

Summary of Evaluation Results

1. Outline of the Project		
Country name: Islamic Republic of Pakistan		Project name: The Project for Balancing and Modernization of Workshop Facilities at the Pakistan Industrial Technical Assistance Centre
Fields: Industrial development, extension of technology		Assistance type: Technical cooperation project
Supervising office: Small and Medium Enterprise Team, Economic Development Department		Monetary amount of cooperation (at time of evaluation): Approximately 822 million yen
Period of cooperation	R/D: September 2002 to September 2006	Counterpart organization: Pakistan Industrial Technical Assistance Centre; Ministry of Industries, Production, and Special Initiatives
	(Extension):	
	F/U: E/N: (Grant aid)	Cooperating organizations in Japan: Materials Process Technology Center
		Other associated cooperation:
<p>1-1 Background and outline of the Project</p> <p>Along with agriculture, its key industry, the Islamic Republic of Pakistan is working to enhance its engineering sector in view of the importance of balanced industrial development in vitalizing its economy. As part of its industrialization assistance, Japan implemented project-type technical cooperation from September 1982 to October 1985 in areas that included machine processing, heat treatment, and design and manufacture of moulds and dies, with the Pakistan Industrial Technical Assistance Centre (PITAC) serving as the implementing agency. Moreover, Japan provided after-care cooperation to PITAC from 1994 to 1995. Utilizing the machinery, equipment, and technology that were provided through this cooperation, PITAC continues to be actively involved in activities that include providing technical training and manufacturing services to nearby companies.</p> <p>However, the demands of companies are becoming more sophisticated as the country's industries develop, and there are strong demands for higher-level technical services and upgraded machinery. In addition, the Pakistani government is working to cultivate supporting industries by listing promotion of small and medium enterprises (SMEs) as a priority industrial policy in an economic revitalization plan announced in December</p>		

1999, and by employing a policy for domestic industrialization that seeks to attain local procurement rate goals for parts and components as a measure against recent advancements into Pakistan by overseas companies. In line with these policies, the Pakistani government made a request for project-type technical cooperation aimed at upgrading the technologies, machinery, and equipment of PITAC and at improving its technical assistance capacities in the plastic mould-making field. This request was made to realize domestic production of precision moulds and components, items for which Pakistan currently depends on imports.

In response, Japan commenced a technical cooperation project in September 2002 for the purpose of contributing to the promotion of supporting industries in Pakistan. This Project intends to do this by transferring Japanese technologies in mould design, processing, polishing, assembly, and testing, and then by having counterparts (C/Ps) utilize the transferred technologies to provide high-quality technical services to private-sector mould companies.

1-2 Description of cooperation

(1) Overall Goal

Domestic plastic mould-making industries are able to supply better quality moulds for plastic production in Pakistan.

(2) Project Purpose

Technical capability of PITAC is upgraded so that it can extend technical services in the field of plastic mould technology.

(3) Outputs of the project

1. The Project operation unit is established for making advanced plastic moulds.
2. The necessary machineries and equipment are provided, installed, operated, and maintained properly.
3. The technical capability of the C/Ps is upgraded.
4. Technical training courses and seminars are implemented systematically.
5. Technical backup support services are implemented systematically.
6. Advisory services are implemented systematically.
7. Interactions of the Project with private companies are strengthened.

(4) Inputs (at time of evaluation)

<p>Japanese side</p> <ol style="list-style-type: none"> 1. Dispatch of long-term experts: 6 experts 2. Dispatch of short-term experts: 20 experts 3. C/P training in Japan: 26 C/Ps 4. Provision of machinery and equipment: Approximately 340 million yen 5. Support for local costs <p>Pakistani side</p> <ol style="list-style-type: none"> 1. Allocation of C/Ps: 30 C/Ps 2. Provision of buildings, machinery/equipment 3. Assumption of local costs: 27 million rupees 		
<p>2. Outline of the Evaluation Team</p>		
Members	<p>Leader Takeshi Nakano Senior Assistant to the Director General, Economic Development Department, JICA</p> <p>Technical evaluation Tetsuo Sasaki Chairman of the Advisory Committee for the Project (visiting professor of the Mould Technology Laboratory, Faculty of Engineering, Iwate University)</p> <p>Training planning Chikako Yamauchi Chief, Material Process Technology Centre</p> <p>Evaluation management Etsuji Yoshimura Chief, Small and Medium Enterprise Team, Economic Development Department, JICA</p> <p>Evaluation analysis Jun Ikeda General Manager, UNICO International Corporation</p>	
Evaluation period	May 14, 2006, to June 1, 2006	Evaluation type: Final evaluation
<p>3. Outline of Evaluation Results</p> <p>3-1 Confirmation of achievements</p> <p>3-1-1 Input achievements</p> <p>(1) Achievements of inputs from the Japanese side (at the time of the evaluation)</p> <p>Through the Project, six long-term experts and 20 short-term experts (of whom, two are</p>		

scheduled for dispatch) were dispatched. Three C/Ps from Pakistan were sent to the Philippines and Thailand, three C/Ps were sent to the Philippines, and 20 C/Ps were sent to Japan for training. A total of 42 types of large-scale machinery and equipment as well as 39 items including jigs, spare parts, and consumables were provided to the Project by Japan. The total amount of expense assumed by Japan from FY1999 to FY2006 (planned) is 822 million yen.

(2) Achievements of inputs from the Pakistani side (at the time of the evaluation)

The total performance-based amount of budgeted funds invested into the Project by the Pakistani side is 27 million rupees (scheduled total of 42 million rupees). The Pakistani side provided construction of buildings, installation of ancillary facilities, and machinery and equipment (peripheral machinery and equipment for mould design & CAD/CAM, for mould processing, and for mould assembly injection tryout; other machinery and equipment).

3-1-2 Achievement of the outputs

(1) The Project operation unit is established for making advanced plastic moulds.

Although delays occurred in procuring budgeted funds needed for allocation of C/Ps, the C/Ps were allocated according to plan after authorization of revision PC-1 (budget application). However, some C/Ps will need further capacity improvement.

(2) The necessary machineries and equipment are provided, installed, operated, and maintained properly.

Although delays occurred in construction and procurement of the machinery and equipment to be borne by the Pakistani side, construction of facilities, procurement of machinery and equipment, and procurement of machinery and equipment from the Japanese side were implemented properly. Guidance in operating and maintaining the facilities, machinery, and equipment has been provided following their installation, and the machinery and equipment are being utilized. However, frequent power failures have restricted operation of the machinery and equipment.

(3) The technical capability of the C/Ps is upgraded.

Technical transfer was conducted through manufacture of model moulds, and the resulting technical capability gave the C/Ps the ability to solve problems on their own. Furthermore, the technical capability of C/Ps improved to the point at which they can manufacture unique Project moulds for the purpose of improving technology on their

own.

(4) Technical training courses and seminars are implemented systematically.

A total of 224 people participated in training courses that were implemented based on yearly plans. Of these, a total of 109 people attended nighttime courses that were conducted in response to strong demand from private companies. Seminars were held in five fields—labor safety and hygiene, advanced mould technology, TQC, project introduction, and 3-D modeling—at 19 venues and were attended by 1,454 people.

(5) Technical backup support services are implemented systematically.

Fourteen orders for backup support services were received, and six orders were completed. PITAC also provided backup support services pertaining to moulds on its own; C/Ps and long-term experts responded to orders that PITAC did not have the technical means to handle.

(6) Advisory services are implemented systematically.

Twenty six orders were received for advisory services, and more of have of these orders were completed. PITAC is gradually responding to even complex orders. Currently, C/Ps are taking the lead in providing services, primarily at a model factory.

(7) Interactions of the Project with private companies are strengthened.

The Project side held training courses and seminars and provided backup support and advisory services to support private companies, and these activities were rated highly by the targeted private companies (known through answers provided in questionnaires, etc.). The results of private-sector evaluations (level of satisfaction with service) indicate that the relationship between both sides has strengthened through, for example, feedback to improve various private-sector support services.

3-1-3 Achievement of the Project Purpose

According to responses from a questionnaire survey of training course participants, participants are satisfied with the content of their training. This same trend is apparent for seminars. In particular, the CAD/CAM course was very well attended, with the number of applicants exceeding capacity each time the course was provided. A needs survey of private companies showed that companies have a strong desire to have their employees participate in the CAD/CAM course. Furthermore, the number of requests for advisory support services and backup support services is increasing.

3-1-4 Achievement of the Overall Goal

If achievement of the Overall Goal is evaluated from the standpoint that the technical level of domestic mould companies in Pakistan is rising, achievement is being made under current conditions. However, as a whole, the mould industry has not reached a level at which it can supply high-quality moulds to the plastic mould-making industries.

3-2 Outline of evaluation results

(1) Relevance

It is confirmed that Project is in accordance with not only needs of the private sector but also Pakistani government policy, and that it is in line with Japan's cooperation policy toward Pakistan. The Overall Goal is in line with the development policy of Pakistan, as, in particular, promotion of SMEs is mentioned in medium- and long-term development plans. Moreover, a government strategy to promote plastic moulds is budgeted within the framework of the "Annual Plan 2004." The relevance of the Project is further verified by PITAC's need to improve its capabilities in providing training courses, advisory services, and backup support services in response to private-sector demand.

(2) Effectiveness

The machinery and equipment were effectively procured and installed, and JICA long-term experts transferred basic technologies to the C/Ps through said machinery and equipment. In addition, the C/Ps began to manage training courses on their own. Improvement of the advisory services also continued, and these services are now meeting private-sector demand. The functions of the backup support services are also being reinforced to meet the practical needs of factories concerned. However, frequent turn-over in the position of PITAC general manager resulted in PITAC's being unable to achieve management consistency and continuity. Also, although budgetary funding was secured, budget execution was delayed, due partly to government procedures. These factors hindered achievement of the Project Purpose.

(3) Efficiency

Efficiency with regard to guidance fields of dispatched experts; allocation of C/Ps; technical transfer plans; provision of machinery, equipment, materials, and facilities; assumption of local cost; and functions of the Joint Coordination Committee (JCC) was

satisfactory for the most part.

Although dispatches of experts were insufficient in some areas, attempts were made to compensate for this through training of C/Ps in Japan, etc. Looking beyond simple technical transfer, there were some C/Ps that showed considerable improvement in their sense of responsibility and work attitude in that they wanted to contribute to the Project's success; however, there were also other C/Ps who needed further attitude improvement. Furthermore, there were delays in the installation of several machines because construction of buildings was not completed in time for installation. A subcommittee comprised of representatives of the JCC and concerned organizations contributed to efficiency by holding meetings to resolve various such problems during the Project.

(4) Impact

Instructors that participated in the training courses are spreading what they learned in their own institutions. At the level of individuals/employees, they are contributing to higher positions and increases in salary; and at the company/factory level, they contributing to higher productivity in areas that include strict observance of delivery dates, quality management, and cost reduction. Furthermore, the advisor services are helping resolve client problems, while backup support services are helping resolve problems at clients' production sites. Although PITAC is moving toward achievement of the Project Purpose of supplying private-sector support services, impact toward the Overall Goal remains to be confirmed.

(5) Sustainability

1) Technical aspects

C/Ps have acquired basic technical knowledge and know-how that allow them to operate training courses on their own. Moreover, the advisory services and backup support services have commenced and are meeting the needs of private companies. Although the C/Ps desire to be able to repair and maintain machinery and equipment on their own, such ability has not been realized due to the complexity of the machinery and equipment.

2) Organizational and financial aspects

An internal study committee should be established to look at handling and positioning of Project components in the future. Moreover, because it is expected that PITAC

revenue will increase through application of multiple budgets and acceptance of orders from private companies, the possibility exists that the Project's financial sustainability will be maintained and strengthened.

3) Policy and institutional aspects

The Ministry of Industries, Production, and Special Initiatives; TUSDEC; and the governing body of PITAC have made clear statements pertaining to improvement and reform of PITAC's operating system and strategies (infusion of private-sector resources into PITAC's organization, operation, and management, etc.). At the same time, there is strong government policy support for the modernization and improvement of PITAC.

3-3 Factors contributing to emergence of effects

(1) Factors pertaining to planning content

No comment in particular

(2) Items pertaining to the implementation process

On Wednesday of each week, C/Ps in charge of each department and JICA experts held weekly meetings to confirm progress and examine problems. These meetings allowed all members to understand the agreed-upon solutions and to reflect these solutions on their daily work. The JICA experts concentrated on training and instructing 10 C/Ps that had participated in the Project from its beginning. Twenty C/Ps that were assigned later were jointly trained and instructed by the JICA experts and the aforementioned 10 C/Ps.

3-4 Problem areas and factors leading to problems

(1) Factors pertaining to planning content

No comment in particular

(2) Items pertaining to the implementation process

Construction and repair of buildings and allocation of counterparts, which were established as preconditions at the PDM preparation stage, were not completed by the start of cooperation from Japan. Moreover, there were delays in securing budgetary funds for these activities. As a result, the preconditions were not met for half of the four-year cooperation period, a situation that forced the JICA experts to expend considerable energy. Consequently, of the project outputs that were planned for implementation after completion of technical transfer to the C/Ps, the backup support

services and advisory services are just getting started, although some success was achieved in implementation of the training courses and seminars.

Furthermore, central Pakistani personnel in the Project were the general manager of PITAC (director) and the project manager. However, while the same project manager remained in charge throughout the duration of the Project, the PITAC general manager was frequently replaced. This led to problems in communication and management-related discussions between PITAC and the JICA Project team, and hindered smooth Project implementation.

3-5 Conclusion

The joint evaluation team concludes that, having overcome the problems and constraints encountered during the initial stage of the Project, the Project has achieved the Project Purpose at an acceptable level. However, the Project has some problems in terms of future sustainability, and thus JICA experts, C/Ps, and PITAC managers must continue to make further efforts to resolve these problems by the end of the cooperation period.

3-6 Recommendations

- (1) In order to steadily improve their skills and know-how, it is desirable that C/Ps not only manufacture several moulds a year but also participate in overseas and/or domestic training. Furthermore, it is desirable that C/Ps rotate to different departments roughly once every three years in order to acquire a broad range of technologies.
- (2) The Occupational Safety and Health Committee should take the initiative to realize the “5Ss” (*Seiri, Seiton, Seiso, Seiketsu, and Shitsuke*) and to hold Tool Box Meetings (pre-work meetings) to make safety calls and check that workers are wearing their uniforms and safety shoes.
- (3) Ventilation equipment should be installed, dust countermeasures should be implemented, power cables should be replaced, and stable power should be supplied so that provided machinery and equipment can be fully utilized.
- (4) All software used in the Project should be licensed versions. It is hoped that budgetary funding will be secured for software upgrades and hardware maintenance contracts.
- (5) The tender system should be closely examined to realize fast and accurate procurement. When tender bids are examined, not only price but also quality of

goods and/or services should be assessed.

- (6) Standardization of technology transferred through the Project with international standards should be completed by 2008.
- (7) Textbooks and curricula used in the training courses should be continuously updated so that completion-of-training certificates have currency for industry.
- (8) Brochures and periodicals should be issued once a year to publicize the Project's activities. Seminars should be carried out regularly based on an annual plan.
- (9) An ordinary budget should be secured to ensure continuation of Project activities. Overall income created by the Project should be utilized for machine maintenance and domestic/overseas training, etc.
- (10) PITAC should be given the authority to directly use foreign currencies to realize speedy procurement of machinery, equipment, materials, and parts necessary for the Project.
- (11) C/Ps that are hired under two-year contracts should be promoted from temporary employee status to full-time employee status in order to ensure the sustainability of the Project. Moreover, education and training should be provided to improve know-how.
- (12) The JICA Project team should issue detailed lists of machinery and equipment, including specifications (model numbers, serial numbers, etc.), as well as letters addressed to companies/makers/producers of machinery and equipment to request their cooperation in the supply of required spare parts and materials. Moreover, the Pakistani side must issue "end-use certificates" to companies/makers/producers of machinery and equipment.
- (13) A PITAC internal examination committee should be established by personnel from both Japan and Pakistan for the purpose of studying the future of Project components (including their position within PITAC) and organizational matters.

3-7 Lessons learned

Not all of the preconditions laid out during the Project's preparatory period were fulfilled before cooperation began, and this hindered Project progress. Thus, it was reaffirmed that satisfying all preconditions noted in the PDM is vital. At the same time, it is strongly recommended that, in the future, contingency plans be studied by both sides before a project begins so that workaround measures can be implemented even if important preconditions are not satisfied.