

Third Party Evaluators' Opinion on Research Equipment Reinforcement Project

Professor Keun Lee
Economics Department
Seoul National University

Effectiveness and Impacts

This project is to provide the ODA loan to several research institutes in South Korea to purchase and install equipment for research and development (R&D) in the areas of biotechnology, machinery, semiconductor, and chemical substances. The four research institutes which had utilized this program and got the loan were: Genetic Engineering Center (GEC), Korea Institute of Machinery and Materials (KIMM), Electronics and Telecommunication Research Institute (ETRI), and the Korea Research Institute of Chemical Technology (KRICT).

Overall, the project can be considered successful, especially in terms of the criteria of effectiveness and impacts, as it provided a very “critical inputs” to the enhancement of R&D capability of key research organizations in South Korea. The word, “critical,” is used in the above for the following reason.

Although South Korea is one of the most successful developing countries with remarkable economic achievement, one of the weakest points of the economy has long been its weak ability in the core parts and materials which require more deeper grasp of science and accumulation of experience and knowledge. While the Korean economy was successful in producing and exporting final goods, she has had to rely on imported goods for core parts and materials. These core parts and materials are not easy to localize by Korean private companies as they require more serious and fundamental scientific efforts. Practically, doing R&D on these items require a huge sum of money and risk with a very low chance for success. More specifically, one critical element among others is the need to have at hand the necessary experimental, research, and testing equipments and facilities. The current ODA loan project is marvelous at it directly targeted this problem.

The four selected research organizations all represent those sectors which are very critical for the whole national economy and waiting for breakthrough in R&D. These four R&D organizations seem to have used the money effectively to buy the necessary equipment and to have used them wisely and consistently. We have a very clear-cut evidence of their performance, and the evidence is the patents by them. As shown by the patents acquired by these 4 research organizations, there have been a remarkable increase of the patents around the time that they installed new R&D equipments. Furthermore, it is now generally (my own research confirms this, too) acknowledged that the four industries of biotechnology, machinery, semiconductor, and chemical substances in Korea have made meaningful progress, closing the gap with the advanced countries. For instance, among others, semi-conductor industries in Korea is now the world leader, especially in memory chips.

While these achievements are often associated with private companies, we all know that government research institutes including the four in this projects, have played the critical role. The reason that private companies were often not able to conduct R&D in these hard technologies is that R&D equipments are so expensive so that private companies cannot afford to buy them. This ODA loan program was effective in solving this money problem, and it helped the government research organization to borrow the money and purchase the needed equipment.

Its impacts on the private sector and the overall national economy is obvious as these equipments are often used by private sectors, too, as indicated in the evaluation report. Furthermore, it is written that those equipment and facilities have been used for an extended

period of time so that their impact may have been more lasting than otherwise.