



## Let's Pursue Innovative Ideas

Yoichi Kaya, Director General,

Research Institute of Innovative Technology for the Earth



RITE was established in 1990, and will welcome its 20<sup>th</sup> Anniversary this year. The original objective of RITE is under the name of New Earth 21 project proposed by METI to develop technologies for reducing CO<sub>2</sub> emitted into the atmosphere substantially. Projects RITE launched at that time include hydrogen production from solar energy, CO<sub>2</sub> recycling system in which CO<sub>2</sub> produced in industries is transported to remote area, converted to methanol utilizing solar energy at that area and brought back by the same ship for CO<sub>2</sub> transport, and CO<sub>2</sub> fixation via sea algae. We frankly feel now they were a little too ambitious to be realized in practice.

Then after various trials we reached the three main projects we are conducting now. The first is CCS capturing CO<sub>2</sub> from flue gas and storing it into underground and else, the second conversion of cellulose into ethanol via bio-refinery, and the third quantitative system analysis of climate change and sustainable development. The first two deal with crucial technologies now and in near future. They have produced a number of remarkable outputs which made RITE well known in the world. The system analysis is the area RITE did few efforts at the starting stage. As response to climate change has been developed worldwide, however, RITE realized importance of integrated analysis of the matter, developed quantitative models and conducted analyses actively. Due to these efforts importance of RITE analyses became well known widely.

Then how about RITE research activities in future? Present projects are still going on and we naturally promote them further. In addition, RITE wish to develop other types of innovative technologies than those we are dealing with contributing to the realization of low carbon society. One of keys toward this end is secondary energy technology. We need in future various ways of utilizing renewable energy for decarbonizing energy, which inevitably require conversion of renewables into secondary energy. At present it may be electric power as in the cases of photovoltaics and wind power, ethanol as transport fuel as in the case of present RITE biotechnology project, and hydrogen as in the case of one of earlier RITE projects. We however still wonder whether there may be other types of useful secondary energy, and also other ways of converting primary energy into secondary one in substantially higher efficiency and/or lower cost. RITE always looks for any idea of such technologies and will promote breeding these technologies actively. We wish you to encourage and help us in these efforts.