

Terminal Evaluation

Latin America and the Caribbean

1. Outline of the Project

Country:

Mexico

Project title:

Advanced Electronic Control

Issue/Sector:

Telecommunication

Cooperation scheme:

Third-Country Training Program

Division in charge:

Central America and the Caribbean Division, Regional Department III(Latin America and the Caribbean)

Total cost:

18 million yen

Period of Cooperation

2001 - 2003

Partner Country's Implementing Organization:

Center for Industrial Technology Education and Service No.115 Mexico-Japan (CETMEJA), Bureau of the Industrial Technology Education (DGETI)

Supporting Organization in Japan:

Health, Labour and Welfare Ministry

Related Cooperation:

Project-type Technical Cooperation; "Center for Industrial Technology Education and Service No.115 Mexico-Japan (CETMEJA)"

1-1 Background of the Project

The government of Japan implemented a Project-type Technical Cooperation, "Center for Industrial Technology Education and Service No.115 Mexico-Japan (CETMEJA)", which was implemented for five years between April 1982 and March 1987. CETMEJA began with six training courses; machine tool, finishing, metal processing, computers, industrial electronics and electronic communication. CETMEJA was a vocational training center (the equivalent to a technical college in Japan for middle-level engineers) under the Bureau of the Industrial Technology Education (DGETI), and trained about 100 graduates every year for the Mexican industrial market. After the completion of the project, the implementation of Third-country Training and Equipment Donation Program (FY 1994) enabled the institution to continuously train and serve engineers. The institution became an organization that offered training for local industries and technical advice in the manufacturing field.

However, it was later recognized that continued training of instructors to promote engineers in the field of electronic control was very important for the automation on industrial process in Central American and Caribbean countries, to reduce the cost of productivity and time. As a result, a Third-country Training Program was implemented five times between FYs 1995 and 2000 to disseminate the experience in the field to other Central American and Caribbean countries. Because the needs for a updated program reflecting the latest innovation in this field as well as the needs for the original training program were still strongly felt in Central American and Caribbean countries after the termination of the training in FY 2000, the Mexican government requested a three-year extension of the cooperation with an updated training program from the Japanese government. This evaluation covers the three-year extension period.

1-2 Project Overview

The project instructed the specialized techniques, organization and teaching methods in the training curriculum, mainly in the field of telecommunication, in order to foster knowledge among the personnel in the electronic control field in response to industrial demands for automation in Central American and Caribbean countries.

(1) Overall Goal To help participants from Central American (including Mexico) and Caribbean countries create opportunities to improve the automation techniques, through job training instructed according to each country's needs, in order to cope with the industrial demands.

(2) Project Purpose

The participants from Central American and Caribbean countries are able to conduct job training of automation techniques to cope with the industrial demand according to each country's situation.

(3) Outputs

1) The participants from Central American and Caribbean countries acquire the knowledge of the following six items.

- a) Digital Control
- b) Automation process
- c) Design assisted by computer
- d) VHDL
- e) Micro-controller
- f) The introduction of visual processing and the fuzzy control theory

2) The participants acquire knowledge of the above mentioned six items and become capable of elaborating the way in which to put them into practice.

(4) Inputs

Japanese side:

Equipment	2 million yen (156,000 peso)
Short-term Experts	3 Local Cost 3 million yen (275,170 peso)
Trainees received	3

Mexican Side:

Trainers Staff	12
Land and Facilities	
Local Cost	12 million yen

2. Evaluation Team

Members of Evaluation Team JICA Mexico Office
(Commissioned to: Y.I.T. Asociados, S.C.)

Period of Evaluation 1 November 2002 - 31 January 2003 **Type of Evaluation:** Terminal Evaluation by Overseas Office

3. Results of Evaluation

3-1 Summary of Evaluation Results

(1) Relevance

Considering the fact that more than 100 persons applied to the training, the needs for the training in Central American and Caribbean countries is considerably high. Taking the regional gap among those countries into consideration, it was appropriate to set the Project Purpose as follows: the participants from Central American and Caribbean countries are able to conduct job training of automation techniques to cope with the industrial demand according to each country's situation. However, in the terminal evaluation, it was already decided that third-country training was going to be conducted by National Actualization Center Teachers (CNAD). Hence, the role of CETMEJA to train teachers was considered to be completed. Taking account of CETMEJA's limited materials, facilities, and capabilities, the third-country training Program was done on a small scale.

(2) Effectiveness

According to the questionnaire survey (representing 16 participants out of 23), almost all the home organizations (from which the participants came) offered job training for automation technology after the project. Lecturers also evaluated the knowledge level of the participants as adequate. Although there were some ex-participants from organizations unrelated to the job training, all the respondents mentioned that they were making full use of acquired skills in their work places. However, only five respondents mentioned that the applicability of their acquired skills was "good", and 10 answered as "moderate" and that the acquired knowledge was not fully utilized. This was mainly due to the lack of machinery, materials, and budget available.

(3) Efficiency

Lectures by short-term experts with the most advanced techniques from Japanese standards offered Mexican lecturers and the participants' opportunities to rethink awareness and technical improvement. Those who were trained by Japanese technical cooperation also earned high reputation.

However, there was a comment that the lack of uniformity in the level of knowledge of each participant was impeding the efficiency. The implementation of the training imposed a strain on the Mexican side in terms of time and costs (through the unregulated use of the general operation budget). It also negatively affected their regular activities. Therefore, it is very important to care for the lecturer's self-sacrificing effort and cooperation by DGETI.

As the Outputs were accomplished, and there were no major problems in either training contents or management. This means the efficiency of the project was at a satisfactory level.

(4) Impact

It is too early to evaluate the end results of the Overall Goal of this evaluation. However, in the midst of globalization today, Mexico and other Central American and Caribbean countries are headed for the socio-economic development by adopting an export-oriented market economy, and the industry is being modernized rapidly with the introduction of foreign capital. For instance, Intel has extended its business to Costa Rica, and investments by a Korean electronic appliance manufacturer are being received in El Salvador. Therefore, these countries are in a favorable position to accomplish the Overall Goal: "To help participants from Central American (including Mexico) and Caribbean countries create opportunities to improve the automation techniques, through job training instructed according to each country's needs, in order to cope with the industrial demands."

(5) Sustainability

Regarding economic sustainability, due to the limitations of the Mexican budget, it was impossible for governmental organizations and ministries (except for the Ministry of Foreign Affairs) to share the cost of hosting foreign participants. There was a limitation because Mexico's share for the training cost was somehow raised through the flexible use of the CETMEJA's regular budget (salaries for lecturers, and the use of facilities and materials). Three Mexican lecturers participated in the training in Japan, which greatly contributed to the sustainability of the project. There was little difference between Mexican industrial conditions and that of other Central American and Caribbean countries. Therefore, the CETMEJA methods, which were proven to be effective to cope with the industrial needs in Mexico, could be applied to other countries as well. In this regard, there were no problems in the program's sustainability.

3-2 Factors that promoted realization of effects

(1) Factors Concerning the Planning

N/A.

(2) Factors concerning the Implementation Process

Thanks to the 20-year accumulation of Project-type Technical Cooperation and collective training, Mexican teaching staff are now able to take in the Japan's latest electronic control techniques and "to translate them" using their "Spanish local discourse" appropriately. In this manner, these techniques can be shared as techniques within reach of people in Central American and Caribbean countries.

3-3 Factors that impeded realization of effects

(1) Factors Concerning the Planning

N/A

(2) Factors concerning the Implementation Process

- 1) Some exercises were skipped for the image processing class because some of the materials did not arrive in time.
- 2) In many cases, the lack of equipment at participant organizations impeded the utilization and dissemination of transferred techniques. While this does not mean that they lacked initiative, the deficiency in funds made sustainability difficult.

3-4 Conclusion

The Participants from Central American and Caribbean countries were able to offer job training on automation techniques to cope with industrial demands according to the status quo of each country. The project could respond to the needs of many applicants to the project "who did not participate in Phase 1." It could thus be concluded that the project was successful to some degree. However, most of the countries were at the introductory level or far behind the technology level today in terms of the introduction of automation techniques to their respective countries. For example, there were three countries--Costa Rica, Panama and El Salvador which participated in the project in years 2000 and 2003 respectively, that accepted large-scale businesses requiring high levels of electronic control techniques. There is therefore a demand for secondary and higher education in those countries to cope with present industrial needs by providing appropriate training. The overall goal will be accomplished within a span of five to ten years.

3-5 Recommendations

- (1) The training was conducted during the normal semesters because CETMEJA, the implementing organization, could not implement the training during the summer vacation. Implementing the training for several weeks in such organizations as CETMEJA might hamper the management of the schools, hence, implementation in institutions such as CNAD are more suitable.
- (2) Because the presence of the Japanese short-term experts and instruction by them were highly appreciated, the extension of the duration of their stay, and the necessity of the technical transfer to the Mexican lecturers during the preparatory period before the commencement of the training, should be considered in coordination with national cooperative organization.

3-6 Lessons Learned

- (1) Cooperation in the fields using the latest techniques such as electronic control and the translation of techniques into local languages should be valued (e.g. manuals delivered in Spanish).
- (2) The Third-country Training was implemented on the side of the business routine of the host-country side, therefore it owed much to the lecturers. To overcome this limitation, it is necessary to institutionalize an economic incentive.
- (3) Many of the ex-participants commented that the lack of funds and implements in their local organizations interfered with the application of acquired knowledge. This is not because of their lack of initiative, but because of the chronic financial shortages generally observed in Central American and Caribbean areas. Taking advantage of this training, efforts are being made to update the training program and facilities in local organizations, but it requires additional support from Japan, (in the form of bilateral cooperation between Japan and respective countries) especially in the fields such as electronic control.

3-7 Follow-up Situation

N/A