



Opening Article

Chemistry is for peace and happiness of all the people

Masako SASAKI

Professor Emeritus at Tokai University

For the sake of sustainable development for future generations, Japan, a country with limited natural resources, has no option but to pursue the building of nation on the basis of science and technology. On the other hand, as the nation faces the acceleration of demographic aging along with falling birth rate, many young people find it difficult to maintain a positive way of living with aspirations in Japan. Nevertheless, chemistry holds a key to open up a bright future for the benefit of Japan. That is because "Chemistry is the key to our future," as the theme of the 42nd International Chemistry Olympiad declares, or "*Are-mo Kore-mo Minna Kagaku!*," as printed in posters for the Olympiad. (The latter Japanese expression could be translated as "Here, there, chemistry is everywhere!" in English.) Chemistry is one of the indispensable academic fields for realizing various innovations in this era of the mega-competition and globalization of knowledge.

The United Nations has declared the coming year of 2011 as the International Year of Chemistry (IYC 2011). This will be a good opportunity to make the general public, both kids and adults, more aware of how chemistry has contributed to human existence and the development of civilization. The Japanese chemistry community is proud to have the Japan Union of Chemical Science and Technology (JUCST), which was established with the aims of constructing new visions for chemistry and chemical technology and giving more influential power to the community of chemists through the alliance and cooperation among 17 chemistry-related associations. Moreover, there is the Japan Chemical Industry Association (JCIA), in which more than 250 corporate members are involved in various chemical businesses such as the manufacturing and sales of chemical products. JUCST and JCIA should jointly explain how chemistry played an important role in Japan's reconstruction after World War II and how it now contributes to the environment, energy, health, medical care, nanotechnology, IT, and internationalization. Let us in the chemistry community create an up-front role model for innovation based on science and technology. Below are some specific draft proposals by a run of the item.

1. Nurturing of excellent chemical researchers and engineers who can provide global leadership: It is essential to restructure school education at all three levels as well as university education. Teachers are required to earn full respect in real-world classroom situations. The teacher-training system must be reformed, and it is also essential to improve the university structure and establish an international cooperation system in preparation for the new era of open admissions.
2. Employment promotion for about 10,000 postdoctoral job seekers: Young researchers will be able to demonstrate their intellectual power with their healthy physical strength. A great number of postdoctorals are currently employed as contract

workers, although they have been trained as human resources for innovation based on science and technology in accordance with national policies. Member companies of the JCIA are asked to take the lead in selecting, re-educating and employing such postdoctoral contract workers so that they can become leaders in corporate research bases.

3. Promotion of participation of female chemists and female engineers: Let's have women take part in decision making institutions at JUCST and JCIA. In order to take up the vision to progress on an equal footing with the rest of the world, the conventional male thinking must come to an end. "The End of Men" (The Atlantic: July/August 2010) is now in vogue in developed countries.
4. The role of science communicators should not be imposed on young researchers: Let's tap fellows and emeritus professors, etc. at JUCST and JCIA as science communicators in order not to deprive mid-level and/or young researchers of their brainstorming and self-training time and in order to ensure human resource development through basic research with a long-term vision.
5. Researchers and educators in the field of science and technology should be excluded from the list of civil servants to be reduced on the basis of the government's budget screening processes.
6. We should not withdraw into a shell of chemistry but aim for the integration of humanities and science: As an urgent matter, we have to build a framework so that the mass media, politicians, and leaders in the humanities and social sciences can re-acknowledge the importance of innovation based on science and technology (for building our nation). It is essential for JUCST and JCIA to proactively appeal to the government, the Science Council of Japan, and the Council for Science and Technology Policy.

The IYC 2011 also commemorates the 100th anniversary of Marie Curie's winning of a Nobel Prize in Chemistry. The International Union of Pure and Applied Chemistry (IUPAC) has proposed an international network event "Women Sharing a Chemical Moment in Time". In response, the Gender Equality Committee of the Chemical Society of Japan conveyed its intention to take part in the event. We know the pleasure of studying and being involved in chemistry. With this blessing in mind, let's convey to young people and those in different fields what life in chemistry is like and how it richly contributes to society through various industries.

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The *Kagaku to Kogyo* (Chemistry & Chemical Industry)
Editorial is responsible for the English-translated article.