

1. Project Summary	
Country: United Mexican States	Project Name: Project on Engineering and Industrial Development Center for Small and Medium Scale Industries at Queretaro State in the United Mexican States
Field: Industry in general	Type of Aid: Project-type technical cooperation
Sections in Charge: Mining Development Cooperation Section 1, Mining Development Cooperation Department	Cooperation amount: 726 million yen
Cooperation Period	(R/D) February 1, 1998 – January 31, 2002 (Extension) None (F/U) None (E/N) (Grant Aid) None
	Beneficiary Country's Related Institution: Industrial Technology Development Center (CIDESI) Cooperation organizations on the Japanese side: Safety Section, Nuclear and Industrial Safety Agency, Ministry of Economy, Trade and Industry
Other Related Cooperation: None	
1 – 1 Background and Overview of the Cooperation	
<p>Having learned from the debt crisis of the early 1980s, the United Mexican States (hereinafter referred to as Mexico) has replaced the policy of protection of domestic industry with promotion of economic liberalization through opening markets. However, small and medium enterprises in Mexico, many of which are parts producers, do not have sufficient competitiveness against imports. Thus the trade balance is worsening, social problems from bankruptcies and unemployment are on the rise, and strengthening the competitiveness of small and medium firms is a top priority for the Mexican government. Given such background, the Mexican government requested the Japanese government for project-type technical cooperation to expand the functions of the Industrial Technology Development Center (Centro de Ingeniería y Desarrollo Industrial, or CIDESI), which is located in Queretaro, Queretaro State, under the National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología, or CONACyT) of the Ministry of Education and Culture, and strengthen the support system to small and medium enterprises. CIDESI was to be the implementing agency of the cooperation scheme. The Japanese government granted this request. In 1997, the pre-project study was carried out and the record of discussions (R/D) was signed between the Japanese and Mexican sides. On February 1, 1998, the four-year Project on Engineering and Industrial Development Center for Small and Medium Scale Industries at Queretaro State in the United Mexican States began. Here is how this project is meant to work: Japanese experts are to provide the Mexican counterparts (C/P) with technical guidance on material testing (machine testing, metallography, and chemical analysis) and nondestructive inspection. C/P are to provide the transferred technologies to small and medium enterprises, educational and research institutions by such means as seminars, training courses, requested testing, visits to companies for providing guidance, technical consultations, and provision of information services, and thus contribute to the development of Mexico's small and medium enterprises, i.e., supporting industry.</p>	
1 – 2 Description of the Cooperation	
(1) Overall Goal	
CIDESI and other organizations will be able to provide proper technical services to small and medium enterprises in Mexico in the fields of material testing and nondestructive inspection.	
(2) Project Goal	
CIDESI will be able to provide proper technical services to small and medium enterprises in Queretaro State and the surrounding areas in the fields of material testing and nondestructive inspection.	
(3) Outputs	
1) The project operation system is strengthened.	
2) Equipment and facilities for material testing and nondestructive inspection are set up, properly operated and maintained.	
3) The technical levels of C/P in material testing and nondestructive inspection improve.	
4) The project holds seminars and training courses on material testing and nondestructive inspection that meet the needs of small and medium enterprises in Queretaro State and the surrounding region.	
5) The technological supporting system toward small and medium enterprises is established.	
(4) Inputs (at the time of the evaluation)	
Japanese side:	
Dispatch of long-term experts: 7 Donation of equipment: approximately 207 million yen	
Dispatch of short-term experts: 30 Responsibility for local costs: approximately 24 million yen	
Acceptance of trainees: 15 Other: about 26 million yen	
Beneficiary country's side:	
Assignment of counterparts: 20 Purchase of equipment: approximately 560,000 pesos Responsibility for local costs: about 800,000 pesos	
Provision of land and facilities Other: cost of operation and maintenance of equipment and facilities	
2. Overview of the Evaluation Study Team	
Researchers	JICA Mexico Office IC Net Limited
Study period	January 14 – 28, 2005
Type of Evaluation: Ex-post evaluation	
3. Overview of Evaluation Results	

3 – 1 Confirmation of Achievements

(1) Impact

For the Overall Goal of “CIDESI and other organizations will be able to provide proper technical services to small and medium enterprises in Mexico in the fields of material testing and nondestructive inspection”, this project has set the following four indicators: 1) The number of instances of implementation in organizations increases for contracted testing, guidance by visiting, and information services; 2) The number of participants in seminars and technical training in organizations increases; 3) The number of qualified technicians in organizations and relevant firms increases; and 4) The number of products that have been improved with the technical support of organizations increases (The percentage of defective products decreases). However, the PDM for evaluation does not set specific numerical targets for the indicators.

With regard to the indicators 1 and 2, the PDM for evaluation expects that not only CIDESI but also other related organizations are to provide technical services. However, according to interviews with the C/P, they were not aiming to train private related organizations to be able to provide the same technical services as CIDESI; rather, they were aiming to have CIDESI provide knowledge and technologies to related organizations and the recipient organizations to utilize the knowledge and technologies (i.e., have the organizations disseminate the knowledge and technologies among themselves). Accordingly, there is no data for grasping whether or not the service recipient organizations of the Material Technology Section are providing technical support to small and medium enterprises in Mexico. Regarding the indicators 3 and 4, the Material Technology Section follows up on the services it provided to its clients by asking such questions as if the services provided are useful and if there are any problems. However, the section does not follow up on whether or not the number of qualified technicians has increased in the client organizations through the section's services and whether the percentage of defective products has decreased. Thus it was impossible to collect sufficient data to accurately measure the four indicators above, but the project team did its best to measure the extent of the achievement of the four indicators with available data.

As stated above, it is difficult to objectively measure the extent of achievement of the Overall Goal because the PDM for evaluation has no numerical targets for the indicators. However, it is fair to say that the Overall Goal has been achieved to a substantial extent for the following reasons: 1) both the number of instances of technical services offered by the Material Technology Section and the number of participants in training courses and seminars have continuously increased; 2) the number of qualified technicians has increased, raising the technical levels of staff members; 3) services are offered not only in Queretaro State and its surroundings but other regions in Mexico; 4) the survey on the Material Technology Section's clients has indicated a high level of client satisfaction; and 4) more and more clients ask the Material Technology Section for services repeatedly.

At the time of the terminal evaluation, the following effects in addition to the Overall Goal were seen: 1) As this project provided facilities and equipment, it became possible to hold practical training courses and the number of participants increased substantially; 2) With CIDESI as the core, there has been a movement to establish a wide network for providing technical support to small and medium enterprises; and 3) It has been confirmed that technology for automation of nondestructive inspection (ultrasonic flaw inspection robot) has been developed. At the time of the ex-post evaluation, these effects were maintained. The effect 2) in particular has been expanding: upon the signing in 2004 of the record of discussions (R&D) on the Third Country Training Program between the Science and Technology Bureau of the Foreign Ministry of Mexico and JICA, an international course on nondestructive inspection toward Latin American countries is to be held once a year for five years starting in 2005. At the time of the ex-post evaluation, the following new effects were seen: 1) The Material Technology Section had higher name recognition; 2) With an increase in the technical services that the Material Technology Section had to offer, the Section increased its revenues; 3) There was a change in the work attitude of the Material Technology Section staff members (they tried harder to respond to what clients wanted, paid more attention to client satisfaction, and became more responsible than before); 4) The area of welding was strengthened by the introduction of equipment and dispatch of experts, although this was not a direct area for cooperation in this project; and 5) There was technological transfer to countries outside Mexico in the areas of nondestructive inspection and welding.

(2) Sustainability

1) Physical and Technical Sustainability

(Technical levels of the C/P) The terminal evaluation measured the extent to which the C/P acquired the technologies transferred through this project. At the time of the evaluation, some items did not reach the target levels of learning. Accordingly, the ex-post evaluation also measured the extent of learning on the same items and the result was that all but one item regarding the consulting technology have reached the target levels. The C/P believe that, through the provision of technical services and participation in training and seminars held in and out of CIDESI, their technical levels improved after the end of the project. The number of qualifications that the C/P have acquired is also an indication of improvement in the technical levels. The C/P are trying to learn new technologies: after the end of the project; there has been an increase in the number of the areas in which technical services are provided by the four laboratories that received technology transfer in this project.

(Provision of technical services) The practical training course that began during the project implementation has been continuing. In addition, there have been courses and seminars on material testing and nondestructive inspection, and training courses whose curricula are put together based on the orders and needs of firms, and the number of such courses and seminars is on the rise after the end of the project. The number of contracted testing and guidance by visiting has also been increasing the end of the project. CIDESI carries out a questionnaire survey once a year for its major clients to find out the extent of client satisfaction on technical services that CIDESI has provided. In the survey, the clients of the Material Technology Section have given high marks to CIDESI on the three most important aspects of services: reliability, promptness, and prices.

(Equipment provided) The equipment provided by JICA is well maintained and properly utilized: all the equipment that JICA provided is still in use. With regard to the equipment that CIDESI provided to this project (including equipment that CIDESI had prior to the project), some of it are not in use as it became old or spare parts became hard to obtain, but the overall situation on maintenance and operation is good. The reasons for such good state of equipment include the following: 1) The C/P took part in the selection process of equipment to be provided and chose the equipment with full consideration of maintenance and operation after the purchase; and 2) The C/P must inspect and maintain the equipment regularly due to ISO9001-2000 that CIDESI has acquired.

Organizational Sustainability

(Research and development system in the Material Technology Section) During the project implementation, 23 C/P were assigned. Of the 23, 4 left CIDESI. The Chief of the Material Technology Section has stated that the following two points have raised the retention rate of staff members including the C/P: 1) They can take part in training and seminars in and out of CIDESI to acquire new technologies and knowledge; and 2) Performance evaluation of staff members is carried out twice a year, and they can be financially rewarded if good evaluation results are good. The number of staff members in the Material Technology Section as a whole is on a rising trend after the end of the project.

(Where the Material Technology Section lies in CIDESI) According to an interview with the head of CIDESI, the Material Technology Section has become an important part of CIDESI as it has received equipment and developed its human resources through this project and has high visibility from the outside. The Section is also important in CIDESI from the financial perspective as it has significantly increased its revenues after the end of the project.

(CIDESI) In an interview, the head of CIDESI stated that the importance of the center increased in the industrial sector of Mexico, and an indication of such phenomenon is the increase in the number of clients that ask CIDESI for technical services. In addition, according to the former CIDESI head who was a C/P in this project, CIDESI has a crucial role in the industrial sector of Mexico as there is no other technology research and development center that has close partnerships with private firms and academic institutions.

3) Finacial Sustainability

To ensure sustainability of this project, CIDESI must secure a budget continuously. The CIDESI budget consists of the government subsidy from CONACyT and the revenue of CIDESI itself by such means as provision of services. After the end of the project, the subsidy from CONACyT is stable at 80% of the CIDESI budget. According to an interview with the head of CIDESI, a decrease in the subsidy from CONACyT is highly unlikely given the importance of CIDESI in the industry sector of Mexico and CONACyT, and CONACyT is expected to provide the same ratio of the CIDESI budget. CIDESI's revenues are on the rise every year: between 2002, which is when the project ended, and 2004, they increased by 60%.

The revenues of the Material Technology Section, a partner of this project, also increased by 82% between 2002 and 2004. The Section sets annual sales goals based on the sales of the previous year and the projection of the following year's activities. The sales goal for 2005 is more than the previous year's net profit. Thus the Material Technology Section's financial sustainability is expected to be secure.

3 - 2 Factors Contributing to the Achievements of Outputs

(1) Factors related to plans

- 1) The counterparts have a high standard in research.
- 2) Companies have a high degree of needs for the technology transfer areas in this project.

(2) Factors related to the implementation process

- 1) The counterparts are still working after the end of the project.
- 2) The counterparts have carried out market needs assessments and surveys on client satisfaction on a regular basis, and reflected the results of such assessments and surveys on research and development of technologies and the contents and quality of the services that they offer.
- 3) The Material Technology Section has increased its visibility through PR activities by CIDESI including seminars and training sessions.
- 4) Funding is secure even after the end of the project.

3 - 3 Factors Inducing Problematic Issues and Problems

(1) Factors related to plans

- 1) Since the start of the project, requests to the Material Technology Section for services have drastically increased, and the section does not have sufficient human resources to meet the requests.

3 - 4 Conclusion

Sustainability of this project is secure even three years after the end of the project. Thus the Overall Goal has been achieved to a large extent. Utilizing the human resources trained through the project and the equipment provided, the Material Technology Section has continuously provided support to small and medium enterprises in the areas of material technology and nondestructive inspection. Both the number of organizations and the extent of regions that receive the Section's support have been expanding. In addition, the Section has developed the area of welding, which was not a direct cooperation area of the project, to an important area in the Section.

3 - 5 Recommendations (Specific measures, suggestions and advice on the project)

- (1) Develop organizations similar to CIDESI so that they can provide high quality services comparable to those of CIDESI, project effects are disseminated further, and the system to support small and medium enterprises in Mexico is strengthened.
- (2) CIDESI should specialize in areas that only a national technology research and development center can work on and strengthen its uniqueness and superiority.

3 - 6 Lessons Learned (examples from this project that can be useful for ideas, formulation, implementation, operation and management of similar projects)

The extent of this project's achievement of the Overall Goal is high at the time of the ex-post evaluation. The major contributing factor to this accomplishment is the high operational capacity of the C/P organization. When formulating a similar project in the future, it is critical to grasp the operational capacity of a C/P organization and strengthen it in the project implementation stage.

3 - 7 Follow-up Situation

After the end of the project, from October 2002 to April 2005 a senior overseas volunteer was sent to the Material Technology Section to follow up on the project in the area of nondestructive inspection.