

## Policies and progress to advance diversity in science in Japan

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In Japan, there is a strong demand for the realization of a sustainable society that is different from the past society, because we are facing a shrinking population first in the world. Promotion of diversity is one of the key components to achieve the sustainable society. In recent years, importance of diversity has come to be commonly recognized by many people in many fields, but it is not always clear how diversity is effective to change our society, especially in the field of science and technology. Diversity includes various factors such as gender, age, geography, religion, and culture, and these factors are closely connected among them.

The government policies regarding science, technology, innovation, and gender equality in Japan are shown both in the science, technology, and innovation basic plan and the gender equality basic plan. The sixth basic plan for science, technology and innovation was approved by the cabinet in March 2021. The basic plan emphasizes the need to secure research diversity. The interdisciplinary collaboration of different research fields has not progressed so much, although it was said to be important. When we try to solve social problems, it is necessary to promote the interdisciplinary research. In addition, new research fields are required beyond the fusion of fields. The basic plan emphasizes the need to promote the diversity of these disciplines.

Importance of gender equality as one of diversity promotion activities is described in both in the science, technology, and innovation basic plan and the gender equality basic plan. The fifth basic plan for gender equality was approved by the Cabinet in December 2020. It is emphasized that it is important to create innovation through gender analysis, that shows effect of women's participation on scientific performance. This requires research and technological development that includes gender analysis and takes gender difference into consideration. The promotion of research including the above gender analysis was clearly stated both in the basic plans. In this way, the government policy has clearly shown the need for research and development that takes gender perspective into account and promotes gender analysis into scientific research.

A typical example of gender analysis in Japan is the report by Y. Mochi at Development Bank of Japan, that is "Women's participation improves corporate performance - the contribution of diversity to economic value from the perspective of patents."<sup>1)</sup> Inventors of patents were classified into men and women by their names, targeting approximately 1 million valid patents from domestic patents proposed by more than 1,000 manufacturing companies in Japan over the past 25 years. As of March 2016, they reported that economic value of the patents with mixed gender teams (male and female inventors) was 44% higher than that of the patents in which only men were the inventors. Two years later, they analyzed the economic value of the patents, adding new patents, and showed that the value was improved to be 54% higher.

Realization of gender equality in science is not easy, but we can accelerate gender equality by showing scientific evidence of merit in female researchers' participation, that is diversity of research.

### Reference

1) Y. Mochi, "Women's participation improves corporate performance - the contribution of diversity to

economic value from the perspective of patents" JDB topics No.257-1 (2016).