



## Efforts for Radical Innovation

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I am Yutaka Kawakami, the Managing Director of the Research Institute of Innovative Technology for the Earth (RITE).

Last year, RITE celebrated the 30th anniversary of its establishment, so this year marks the first year in our next ten years of progress. All of the members will work together to increase our efforts with a fresh attitude, to strive for self-improvement, produce results, and contribute to society as a public interest incorporated foundation, so I ask you all for your continued support, guidance, and cooperation.

RITE is a research organization that is engaged in the development of technologies to solve global environmental problems, particularly the problem of global warming. There is a sense that the global coronavirus crisis may have diminished the public's interest in the global warming problem. However, the importance of the problem of global warming, which is a long-term issue, does not change. In his policy speech in October last year, Prime Minister Suga declared that the aim of achieving carbon neutrality by 2050 was a top priority issue. This was an acceleration of efforts from the previous aim to reduce carbon emissions by 80% by 2050.

The difficulty of the global warming problem is the cost burden associated with significant reductions of greenhouse gases. There is a trade-off relationship between the reductions and the non-global warming targets in the SDGs. There is also consideration of the S+3E (the prioritization of safety with the simultaneous achievement of environmental conservation, economic efficiency, and energy security) that forms the basis for energy policies. It will therefore be essential to have radical innovation to solve the problem. Furthermore, the problem is so difficult that achievement will only be possible if we approach it by mobilizing radical innovation in every field.

Under these circumstances, we are all aware that the importance of RITE is increasing, and we are continuing our efforts each day with strong motivation.

At RITE, existing research such as CCS and biorefinery research has already progressed from the demonstration stage to the social implementation stage, and we are working to further accelerate it. Furthermore, as I said before, efforts are required in every field, so while we are steadily advancing those existing technologies, we are also tackling new challenges. The following are some examples of those new efforts.

In the Systems Analysis Group, the previous focus was on the energy supply side. However, with the advances in AI and IT technologies, the Group is now also proceeding with simulations that take into account the possibility of significant reductions in energy consumption on the demand side.

The Chemical Research Group has started working on the development of DAC technology, to directly capture CO<sub>2</sub> from the atmosphere. This has the potential to be an effective technology for significant CO<sub>2</sub> reduction in the future.

The CO<sub>2</sub> Storage Research Group is not only looking at storage in Japan, but also promoting the deployment of the technologies overseas.

The Molecular Microbiology and Biotechnology Group has started the development of biodegradable plastics using bioprocessing, as a technology that can make a contribution for both the global warming problem and the waste plastics problem.

The Inorganic Membranes Research Center was previously focused on the development of hydrogen-related technology, but has now started the development of fuel production technology using CCU with inorganic membranes.

RITE will continue to make full use of our technological seeds, knowledge, and know-how to make it possible to accomplish radical innovation in a wide range of fields and to take a balanced response to risks through the research results we produce.

Please pay attention to the research results of RITE from now on.