Let Us Prevent Global Warming through Innovative Technologies

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In 2008, great attention was given to the issue of global warming.

At the Hokkaido Toyako Summit in July, the leaders of the Group of Eight major industrialized nations gathered and decided to work together and share the goal of achieving at least a 50% reduction of global greenhouse gas emissions by 2050.

However, since it is anticipated that the world's population will continue to increase in the future, it will be hard to realize the vision of halving global greenhouse gas emissions. With thoroughgoing energy-savings, it is sought to expand the use of not only nuclear energy, but also natural energy, including photovoltaic power and wind power, and renewable energy like biomass, where drastic technology innovations are required to realize a low-carbon society. Last year, the Ministry of Economy, Trade and Industry announced twenty-one technologies as "Cool Earth Energy Innovative Technologies." In the field of electric power generation, the amount of carbon dioxide emissions from which is the largest, CCS (Carbon dioxide Capture and Storage) is expected as well as nuclear power and photovoltaic power. Under existing circumstances in which approximately 80 percent of the world's energy consumption is dependent on fossil fuels, great expectations are placed in CCS as a bridge to the realization of a low-carbon society. Also, in the transport sector, the amount of emissions from which is the second largest to that from the power sector, alternative fuels production for transportation is expected from biomass in addition to fuel-cell-powered vehicles, plug-in hybrid vehicles, and electric vehicles. Biofuels started a worldwide boom last year, when a steep rise occurred in oil prices, while people point out problems such as influence on grain prices and effect on the ecosystem. There is a demand for development in biofuels that will not cause such problems.

Also, the realization of a reduction in the world's greenhouse gas emissions by half requires challenges by developing countries that account for about half of the current global emissions to reduce their emissions. "The sectoral approach" proposed by Japan as a measure for reducing greenhouse gases is expected to facilitate the implementation of challenges for developing countries to reduce their emissions through transfers of energy-savings and environmental technologies by sector such as iron and steel, and electric power from industrialized countries.

We, the Research Institute of Innovative Technology for the Earth (RITE), have been working on research and development in technologies for preventing global warming in "Kansai Science City," while receiving support and cooperation from the government, industrial community, and universities since its foundation in 1990. In the CCS field, we have developed the technology for efficient separation and capture of carbon dioxide from gas emissions from power plants and steel plants, and also succeeded in experimentation of underground storage of 10,000 tons of carbon dioxide. In the biotechnological field, we have also developed epoch-making technologies to efficiently produce ethanol from nonfood plants (rice straw, used paper, cornstalks, etc.) by using special bacteria, which is attracting attention from domestic and foreign companies. Furthermore, in the field of policy analysis, we have carried out research on "the sectoral approach" to assist the Japanese government in framework negotiations to combat global warming.

While countermeasures against global warming are positioned as one of the most important issues for humanity, RITE wishes to play an active role in the innovative technologies development field. We would like to ask for your support.