

Summary of Ex-post Evaluation Study

Evaluation conducted by: JICA Thailand Office

1. Outline of the Project	
Country: Kingdom of Thailand	Project title: SIC-Tool and Mold Technology Development Project in the Kingdom of Thailand
Issue/Sector: Industrial Technology	Cooperation scheme: Technical Cooperation
Division in charge: Economic Dev. Dep't., Group 1, Small and Medium Enterprise Team	Total cost: Appr. 827 million yen
Period of Cooperation: 1 November 1999 - 31 October 2004	Partner Country's Implementing Organization: Bureau of Supporting Industries Development (BSID), Department of Industrial Promotion (DIP), Ministry of Industry
Supporting Organization in Japan: The Materials Process Technology Center	Related Cooperation: Machine Industry Development Project (Technical Cooperation Project) (Oct.1986 – Sep.1991) Development Study on Industry Sector Development (Supporting Industry) (Sep.1993 – Mar. 1995)
1-1. Background of the Project	
<p>The government of Japan has been supporting the development of Small and Medium Enterprises (SMEs) in Thailand since 1980s through the construction of Machine Industries Development Institute (MIDI), technical cooperation based on MIDI and development study on the development of supporting industries. As Thai assembling industries still relied on imported parts from overseas, the government of Thailand recognized the necessity to substitute the imported parts with domestic products. Under this circumstance, the government of Thailand requested the government of Japan to implement a technical cooperation project to enhance the international competitiveness of assembling industries through the development of supporting industries focusing on plastic and mold. Based on the request, 'SIC-Tool and Mold Technology Development Project in the Kingdom of Thailand' was launched in November 1999 for the project period of five years. In the Terminal Evaluation Study conducted in June 2004, the evaluation team clarified the achievement of the project purpose as an acceptable level with the satisfaction of the client on technical service provided by BSID, which was reorganized from MIDI, and expansion of technical services.</p>	
1-2. Project Overview	
(1) Overall Goal	
Thai plastic tool and mold industries will become internationally competitive to provide assembly industries in Thailand with high quality tools and molds.	
(2) Project Purpose	
Technical capacity of BSID will be upgraded to extend appropriate technical services to the Thai plastic tool and mold industries.	
(3) Outputs	
0. The project operation unit will be enhanced.	
1. Necessary machinery and equipment will be provided, installed, operated and maintained properly.	
2. Technical capability of the counterpart personnel will be upgraded in the fields of mold design, mold processing, mold assembling and trial shot.	
3. Seminar and training courses in the above fields will be implemented systematically.	

4. Technical information and advisory services in the above fields will be implemented systematically.
 5. Trial prototyping services will be implemented systematically.

(4) Inputs**Japanese side (Total cost appr. 827 million yen):**

Long-term Expert	9 persons	Equipment	316 million yen
Short-term Expert	27 persons	Local cost	14 million yen
Trainees received	14 persons		

Thai side:

Counterpart	43 persons	Local Cost	17,514,668 THB
Provision of Land and Facilities			

2. Evaluation Team

Evaluation Team:	Evaluation Analysis	Narong Rattana (Mr.) (Thai Auto-Parts Manufactures Association)
	Support for Evaluation Analysis	Takehiro Iwaki (Mr.) (IC Net Asia Co., Ltd.)
	Assistant Researcher	Dusita Krawanchid (Ms.) (IC Net Asia Co., Ltd.)

Period of Evaluation: 24 October 2007 – 29 February 2008 **Type of Evaluation:** Ex-post Evaluation

3. PROJECT PERFORMANCE**3-1. Performance of Project Purpose**

Although BSID has been taking the role of a coordinator, in addition to the role of an implementation, of the training and replacement of resigned and retired ex-counterparts is considered insufficient, BSID has been consistently providing technical services to mold and die industries, especially for SMEs. Questionnaire survey conducted during the ex-post evaluation study shows the high satisfaction of ex-trainees on BSID's trainings in terms of trainer, training material, and equipment.

3-2. Achievement related to Overall Goal

Judging from the indirect indicators set by the evaluation team, i.e. 1) the improvement of trade balance of mold and die products; and 2) the improvement in the productivity and precision for the production of mold and die products, it can be said that the project overall goal has been achieved due to the growth of the mold and die industries and private sector.

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

Following recommendations were made by the Terminal Evaluation Study.

1. BSID should strengthen its function as a coordinator
2. BSID should conduct need survey of industry
3. BSID should complete the database of its clients
4. BSID should consider the appointment of external trainers to conduct technical training
5. BSID should join private sector in training and utilize the project machine
6. BSID should continuously improve teaching material, evaluate all training courses and build capacity of trainers
7. BSID should make efforts to transfer the obtained skills and knowledge of C/P to other staff
8. BSID should re-examine its maintenance system of machinery and equipment

BSID has been following up all recommendations more or less. It has been strengthening the coordination and cooperation with concerned organizations including the private sector (recommendation 1, 4, 5). Training needs of the private sector have been identified by BSID trainers. However, it appears that BSID has not put high priority on needs

assessment in its policy (recommendation 2). The database has been developed and integrated with the database of DIP. The database is now shared with the Mold and Die Intelligence Unit of Mold and Die Industry development Project (MDIDP) and maintained well (recommendation 3). Although BSID has been taking an additional role of a coordinator in the industries, it still put importance on the training and has been continuously improving its training material and mechanism (recommendation 6, 7). BSID considers the appropriate maintenance and utilization of the project equipment. A committee was set up by BSID to outline criteria and monitor the utilization of the equipment by private companies which use the equipment (recommendation 8).

4. Results of Evaluation

4-1. Summary of Evaluation Results

(1) Impact

<Achievement of overall goal>

As there is no presetting of measurable indicators to evaluate the achievement of project overall goal, the evaluation study team used some implicated items relevant to measure the achievement of the overall goal. These items are 1) export and import values of mold and die, 2) lead time of production, and 3) quality in terms of precision. Judging from the achievement of these implicated indicators as summarised below, it can be said that the project overall goal has been achieved. Although it is difficult to pinpoint the contribution of the project to the achievement of the overall goal, it can be said that the project take a crucial role in building the awareness among stakeholders for urgent development of Thai mold and die industries.

1. The export-import ratio of mold and die products of Thailand increased from 0.09 in 2001 to 0.22 in 2006.
2. According to the survey conducted in 2007 on 110 Thai mold and die factories, the average lead time of the production was reduced to 45 days from about 60 days at 5 years ago.
3. According to the same survey, 45 of 110 factories were capable to produce the product with the precision of less than 10 micron meter. As the standard of precision on mold and die production was 20 micron meter at 5 year ago, it is fair to say that the mold and die quality in terms of precision has been rapidly improved.

<Other Impact>

1. MDIDP was launched by the effort of BSID management staff who gained knowledge and skills of tool and mold development from Japanese experts. The proposal of MDIDP was based on the recognition of BSID on the huge demand of quality mold and die products from the assembling industries and necessity to respond to the needs. It is also noted that BSID has sufficient capability to design a large-scale project like MDIDP to the cabinet through the Ministry of Industry.
2. Some of ex-counterparts of the project have been helping technical colleges to develop mold and die training curriculum and support Thai Tool and Die Industry Association (TDIA) for setting up skill standard. This kind of cooperation is also considered as an impact of the project.
3. The study team did not identify any negative impacts of the project.

(2) Sustainability

As the implementing agency of the project, BSID has been utilizing the knowledge and skills gained from the project to elevate the status of Thai mold and die industries by responding to the needs of the private sector for the human resource development continuously. Major findings are summarised below.

<Organizational and Human Resource Aspects>

1. BSID restructured its organization in 2007 to take the role of a coordinator, in addition to the role of an implementer, of technical services. This policy change was based on the recognition that 1) BSID has limitation

implementer, of technical services. This policy change was based on the recognition that 1) BSID has limitation in its capacity to provide wider needs of technical services from the growing mold and die industries; 2) there is a necessity to strengthen the role of the coordination agency to provide technical support to in the industries. This policy change has strengthened the role of BSID in making policies and in building a strong networking to provide technical services.

2. Among 18 key technical ex-counterparts, 14 still work for BSID and support mold and die production for SMEs. They utilized their knowledge and skills received from Japanese experts for the implementation of training courses and other activities. There is a concern that insufficient replacement of technical staff, resulted from the manpower control policy of the government of Thailand, may hamper the continuation of project activities in the future.

<Financial Aspects >

1. Although it is difficult to pinpoint the expense allocated for the project activities as BSID has integrated the related budget to other activities since 2006, project activities have been conducted with other activities of BSID.
2. MDIDP was a launched by the government of Thailand by the proposal from BSID for the project period of 5 years from 2005 with the total budget of 1.69 billion baht. MDIDP has a common objective with SIC-Tool Project to support the development of mold and die industries and can be considered as a succeeding project of the SIC-Tool Project.

<Technical Aspects>

1. In the questionnaire survey with 12 ex-counterparts, 8 persons responded the transferred technology during the project is highly valid. However, as BSID focuses more on the coordination in technical services, there is a concern that its technical expertise has been and will be weakened.
2. The major equipments have been maintained appropriately by BSID. BSID has been permitting private companies, who have a potential in conducting training, to utilize BSID's facility and equipment for training.
3. Regarding the needs assessment for the private sector on BSID's training courses, BSID has not put the priority in its policy. However, it is found from the interview with ex-counterparts that each trainer has been individually identifying the needs of client.

4-2. Factors that have promoted the project

(1) Impact

The impact of the project has been promoted by following two key factors.

1. The Thai government has been aware of the importance of mold and die industries and launched the MDIDP from 2004 till 2009 with the allocation of a sizable budget.
2. Networking among stakeholders in mold and die industries has been strengthened under the framework of MDIDP.

(2) Sustainability

The following factors have promoted project sustainability.

1. Growth of the thriving assembling industries in Thailand, especially motorcycle, automotive parts and accessories making, and electric and electronics production industries, has contributed to enhance the sustainability of the project.
2. Shortage of skilled manpower in mold and die industry has increased demand from the private sector in acquiring technical training and advisory service particularly in the advanced technology.

4-3. Factors that have inhibited the project**(1) Impact**

1. The issue of the shortage of skilled manpower in mold and die industry also has a negative aspect on the impact and sustainability of the project. If the Thai government cannot efficiently respond to the private sector needs, the project effect will not be sustained in the long run.

(2) Sustainability

The following factors have inhibited the project sustainability

1. Opportunities for ex-counterparts to learn more advanced mold and die technology and practical skills have been limited. It may affect the quality of services provided by the BSID negatively. BSID intends to upgrade knowledge and skill of staff by the close cooperation with the private sector, particularly with Japanese companies.
2. The government of Thailand has a policy to encourage government offices to use the outsourcing service providers. This policy may strengthen the networking between BSID and concerned organizations/institutes through closer cooperation. However, there is a concern that this policy eventually may hamper the advance of technical capacity development at BSID.
3. The sustainability of the project effect may be weakened by; 1) unsteady allocation of annual budget, 2) slow response to the demand of the private sector. It can be said that the government personnel is not able to quickly respond to the private sector's demand due to the government regulation. BSID staff has difficulty in arranging training programs other than planned training programs under the annual budget.

4-4. Conclusions

Stakeholders in the private sector have appreciated the trainings and other services provided by project which has helped them upgrade their knowledge and skills in mold and die production. There has been significant improvement in mold and die industries in terms of quality, cost reduction and shorter lead time of production. Although the project cannot be claimed as a sole input for the achievement of its overall goal, it can be said that the project is a crucial drive in building the awareness among stakeholders for urgent development of Thai mold and die industries.

4-5. Recommendations

There are following recommendations to BSID.

- (1) It is recommended for BSID to follow-up the progress of MDIDP since the output of MDIDP is consistent with the overall goal of the project.
- (2) It is also recommended for BSID to discuss with DIP for the replacement of the resigned or retired technical counterpart personnel to strengthen its support for the mold and die industries.
- (3) Arrangement of further trainings for ex-technical counterpart personnel is considered effective to update their knowledge and skills for ever-changing mold and die production technology.
- (4) There is a concern for the shortage of skilled manpower due to the insufficient modern machines and equipment for the training. Therefore, it is recommended for BSID to facilitate its networks to identify potential customers who are interested in sharing project equipment for the training of their staff under the management of BSID.
- (5) Based on the increasing role of BSID on coordination and policy making for the development of mold and die industries, it is recommended for BSID to put more emphasis on needs survey for strategic planning of competitiveness of Thai mold and die industries.
- (6) The database and information system developed by the Mold and Die Intelligence Unit of MDIDP should be shared with concerned organizations to attract more cooperation.

- (7) It is expected for BSID to play a more important role in transferring mold and die technology for medium and small automotive parts makers, which support the fast-growing automotive industries and need advanced mold and die technologies, such as CAD/CAM/CAE to produce very precision parts including suspension member, turbo charger, and manifold. For this matter, the transfer of Japanese technology, through a close cooperation with JICA, may be an effective approach.

4-6. Lessons Learned

- (1) The measurable indicators to assess the achievement of the project should be defined and shared among stake holders in the process of project.
- (2) In the case of the SIC-Tool Project, BSID has been enhancing the sustainability of the project effect by strengthening network with the related organizations, including the private sector in training. Form this experience, it can be implied that the sustainability of the project will be more secured with the involvement of other institutions working in the related field.
- (3) For the technical cooperation project in the field of industrial development, the project can be implemented with fine coordination of four parties, namely the government of Japan, Japanese companies, the government of Thailand and Thai private sector.

4-7. Follow-up Situation

All the recommendations made by the Terminal Evaluation has been followed up by Thai side without Japanese follow-up cooperation.