

Annex 1

Evaluation Summary

Evaluation conducted by: JICA Egypt Office

1. Outline of the Project	
Country : Egypt	Project title : Upgrading of Metal Processing Technology in Egypt (2000-2004)
Issue/Sector : Industry/General	Cooperation scheme : Technical Cooperation
Division in charge : JICA Egypt Office	Total cost : 930 million yen
Period of Cooperation	2000 - 2004
	Partner Country's Implementing Organization : Central Metallurgical Research and Development Institute (CMRDI)
	Supporting Organization in Japan :
Related Cooperation	Senior Volunteer (Total Plant Maintenance, 2006-2008)
1-1. Background of the Project	
<p>Since 1991, the government of Egypt (GOE) has made efforts of economic reform, and achieved financial sustainability and high growth of GDP. But the supporting industries which should have an important role of supplying materials and parts were still suffering from lack of rather basic technologies and methodologies of quality management. Therefore GOE requested the Government of Japan (GOJ) to implement a project to strengthen the technology of Central Metallurgical Research and Development Institute (CMRDI). The mission of the institute itself is to enhance the competitiveness of the Egyptian industry and the welfare of the society through technological development and technology transfer to Egyptian companies.</p> <p>GOJ dispatched several study teams, and then Record of Discussions (R/D) was signed in April 2000 by Egyptian side and Japanese side to agree with the framework of "The Project on Upgrading of Metal Processing Technology in Arab Republic of Egypt" (hereinafter referred to as "the Project"). The Project started in October 2000 and ended in September 2004.</p> <p>The Terminal Evaluation was implemented jointly by Egyptian side and Japanese side in September 2004, just before the termination of the Project's period of cooperation. The evaluation report mentioned as conclusion that the Project had been successfully implemented regardless of many inhibiting factors in efficiency, on the other hand, among a number of the factors that had contributed to the success of the Project, the commitment of the highly motivated C/Ps and Japanese experts was of particular significance.</p>	
1-2. Project Overview	
<p>In the long run, the project overall goal is to upgrade the technical capability for production of metal processing industries in Egypt. To achieve this goal, Japan International Cooperation Agency (JICA) and CMRDI implemented the technical cooperation project to improve CMRDI's capacity of metal processing technology.</p> <ul style="list-style-type: none"> ▪ Overall Goal Technical capability for production of metal processing industries in Egypt is upgraded. ▪ Project Purpose Technical services for metal processing industries extended by CMRDI are upgraded. ▪ Outputs Project operation unit is enhanced <ol style="list-style-type: none"> 1. Necessary machinery and equipment are provided, installed, operated and maintained properly. 2. Technical capability of the counterpart personnel (hereunder referred to as C/P) is upgraded. 3. Technical services for metal processing industries are provided. 	

<p>▪ Inputs (as of the Project's termination in yen)</p> <p>Japanese side :</p> <p>Dispatch of Experts (Long Term Expert : 6 , Short Term Expert: 47) 495 million</p> <p>Acceptance of C/P in Japan 6 million</p> <p>Equipment 385 million</p> <p>Dispatch of Study Team 17 million</p> <p>Local Cost Support 27 million</p> <p>Grand Total 930 million</p> <p>CMRDI's Side : (in L.E. 1 LE = 30 yen as of September 2004)</p> <p>Facilities (air conditioners and others) 225,000</p> <p>Materials and tools 460,000</p> <p>Custom clearance and transportation 134,000</p> <p>Others 106,000</p> <p>Grand Total 925,000</p>		
2. Evaluation Team		
Members of Evaluation Team	El-Zanaty & Associates under contract with JICA Egypt Office	
	Dr. Fatma EL Zanaty	Team Leader
	Dr. Sarah El Reffaey	Principal investigator
	Eng. Sherin El Kordy	Industrial Expert
	Eng. Mohameed Abul Nour	Industrial Auditor
Period of Evaluation	Day/ month/ Year - Day/ month/ Year 1/12/2007 to 1/2/2008	Type of Evaluation : Ex-post
3. Project Performance		
3-1. Performance of Project Purpose		
<p>Technical services for metal processing industries provided by CMRDI are upgraded to include the five areas of the Project.</p> <ol style="list-style-type: none"> 1. Control of mechanical properties and quality control 2. Casting 3. Heat treatment 4. Fatigue evaluation of welded joint 5. Laser cutting <p>Several companies, especially small enterprises, have benefited from these services according to the in-depth interviews implemented to companies. The number of companies which benefited from CMRDI during the project was 37. The number increased by 19 new companies after termination and now 56 companies get services from CMRDI. This indicates that the clients are satisfied with the services from CMRDI as no complaints were collected. In order to analyze the level of satisfaction of served beneficiaries, questionnaires were delivered to 12 companies of different sizes from ESLIA (Egyptian Society for Laser Industrial Applications), EDCC (Egyptian Die Casting Chapter) but were not replied. Then instead of using the answers of the questionnaires, the evaluation team conducted the in-depth interviews with six (6) companies and CMRDI executives and staff.</p> <p>The recorded services provided by CMRDI since termination were 113 services. This number includes researches, projects, testing and evaluation services.</p> <p>There were 4 newly adopted services, one in each area except for the High Pressure die casting. Several companies gained more revenues applying new technologies (MOG), reduction in rejected products (Three Brothers), increase in production (EMCO), and reduction in product costs or reduction in production time. Nevertheless, there were no collective figures to evidence the Overall Project Goal indicators of the industry at CMRDI, ESLIA or EDCC top managements.</p> <p>Small enterprises have higher impacts on their performance in Die Casting Technology as evidenced by (Egyptian International). Their market share increased from 3.3% to almost 20%.</p> <p>In general, the companies have gained no impact on export figures but rather improvement in their</p>		

production competencies in the local market.

Recently the Government of Egypt has been carrying out privatization of state-owned enterprises. But so far there were no privatized state-owned companies among the beneficiaries of CMRDI. So the trend of privatization does not seem to affect CMRDI.

Employment increase is only observed in one small company (Egyptian International)

3-2 . Achievement related to Overall Goal

It is hard to collect reports and data which reflect the contribution of the project to the change of Egyptian industry, and consequently it is difficult to tell. The available records from CMRDI, ESLIA, or EDCC did not support the impact from the perspective of the beneficiaries. Overall figures concerning the market share of the beneficiaries, the change in production costs or increase in productivity were not available.

The evaluation team relied on the in-depth interviews and focus group discussions with CMRDI staff as well as ESLIA member companies to establish a picture of this impact. So the indicators and means of Overall Goal should be more carefully determined at the terminal evaluation or earlier stage.

3-3 . Follow-up of the Recommendations by Terminal Evaluation Study

1) Regular Maintenance

- 1-1) Recommendation of Terminal Evaluation: CMRDI should practice regular maintenance and operational tests of machines/equipment to keep them under working condition constantly.
- 1-2) Follow-up situation : CMRDI practices regular maintenance and operational tests of machines/equipment.

2) Maintenance Records

- 2-1) Recommendation of Terminal Evaluation: CMRDI should insure that staff members keep maintenance records and make operational reports to secure traceability in preparation for such events as machine troubles.
- 2-2) Although CMRDI insure that staff members keep maintenance plans, records of breakdowns and analysis were not evidenced.

3) Communicational Opportunities

- 3-1) Recommendation of Terminal Evaluation : CMRDI should continue to provide communicational opportunities among different technical groups and within each group, and monitor communicational status regularly at CMRDI to optimize its capabilities to cater for ever-growing and sophisticated demands from industries.
- 3-2) Follow-up situation: CMRDI needs intensive marketing effort among the relevant beneficiaries as well as regular announcement of their programs to maximize their service provision.

4) Development and Improvement of Teaching Materials

- 4-1) Recommendation of Terminal Evaluation: CMRDI should continue to develop, improve and further utilize its teaching materials for technical services to cater for ever-growing and sophisticated demands from its clients.
- 4-2) Follow-up situation: CMRDI continued to develop, improve and further utilize its teaching materials for technical services, sometimes it needs the help of foreign experts.

5) Categorization and Analysis of Case Data

- 5-1) Recommendation of Terminal Evaluation: CMRDI should start analyzing, categorizing and accumulating case data obtained through each technical service systematically, so that young and inexperienced engineers could cope with ever-growing demands from its clients within their capacities.
- 5-2) Follow-up situation: CMRDI did not evidence analyzing, categorizing and accumulating case data obtained through each technical service.

6) Establishment of New Associations

6-1) Recommendation of Terminal Evaluation: CMRDI should continue to take the initiative to establish new technical associations as platforms to disseminate and share information of metal processing technologies among private/public companies and researchers, and strengthen the role of CMRDI for industries.

6-2) Follow-up situation : No new associations were established and old associations (ESLIA, EDCC) are not effective in that basic information and databases for the member companies and their technical aspects were not established. In addition, monitoring their economic progress was not developed.

7) Safety Measures

7-1) Recommendation of Terminal Associations: CMRDI should continue to take safety measures and give safety instructions to its employees at CMRDI premises.

7-2) Follow-up situation: The general activities at CMRDI follow the normal safety measures introduced by routine instructions. These instructions are presented to the relevant employees

8) Environmental Precautions

8-1) Recommendation of Terminal Associations: CMRDI should continue to take necessary measures to carry out its operations in environmentally sound manner.

8-2) Follow-up situation: The general activities at CMRDI keep the minimum requirements to carry out its operations in adequate atmosphere. Still, it is needed to carry out a formal evaluation of the aspects and impacts associated with their activities.

4. Results of Evaluation

4-1. Summary of Evaluation Results

(1) Impact

CMRDI have been making their efforts to improve their service and increased their customers from 37 to 56 companies after termination of the Project. Some of the companies CMRDI offered the service experienced impacts such as increase of revenue by applying new technologies, reduction in rejected products, increase in production, reduction in products costs, and reduction in production time. No data was available to indicate positive impacts related to CMRDI's activities and its contribution to export. Also, neither reports nor statistics were found to prove how much extent the Project contributed to change of Egyptian metal processing industry. The provided data are from individual companies, such as (Egyptian International) which increased their market share from 3.3% to 20%. As previously mentioned, these data are difficult to verify through official reports or statistics. The indicators and means of verification of Overall Goal in PDM should have been more carefully determined at the terminal evaluation stage or earlier stage.

(2) Sustainability

In general, it was agreed that there is no difficulty for sustaining the continuation of the service provided from the financial point of view. The government budget covers up to 30 % of CMRDI's expenses. CMRDI's service fees covers all other expenses including maintenance and repairs, labor fees and material costs which are needed for their service or maintenance. Institutionally, CMRDI efforts in increasing their own staff and actually hired 5 new staff. But two out of eleven (18%) counterparts who were trained in Japan during the Project period already left CMRDI, while the rest are still in CMRDI and trying to enhance the result of the Project. The final balance shows 27% increase. Nevertheless, more staff is needed in the material evaluation area according to the in-depth interview with CMRDI officials. No future plans were provided by CMRDI to compare targets with achievements then consequently no plans were provided for future needs in the short term (3-5 years). Because of this lack of information, the evaluation team could not confirm the strategy or direction of CMRDI as an institution. Therefore it would be agreed that the sustainability as an institution has room to be improved since there is no clear short-term planning, although the staff is strengthened with almost no problem. From the technical point of view, the availability of the equipment is there on the requested service.

4-2. Factors that have promoted project

(1) Impact

A very good factor that has promoted the Project is in fact the market needs for specific technologies such as ADI and Laser Cutting. This has boosted their applications in the different related industries and increased the number of cases of CMRDI's service. Because of the tangible result such as reduction in rejects, technology transfer during the Project was encouraged

(2) Sustainability

The fact that CMRDI's budget was secured enough promoted the sustainability of the Project. Since their services are adequately set, the fee of them covers production costs, maintenance, labor and salary for the relevant areas in CMRDI. This fee structure also promoted the financial sustainability of the Project. Maintenance plans on monthly and weekly bases are executed. This promoted the availability of the equipment and contributed to enhancement of the technical sustainability.

4-3. Factors that have inhibited project

(1) Impact

Although capabilities in failure analysis are available, they are only directed to research works rather than services to companies. The effective use of the technology is not reflected in the relevant industries due to the high expenses of such analyses from the point of view of benefited companies.

The marketing and announcement of CMRDI's services were not effective enough. According to the in-depth interview with companies, all of the six interviewed companies are not fully aware of the programmed services and activities as well as schedule of the training. The associations have no monitors to the programs provided by CMRDI to provide to their member companies..

The research budget needs to increase in some areas like die casting as per market needs.

(2) Sustainability

From the interviews and focus group discussion it was shown that Failure Analysis represents a service of high cost to the beneficiaries, especially fatigue testing after treatment of critical components. Therefore the service is directed to researches where the beneficiaries afford to cover the expenses. As a result, this kind of service is not supported adequately from the finance point of view which may cripple its continuation.

The number of employees in the area of material evaluation is not enough to meet the requirements of the beneficiaries.

4-4. Conclusions

The technical services provided by CMRDI have been extended to cover additional 19 new companies after termination. With 37 companies supported during the project period the number totaled 56 companies by the end of 2007. After termination, 113 different services as well as 35 training programs were conducted. Technical services include researches, pilot projects, and testing services. The companies benefited from the services experienced several impacts such as increase in revenues by applying new technologies, increase in productivity, reduction in product rejects, reduction in production costs and time. It is difficult to collect data that indicate positive impacts related to CMRDI's activities on export as well as reports or statistics that prove how much extent the project contributed to change of Egyptian metal processing industry. The evaluation team focused on in-depth interviews and focus group discussion to make the assessment.

Announcement of the services provided and training program schedules are not adequately deployed within the relevant beneficiaries.

In general, it was agreed that there is no difficulty for sustaining the continuation of the services from the financial point of view. According to CMRDI's staff the Government budget covers up to 30% of CMRDI's expenses. Other expenses are covered through CMRDI's own resources. Due to lack of future plans and information the evaluation team could not confirm the strategy or direction of CMRDI as an institution.

The high cost of failure analysis caused the companies to refrain from making use of this application especially in fatigue testing. Hence this application is used in the form of few researches coordinated with the benefited companies instead of being routine service provided by CMRDI.

The lack of awareness and training programs, especially on the importance of failure analysis of critical heat treated product, may decelerate the effective use of failure analysis technology.

4-5. Recommendations

Center for Metallurgical and Research Development Institute (CMRDI), although a very effective institute in research, training and development, requires the following as rooms for performance improvement:

- 1) A sound business or similar strategic plan that is based on specific mission and vision of the institute. The plan specifies their short-term future programs and activities, states specific targets and assumes the needed budget and resources, and the means of provision which ensures the sustainability of the project. This plan will help performance control (follow-up) and evaluation such as the current ex-post evaluation. The plan should be developed by CMRDI staff.
- 2) An accurate database and records that keeps track of:
 - Researches and pilot Projects provided
 - Recorded services provided.
 - Recorded training programs provided.
 - A root cause analysis of unaccepted services and the applied corrective and preventive actions
 - Newly adopted services provided
 - Staff qualifications and development programs
 - Data of economic nature that are linked to benefited companies and which serve as client feedback of CMRDI performance evaluation (Employment trends, market share, production, quality and other competencies, export and import figures..). These data represent the effective impacts on the status of the companies
 - Records of maintenance and equipment breakdown

The availability of such reliable data would have helped in establishing an overall picture of the performance after termination and the impact in change of the Metal Processing Industry in Egypt. This is recommended to be established by CMRDI institute.

- 3) Effective coordination with associations and member companies in the relevant fields. This would strengthen the link between the institute and the real market as it monitors the progress of the industry, the difficulties which the companies face, and the volume of needed services. Coordination should be established by CMRDI staff.
- 4) Data link with Governmental bodies and stakeholders with common interest, e.g. State Ministry of Scientific Research and Ministry of Trade and Industry and Ministry of Investment on issues such as (Employment, trend of privatized companies, export and import figures,..). This is mutually recommended from both parties.
- 5) Services need more effective Marketing and announcement especially in the field of training and services provided. For example training courses in the field of Laser Cutting need to keep the same pace they have during project period. Only 4 programs were recorded from 2004 to 2007. In some instances CMRDI needs the support of foreign trainers for enhanced technology especially in the field of die casting. This might be planned and organized by CMRDI.
- 6) Awareness and promoting fatigue analysis and its importance in ensuring the product quality and service life need to be expanded and included in CMRDI programs to encourage companies improve their product and support the facility in the same time.
- 7) The estimated period of the ex-post study needs to be extended and the eight week plan requires to take into consideration the official holidays and events in addition to other requirements and constraints from JICA. The plan needs to be full working days.

4-6. Lessons Learned

To plan and implement this kind of technical cooperation project, it is important that the implementing agencies of recipient countries should be chosen on the fact that they have a keen awareness of market orientation and improving management system.

Without market orientation, even if some technology is enhanced in within an implementing agency, the knowledge and technology will not be disseminated widely out of the organization, which is intention of the neither recipient country nor JICA.

The management system is important for assuring the implementation agency to improve its productivity and quality of performance and consequently enable to provide customer oriented services to wide range of beneficiaries.

The management system should be established in the agency relying on databases and records of the organization itself. This kind of information is also crucial for future studies such as ex-post evaluation.

Effective communication with different stakeholders is required to make most of the input of the project. An implementing agency of a recipient country should nominate some staff for this task as contact officers and ask different relevant bodies to do the same. It will facilitate coordination and planning of activities.

4-7. Follow-up Situation

No follow-up activities are found so far.