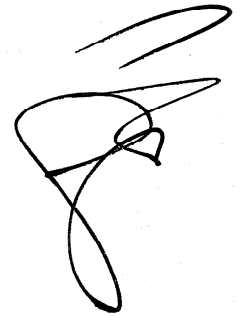


Annex 1 Project Design Matrix (PDM) for Final Evaluation

Project Title: The Project on Establishment of Industrial Automation Technologies Departments in Anatolian Technical High Schools

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>Super Goal To fill the demand for mid-level technicians and engineers in the industrial automation technology field in the Republic of Turkey.</p>	<p>After 10 years of the project completion, the number of graduates of Industrial Automation Technologies Departments in Anatolian Technical High Schools becomes 360 or more every year.</p>	<p>Data from the Ministry of National Education</p>	
<p>Overall Goal To introduce a new educational system for industrial automation technology for other Anatolian Technical High Schools.</p>	<ol style="list-style-type: none"> Degree of which schools implement the new educational system After 3 to 5 years of the project completion, the number of Industrial Automation Technologies Departments in Anatolian Technical High Schools becomes more than 4. 	<ol style="list-style-type: none"> Data from the Ministry of National Education Data from the Ministry of National Education 	<p>Enterprises continue to require technicians trained in automation technology.</p>
<p>Project Purpose To establish a new educational system as an extension model in the Izmir and Konya Anatolian Technical High Schools in order to train mid-level technicians that will meet the requirements of industries utilizing automation technology.</p>	<ol style="list-style-type: none"> Ministry of National Education announces the introduction of the new educational system. The number of enterprises that hopes to employ the graduates exceeds over 40 in Izmir and 20 in Konya. Number of applicants to Izmir Mazhar Zorlu and Konya Adil Karaagaç ATHS Entrance examination scores of successful applicants to both schools 	<ol style="list-style-type: none"> Data from the Ministry of National Education Questionnaires distributed to enterprises Data from the Izmir Mazhar Zorlu and Konya Adil Karaagaç ATHS Data from the Izmir Mazhar Zorlu and Konya Adil Karaagaç ATHS 	<ol style="list-style-type: none"> The needs of enterprises for technicians trained in automation technology do not change significantly. The project continues to receive the support of the Ministry of National Education. Teachers that have received training do not enter private employment. Continuous funding of the project is secured



Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>Outputs</p> <p>1. Development of an innovative curriculum.</p> <p>2. Development of suitable learning materials</p> <p>3. Development of suitable teaching materials.</p> <p>4. Establishment of a training system for teachers (including teaching methods) and improvement of teachers' capabilities.</p> <p>5. Introduction of suitable equipment to meet the requirements of industry.</p> <p>6. Proper operation and maintenance of the equipment mentioned above.</p> <p>7. Outputs 1 - 6. above are disseminated to the public, other schools and industries via the Internet.</p> <p>8. Establishment of a system for finding the needs of industry, and dissemination of the new educational system.</p>	<p>1-1. Curriculum is developed by October 2001</p> <p>1-2. The project team prepares the syllabus of the new departments subjects by May every year.</p> <p>1-3. Degree of satisfaction related industries have for the curriculum</p> <p>2-1. The project team prepares textbooks (Trial Version) by August every year.</p> <p>2-2. By August, following year of above 2-1, Trial Versions are revised and First Editions are prepared by the Project.</p> <p>2-3. The project team prepares practice textbooks by August every year.</p> <p>2-4. The project team prepares equipment for experiment and practice by August every year.</p> <p>3. The project team prepares Teachers Manual (samples of Annual Plan, Instruction Outline, Practice Guidance and Text Guide) by August every year.</p> <p>4. For each subject unit, at least ten (10) hours of technology transfer (technical guidance and teaching method guidance) given to more than 2 Counterparts at the commencement of the respective subject starts</p> <p>5-1. Degree of satisfaction of enterprises for level of equipment supplied</p> <p>5-2. Equipment is installed 3 months before the concerned subjects start</p> <p>6. For the newly introduced equipment to Izmir Mazhar Zorlu and Konya Adil Karaagaç ATHSs, at least 2 Counterparts have learned how to use and maintain the respective equipment properly</p> <p>7-1. Degree to which conversion has been completed (curriculum, syllabus, learning materials, teaching materials, training system)</p> <p>7-2. Percentage of electronic media deployed to the public, other schools and industries</p> <p>8-1. Surveys of the needs of enterprises are conducted more than once per year</p> <p>8-2. At least 1 extension seminar for the new educational system (directed at enterprises) is held before students are graduated.</p> <p>8-3. At least 4 extension technical seminar for other schools teachers are implemented.</p> <p>8-4. The number of participants to the above-mentioned seminars exceeds 300.</p>	<p>1-1. Records of project activities</p> <p>1-2. Records of project activities</p> <p>1-3. Questionnaires distributed to related enterprises</p> <p>2. Records of project activities</p> <p>3. Records of project activities</p> <p>4. Records of project activities</p> <p>5-1. Interviews of related enterprises</p> <p>5-2. Equipment maintenance records</p> <p>6. Records of project activities</p> <p>7-1. Records of project activities</p> <p>7-2. Records of survey of amount of information made available on the Internet</p> <p>8-1. Questionnaires distributed to related enterprises</p> <p>8-2. Records of project activities</p> <p>8-3. Records of project activities</p> <p>8-4. Records of project activities</p>	<p>The needs of enterprises for technicians trained in automation technology do not change significantly from those assessed by the needs survey.</p>

Activities	Inputs	Important Assumptions
<p>1-1. Formulation of curriculum 1-2. Drawing up of a syllabus 1-3. Understanding the industry's attitude to the curriculum 2-1. Production of textbooks (Trial Version) 2-2. Production of textbooks (First Edition) 2-3. Production of practice textbooks 2-4. Preparation and production of appliances for experiments and practices 3. Production of teacher's manual for practice 4. Technology transfer of related subjects and it's teaching methods 5-1. Drawing up of a list of equipment 5-2. Procurement and installation of equipment 5-3. Understanding the industry's attitudes to the above equipment 6. Technology transfer related to the correct usage and maintenance of equipment 7-1. Convert the above outputs to digital data which are suitable for Web page 7-2. Making of project Web page site and upload the digital data 8-1. Understanding of the automation technology needs of industry 8-2. Implementation of seminars aimed at introducing the new educational system to enterprises. 8-3. Implementation of seminars on new technology and teaching method to other school teachers</p>	<p><u>Turkish Side</u> 1. Assignment of personnel -Counterparts (C/Ps) IZMIR Information Electronics: at least 7 Information Machinery: at least 6 KONYA Information Electronics: at least 5 -Administrative personnel 2. Buildings and facilities 3. Furniture and consumable materials 4. Allocation of budget</p> <p><u>Japanese side</u> 1. Dispatch of Experts -Long-term experts Chief advisor, Information Electronics: 2 (Industrial Product Design Sub-division, Network Design for Automatic Control Sub-division), Information Machinery: 2 (Automatic Production Technology Sub-division, Factory Automation System Technology Sub-division), Coordinator -Short-term experts 2. Provision of equipment 3. Training of Turkish C/Ps in Japan</p>	<p>1. The occupational training system in Turkey does not change significantly. 2. Accessibility to the Internet improves (Establishment of infrastructure for electronic communication progresses).</p> <p>Preconditions</p> <p>1. Counterparts are appropriately assigned. 2. Financial resources are appropriately secured.</p>

Annex 2. Evaluation Grid

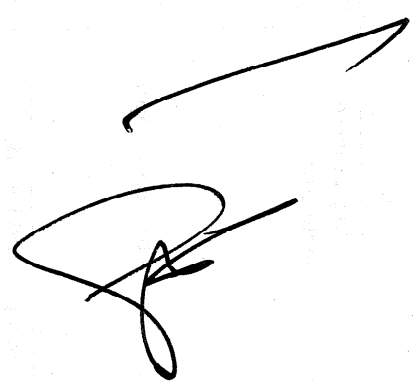
The Project on Establishment of Industrial Automation Technologies Departments in Anatolian Technical High Schools

Achievement

Items	Planned Activities	Results
<p>Achievement of Overall Goal</p> <p>To introduce a new education system for industrial automation technology for other Anatolian Technical High Schools.</p>	<p>1. Degree of which schools implement the new educational system</p> <p>2. After 3 to 5 years of the project completion, the number of Industrial Automation Technologies Departments in Anatolian Technical High Schools (Whether it becomes more than 4)</p>	<p>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.</p> <p>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.</p> <p>3. The extension of introduction of the new education system will be done through Teacher Training Center (TTC). TTC is under construction in Izmir Mazhar Zorlu campus from March 2005.</p> <p>4. Teachers Training at TTC is planned to be started in 2006.</p>
<p>Achievement of Project Purpose</p> <p>To establish a new educational system as an extension model in the Izmir and Konya Anatolian Technical High Schools in order to train mid-level technicians that will meet the requirements of industries utilizing automation technology.</p>	<p>1. Ministry of National Education announces the introduction of the new educational system.</p> <p>2. The number of enterprises that hopes to employ the graduates (Whether it exceeds over 40 in Izmir and 20 in Konya).</p> <p>3. Number of applicants to Izmir Mazhar Zorlu and Konya Adil Karaagaç ATHSs</p> <p>4. Entrance examination scores of successful applicants to both schools</p>	<p>1. Introduction of new educational system is announced by the Ministry of National Education, and TTC is being built with their budget.</p> <p>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.</p> <p>3. Many junior high 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.</p> <p>4. Entrance Scores of Izmir Mazhar Zorlu and Konya Adil Karaagaç Anatolian Technical High Schools 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.</p>
<p>Achievement of Output 1</p> <p>1. Development of an innovative curriculum.</p>	<p>1-1. Development of Curriculum (By Oct 2001)</p> <p>1-2. The project team prepares the syllabus of the new departments subjects by May every year.</p> <p>1-3. Degree of satisfaction related industries have for the curriculum</p>	<p>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.</p> <p>2. All of Syllabuses were developed.</p> <p>3. The curriculum has been developed and revised based on the request from the industries, therefore industries are satisfied.</p>

<p>Achievement of Output 2</p> <p>2. Development of suitable learning materials</p>	<p>2-1. The project team prepares textbooks (Trial Version by August every year).</p> <p>2-2. Trial Versions are revised and First Editions are prepared by the Project (By August, following year of above 2-1)</p> <p>2-3. The project team prepares practice textbooks by August every year.</p> <p>2-4. The project team prepares equipment for experiment and practice (by August every year.)</p>	<p>1. Trial versions have been completed up to the 11th year. All of the trial versions will be completed by April 2006.</p> <p>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</p> <p>2. First version for the 9th and 10th grade have been completed, for the 11th grade will be completed in Aug. 2005, and for the 12th grade will be completed in August 2006.</p> <p>If the Project terminates as scheduled, completion of the first version must be done by Turkish side only, especially for the 12th grade second term textbooks</p> <p>3. Most of the practice portion will be incorporated in the textbooks. But the necessary practice text books 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 is already determined.</p> <p>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.</p>
<p>Achievement of Output 3</p> <p>3. Development of suitable teaching materials.</p>	<p>3. The project team prepares Teachers Manual (samples of Annual Plan, Instruction Outline, Practice Guidance and Text Guide) by August every year.</p>	<p>1. For the 9th, 10th, and 11th grades all manuals are 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%</p> <p>2. All of manuals will be prepared by the end of August 2005.</p>
<p>Achievement of Output 4</p> <p>4. Establishment of a training system for teachers (including teaching methods) and improvement of teachers' capabilities.</p>	<p>4. For each subject unit, at least ten (10) hours of technology transfer (technical guidance and teaching method guidance) given to more than 2 Counterparts at the commencement of the respective subject starts</p>	<p>1. Technology transfer for the 9th, 10th, and 11th grade has been completed.</p> <p>2. It is further implementing technology transfer of the additional portion (Computer Control Technology) of the 11th grade.</p> <p>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.</p>
<p>Achievement of Output 5</p> <p>5. Introduction of suitable equipment to meet the requirements of industry.</p>	<p>5-1. Degree of satisfaction of enterprises for level of equipment supplied</p> <p>5-2. Equipment is installed 3 months before the concerned subjects start</p>	<p>1. The industries are satisfied with the equipment supplied. Many firms come to visit to see the equipment.</p> <p>2. Equipment has been installed 3 months before the concerned subject start.</p>
<p>Achievement of Output 6</p> <p>6. Proper operation and maintenance of the equipment mentioned above.</p>	<p>6. For the newly introduced equipment to Izmir Mazhar Zorlu and Konya Adil Karaagaç ATHSs, at least 2 Counterparts have learned how to use and maintain the respective equipment properly.</p>	<p>1. Counterparts have enough capacity for proper maintenance of equipment, except for CNC Lathe System, which is planned to be taught before September 2005.</p> <p>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.</p>

<p>Achievement of Output 7</p> <p>7. Outputs 1.- 6. above are disseminated to the public, other schools and industries via the Internet.</p>	<p>7-1. Degree to which digital conversion has been completed (curriculum, syllabus, learning materials, teaching materials, training system)</p> <p>7-2. Percentage of electronic media deployed to the public, other schools and industries</p>	<p>1. All of the produced textbooks have been digitized.</p> <p>2. Curriculum and Syllabus have been open via internet.</p> <p>3. Textbooks cannot be opened via internet within the period of the Project.</p>
<p>Achievement of Output 8</p> <p>8. Establishment of a system for finding the needs of industry, and dissemination of the new educational system.</p>	<p>8-1. Surveys of the needs of enterprises are conducted more than once per year</p> <p>8-2. At least 1 extension seminar for the new educational system (directed at enterprises) is held before students are graduated.</p> <p>8-3. At least 4 extension technical seminars for other schools teachers are implemented.</p> <p>8-4. The number of participants to the above-mentioned seminars exceeds 300.</p>	<p>1. Survey by Japanese experts to the firms and chamber of industry of Konya and Izmir has been done for more than 30 times since 2002.</p> <p>2. Extension seminars on the new education system directed at enterprises have been done.</p> <p>3. The extension technical seminars for other schools are 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.</p> <p>4. The number of participants has exceeded 300. Every year more applicants are received.</p>




Implementation Procedure

Items	Confirming Items	Source	Result
Progress of the Project	Progress of the Projects in relation to the schedule		See the activities list
Monitoring	System of monitoring	Record of project activities, interview, questionnaire survey	1. Monitoring and feedback activities are always done in order to improve the teaching procedure. For the new subjects, the Japanese experts taught to the Counterparts, and then Counterparts taught to students monitored by Japanese experts and after class feedback were done.
Cooperation among Japanese experts and counterparts	Relation of both parties	Record of project activities, interview, questionnaire survey	1. Cooperation between Japanese experts and Counterparts are daily done without any problem. Unlike normal ordinary Turkish high schools, this school has instructors room where both Japanese experts and Counterparts had desks to stay when no lectures are given for full-time. This system enabled to have closer relation.
Feedback from trainees in Japan	Feedback from trainees to the counterparts	Record of project activities, interview, questionnaire survey	1. Among Counterparts the feedback were done whenever necessary. 2. Formal presentations from trainees are done.
Ownership of Turkish side	Motivation of counterparts	Record of project activities, interview, questionnaire survey	1. The counterparts were willing to absorb new teaching system.
	Budget distribution	Record of project activities, interview, questionnaire survey	1. Budget allocation of the MONE was properly done. Having enough excellent counterparts is the proof of the government effort of provision of budgets.
	Counterparts allocation	Record of project activities, interview, questionnaire survey	1. Proper allocation of Counterparts was implemented, considering the quality of selected Counterparts with the effort of MONE. 2. In Konya only 1 Counterpart is not allocated but after finishing the term in the existing school in June 2005, that Counterpart will be transferred. In addition, 2 more Counterparts will be assigned to Izmir Mazhar Zorlu Anatolian Technical High School.

1. Relevance

Items	Confirmation Items	Necessary Information	Source of Information	Result
1.1 Consistency between the overall goal and the national development policy of Turkey	Consistency with the national development policy	1.1 Whether the introduction of new teaching system on industrial automation in other Anatolian Technical High Schools has priority and is or important issue in the national development policy?	Review of the national policy, record of project activities, interview, questionnaire survey	<ol style="list-style-type: none"> 1. 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). 2. MONE has decided to expand the new education system to 20 schools located all over the country. And in order to have teachers capability of teaching, TTC is being constructed in the Izmir Mazhar Zorlu campus by their own budget. 3. This shows that the expansion is in line with the national development policy.
1.2 Consistency between the overall goal and the demand of industrial sector	Consistency with the demand of the industrial sector	1.2 Whether the introduction of new teaching system on industrial automation in other Anatolian Technical High Schools has priority and is important issue in the industrial sector?	Review of survey results conducted by the project, interview, questionnaire survey	<ol style="list-style-type: none"> 1. Industries are very welcomed to have the new teaching system since staffs that have knowledge taught with the new teaching system are highly required in the production system.
1.3 Consistency with the Japanese ODA policy	Consistency with the ODA policy for Turkey	1.3 Whether the overall goal is consistent with the ODA policy for Turkey ?	Review of the related documents	<ol style="list-style-type: none"> 1. According to JICA's Country Assistance Plan to Turkey (Revised August 2004), vocational training is one of the important ODA issues in the human resources development for socio-economic development.
1.4 Consistency between project purpose and the needs of Turkey	Consistency with the over all education policy	1.4 Whether the project purpose (the introduction of new teaching system on industrial automation in Anatolian Technical High Schools of Izmir Mazhar Zorlu and Konya Adil Karaagaç ATHSs) is consistent with the needs of Turkey?	Review of the related documents, interview, questionnaire survey	<ol style="list-style-type: none"> 1. The diffusion of the new teaching system is requested from various chambers of commerce to MONE. 2. The introduction of new teaching system is consistent with the needs of Turkey as industries are very welcome to see the curriculum and receive the interns, and some students are offered to have more internship time in the same firms, and based on the result of internships some firms show the interest to employ the students.

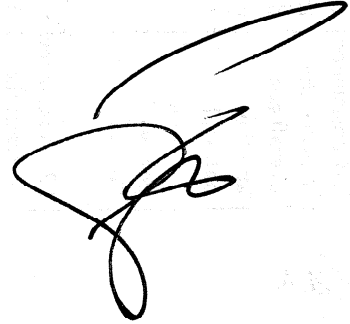
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2. Effectiveness

2.1 Achievement of Project Purpose	Achievement of Projects	2.1 What is the level of the achievement of Project Purpose?	Review of the related documents, interview, questionnaire survey	1. 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 (To establish a new educational system as an extension model in the Izmir Mazhar Zorlu and Konya Adil Karaagaç Anatolian Technical High Schools in order to train mid-level technicians that will meet the requirements of industries utilizing automation technology) will be achieved.
2.2 Project Outputs contribution to achieve Project Purpose	Relation of Project Outputs in relation to the achievement of Project Purpose	2.2 Is there any Project Outputs that have less contribution to achieve Project Purpose?	Interview, questionnaire survey	1. All of the project Outputs are contributing to achieve the Project Purpose.
2.3 Factors affecting to achieve Project Purpose	Factors affecting to achieve Project Purpose	2.3 Is there any external factor or other project that influence the achievement of Project Purpose?	Review of the related documents, interview, questionnaire survey	1. Positive response from industries and support from chamber of industry to disseminate information accelerated to have good reputation on new education system

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3. Efficiency

3.1 Quantity, quality and timing of inputs	Quantity, quality and timing of inputs of Japanese and Turkish side	3.1 Are the outputs actually achieved worth the inputs?	Review of the related documents, interview, questionnaire survey	1. Without the Inputs provided the achievements had not obtained. In this sense, Outputs achieved worth the inputs.
3.2 Activities	Adequacy of outputs	3.2 Were the activities sufficient looking from outputs achieved?	Review of the related documents, interview, questionnaire survey	<p>1. Activities were properly done.</p> <p>2. 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 textbook from trial version to first version. The Japanese experts were qualified to teach, and the equipment requested from them was provided in a timely manner.</p> <p>The Counterparts were well qualified to receive technical transfer.</p>