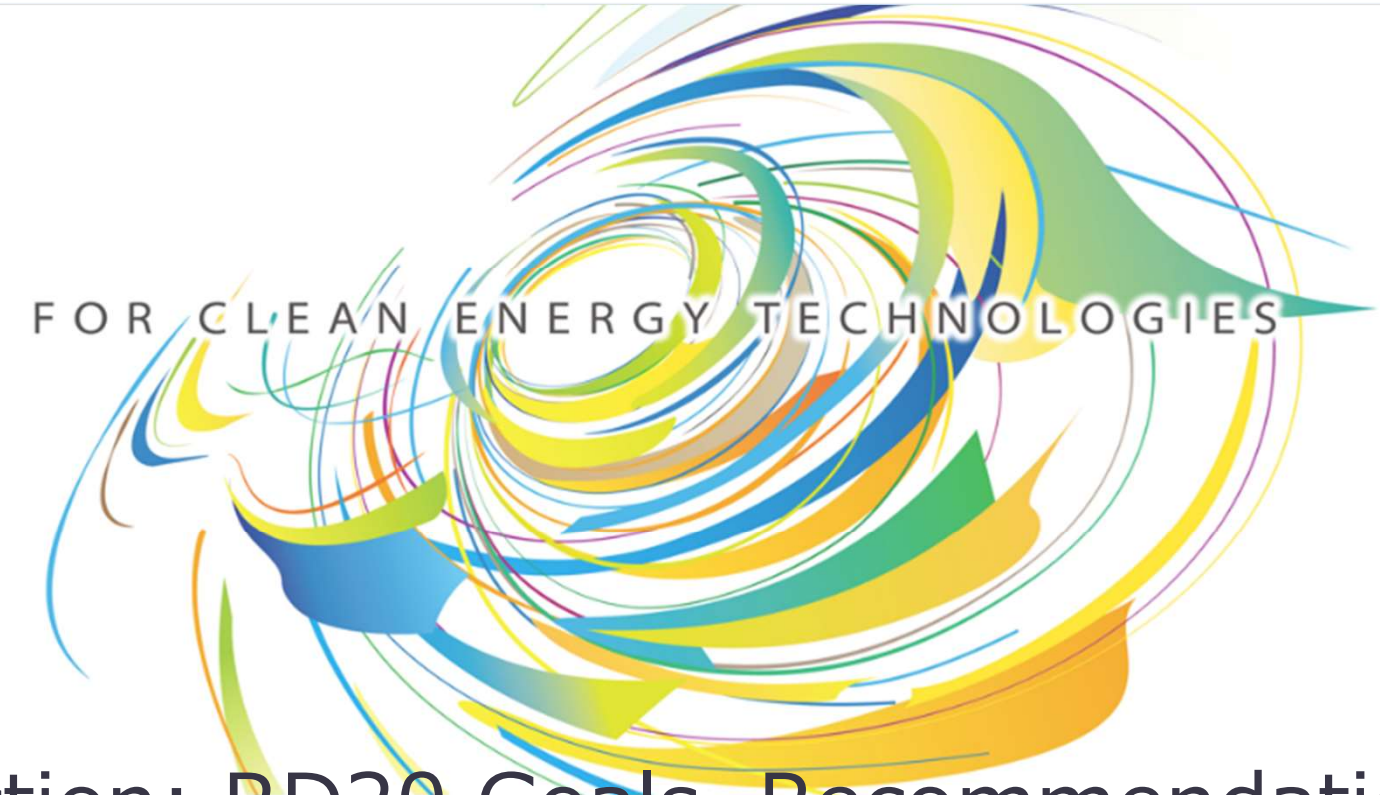


Introduction: RD20 Goals, Recommendations, Progress, and Future Plans

National Institute of Advanced Industrial Science and Technology
Haruhiko Obara

Outline

- Goals
- Recommendations
- Progress and Future Plans

Goals

What is RD20?

Research and Development 20 for Clean Energy Technologies

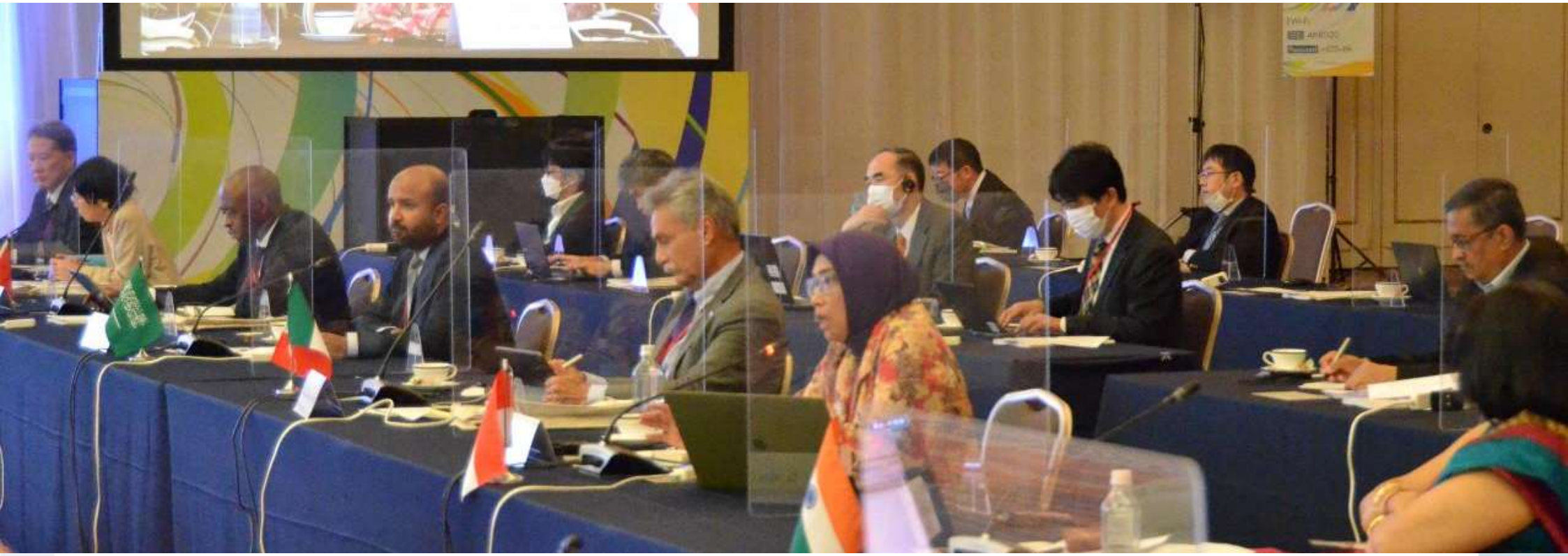
- RD20 is an initiative for international research and development aimed at **strengthening international collaboration among leading research institutes from G20 countries and regions** that pursue world-leading technological developments **for achieving carbon neutrality.**
- RD20 seeks to produce concrete actions for promoting innovation through discussions on ideas and experiences associated with expertise and knowledge from a global perspective.
- RD20's role
  - ✓ Provide opportunities to exchange R&D from respective countries and regions, and best practice of clean-energy related technologies and opportunities.
  - ✓ Provide opportunities to develop new international collaboration.
  - ✓ Develop and deepen new partnerships among related industry-government-academia stakeholders.

RD20 Member Institutes

Key R&D institutes from G20 members leading cutting-edge technology development

		Instituto Nacional de Tecnología Industrial (INTI), Argentina Argentina	Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia Australia	Universidade Federal de Sao Carlos (UFSCar), Brazil Brazil
National Research Council Canada (NRC), Canada Canada	Dalian Institute of Chemical Physics (DICP), Chinese Academy of ScEuropean Union Joint Research Centre (JRC)iences, China China	European Union Joint Research Centre (JRC) EU	Commissariat à l'énergie atomique et aux énergies alternatives (CEA), France France	Centre national de la recherche scientifique (CNRS), France France
Fraunhofer Gesellschaft (Fh-G), Germany Germany	Fraunhofer Institute for Solar Energy Systems (Fh-ISE), Germany Germany	The Energy and Resources Institute (TERI), India India	National Research and Innovation Agency (BRIN), Indonesia Indonesia	Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Italy Italy
Center for Research and Advanced Studies of the National Polytechnic Institute (CINVESTAV), Mexico Mexico	Korea Institute of Energy Research (KIER), Republic of Korea Republic of Korea	King Abdullah City for Atomic and Renewable Energy (KACARE), Saudi Arabia Saudi Arabia	Council for Scientific and Industrial Research (CSIR), South Africa South Africa	TÜBİTAK Marmara Research Center (MAM), Turkey Turkey
UK Energy Research Centre (UKERC), United Kingdom of Great Britain and Northern Ireland United Kingdom of Great Britain and Northern Ireland	National Renewable Energy Laboratory (NREL), United States of America USA	National Institute for Materials Science (NIMS), Japan Japan	RIKEN, Japan Japan	National Institute of Advanced Industrial Science and Technology (AIST), Japan Japan

AIST is the Organizer of RD20, Leading the Conference as the Secretariat



Recommendations

Development of Clean Energy Technology and International Collaboration

- How Does RD20 Promote International Collaboration -

Leaders Recommendations adopted

in the Leaders Session of the 4th RD20 2022

- General roles
  - RD20 institutes are committed to the Leaders Statement and to enhancing international collaborations.
  - RD20 can play important and distinct roles as a collection of research institutes.
  - RD20 institutes are committed to coordinating with other initiatives.

    e.g.; Mission Innovation Ministerial, Clean Energy Ministerial (CEM),
    International Energy Agency (IEA)

Development of Clean Energy Technology and International Collaboration

AIST Create the Future, Collaborate Together

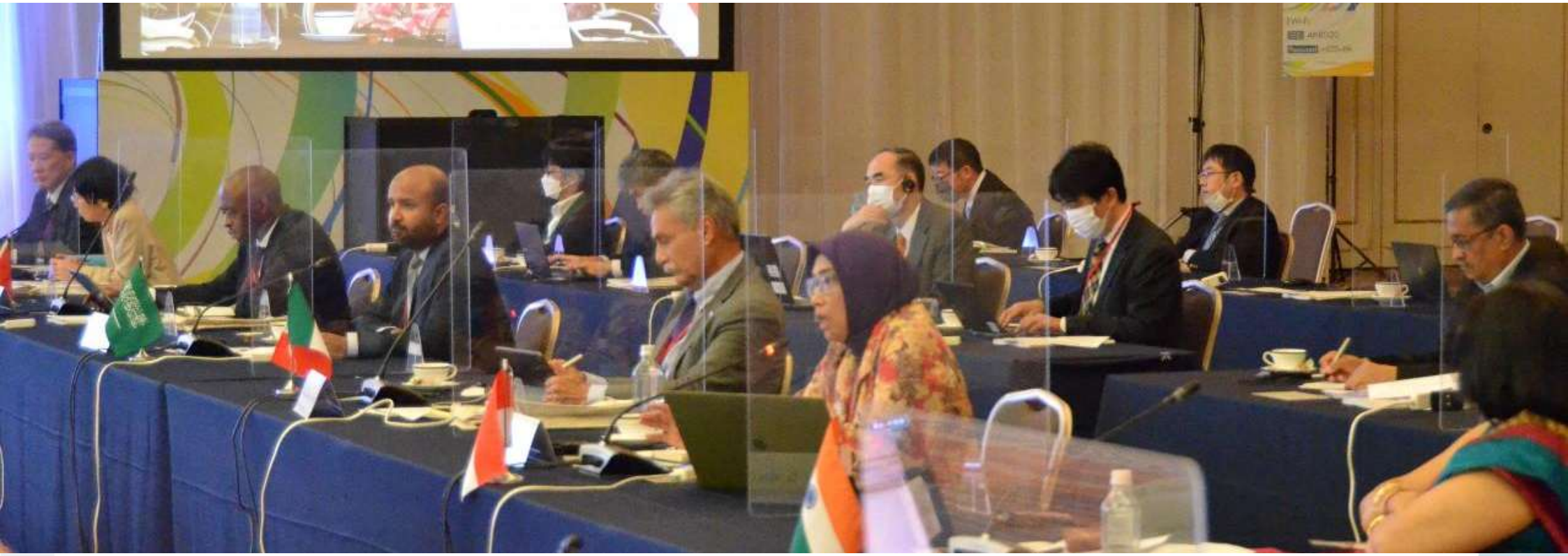
- How does RD20 promote international collaboration -

Leaders Recommendations (Continued)

- Specific Actions
  - RD20 International Advisory Board shall be tasked with convening, leading, and coordinating the RD20 action committee to develop an execution plan to facilitate and monitor collaboration, coordinate with the RD20 Secretariat.
  - Future RD20 annual meetings will be held, odd years (2023, 25, ..) in Japan, and even years (2024, 26, …) in other RD20 countries.
  - Five collaboration areas serve as an excellent starting point for increased collaborations, beginning with existing resources at RD20 institutes.

    ①Summer School ②Communication/knowledge sharing ③Workshops

    ④Taskforces ⑤Researcher exchanges



Progress and Future Plans

Taskforces

- Efforts in Technological Areas where International Collaboration is Prioritized -

Solar Energy

- Standardize advanced characterization of photovoltaic device TF (2021)

  Interim progress report has been prepared
- Environmental assessment of large-scale Photovoltaic deployment TF (2022)

Hydrogen

- Life Cycle Assessment TF (2022)

  Achievement report: Will be completed by the end of this year
- Gigaton Hydrogen Workshop: Address key technical issues for the widespread adoption of hydrogen
- Held the 2nd meeting from October 2-3, 2023, Tokyo

Development of Clean Energy Technology and International Collaboration
- Outcome of International Collaboration Realized by RD20 -

1) Round-robin test toward establishing PV characterization techniques
・AIST, Fh, JRC, and NREL: Interlaboratory technique in progress internationally with the use of the same samples to verify the results, toward establishing and standardizing an evaluation method.

2) Summer school
・First RD20 Summer School: July 2-3, 2023, Prapoutel, France
・Recommendation by the students to the RD20 leaders meeting on the decarbonation of energy systems.

3) Attention from other international initiatives (frameworks), Future collaboration possibilities
・Conference of the Parties (COP): Organized seminars & participated in panel discussions (2021, 2022)
・Invited lecture at G20-related conference: India, 2022
・Started discussions towards collaboration: Mission Innovation Ministerial / Clean Energy Ministerial (CEM)

Outline of the 5th RD20 Conference 2023

- Dates: October 4th – October 6th, 2023
- Venue: Hotel Hamatsu, Koriyama-City, Fukushima Prefecture
- Held as part of Tokyo GX Week organized by METI
- Leading leaders from G20 countries and regions gather in Fukushima, with the aim of making the prefecture a pioneer in Japan's renewable energy field.
- Discuss the realization of the Leaders Recommendations adopted at the 4th RD20, 2022.
- Expectation to achievement report on specific collaborations as for the 5th year of the initiative.

RD20
Future Outcomes and Expectations

- It has been confirmed that technological issues and R&D directions will be shared among researchers.
- We hope international collaboration results through R&D initiatives will lead to standardization.

  They will contribute to promoting overseas deployments and international dissemination of technologies and products developed by each country.

Create the Future, Collaborate Together

Thank you for your kind attention.