Activities in FY 2020-2021 including 5th 5-year plan of NIES

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The 27th AIM International Workshop
Online
September 30 & October 1, 2021



Asia-Pacific Integrated Model

<http://www-iam.nies.go.jp/aim/index.html>



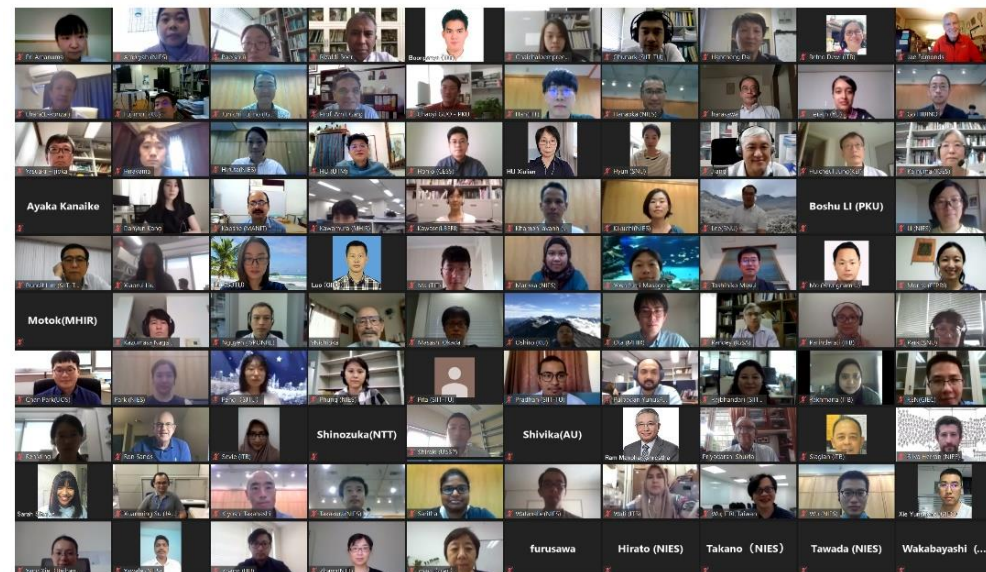
Notes:

- Please turn off your camera and mute your microphone when you are not speaking.
- At the oral sessions, when you have questions or comments, please use chat system of zoom.
- Please do not copy any screen nor record any presentation.
- All presentation videos are only used at this workshop.

"Welcome back!" and "Good meet to you!"

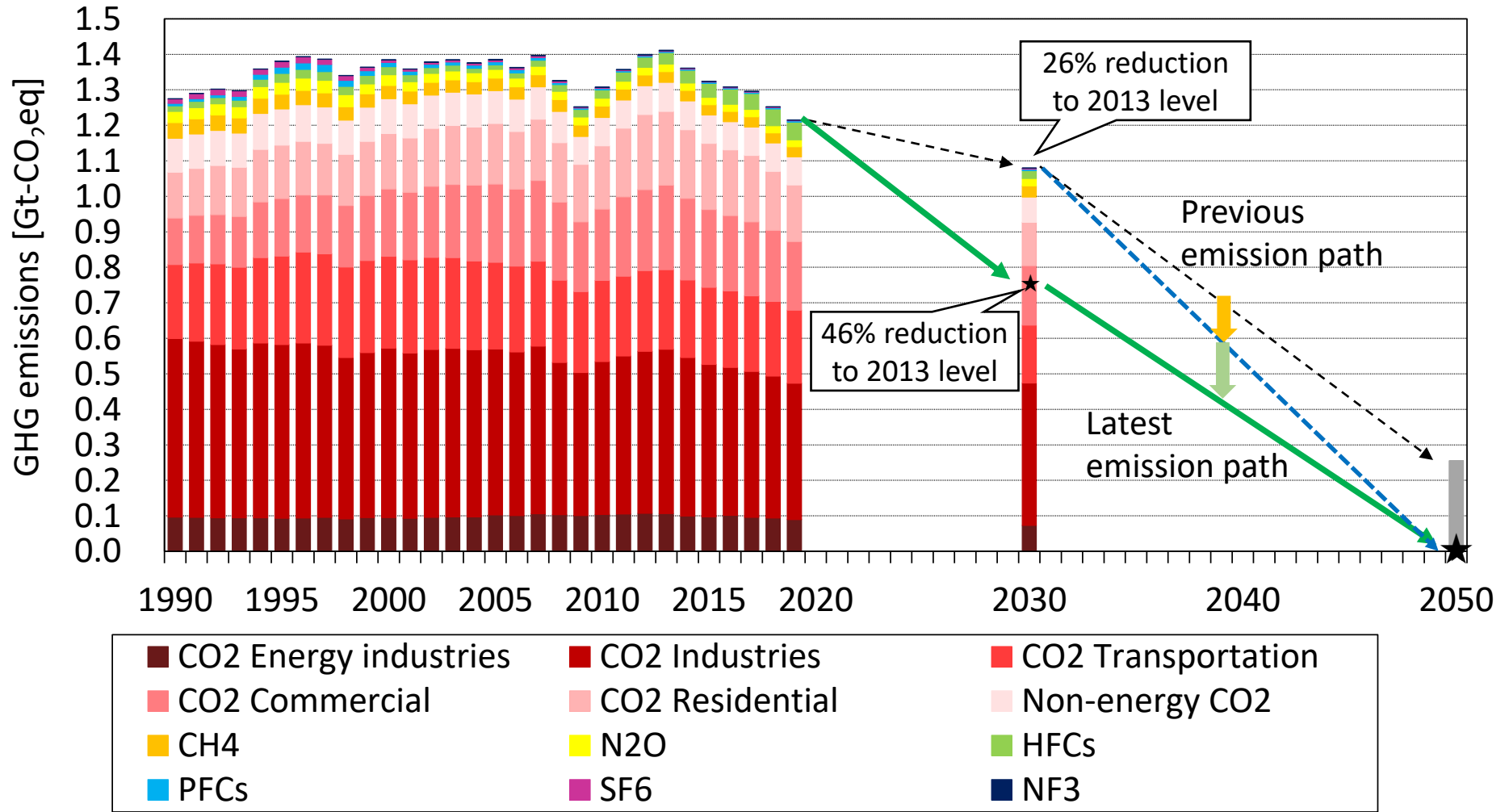


AIM International Workshop 26th



The 26th AIM International Workshop (Online), Sept. 3-4, 2020

Past trend and future targets of GHG emissions in Japan

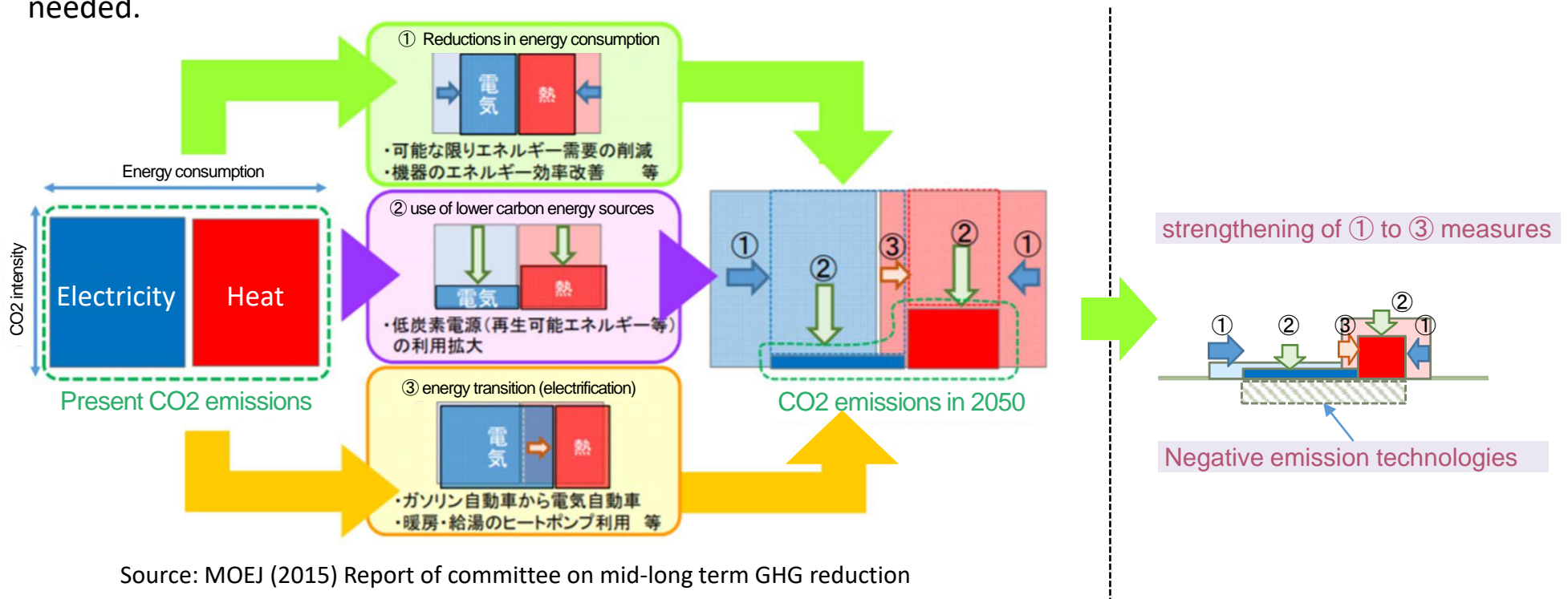


Data source:

Greenhouse Gas Inventory Office of Japan, NIES, <https://www.nies.go.jp/gio/en/index.html>
 Japan's NDC, <https://www.env.go.jp/press/files/en/828.pdf>

Direction of actions to achieve a carbon neutral society

- Major directions toward low carbon society: ① **Reductions in energy consumption**; ② **use of lower carbon energy sources**; and ③ **energy transition (electrification)**.
- To achieve carbon neutrality, in addition to ① – ③ measures, **negative emission technologies** will be needed.



Source: MOEJ (2015) Report of committee on mid-long term GHG reduction

※ Negative emission technologies are technologies, practices and approaches for artificially recovering or absorbing CO2 from the atmosphere and sequestering the CO2 in forms that will not be emitted again for the long term. These include afforestation and reforestation, biochar, soil carbon sequestration, wetland and coastal regeneration (blue carbon), bioenergy with carbon capture and storage (BECCS), accelerated weathering, direct air capture (DAC), ocean alkalinity enhancement, and carbon mineralization. (Reference: Minx et al. (2018), Negative Emissions—Part 1: Research Landscape and Synthesis, UNEP (2017), The Emissions Gap Report 2017)

Contribution to climate policy in Japan and Asia

New Energy Basic Plan, Global Warming Prevention Plan and Long-term Strategy were discussed in Japan to introduce them at COP26;

Net zero GHG emissions in Japan by 2050

- December 2020: Preliminary results were explained at Basic Policy Subcommittee of General Resource and Energy Council for the discussion on the new energy basic plan.
- June 2021: Detailed results were explained at the same subcommittee.

Carbon pricing

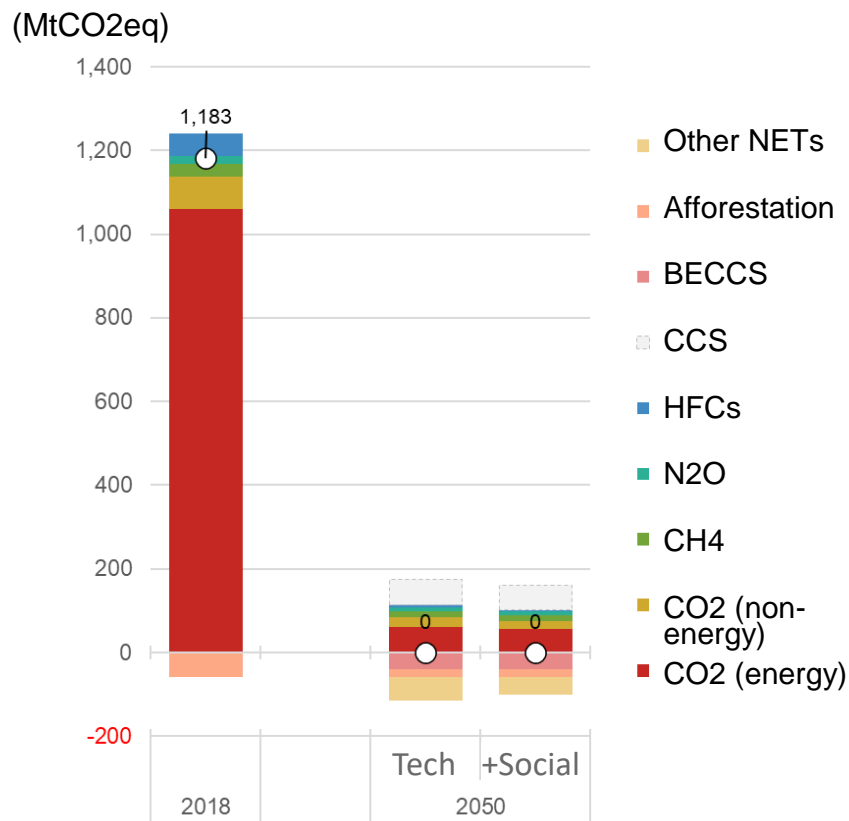
- June 2021: Simulation results were explained at Carbon Pricing Subcommittee of Central Environment Council.

But AIM needs to show more concrete roadmap achieving the carbon neutrality of Japan.

AIM were applied to assess long-term strategies in the following countries;

- Indonesia
- Vietnam
- Thailand

Assessment of net zero GHG emissions in Japan in 2050 based on AIM

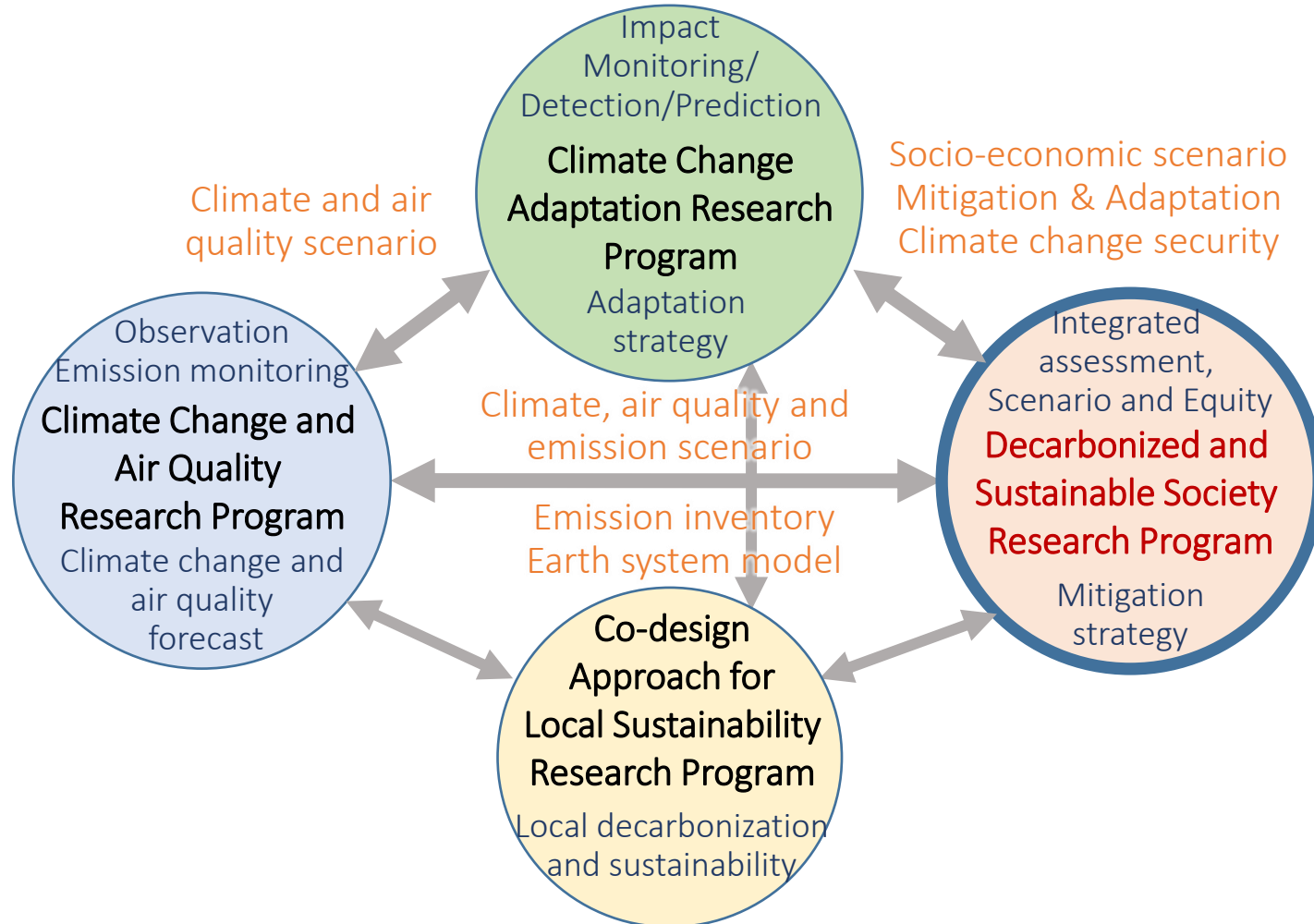


GHG emissions in Japan

- We analyzed **"technology" scenario** in which net-zero emissions will be achieved through the diffusion of decarbonization technologies such as energy conservation, renewable energy, and electrification, and a **"technology + social transformation" scenario** in which the diffusion of decarbonization technologies is combined with progress of digitalization, circular economy, etc.
- By combining AIM/Enduse model and Power supply model, hourly electricity supply and demand are also balanced.
- Fossil fuels currently account for more than 80% of the total primary energy supply, but by 2050, renewable energy will account for about 70%, and energy self-sufficiency will have improved significantly from 15% (2018) to 70% (2050).
- To achieve a decarbonized society, additional investment of 9-11 trillion yen per year will be needed for insulation of houses and buildings, renewable energy, etc. Net energy imports will drop from about 16 trillion yen (2018) to 4-5 trillion yen in 2050.

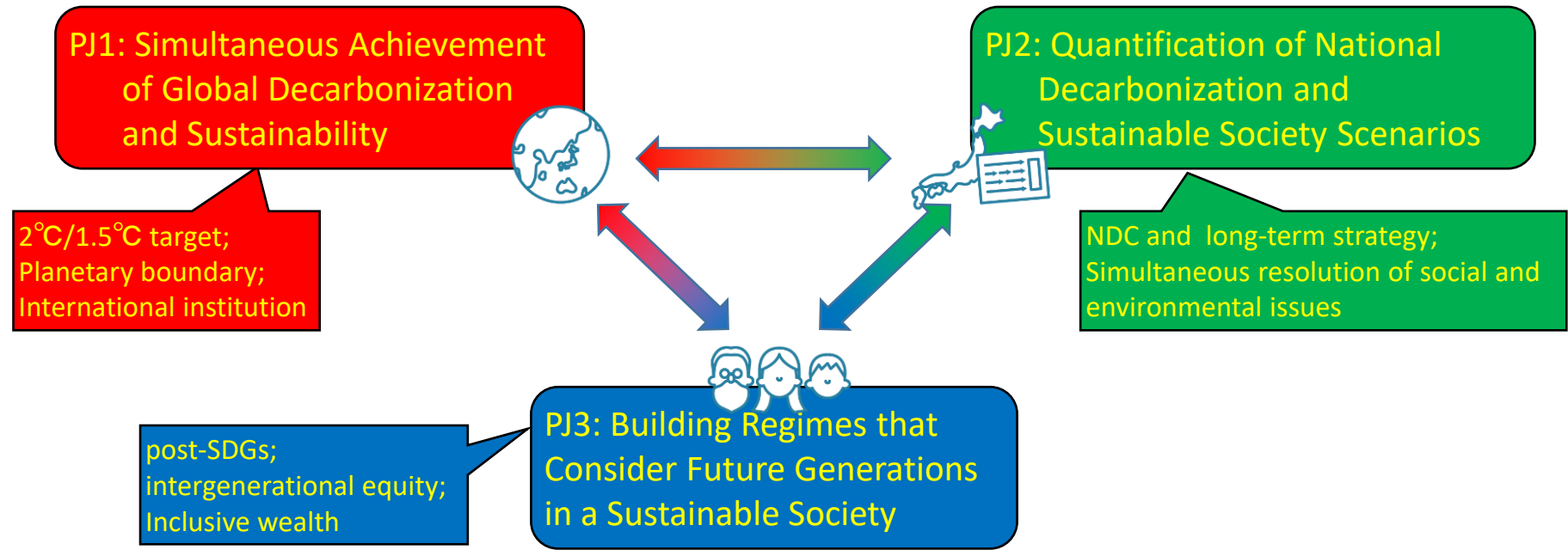
The 5th 5-year Plan of NIES has started April 2021

AIM team will investigate climate change mitigation and impact/adaptation studies under "Climate Crisis Research Initiative" at NIES



Decarbonized and Sustainable Society Research Program

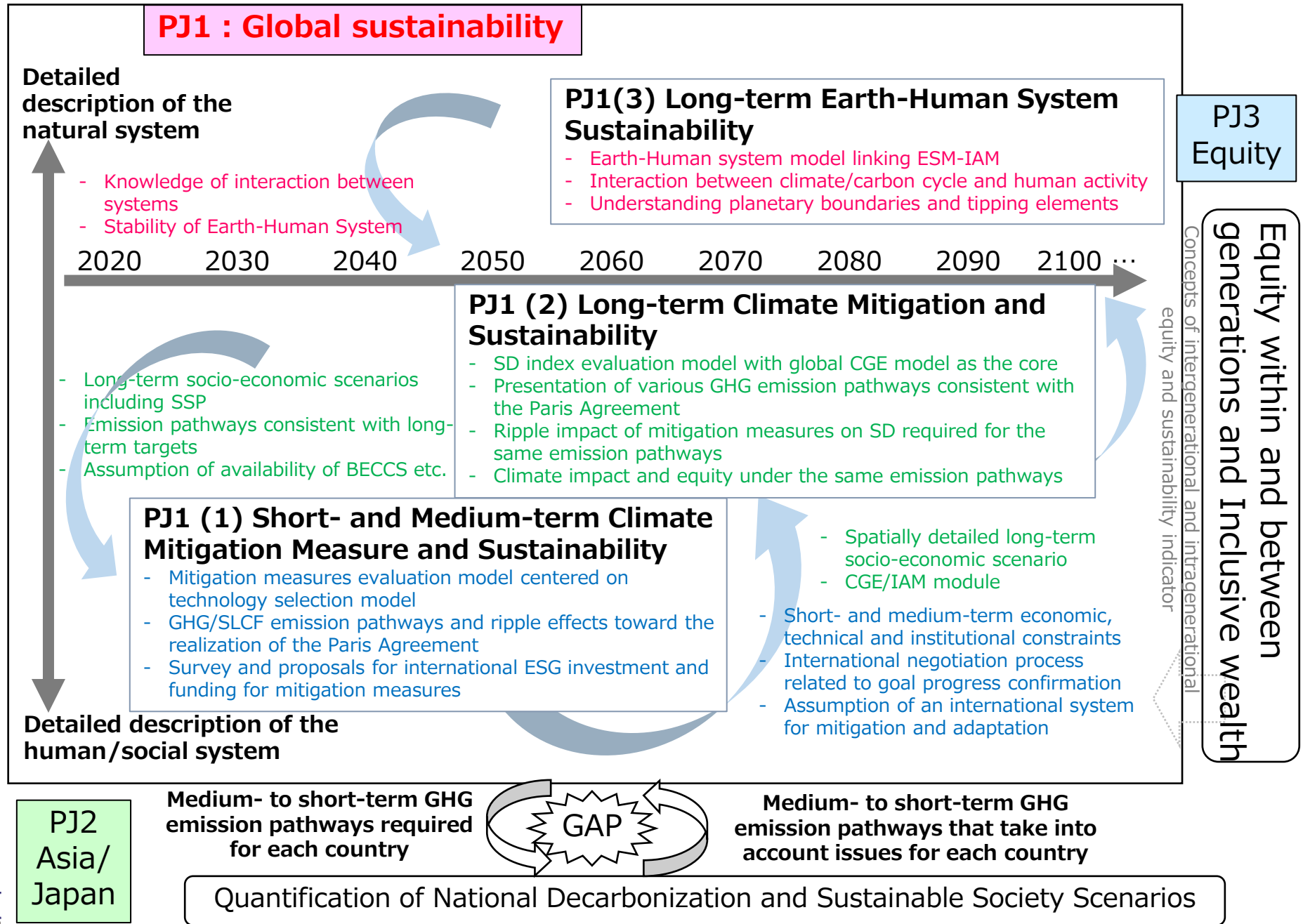
Research Program for Development of Decarbonized and Sustainable Society at the Global and National Levels



【Goal of this research program】

Development of roadmaps for realizing a "decarbonized and sustainable society" that is consistent across regions, time, and environment-society-economy

PJ1: Simultaneous Achievement of Global Decarbonization and Sustainability

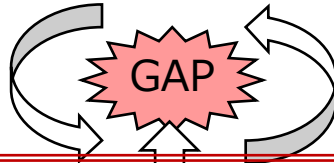


PJ2: Quantification of National Decarbonization and Sustainable Society Scenarios

PJ1
Global

Emission scenario roadmap to realize decarbonization using a world model

Medium- to short-term GHG emission pathways required by each country to realize a decarbonized society

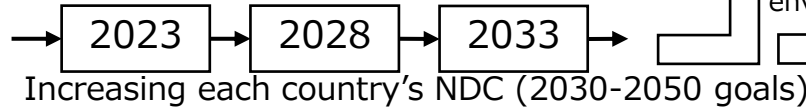


Medium- to short-term GHG emission pathways that take into account the issues for each country

PJ3
Equity

PJ2
Asia/Japan

Global stocktake

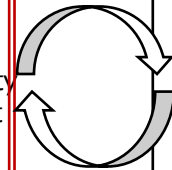


Measures to eliminate GAP and simultaneously expected reduction of environmental issues



Results of analysis on future activity level and environmental load

Equity within and between generations and inclusive wealth



Inter- and intra-generational equity concepts and sustainability indicators

PJ2 (1)
Japan

Sectoral approach

Technical and financial support

PJ2 (2)
Asia

National approach

- Energy supply and demand measures and drastic GHG reductions
- Behavior change due to innovative technology and financial measures
- Synergies with social issues to be solved
- Benefits for Japan of supporting Asian countries

Benefits and Effects

- Increasing each country's NCD considering diversity
- Technical and institutional issues and development paths
- Synergistic offset effect of decarbonization for other environmental problems
- Delays in decarbonization due to recession and economic impacts

- Japan's decarbonized society scenarios
- Nationwide constraints and requirements

- Considering the characteristics of each regions of Japan
- Constraints such as technical evaluation and potential introduction amount
- Behavioral change and social change scenarios

Co-design Approach for Local Sustainability Research PG

Scenarios for technology introduction and social transformation for sustainable local communities

Schedule of the 27th AIM International Workshop (1)

- September 30, 2021

- ✓ Session 1: Opening

- Keynote Speeches: Prof. P.R.Shukla and Dr. Jae Edmonds
- Recent activities in Japan: Mr. Hibino and Dr. Ashina/Dr. Gomi

- ✓ Session 2: GHG mitigation and AIM in Asia

- China
- India
- Thailand
- Indonesia
- Malaysia
- Vietnam
- Korea
- Nepal
- Taiwan

Schedule of the 27th AIM International Workshop (2)

- **October 1, 2021**
 - ✓ Session 3: Climate impact, adaptation, and sustainability
 - Dr. Ronald Sands
 - Dr. Wenchao Wu
 - Dr. Chaeyeon Park
 - Dr. Yuji Masutomi
 - Dr. Hui Cheul Jung
 - Dr. Yoshihumi Masago
 - Dr. Kazutaka Oka
 - ✓ Session 4: Role of AIM to achieve decarbonized society
 - LoCARNet and LCSRNet by IGES
 - Climate policy support in Asia by MHIR and E-konzal
 - ✓ Session 5: Closing

Schedule of the 27th AIM International Workshop (3)

- Poster session

- ✓ 32 poster presentations are prepared.
- ✓ Please give your comments and questions to each poster.
- ✓ By **4 pm on October 1 of Japan Time**, please choose the best poster and vote it.
- ✓ In detail, please read "PosterAccessManual_2021.pdf."

Let's discuss to realize a decarbonized society