

# Quest for new paradigm in the new century



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Now that the first decade of the 21st century is coming to an end, challenges for the human-kind to be required to solve seem to get much clearer. Dr. Komiyama, former-president of the University of Tokyo, has cited “the explosion of knowledge,” “the finite Globe,” and “the aging society” as new paradigms in the 21st century.

With regard to “the finite Globe,” The Club of Rome made warnings in its publication titled “The Limits to Growth” back in 1972. Nowadays, those warnings have been widely recognized as contemporary challenges. In this context, it is increasingly recognized that effective use of a wide variety of resources such as atomic fuels and rare metals as well as fossil materials is a challenging issue.

With the aim of “realization of sustainable societies,” Japan has proposed to the world a revolutionary guiding principle titled “Cool Earth 50,” which envisages both preservation of global environment and growth. And yet, many technological challenges have yet to be solved for this realization. Moreover, these challenges are to be followed by another kind of challenges, namely conversion of new technologies to industrial practices.

As long as current technologies are just extended without any breakthrough, it is impossible to halve CO<sub>2</sub> emissions while concurrently maintaining growth. Energy efficiency must be dramatically improved by means of innovative technological development.

Needless to say, collaboration with foreign countries will become important as well as collaboration among industry, government and academia. Japan remarkably excels in the field of technologies for effective use of energies and other resources, and is expected to lead

the world as a forerunner.

In addition, multidisciplinary approaches beyond individual areas are required since these large-scale technological challenges need to be tackled in collaboration among multiple technological areas, not in a single one.

Japan Union of Chemical Science and Technology, which was formed in 2007, may be one of responses to these requirements, and I believe the time is approaching when what to be included in the framework of Japan Union of Chemical Science and Technology is called into question.

The 20th century witnessed two World Wars and many other conflicts, which had been triggered by disputes over acquisition of resources. Going into the 21st century, scientific and technological development has achieved such an advanced state that one misstep could cause considerable damage to the humankind.

One other paradigm in the 21st century is, in my opinion, the importance of preserving intelligence and wisdom to avoid the mind-set of “doing anything to achieve aims.”

In this sense, I hope that Japan Union of Chemical Science and Technology would become a forerunner in a social initiative where the direction toward multidisciplinary collaboration, instead of staying at single collaboration, will be demonstrated to deepen technological innovation and use science and technology.

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