Terminal Evaluation

Asia

1. Outline of the Project

Country:
Philippines

Project title:
Upgrading Project for Plastic Molding Tool Technology

Issue/Sector:
Industry/General

Cooperation scheme:
Project-type Technical Cooperation

Division in charge:
First Technical Cooperation Division,
Mining and Industrial Development Study Department

Total cost:
909 Million Yen

Period of Cooperation
1 September 1997- 31 August 2002

Partner Country's Implementing Organization:
Metal Industry Research Development Center (MIRDC)

Supporting Organization in Japan:
The Materials Process Technology Center Inc.

Related Cooperation:
Project-type Technical Cooperation "Republic of Philippines Metallic Foundry Technology Center Project"

1-1 Background of the Project

The Philippines has faced the necessity to foster Supporting Industries in pursuing economic growth by way of promoting industry. However, technologies in the metal processing industry, the key industry among supporting industries in the Philippines, lagged behind compared with other Asian newly industrializing countries. Under these circumstances, the Philippine Government requested technical cooperation from the Government of Japan to improve the metal processing field (Plastic molding tools and casting), setting the Metal Industry Research Development Center(MIRDC)as the implementing organization.

In response, the Japanese Government made a decision to offer technical cooperation only in the field of Plastic molding tools as the new cooperation for two reasons. Firstly, JICA had already conducted cooperation in the field of casting during the 1980s, and the basic technology had been transferred to MIRDC. Secondly, it was difficult to pursue activities in both fields in one project.

1-2 Project Overview

In order to improve the training and technical support ability at MIRDC, the Project transferred technologies for Plastic molding in three fields (i.e., (1) designing, (2) processing, (3) assembling, repairing and trial manufacturing) to the staff of MIRDC.

(1) Overall Goal

Technical level of engineers and technicians in the Philippines' Tool and Die industry will be upgraded.

(2) Project Purpose

MIRDC will be able to provide training and technical support related to plastic molding tool technology.

(3) Output

1) The project management and operation system will be enhanced.
2) The machinery and equipment will be provided, installed, operated and maintained properly.
3) The technical level of counterpart personnel will be upgraded.
4) Training courses for the tool and die industry will be implemented systematically.
5) MIRDC's technical support services to the tool and die industry will be implemented systematically.

(4) Input

Japanese side:

Long-term Experts	10	Equipment	approx.304 million Yen
Short-term Experts	32	Local Cost	approx.30 million Yen
Trainees received	19		

Philippine side

Counterparts	57
Land/Facility	6 million Pesos (approx. 17 million Yen)
Local Cost	101 million Pesos (approx. 261 million Yen)

2. Evaluation Team

Members of Evaluation Team

Leader: Takanori TANAKA, Deputy Managing Director, Mining and Industrial Development Cooperation Department, Japan International Cooperation Agency (JICA)
Tool and Die Technology: Tetsuo SASAKI, Prof., Mechanical Engineering, Nippon Institute of Technology
Evaluation Management: Ikuko NIIZEKI, Special Advisor, First Technical Cooperation Division. Mining and Industrial Development Cooperation Department, JICA
Evaluation Analysis: Ryosuke SASAKI, Tohmatsu & Co.

Period of Evaluation 11 March 2002 - 27 March 2002

Type of Evaluation:
Terminal Evaluation

3. Results of Evaluation

3-1 Summary of Evaluation Results

(1) Relevance

The Philippine Government focused on industrial development through improving technical capabilities, in its "Medium-Term Philippine Development Plan" (1999-2004) and "DOST Mid-term Development Plan" (1999-2004). The die and mold industry, which is vital to the manufacturing sector, was designated a priority industries. The Project Purpose and the Overall Goal are consistent with the national policy and the beneficiaries' needs and are relevant. As the plastic molding tool industry seemed to have the highest potential among all sectors of the die and tool industry at the beginning of the Project, the Project decided to focus on plastic molding. However, the die and tool industry includes many technologies, such as plastic molding and metal stamping, and metal stamping has the most demand in present. Thus, the Project Purpose and Overall Goal are relevant, but the Project will not directly affect the whole of the die and tool because the activities were limited to plastic molding.

(2) Effectiveness

Counterparts have acquired technology through lectures and seminars transferred by the Japanese experts. According to a

survey, the counterparts have understood 80 to 90 percent of the transferred technology. MIRDC became capable to provide training courses as well as technical support to its clients earlier than was scheduled and 389 trainees have already participated in 34 training courses. According to the questionnaire survey to the clients of MIRDC, to which 71 companies replied, the average grade was 3 (good) on a 5-point scale. From the above, the Project Purpose and the outputs are expected to be achieved in general. However, the trainees targeted are still limited to the small and medium sized industries that use old machinery. This is because the counterparts are still not capable to produce products and provide training for high level skills, although they are capable to produce models of training institutions.

(3) Efficiency

The project activities were conducted efficiently, as the Project Management team functioned properly. The Joint Coordinating Committee (an advisory committee consisting of both Japanese and Philippine members concerned with the Project locally) played the role to reflect the needs of MIRDC's clients, and was functional. On the other hand, as there are very few experts in Japan who are eligible for an international project in the field, JICA had to dispatch some experts who lacked either the needed knowledge or English proficiency. It took one year to deliver the equipment, which limited technology transfer during the first year only to theoretical seminars. CAD/CAM software did not meet the local needs, computers had a Japanese operating system which had to be replaced, and network rebuilding was required. Furthermore, the supporting committee in Japan, which was supposed to give advice on the inputs, did not work appropriately, as committee members were changed during the Project period. These impeded the Efficiency of the Project.

(4) Impact

The Project focused on Plastic molding, although the Tool and Die industry includes many different fields such as metal stamping. Therefore, it is difficult to improve technology of the whole die and tool industry, and thus to have a direct impact on the Overall Goal ("Technical level of engineers and technicians in the Philippines Die and Tool industry will be upgraded"). Moreover, in the Plastic molding field, MIRDC has just started the pilot training and it takes several years to improve level of technicians and engineers. However, technology of the companies was improved to which the counterparts provided training courses and technical support services (mainly small and medium sized companies in the plastic molding field). The meeting with the Japanese companies dealing with die and tool making in the Philippines, organized by the Chief advisor, promoted the Project and provided local companies with opportunities to exchange information with Japanese companies. This can be highly evaluated as a new attempt to involve the local people in the activities.

(5) Sustainability

MIRDC is the only Governmental training and research institution in the field of metalworking with ISO certification. Thus, organizational sustainability is expected. In the technical aspect, although the counterparts have attained the basic knowledge, they must make efforts to improve the technical level continuously, because the innovation in this field is very fast. In the financial aspect, MIRDC can achieve the preset level of income, which was set by the government, since it has implemented a plastic molding trial service. However, the annual budget is still insufficient and the Government must support MIRDC to maintain the equipment.

3-2 Factors that promoted realization of effects

(1) Factors concerning the planning

The needs of the beneficiaries (the private enterprises in the die and tool industry) were accurately understood, because the Philippine side industry group participated in the joint steering committee and made suggestions proactively.

(2) Factors concerning the Implementation Process

N/A

3-3 Factors that impeded realization of effects

(1) Factors concerning the planning

1) As there were very few experts who can work abroad in this field in Japan, the project had to receive some experts with slightly different expertise or insufficient English ability.
2) The Project provided CAD/CAM software that was not used in Philippines, but because the dispatched experts were familiar with it. Moreover, as the Software and OS were in Japanese, the counterparts were unable to understand them without the help of the Japanese experts.

(2) Factors concerning the Implementation Process

1) Because of the insufficient communication between the experts and the supporting committee in Japan, the committee did not fully function in the dispatch of experts.
2) The dispatched experts did not fully understand the project cycle management method, which caused problems in the monitoring and management of the Project.
3) Some of the experts failed to give the necessary information to the experts taking over their tasks. Hence, some of the transferred techniques were not well integrated with others.

3-4 Conclusion

Basic plastic molding technology was transferred to MIRDC and the basis of training and technical support was formed through collaboration between the Philippine and Japanese side. Therefore, the Project Purpose and Outputs are likely to be achieved as planned. Although there were some problems in the Japanese inputs, the activities were conducted as planned which met the local needs on account of the positive cooperation of the Philippine industry group and the efforts of MIRDC management. In order to enable the counterparts to continue providing high quality services, the design-, process-, and manufacture-group should complete the rest of the trial plastic molding tools systematically. Nevertheless, as the Die and Tool industry includes many other fields besides Plastic molding, the Overall Goal has not yet been achieved.

3-5 Recommendation (Concrete action, proposition and suggestion towards the concerned project)

(1) In this Project, the team was divided into three groups, i.e. design, process and manufacture; however, there has been no organization to manage and control them. In the manufacturing process, these three processes must be managed and integrated and, hence, it is necessary to rearrange the management system.

(2) The technological innovation in this field is very rapid. It is necessary to make efforts so that technology will not lag behind the newest technology, as well as to meet the needs of industry by maintaining contact with industry groups.

(3) The experts should continue training counterparts by producing new plastic molding tools.

3-6 Lessons Learned

(1) JICA must select experts for dispatch carefully.

(2) In the selection of machinery, JICA should consider the needs of the recipient country, technology level, the condition of supply, (e.g., cost, agency, maintenance service), which affect the project's sustainability.

(3) As the innovation in the IT field is rapid, it is necessary to establish a follow up system that addresses the speed of innovation issue.

(4) The management system must be reconsidered, so that the supporting committee in Japan functions effectively and the experts and the committee communicate more closely.

3-7 Follow-up Situation

N/A