

付属資料

1. ミニッツ
2. PDM (和)
3. 評価グリッド (和)
4. プロジェクトの実施体制 (組織図/運営)
5. 日本側投入実績 (専門家派遣/研修員受入/機材供与/現地業務費)
6. トルコ側投入実績 (カウンターパート配置/ローカルコスト支出)
7. プロジェクトの成果品実績
(カリキュラム/シラバス/教科書/実習教材/実習機材/指導要領)
8. 活動実績
(活動年表/技術移転記録/ニーズ調査/技術セミナー開催/工場実習/成果の公開状況)
9. 供与機材実績と機材管理担当者
10. プロジェクト対象校基本データ
11. 参考資料: 教員養成センター及び20校普及計画

**MINUTES OF MEETINGS
BETWEEN
THE JAPANESE FINAL EVALUATION TEAM
AND
THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF
THE REPUBLIC OF TURKEY
ON
THE ESTABLISHMENT OF INDUSTRIAL AUTOMATION TECHNOLOGIES
DEPARTMENTS IN ANATOLIAN TECHNICAL HIGH SCHOOLS**

The Japanese Final Evaluation Team (hereinafter referred to as “the Team”) organized by the Japan International Cooperation Agency (hereinafter referred to as “JICA”), headed by Mr. Motoharu WATANABE visited the Republic of Turkey from May 11 to May 28, 2005, for the purpose of the final evaluation of the Project on the Establishment of Industrial Automation Technologies Departments in Anatolian Technical High Schools (hereinafter referred to as “the Project”).

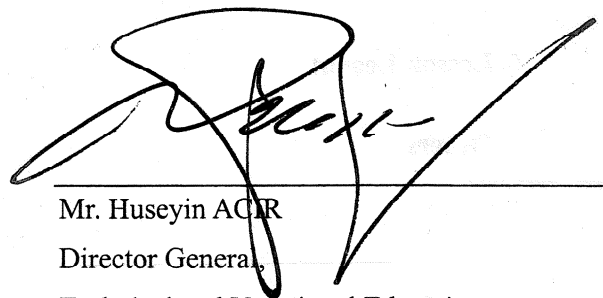
During its stay in the Republic of Turkey, the Team had a series of discussions with the Turkish authorities concerned, jointly evaluated the achievement of the Project, and exchanged views of the Project.

As a result of the study and discussions, JICA and the Turkish Authorities concerned agreed on the matters referred to in the document attached hereto.

Izmir, May 27, 2005



Mr. Motoharu WATANABE
Leader,
Japanese Final Evaluation Team,
Japan International Cooperation Agency,
Japan



Mr. Huseyin ACIR
Director General,
Technical and Vocational Education,
Ministry of National Education,
The Republic of Turkey

CONTENTS

1. Introduction

1.1. Background

1.2 Objectives of Evaluation

1.3. Major Activities of the Evaluation Team

1.4. Evaluators

1.5. Methodology of Evaluation

1.5.1. Major items to be evaluated

1.5.2. Methodology of data collection

2. Result of Evaluation

2.1. Inputs

2.2. Achievement of Outputs

2.3. Implementation Procedure

2.4. Prospects of Project Purpose

2.5. Prospects of Overall Goal

2.6. Result of Evaluation based on 5 Evaluation Criteria

2.6.1. Relevance

2.6.2. Effectiveness

2.6.3. Efficiency

2.6.4. Impact

2.6.5. Sustainability

3. Conclusion of the Evaluation

4. Recommendations

5. Lesson Learnt

6. Others

ANNEXES

Annex 1. Project Design Matrix (PDM) for Final Evaluation

Annex 2. Evaluation Grid

Annex 3. Plan of Operation

Annex 4. List of Experts

Annex 5. List of Counterparts

Annex 6. List of Evaluators



ATTACHED DOCUMENT

1. Introduction

1.1. Background

In the Republic of Turkey, recent rapid expansion of the industries has resulted in the lack of good skilled mid-level engineers especially in the field of Industrial Automation Technologies. In response to this situation, the Government of Turkey decided to establish departments of Industrial Automation Technologies in Anatolian Technical High Schools and requested the Government of Japan for technical cooperation.


As a result of the series of discussions, the Project on Establishment of Industrial Automation Technologies Departments in Anatolian Technical High School in Turkey (hereinafter referred to as 'the Project') was initiated in April 2001 in Izmir Mazhar Zorlu Anatolian Technical High School (hereinafter referred to as 'Izmir ATH') and Konya Adil Karaağaç Anatolian Technical High School (hereinafter referred to as 'Konya ATH') as duration of 5 years based on the Record of Discussion signed on October 12, 2000. In the Project, Japanese Experts and Turkish Counterparts developed together the new educational system which aims integration of theory and practice.

1.2. Objectives of Evaluation

- 1) To grasp the inputs of Turkish/ Japanese sides and summarize the achievements of the Implementation Plan of the Project.
- 2) To execute a comprehensive evaluation on the achievement of the Project from the viewpoint of five components of evaluation (explained later in this document).
- 3) To make recommendations on the future perspective of the Project and to lead lessons learned from the Project to technical cooperation in the same field through data obtained by the evaluation process.

1.3. Major Activities of the Team

Date	Major Activities
May 11 Wednesday	Arrival in Izmir (3person of the study team)
12 Thursday	Visit to the principal of Izmir ATH Meeting with Japanese Experts
13 Friday	Discussion with the counterparts of Izmir ATH Visit to the Ege Chamber of Industries Visit to factories
14 Saturday	Data classifying
15 Sunday	Arrival in Ankara (2person joined the team from Japan)
16 Monday	Courtesy call to Japanese Embassy in Turkey Courtesy call to the director general of T & V education, Ministry on National Education(MONE)
17 Tuesday	Discussion with Staff of MONE Courtesy call to State Planning Organization(SPO) Visit to EU project
18 Wednesday	Discussion with staff of MONE Visit to Iskitler ATH
19 Thursday	Preparation of draft minutes of meetings
20 Friday	Discussion with staff of MONE on draft minutes of meetings
21 Saturday	Data classifying



Date	Major Activities
22 Sunday	Moving from Ankara to Konya
23 Monday	Visit to the principal of Konya ATH Visit to the Konya Chamber of Industries
24 Tuesday	Discussion with the counterparts of Konya ATH Moving from Konya to Izmir
25 Wednesday	Visit to Izmir ATH Visit to factories
26 Thursday	Discussion with the counterparts of Izmir ATH
27 Friday	JCC meeting Signing of the minutes of meetings
28 Saturday	Leaving Izmir

1.4. Evaluators

The final evaluation was jointly carried out by the both Japanese and Turkish evaluators. The result was approved by JCC held on May 27, 2005. List of evaluators was shown in Annex 6.

1.5. Methodology of Final Evaluation

1.5.1. Major items to be evaluated

Major items to be evaluated are designed to verify PDM, implementation process, and 5 Evaluation Criteria, based on the PDM and PO revised on October 2003. Followings aspects are considered.

- 1) Achievement of Project Purpose based on the PDM indicators
- 2) Implementation Process
- 3) Conceptual items on the 5 Evaluation Criteria

Relevance: Consistency with the development policy, Consistency with the country's needs, Appropriateness on the approach to solve the needs, Appropriateness as Japanese ODA policy to the recipient country

Effectiveness: Appropriateness of Project Purpose and its achievement, Achievement of Outputs and their contribution to gain Project Purpose, External factors to achieve Project Purpose

Efficiency: Quantity, quality and timing of inputs from both Japanese and Turkish side, Appropriateness of activities

Impact: Prospects on achievement of overall goal, Influence to development policy, Reputation of students

Sustainability: Consistency with the development policy, Institutional sustainability, Technical sustainability.

1.5.2. Methodology of data collection

Methodology of data collection consists of interview and discussion, and review of documents. Interview and discussion were done with Japanese experts, Local counterparts, and related ministries and other institutions respectively, to verify the above items.

The review of the documents covered the Progress Report of the Project, the data received from the Project prior to the Final Evaluation, and other official documents in order to verify the

above items.

2. Result of Evaluation

2.1. Inputs (As of March 31, 2005)

1) Inputs from Japanese side

Long term Experts: In total 10 experts with 299 M/M
Chief adviser and coordinator each with 96 M/M
Information Electronics 5 experts with 96 M/M
Information Machinery 5 experts with 107 M/M

Short Term Experts: In total 15 experts with 18.5 M/M

Equipment: In total US \$3,638,576

Training: In total 24 trainees including one long term trainee.

Operation Budget: In total US \$432,384 (In JP¥44,968 thousand)

2) Inputs from Turkish side

Counterparts: In total 22 persons, in Izmir 16, and in Konya 6
In Izmir ATH 9 for Information Electronics
7 for Information Machinery
In Konya ATH 6 for Information Electronics

Facilities: Offices, 17 Laboratories and Training rooms, office supply

Operation Budget: In total US\$ 282,791 (In YTL 387,000)

2.2. Achievement of Outputs

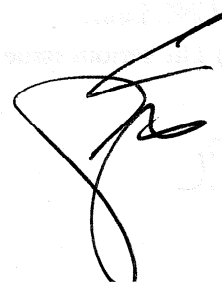
1) General

With the enormous efforts of both Turkish and Japanese side, most of the Outputs are scheduled to be completed by the termination of the Project as scheduled. In this sense, it is safe to say that Outputs will be achieved with the inputs and activities. Basically the remaining items to be completed are Output 2, the completion of the first version of textbooks to be taught for second term of 12th grade, and Output 7, the diffusion of information. These must be completed by Turkish side after termination of the Project.

Another issue is about the revision of existing curriculum and textbooks. It is true that a very innovative curriculum has been developed successfully taking into account the needs of the industries in Turkey. With the demand from industries and actual teaching activities, modification of some portion of curriculum will be necessary.

2) Output 1: Development of an innovative curriculum

- (1) The development of Innovative Curriculum was done by July 2001. The 3rd version was agreed on the 7th Project Progress Meeting on June 15, 2003.
- (2) All of Syllabuses were developed.
- (3) The curriculum has been developed and revised based on the request from the industries, therefore industries are satisfied.



3) Output 2: Development of suitable learning materials

(1) Trial version has been completed up to the 11th year. All of the trial version will be completed by April 2006. For the 12th grade, 10 out of 16 subjects have been completed. 2 will be completed by May, 1 in June, 1 will use the Turkish existing book, and 2 are under preparation

(2) First versions for the 9th and 10th grade have been completed, and for the 11th grade will be completed in Aug. 2005, and for the 12th grade will be completed in August 2006.

If the Project terminates as scheduled, completion of the first version must be done by the initiative of Turkish side, especially for the 12th grade second term textbooks

(3) Most of the practice portion will be incorporated in the textbooks. But the necessary practice textbooks up to the 11th grade have been completed. For the 12th grade 1 book has been completed and the other is under consideration, but the direction has already been determined.

(4) Some textbooks are necessary to revise because some portions are too simple, others are too difficult, and there is some duplication among the books.

4) Output 3: Development of suitable teaching materials

(1) For the 9th, 10th, and 11th grades all manuals have been completed. For the 12th grade 7 (Industrial Management, FA Robot Technology, Sequence Control Technology, Programming Logic Device, Network Server and Security, Network System, Web System Technology) out of 16 have been completed, and 6 have progress of more than 50%.

(2) All of manuals will be prepared by the end of August 2005.

5) Output 4: Establishment of a training system for teachers and improvement of teachers' capabilities

(1) Technology transfer for the 9th, 10th, and 11th grade have been completed.

(2) It is further needed implementing technology transfer of the additional portion (Computer Control Technology) of the 11th grade.

(3) For the 12th grade, technology transfer is being implemented to those subjects that textbooks have been completed. Remaining technology transfer will be completed in July and August 2005 in order to meet the 2005/2006 Academic Year..

6) Output 5: Introduction of suitable equipment to meet the requirements of industry.

(1) The industries are satisfied with the equipment supplied. Many firms come to visit to see the equipment and lectures.

(2) Equipment has been installed 3 months before the concerned subject start.

7) Output 6: Proper operation and maintenance of the equipment mentioned above

(1) Counterparts have enough capacity for maintenance of proper equipment, except for CNC Lathe System, which is planned to be taught before September 2005.

(2) The serious issue is that Counterparts have lack of proper time to study and research by



themselves because they have to teach, learn, translate the textbooks, guide visiting people, and other administrative works of schools.

- 8) Output 7: Dissemination of the Outputs 1. to 6. above to the public, other schools and industries via the Internet
 - (1) All of the produced textbooks have been digitized.
 - (2) Curriculum and Syllabus have been open via internet.
 - (3) Textbooks cannot be opened via internet within the period of the Project.

- 9) Output 8: Establishment of a system for finding the needs of industry, and dissemination of the new educational system
 - (1) Survey by Japanese experts to the firms and chamber of industry of Izmir and Konya has been done for more than 30 times since 2002
 - (2) Extension seminars on the new education system directed at enterprises have been done.
 - (3) The extension technical seminars for other schools have been held in both Izmir and Konya from 2002. In 2002 it was 3 times, but in 2003 it increased to 4 and in 2004 it has further increased to 5 in each school.
 - (4) The number of participants has exceeded 300. Every year more applicants are received.

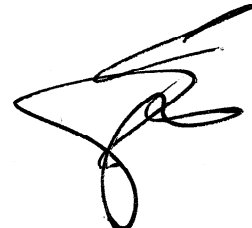
2.3. Implementation Procedure

The implementation procedure was successfully done. Unlike other ordinary Turkish schools, the Project has an instructor room where both Japanese experts and Turkish counterparts stayed together when no lecturers are given for full-time. This enabled to have closer relation in order to have smooth communication and transactions of opinions.

2.4. Prospects of Project Purpose

The Project Purpose; to establish a new educational system as an extension model in the Izmir ATH and Konya ATH in order to train mid-level technicians that will meet the requirements of industries utilizing automation technology, is expected to be achieved due to the following reasons.

- 1) Introduction of new educational system has been announced by the Ministry of National Education (hereinafter referred to as 'MONE'), and Teachers' Training Center (TTC) is being built with their budget.
- 2) The result of the internship in the firms shows that the students are highly evaluated on their ability. Some firms express their interests on the employment of the interns after graduation. Other firms are willing to provide more training to the same students who had internship in their firms in order to provide more technology transfer. Such offer is extraordinary because the offer is provided only because of the students' high potential.
- 3) Many primary school students are visiting to see the school, because their teachers give



very positive evaluation on this new innovative curriculum. Also many firms and even university professors are visiting in order to know the education system.

- 4) Entrance Scores of Izmir ATH and Konya ATH of 2004/2005 were in between 710 and 804. Other schools (Izmir's and Konya's other technical high schools) were in between 650 and 750.

Yet, in order to have this Project Purpose more perfectly, enhancement of completion of the Output 2 should be considered.

2.5. Prospects of Overall Goal

The Overall Goal; to introduce a new education system for industrial automation technology for other Anatolian Technical High Schools can be said to be achieved because of the following reasons.

- 1) MONE has decided to introduce this new education system on industrial automation technology for other 20 Anatolian Technical High Schools. 10 of these schools will accept first students for preparation grade in September 2005.
- 2) 30 teachers will be the first trainees from 10 of 20 Anatolian Technical High Schools for 9th grade in September 2005. Another 30 teachers for 10th grade will be trained from February 2006.
- 3) The extension of introduction of the new education system will be done through TTC. TTC is under construction in Izmir ATH campus from March 2005.
- 4) Teachers training at TTC is planned to be started in 2006.

2.6. Result of Evaluation based on 5 Evaluation Criteria

2.6.1. Relevance

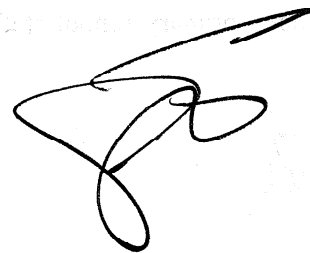
It can be said that the Project has the relevance with the national policy and the needs of the country, as well as appropriateness as Japanese ODA policy based on the following points.

The Turkish Government has placed a high priority on the vocational technical training. In the Eighth Five Year Plan(2001-2005) , vocational technical education is placed as one of the important development targets for human resources development (p252).

In addition, MONE has decided to expand the new education system to 20 schools located all over the country.

On the other hand, industries are very welcomed to have the new teaching system since staffs that have knowledge and skills taught in the new teaching system are highly required in the production system. The diffusion of the new teaching system is requested from various chambers of commerce to MONE.

As for the consistency with Japanese ODA policy, Country Assistance Plan of JICA toward Turkey (Revised August 2004), vocational training is placed as one of the important issues in the human resources development for socio-economic development.



2.6.2. Effectiveness

It can be said that the Project has the effectiveness in terms of appropriateness of the Project Purpose and achievement of Outputs to gain the Project Purpose based on the following points.

Although not all of the Outputs have totally been completed yet, most of the Outputs have good progress, and most of them are expected to be completed by the time of termination of the Project. In addition, MONE has decided to have 20 extension schools. In this sense, the Project Purpose will be achieved.

2.6.3. Efficiency

It can be said that the Project has the efficiency in terms of quantity, quality, and timing of inputs from both Japanese and Turkish side, and appropriateness of activities based on the following points.

Activities were properly done. Basically trainings in Japan were first done in order to have broader view and significance of the new system, and then after having the trial version of textbook, technology transfer from Japanese experts were done and lectures were done. Feedback is then provided in order to modify the textbooks from trial version to first version. The Japanese experts were qualified to teach, the equipment requested from them was provided in a timely manner, and the Counterparts were well qualified to receive technical transfer from Japanese experts.

2.6.4. Impact

It can be said that the Project has the impact in terms of achievement of overall goal, influence to the development policy, and reputation of students based on the following points.

Already MONE has announced the expansion of this model to 20 schools and in order to do so, TTC is being constructed by their own budgets now. Most of the curriculums were already accepted by MONE through education board with special attention. High evaluation is obtained from the firms toward the students who went for internship on their high level of knowledge and skill.

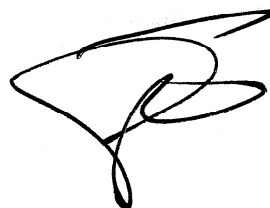
2.6.5. Sustainability

It can be said that the Project has sustainability in terms of consistency with the development policy, institutional sustainability and technical sustainability based on the following points.

Base on the performance of the Project, MONE already announced to expand this model to 20 schools, and TTC is being constructed. The framework and overall plan with inputs and activities on this matter were already elaborated.

Counterparts were trained with most of the equipment and they have enough capability to use and maintain. The Counterparts will further be trained in order to manage by themselves after the Project is over. These Counterparts are willing to stay in the Project implementing schools as these schools have best equipment in Turkey, and the reputation is very high.

The MONE is willing to allocate enough budgets for operation and maintenance of the equipment provided from Japan.



3. Conclusion of the Evaluation

It can be said that the Project has a lot of effect and significance considering the achievements, implementation procedure and 5 evaluation criteria (Relevance, Effectiveness, Efficiency, Impact, Sustainability) based on the following points.

Most of the Outputs are expected to be achieved. In order to have this Project Purpose more perfectly, enhancement of completion of the Output 2 should be considered. The implementation procedure was successfully done.

The Project has relevance in terms of consistency with the national policy and needs of the country. It has been implemented with appropriateness to meet the demand, and that shows the effectiveness of the Project. The Project has been performed efficiently to achieve the output. The Project has impacts to the national development policy and to the industries. And lastly with the result of the Project, the new education system is planned to expand to 20 schools, which shows the sustainability.

4. Recommendations

Based on the findings of evaluation of the Project, both parties concerned are recommended to take the following measures.

1) Revision of curriculum and textbook

Both sides agreed to maintain existing curriculum for the time being. With technical innovation of the industries, textbook should be revised whenever necessary.

2) Japanese short-term expert for follow-up

In order to improve some parts of developed textbook and to make necessary technical transfer, MONE requested the continuous cooperation for the existing Project. The Evaluation team suggested dispatch of short-term experts to follow up in appropriate timing when the Turkish educational term of 2005/2006 is over.

3) Information sharing

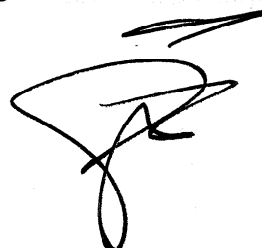
To ensure the future dissemination, all the information on teaching skills, know-how, teaching materials, and technical transfer from Japanese experts at Izmir ATH should be shared with the other 20 schools.

4) Maintenance of the equipment

MONE will allocate necessary maintenance cost for the provided equipment. Both schools will take necessary measures for proper management of the equipment.

5) On-the-job training of trainees

In order not to cause negative influence on the activities of current project, Turkish side will make necessary measures during on-the-job training of instructors of 10 schools for the expansion plan.



6) Strengthening relation with the industries

In order to strengthen relation with the industries, both schools should take necessary measures to support job placement such as extension seminars, needs assessment, career guidance seminar or necessary consultation for the new graduates which are expected in coming June.

7) Personnel assignment

MONE should retain existing counterparts of the Projects for both schools so that the impact and sustainability of the project will remain.

5. Lesson Learnt

Development of learning and teaching materials could be a critical factor for implementation of project. Thus, it is important to analyze the load for whole period and to consider the appropriate schedule and measures of development at the initial period.

Instructor room where both Japanese experts and the counterparts stayed together when no lecturers are given for full-time enables to have closer relation in order to have smooth communication and transactions of opinions.

Close relation with the industries in order to know the needs and to refine the educational system contributed to the successful achievement of the Project

6. Others

Turkish side requested technical support from Japan for the establishment of TTC at Izmir Mazhar Zorlu Anatolian Technical High School and expansion of Industrial Automation Technologies Department to 20 schools.

