

# Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Mexico Office/ April, 2014

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| Country Name          | The Project on Technology Transfer for Supporting Industry (Stamping Technology) |
| United Mexican States |  |

## I. Project Outline

|   |  |              |                 |                       |              |                                  |                                |   |  |  |                               |
|---|--|--------------|-----------------|-----------------------|--------------|----------------------------------|--------------------------------|---|--|--|-------------------------------|
| Background  | <p>Mexico started to change its economic policy from the protective trade to the free trade in the 1980's. The Fox administration, which came into office in 2000, considered that the enhanced competitiveness of small and medium-sized enterprises as its administration's one of the most important political issues. In particular, the administration recognized that it was essential to improve the procurement rate of domestic parts of vehicles, electricity and electronic industries. However, most of these parts were imported because of insufficient level of stamping technologies in Mexico.</p>  |              |                 |                       |              |                                  |                                |   |  |  |                               |
| Objectives of the Project   | <ol style="list-style-type: none"> <li>Overall Goal: Technical capability of the targeted Mexican small and medium-sized stamping industries in the state of Queretaro and surrounding area is upgraded.</li> <li>Project Purpose: CIDESI is able to extend appropriate technical services to the targeted Mexican small and medium-sized stamping industries.</li> <li>Assumed steps for achieving the project goals:<br/>The project implements training for Counterpart Personnel (C/Ps) of CIDESI in the field of stamping and production management. By using the enhanced capacity of C/Ps, the project provides technical advisory services for the model companies. Through these technical advisory services, the project aims to improve technical capability of the model companies. Staffs of CIDESI provide the services for other small and medium-sized stamping companies than model ones and thereby upgrade small and medium-sized stamping industries in the state of Queretaro as well as in surrounding area (note 1). (Note 1) surrounding area includes San Luis Potosi and Guadalajara.</li> </ol>   |              |                 |                       |              |                                  |                                |   |  |  |                               |
| Activities of the project   | <ol style="list-style-type: none"> <li>Project site: Queretaro (base), San Luis Potosi, Aguascalientes, Guadalajara, Mexico and Jalisco</li> <li>Main activities:<br/>Establish the project implementation system such as conducting baseline survey, allocation of personnel and budget<br/>Prepare and implement training programs for C/Ps and monitor the results<br/>Provide advisory services<br/>Provide training and seminars for the targeted industries</li> <li>Inputs (to carry out above activities)<br/>Japanese Side<br/> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">1) Experts: 9 persons</td> <td style="width: 50%;">Mexican Side</td> </tr> <tr> <td>2) Trainees received: 10 persons</td> <td>1. Staff allocated: 13 persons</td> </tr> <tr> <td>3) Equipment: machineries and equipment for press automatic line, such as servo press machine, leveler feeder, CAD software for die design, QDC (quick die change) unit</td> <td>2. Land and facilities: machining center, wire for electric discharge, milling machine, etc.</td> </tr> <tr> <td></td> <td>3. Local cost; 3 million peso</td> </tr> </table> </li> </ol> |              |                 | 1) Experts: 9 persons | Mexican Side | 2) Trainees received: 10 persons | 1. Staff allocated: 13 persons | 3) Equipment: machineries and equipment for press automatic line, such as servo press machine, leveler feeder, CAD software for die design, QDC (quick die change) unit | 2. Land and facilities: machining center, wire for electric discharge, milling machine, etc. |  | 3. Local cost; 3 million peso |
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|   | 3. Local cost; 3 million peso  |              |                 |                       |              |                                  |                                |   |  |  |                               |
| Project Period  | October, 2006 to September, 2009<br>(Extended to October 2009)   | Project Cost | 345 million yen |                       |              |                                  |                                |   |  |  |                               |
| Implementing Agency   | Engineering and Industrial Development Center (CIDESI: Centro de Ingenieria y Desarrollo Industrial)   |              |                 |                       |              |                                  |                                |   |  |  |                               |
| Cooperation Agency in Japan   | Unico International Corporation  |              |                 |                       |              |                                  |                                |   |  |  |                               |
| Related Projects  | <p>Japan's cooperation:</p> <ul style="list-style-type: none"> <li>- The Study on Technical Transfer of Essential Technology (Master Plan, 1997-1999)</li> <li>- Engineering and Industrial Development Center for Small and Medium Scale Industries at Queretaro State (TC, 1998-2002)</li> <li>- Human Development in the technology of Plastic Transformation (TC, 2010-2014) CNAD</li> <li>- The Study on Master Plan for the Promotion of the Supporting Industries (Development Study, 1996-1997)</li> </ul>   |              |                 |                       |              |                                  |                                |   |  |  |                               |

## II. Result of the Evaluation<sup>1</sup>

### 1 Relevance

This project has been highly relevant with Mexico's development policy "strengthening of production sector by enhancing domestic market and international competitiveness" and "promotion of supporting industries" as set in Sector program of National Development Plan called "Enterprises Development Program (2001-2006)" and policy documents including economic sector program called "PSE2007-2012", development needs "strengthening of stamping industry of the central-shoal through local skilled labor and local production", as well as Japan's ODA policy; Japan-Mexico Economic Partnership Agreement (EPA) (2005) at the time of both ex-ante evaluation and project completion. Since CIDESI is located in Queretaro, which is one of

<sup>1</sup> Constraint of Evaluation: The evaluation of Effectiveness/Impact is based on the very limited information due to the insufficient number of responses from stamping companies.

the cities that accommodate the largest number of supporting industries, and providing a comparative advantage for Queretaro as a center for stamping industry, an approach for strengthening SMEs of the stamping industry in Queretaro is deemed appropriate. Therefore, relevance of this project is high.

## 2 Effectiveness/Impact

The project focuses on capacity enhancement of CIDESI to provide technical services to small and medium-sized stamping industries. Indicators which measure the achievement of the project purpose are (i) Rejection rates, defective rates, and number of complaints from clients (e.g. Assembly industries) on the products of the model companies benefitted from CIDESI services decrease, (ii) Productivity (e.g. output/hour ratio, rate of return on investment, etc.) of the model companies benefitted from CIDESI services improves, (iii) The stamping industries show the high level of satisfaction on the technical services of CIDESI, and (iv) The number of clients of technical services by CIDESI increased. As to (i), The number of defective rates decreased by 80% regarding 9 out of 11 stamping technologies with data available at the time of terminal evaluation. As for (ii), it is generally inferred that productivity was improved as a result of (i), however, there is no concrete data. For (iii), according to the questionnaire conducted after seminars, more than 90% of participants responded "excellent" or "good". Regarding (iv), the accumulated number of companies that received technical services from CIDESI by 2013 increased (2010:10 companies →2013: 22 companies), however, the number of clients per year has not increased (2010:7, 2011:8, 2012:7, 2013:5). Besides, CIDESI extended their services to big companies<sup>2</sup> and there is a case where providing fee-free seminars to SMEs many times so that SMEs improved their techniques and reduced rejection rates. In sum the target (i) was partially achieved, the level of achievement of (ii) was not confirmed as mentioned above, (iii) were largely achieved while (iv) was not attained.

As for the overall goal, the indicators to measure the achievement level are (i) Rejection rates, defective rates, and number of complaints from clients (e.g. Assembly industries) on the products of the stamping industries decrease, (ii) The above industries improve their productivity and efficiency, and (iii) The number of products of the above industries delivered to assembly industry increase. Although comprehensive statistics are not available for any of these indicators, these three indicators have been partly realized at the time of ex-post evaluation. As to (i), the rejection rate of cutting tools and cabinet doors reduced from 20% to 10% with the technical advisory service by CIDESI (SEMEX). Also, it is confirmed that the defective rate of bracket reduced to 1% (STEEL AND TRUCKS Company) and it reduced from 5% to 1% for cutlery (MetalFex). According to Procesos Controlados S.A. de C.V, in general, the rejection rate in products was decreased by 10% and the defect rate decreased by 5% for the products such as brackets for seating, exhaust systems and accessories manufactured by progressive processes. No complaints have been given to the company. For (ii), down-time of its presses was reduced from 100 hrs / month on average in 2009 to 40 hrs / month in 2013 and also the company's production increased by 20% compared to that in 2009 (Procesos Controlados S.A. de C.V.). In addition, the company's production was increased by 5% and the investment return rate was increased by 15% after the technical advisory service by CIDESI. The productivity of silverware increased by 25% (MetalFex Company). It can be said that some progresses for mentioned companies have been observed at the companies interviewed at the ex-post evaluation for the above three targets. However, considering lack of comprehensive information, it would be concluded that the overall goal has been partially achieved. Therefore, the effectiveness/ impact of the project is fair.

### Achievement of project purpose and overall goal

| Aim  | Indicators   | Results <sup>3</sup>  |
|--|--|---|
| (Project Purpose)<br>CIDESI is able to extend appropriate technical services to the targeted Mexican small and medium-sized stamping industries. | Rejection rates, defective rates, and number of complaints from clients (e.g. Assembly industries) on the products of the model companies <sup>4</sup> benefitted from CIDESI services decrease. | (At the time of Terminal Evaluation/Project Completion) The number of defective rates decreased by 80% regarding 9 out of 11 stamping technologies <sup>5</sup> with data available.<br>(Ex-post Evaluation) There is one (1) model stamping company which received CIDESI services between 2010 and 2013 (ByPasa). According ByPasa its rejection rates and defective rates have been decreased. |
|  | Productivity (e.g. output/hour ratio, rate of return on investment, etc.) of the model companies benefitted from CIDESI services improves.   | (Project completion) When defective rate decreases, production rate is expected to increase, however, there is no concrete data mentioned.<br>(Ex-post Evaluation) According to ByPasa, which received CIDESI services between 2010 and 2013, in general productivity has been increased.   |

<sup>2</sup> Big companies which received technical services from CIDESI are teaching stamping techniques and "kaizen" activities to their sub contractors (SMEs), then CIDESI service is spread to SMEs. At the time of ex-post evaluation, one company (HiLux) with the support of other Technical Cooperation Project (2012-2015) is working in this way.

<sup>3</sup> At the stage of evaluation, there was no comprehensive/complete data and the results were based on the interviews with stamping companies. Because of limited information, the general tendency is not clear.

<sup>4</sup> At the time of Terminal Evaluation, 40 companies which had received service by CIDESI were redefined as Model Companies although PDM was not revised. Terminal evaluation survey team conducted interviews with 3 companies among those 40. Based on this, 3 companies, (i) SELLOORET AUTOMOTRIZ, (ii) BYPASA and (iii) Stamping and Manufacturing Mexico are considered as the Model companies at the time of Ex-post evaluation.

<sup>5</sup> 11 stamping technologies are process calculation for punch, bending and drawing, automation of work press, mechanical press design and its measuring, process calculation for complex products, mono process and progressive tools, design of mono process tools, progressive tools for punching, progressive tools for bending, progressive tools for drawing, assemble and finish of tools, reinforcement of quality and administration of the production in working area.

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|---|---|--|
|   | The stamping industries show the high level of satisfaction on the technical services of CIDESI<br>Note: There are four (4) grades "excellent", "good" "average" and "bad". | (Project completion) According to the questionnaire conducted after seminars, more than 90% of participants responded "excellent" or "good".<br>(Ex-post Evaluation) There are 20 stamping companies which received CIDESI services between 2010 and 2013. According to 1 company that provided the information, satisfaction rate is 90%. |
|   | The number of clients of technical services by CIDESI increased.  | (Project completion) Although seminars in the field of stamping and production management technology were held 14 times by C/Ps, number of clients is not mentioned<br>(Ex-post Evaluation) The number of clients decreased from 15 in 2010-2011 to 12 in 2012-2013.   |
| (Overall goal)  | Rejection rates, defective rates, and number of complaints from clients (e.g. Assembly industries) on the products of the stamping industries decrease.                     | (Ex-post Evaluation) There are 20 stamping companies which received CIDESI services between 2010 and 2013. According to the information provided, the rejection rates were reduced at 5 companies and the defective rates were reduced at 2 companies after the technical advisory service by CIDESI.                                      |
| Technical capability of the targeted Mexican small and medium-sized stamping industries in the state of Queretaro and surrounding area is upgraded. | The above industries improve their productivity and efficiency.   | (Ex-post Evaluation) According to 2 companies that provided the information among above 20 stamping companies, productivities, such as down-time of presses were improved and also the production has been increased after the technical advisory service by CIDESI.   |
|   | The number of products of the above industries delivered to assembly industry increase.   | (Ex-post Evaluation) There is no concrete information; however, 2 companies have responded that they deliver product to assembly industry (ByPasa and Procesos Controlados S.A. de C.V.)   |

Source : Questionnaire to Companies of the Stamping Industry

### 3 Efficiency

While the inputs were mostly appropriate for producing the outputs of the project, the project cost slightly exceeded the plan (ratio against the plan: 115%), and the project period was slightly longer than the plan (ratio against the plan: 102%) because the project period was extended to implement activities concerning production management techniques. Therefore, efficiency of the project is fair.

### 4 Sustainability

In the policy aspect, this project is still given importance in the current development policy as PSE2013-2018 aims at the strengthening of production sector by enhancing domestic market and international competitiveness. Institutionally, CIDESI has 411 staff and of which 362 are technical personnel, which is considered sufficient. All of 9 C/Ps who specialized in stamping technology still continue the activities to sustain effects of the project. As to the production management, 2 out of 6 C/Ps keep conducting the related activities and 2 more staff would be allocated in 2014, Further, 9 C/Ps had been working with Senior Volunteers to enhance their knowledge and skills in production management after the project. While CIDESI did not receive any requests for the services focused on the productivity management in 2010 and 2011, the CIDESI is capable of providing related advices and services upon request, and at the same time, staff members are working to integrate such advices and services into the routine services. As for the technical capacity of CIDESI, it has enough theoretical knowledge as well as practical skills of stamping to transfer to the private companies. Equipment provided by the project is generally utilized despite some problems concerning incompatibility with CIDESI system (die design software DI PRO), and manuals prepared by the project are still utilized with some additional information after the project. On the financial aspect, CIDESI has received the federal budget for regular activities and has obtained approximately 25 million pesos through the innovation stimulus program for training, equipment and strengthening of SMEs in the period 2010-2013 (specific financial data or statement of CIDESI is not available due to its inner policy). Besides, CIDESI conducts necessary activities using the service charges paid by the clients. SMEs which do not have sufficient budget to receive CIDESI's charged services attended fee-free seminars provided by CIDESI. From these findings, sustainability of the project is high.

### 5 Summary of the Evaluation

This project has somewhat achieved the project purpose and overall goal. Regarding capacity development of technical staff of CIDESI, they are capable of providing technical services to small and medium-sized stamping industries. In addition, some companies in Queretaro have received technical assistance from CIDESI, though the number has not increased. As for sustainability, this project is still given importance in the current development policy and there is no problem observed in terms of institutional, technical and financial aspects. For efficiency, the project cost slightly exceeded and the project period was longer than the plan. In the light of above, this project is evaluated to be satisfactory.

### III. Recommendations & Lessons Learned

#### Recommendations for Implementing Agency:

- It is recommendable for CIDESI to utilize assessment and data collected through monitoring client companies to evaluate their activities. Based on those evaluation, CIDESI would specify what activities to be continued for client to produce better results and what activities to be revised. Hence, these activities lead CIDESI to strengthen their own capability.
- Due to the limited budget, it is difficult for SMEs to have technical advisory services of CIDESI. It is recommended that CIDESI enhance opportunities for SMEs to receive low-fee or free advisory services since the target of this project is to upgrade capability of small and medium-sized stamping industries.



Press Area of a Stamping Company supported by CIDESI



Dies Store Area of a Stamping Company supported by CIDESI