

Sustainable Technology (ST) — Innovative technology for establishing sustainable society —



Shun-Ichi MURAHASHI

Professor at Okayama University of Science, Professor Emeritus at Osaka University
and the President of the Chemical Society of Japan in 2000



The environment is deteriorating due to increases in population and changes in people's lifestyles. Environmental policies changed dramatically as these changes occurred. The US introduced "environmental protection" policies in the 1990s where they introduced a number of laws and strengthened regulations. However, it turned out that the protection policies required enormous amounts of money and yet they did not work effectively. Therefore, they switched their approach to "environmental prevention" where environmentally friendly products are developed and they replace conventional products, in an effort to eliminate the sources of environmental degradation. It was in this context that the concept of green chemistry was created as a guide for environmentally friendly manufacturing. The important point of this concept is to create better materials which have a low impact on the environment, then replace the existing materials with them and obtain capital for the next series of environmental improvement efforts, so that society will develop in a way that is better for the environment. In Japan, the Green & Sustainable Chemistry Network was established in 2000.

The Second Phase of the Science and Technology Basic Plan was established in 2001 and eight priority subject areas, particularly life science, information technology, environment and nanotechnology/materials, were vigorously promoted. In 2004, the Japan Chemical Innovation Institute proposed the promotion of "sustainable technology (ST): innovative technology for establishing a sustainable society" which integrates three subject areas namely the environment, manufacturing technology and energy. The proposal was put forward as a result of industry-university-government cooperation. A similar trend was also seen in the Third Phase of the Science and Technology Basic Plan. I expect that the ST strategy will be included in the next Basic Plan as one of the most important strategies.

There are various challenges that ST needs to tackle. These include many important challenges such as the innovation of technologies which have new functions and the development of climate change prevention technologies, all of which require scientific breakthroughs. When intellectuals predicted important challenges which society may face in 10 years time, they came up with many issues that have not been taken into consideration before. It is also true that the time required for the results of basic research to be put to practical use is becoming shorter. Therefore, it is vital to support vigorously the basic research for ST in order to obtain appropriate knowledge which can be used by future generations, and to develop social systems which can contribute to economic development for the next generation.

It is important for Japan to develop ST based on its cultural characteristics as well as exercising leadership in Asia. It is also important for Japan to establish principles for international cooperation in this subject area, in an effort to work with other countries. The promotion of ST provides an excellent opportunity to change the public perception of science and help citizens and children to get involved in science directly. We have experienced many times that those who have had a negative image of chemistry or those who were not interested in chemistry become interested in the subject when we ask them to join in our efforts for ST. The most attractive feature of the ST strategy is that it motivates not only scientists but also members of the public in Japan, and it can be promoted as a joint effort by the nation as a whole.

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