Bureaucratic R&D Policies: The Japanese Example

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1 Introduction: The Japanese economy after the Second World War

After the Second World War, the Japanese economy was facing serious difficulties. The nation had lost 44 percent of the land it had controlled before and during the war, and much of its infrastructure, administrative organization, and industry had been destroyed. For example, 60 percent of the small and medium enterprises had been ruined and 20 percent of large companies had been heavily damaged (Commission of the History of Science and Technology Policy 1991). However, the American General Headquarters (GHQ) reorganized the bureaucracy, and with the cooperation of the Japanese reformed the base for industrial renewal. This renewal would expand even more quickly with the advent of the Korean War from 1950 to 1953 due to the increased amount of goods purchased by the American army.

The EPA (Economic Planning Agency), created in 1955, reported in its 1956 White Paper on the Economy that the postwar period was over. Emphasizing the importance of the role of technology in forming economic policy, it further stated that increased investment through innovational technology was the basic element for economic growth. Such a stance is still rather rare in the economic policies of Western industrialized countries where R&D is often considered of less importance than monetary or financial conditions. Yet, if we consider the situation of the European Union, the Maastricht Treaty (Treaty on European Union, 1992) stresses the importance of technological R&D and the need for cooperation in this domain between enterprises to increase the competitiveness of European industry.

Even though the 1956 EPA White Paper stressed innovative technology, up to the year 1970 the total budget for R&D was less than 2.0 percent of national income, and was among the lowest of the developed countries. In the R&D budget, the portion funded by the government was almost always less than 30 percent. Recently, the ratio of R&D to GNP has increased to become one of the highest among developed nations, while the governmental portion has decreased to less than 20 percent (Commission of the History of Science and Technology Policy 1991). Given this situation, it is important to analyze how governmental policy could have been effective.
2 The administrative organization

The Japanese administration of R&D policies was, as mentioned above, completely reorganized after the Second World War with the help of the GHQ and with the guidance of American counsellors like R. Adams, Dean of the Faculty of Chemistry at Illinois University, and Dr. Deming. It was Dr. Adams who, along with a team of six others, published a report on the basis of the reorganization of Japan's research structure, while Dr. Deming was responsible for introducing in 1952 the quality control system to Japan. This reorganization also included the following institutions:

*The Japan Science Council* was created in 1948. It was conceived as a large organization with a membership comprised of scientists democratically selected nationwide.

*The Science and Technology Advisory Committee* (STAC) was also founded in 1948. The Prime Minister was to act as president of STAC. STAC's role was to deliberate on matters pertaining to governmental consultations, and then report its findings to the Japan Science Council. The latter would then submit reports or recommendations to the administration. It would also implement methods of conducting international R&D projects, and measures necessary for coordinating administrative activities concerning R&D among the respective administrative organizations. In 1956, STAC became the Science and Technology Agency (STA) executing the role of coordinator between the different ministries. Only the Monbushō (Ministry of Education, Science, and Culture) was kept independent. Along with these duties, STA had full authority in three domains of R&D: Nuclear, Space and Ocean.

*The Industrial Technology Agency* formed in 1948, was created to be an external organ of MITI following the recommendation of Dr. Kelly of the GHQ Economy and Science section. (Dr. Kelly also played a key role in establishing the Japan Science Council.) In 1952 it was absorbed by MITI and became the Agency for Industrial Science and Technology (AIST).

*The Science and Technology Council* (STC) was established in 1957 as a direct council for the government. It was to be chaired by the Prime Minister himself and would be composed of the most important ministers in matters of R&D, and of a limited number of key persons from public and private organizations closely tied to R&D. The STC was created to counterbalance the power wielded by the Japan Science Council which was seen to be possibly too 'democratic'.

To these organizations we must add the many specialized advisory committees each ministry organized and which were composed of people from universities, public institutes and private companies.

At first glance, such a system seems fragmented; however, it must be emphasized that this is not the case for two reasons. First, there is an exchange of persons between ministries, mainly between MITI and STA. Second, the advisory committees attached to different ministries are often, or at least partly, composed of the same people. Consequently, information circulates quite efficiently.