



R&D toward Decarbonized Society

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Our institute was established in 1990 for the purpose of developing technologies mitigating global warming. At present we have about a hundred and sixty members working in 5 research areas. Our institute having published a lot of research results in academic societies, we did not try to publish any annual report in the past. Therefore we are very pleased to publish such annual report now, with the reflection of our idleness of not having done that last 15 years.

As Kyoto protocol came into effect in February 2005, most developed countries are making desperate efforts for achieving the emission targets. Noticing that these targets are only for the period between 2008 and 2012, we should try to reduce greenhouse gas emissions substantially in the longer term according to the ultimate aim listed in Article 2 of the Framework Convention for Climate Change taken. European Union already proposed to keep the earth surface temperature rise from the pre-industrial level to be less than 2 degrees in Celsius. Regardless of whether we accept this severe proposal as it is, we recognize the urgent needs of reducing greenhouse gases, particularly carbon dioxide in a drastic manner to prevent further progress of global warming. Realization of this target requires major changes in human civilization which at present relies heavily upon fossil fuels. (80 % of primary energy supply) Our institute aims at developing those technologies which can make such changes realizable.

Among a number of studies conducted in the institute the technology of CO₂ recovery and storage is a typical example of this kind. We believe that this technology is not that in decarbonized age but a technology bridging from today and future decarbonized age. Keys in realizing this technology into practice may be energy / cost reduction and to secure stable storage sites. As the former is the basic condition of putting this technology into practice, we do a lot of efforts for satisfying the former condition such as development of innovative technologies for chemical absorption and/or membrane separation which makes our institute to hold the leading position in related academic societies. At the same time we analyze and evaluate the behavior of CO₂ stored underground at Nagaoka experimental site, of which results contribute much to realize stable CO₂ storage. Another important example of our studies is to find and breed trees which grow rapidly under severe condition of water supply and sunshine, i.e. those with high CO₂ absorption capacity. This may be one of important study targets from now on in our institute. We also plan to explore new technology areas such as innovative ways of utilizing natural energy sources. We earnestly hope you will help us conduct these researches more actively.