

Preface

In October 2012, the news of Shinya Yamanaka, M.D., Ph.D., a professor at Kyoto University winning the Nobel Prize was greatly applauded by the people in Japan. The achievement reminded people that there was a possibility of “freedom from suffering incurable diseases” and that there was still a “strong and competitive medical industry in Japan.” Therefore, people praised Prof. Yamanaka's admirable scientific achievement.

What do we expect of S&T? Why do we invest in R&D?

We human beings have built today's civilized society by making full and practical use of S&T (science and technology; the same shall apply hereafter), and have engaged in fierce competition over the economic benefits to be gained during the period of new technology being developed and widely accepted. Yet, R&D promises a comfortable life and an energetic economy.

Japan, as a country that is poor in natural resources, has grown and developed by importing materials and exporting industrial products, leveraging S&T that is bolstered by the wisdom of the nation. Opinion surveys about Japan conducted overseas show that S&T is listed as the area people are most interested in when they are asked about Japan, while surveys conducted in Japan suggest that many people feel that contributions to the development of economy and industry shall be the most important factor when determining investment in S&T. In fact, Japan has registered the largest number of patents in the world, and Japan has the second most Nobel laureates in this century, tied with the United Kingdom. Japan's development is recognized as being in the innovation-driven stage¹. The goal of Japan should be to become a country that pursues development and affluence as a result by S&T.

Regarding the situation outside Japan, many countries and areas of the world have established policy developments to strengthen S&T. In the United States, since the beginning of the century, S&T has been strengthened to further enhance competitiveness. The presidential policy guidance address (State of the Union address) given in 2013 emphasized the necessity to invest in the most excellent ideas for revolutionizing the manufacturing industry, and science and innovation to create new employment. In addition, the president declared the policy's goal of recovering the same degree of R&D that the United States accomplished during its competitive peak during the space race. In the EU, scientific technology is considered to enhance competition and drive economic growth. The EU promotes the enhancement of scientific technology throughout its entire area and has created a European Research Area. Asian countries have also demonstrated a rapid improvement in scientific technology levels and exponential growth.

Japan has developed “The 4th Science and Technology Basic Plan,” and is engaged in the integrated promotion of scientific technology and innovation. The Abe cabinet, inaugurated in December 2012, has established innovation as one of the “Three arrows,” an economic revival plan that is a significant pillar of Japan's growth strategy.

Chapter 1 describes an overview of the trends surrounding Japanese S&T, and summarizes the issues and efforts of Japanese S&T capabilities which serve as the core of innovation. In order to explain why, we have examined how world-wide trends, in regard to these issues and efforts, compare with trends in Japan.

¹ The Global Competitiveness Report