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1．調査団議事録(Minutes of Meeting)及び合同評価報告書(Joint Evaluation Report)

MINUTES OF MEETING
BETWEEN THE JAPANESE MID-TERM EVALUATION TEAM
AND THE AUTHORITIES CONCERNED OF
THE GOVERNMENT OF THE REPUBLIC OF TURKEY
ON THE JAPANESE TECHNICAL COOPERATION
FOR THE ENERGY CONSERVATION PROJECT
WITH GENERAL DIRECTORAATE OF ELECTRICAL POWER RESOURCES SUVERY
AND DEVELOPMENT ADMINISTRATION IN THE REPUBLIC OF TURKEY

The Japanese Mid-term Evaluation Team (hereinafter referred to as "the Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Yusuke Murakami visited the Republic of Turkey from 24 to 7 March, 2003 for the purpose of conducting Mid-term Evaluation and of discussing plans for the second half of the Energy Conservation Project in the Republic of Turkey (hereinafter referred to as "the Project").

During its stay, the Team had a series of discussions and exchanged views with the authorities concerned of the Government of the Republic of Turkey over the matters for the successful implementation of the Project.

As a result of the discussions, both sides agreed upon the matters referred to in the documents attached hereto.

Ankara, March 7, 2003

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Attached Document

1. Present Situation of Energy Conservation and Current Status of the Project in the Republic of Turkey

1-1 Government Policy and Strategies on Energy Conservation in the Republic of Turkey

Within the framework of national energy policy, due consideration to energy conservation is assigned in the eighth "Five Year Development Plan". It is indicated in the Plan that "with a view to control and reduce the greenhouse gas emissions originated from transport, energy, industry and residential sectors, arrangements shall be made towards increasing energy efficiency and ensuring energy saving". Its importance is also confirmed by the Energy Charter Treaty Protocol on Energy Efficiency and Related to Environmental Aspects, which was ratified in February 2000.

1-2 Current Status of the Project

The Turkish side explained the importance of energy conservation, considering it as a critical tool to tackle with increasing energy consumption, to increase competitiveness of the Turkish industry by reducing production cost, to fulfill requirements for the Turkey's EU accession, and to contribute to reduce environmental burden such as carbon dioxide.

In this context, the Turkish side considers EIE/NECC as the important agency for promotion of energy conservation in the Republic of Turkey, and thus regards that the Project makes significant contribution for EIE/NECC to fulfill its mandate and develop its capacity.

1-3 Other factors for promoting energy conservation than the Project activities

1-3-1 Abstract

The Japanese side explained that, although the activities covered by the Project are mainly on development of the EIE/NECC's capacities in training, energy audit, and information dissemination and policy-making activities, it is important to make sure other elements to support its activities and to make sure promotion of energy conservation. Among these elements, the Japanese side especially pays much attention to legal and financial system. It is because this gives both obligation and support to the industry in implementing energy conservation, in addition to practical activities by EIE/NECC for supporting energy conservation, and without these, the EIE/NECC's mandate for effective promotion of energy conservation may not be fulfilled.

1-3-2 Legal and Financial System for Energy Conservation

The Turkish side explained that the Regulation of Rational Use of Energy in1995 is a basis for promotion of energy conservation in the industrial sector. EIE/NECC has been implementing necessary measures for achieving the requirement of the subjects of the regulation. Currently, it is making effort to draft a new law for stronger enforcement of the regulation.

2 Mid-Term Evaluation of the Project

2-1 Review of the Inputs to the Project from August 2000 to March 2003 by the Japanese side

Both sides confirmed inputs from the Japanese side that is, 'Dispatch of the Japanese Experts', 'Training of the Turkish C/Ps in Japan' and 'Provision of Machinery and Equipment', as listed in the ANNEX 3, 4, and 5 respectively.

2-2 Inputs by the Turkish side

Both sides confirmed that inputs from the Turkish side, 'Allocation of the C/Ps', and 'Allocation of the Budget for the Project' are as listed in the ANNEX 6 and 7 respectively.

The Japanese side confirmed that the Turkish side fully provided the Building, and Machinery and Equipment necessary for the Project.

2-3 Mid-Term Evaluation Based on Five (5) Basic Evaluation Components

2-3-1 General Evaluation

The Mid-Term Evaluation Team concluded that, in general, the Project has been implemented effectively and have produced some tangible outcomes. The most C/Ps at EIE/NECC are able to improve teaching in the Energy Manger Training in their respective fields by utilizing the Mini-Plant and developing new curriculum. Through hands-on training for the Energy Audit Training, the most C/Ps at EIE/NECC are able to acquire new knowledge and skills in their respective fields of expertise.

The Project's basic design to provide the EIE/NECC members practical experience through the Energy Audit Training serves as the best motive for them to integrate the newly acquired learning from the Project and their own capacities.

The Project, however, needs to improve some areas to maximize impact to overall energy conservation in Turkey. For example, the width and depth of subject matter that the Project will cover in the remaining period must be shared and clarified by the two sides to set realistic learning objectives, and priority of activity needs to be determined based on balance between EIE/NECC's needs and availability of experts from Japan.

Finally the on-going efforts of strengthening monitoring need to be continued. The monitoring system in the Project has been improved through lesson learned from the first half of the Project. The Mid-term Evaluation Team identified that the on-going discussion to upgrade the monitoring methodology has a potential to develop an example applicable to similar technical cooperation projects by JICA.

2-3-2 Relevance

The Evaluation Team concluded that the Project is relevant enough with regard to the following two

items:

First, promotion of energy-conservation technology is one of Turkish government's priorities in policies. It has been identified that the overall energy consumption of the industry sector in Turkey need to be much improved through introduction of energy-saving technology, raising public awareness and strengthening legislative framework.

Second, JICA identifies that the technology transfer in energy-conservation from Japan is relevant for her society that has overcome series of oil crises by promoting rational use of energy. Japan has much to offer to transfer her energy-saving experiences to Turkey, and it is in line with her Official Development Assistance (ODA).

2-3-3 Effectiveness

Project Purpose, "The function of EIE/NECC is strengthened in the training, audit, policy making and promotion activities" has begun to be achieved in various parts of the Project. Comparing the previous capacities of EIE/NECC, much has been improved and renewed in various aspects of training and auditing activities. The Project has identified that the levels of the achievements, however, are still need to be improved in some sectors, individuals and specific subjects to be covered by the Project.

2-3-4 Efficiency

The planned outputs begun to achieve by effectively utilizing the given input while individual C/Ps have some additional capacities to grow in the remaining duration of the Project.

2-3-5 Impact

The Project already starts producing some positive impact both expected and unexpected. Firstly, for instance, the Project activities increased the credibility and visibility of EIE/NECC. Secondly, EIE/NECC extends its training program by establishing a new course for technicians in factories. There have been two types of training, for steel and car industries, totaling sixty-two (62) technicians to date trained in EIE/NECC.

2-3-6 Sustainability

The Evaluation Team concluded that it is still early to predict the sustainability of the Project. Under the current economic circumstances, the following two issues need to be addressed:

First, the current focus on the enterprises over 2,000TOE needs to strengthen by on-going efforts of extending training to technicians, more tailored training (i.e. industry-sector-specific training and/or collaboration with Universities etc.) and seminars for top managers. Second, in the future plan, EIE/NECC should extend its services to a wider range of targets to promote energy-saving technology.

3 Mid-term Evaluation Focused on the Technology Transfer

3-1 Training Activities

EIE/NECC has organized thirteen (13) training courses to date, trained one hundred and seventy two (172) trainees after the commencement of the Project (as described in ANNEX 8-1).

Technology transfer by JICA experts to the C/Ps in EIE/NECC was implemented through designated activities. Hands-on experiences through the training provided by JICA experts. C/Ps have started to integrate newly acquired knowledge and skills through the Project and those of previous training and education. C/Ps are more confident and comfortable in teaching at the EIE/NECC's Energy Manager Training Courses.

3-2 Energy Audit Activities

In 2002, twenty two (22) factories were visited by the Project team. The number of factories to which C/Ps give a service of energy audit has been eight (8) with five (5) factories completed preparing energy audit reports (as described in ANNEX 9). C/Ps have requested JICA experts to expand factory-based energy audit training in the remaining duration of the Project. A larger number of field trainings, in particular process-specific training by assistance from both long and short-term experts, is necessary to strengthen the capacity of EIE/NECC.

3-3 Information Dissemination and Policy Advisory Activities

Information Dissemination is still in progress. Especially, EIE/NECC's web-site was greatly improved. Provision of information on new technology has been planned through updating the technical textbooks. JICA experts provide information on energy efficiency technology as necessary and when requested. Currently, promotion activities are constrained by financial situation of Turkey.

As for Policy Advisory Activities, it is expected that the Energy Conservation Law is enacted in near future. The Project will continue to provide necessary information for this movement.

The activities concerning this field need to be explored, as these will support the Project to move on to fulfill the Overall Goal.

4 Future Plan of EIE/NECC Activities

EIE/NECC is and will be implementing activities for realizing the plan mentioned in the document 'Recent Situation related to the Future Activities of EIE/NECC' signed on September 6, 2002.

5 Plan of the Project in the Remaining Cooperation Period

5-1 Reconfirmation of the Project Design Matrix

Both sides agreed that the Project will continue the discussion on amendment of the PDM for clear understanding of the Project by all entities concerned. If any change is made in the future, the contents will be confirmed by the concerned bodies from both sides.

5-2 Plan of the Training Activities

5-2-1 Purpose of the Training Activities

Both sides confirmed that an objective of the Training is to train Energy Manager and other technical staff by providing easily applicable knowledge and skills through the lectures as well as practical training in EIE/NECC so that they can fulfill their role as a key person to bridge EIE/NECC and his/her factory, and to implement energy conservation activities with the cooperation with the Management of the factory and other workers within his/her factory. As was confirmed, both sides consider this Training activity does not only support energy conservation in factories by their internal resources, but also create a new market for factory auditing services.

5-2-2 Scope and Methods of Technology Transfer and Project Activity concerning Training

According to the result of the Mid-term Evaluation agreed by both sides, as a result of the Project Activities carried out so far, EIE/NECC's capacity in training has been increased well enough to provide sufficient training for producing Energy Manager mentioned above. However, in order to assure and increase the quality of the training and thus trained Energy Manager, both sides agreed that the Project should proceed with the following activities in the rest of the Project;

- Review the contents of the curriculum (both lecture and practical training with the Mini-Plant)
- Improve evaluation criteria for final reports submitted by participants of Energy Manger training.
- Utilize Japanese long and short-term experts as resources for follow-up seminar for certified Energy Mangers.
- Develop international seminar for further dissemination of energy conservation to surrounding countries.

5-3 Plan of the Audit Activities

5-3-1 Purpose of Energy Audit Activities by EIE/NECC

Both sides confirmed that purpose of Energy Audit by EIE/NECC is to raise awareness of energy in the industry establishments and to decrease energy intensity in the industrial sectors, and in this connection to decrease production cost and carbon dioxide emission resulting from energy use. The main target of this activity is firstly the designated factories consuming more than 2,000 TOE per year.

5-3-2 Scope and Methods of Technology Transfer and Project Activity concerning Energy Audit

a) General issue

In order for EIE/NECC to conduct energy audit for the above-mentioned purpose on its own, both sides agreed that the level of the skills to be achieved by the end of this Project, is that the EIE/NECC staff can conduct energy audit in both utility and common process areas in all size of factories of at least 4 selected industrial sectors* by themselves. (* i.e. textile, food, steel and iron, and ceramics) The knowledge and skills achieved

should be sufficient to discuss with and give guidance on energy conservation issues to person from the industry, consulting companies and universities. The Turkish and Japanese side agreed that the Project should proceed with activities based on the following scope and method of Technology Transfer, in order for EIE/NECC to effectively achieve the required skills mentioned above.

b) Measures of technology transfer to ensure promotion of energy audit activities, and thus ensuring the sustainability of the Project.

Currently, the activities concerning the technology transfer on energy audit in the Project is carried out mainly in large-sized factories. This is especially because EIE/NECC tries to reduce energy consumption of the whole Turkish industry, by beginning with larger consumers of energy, which consume more than 70% of the total energy consumption.

Understanding the current activities of technology transfer, the Mid-term Evaluation Team emphasized the following points in hoping that these activities bear greater outcomes;

- As a result of interviews with related organizations, the Team identified there exists needs for implementing energy conservation in much broader sector than the current target.
- The Project explained that technology transfer mainly in large factories will be directly applicable to smaller factories in the same sector. The Team, however, expressed a concern that this may have a limitation to cover all technologies needed to ensure sustainability of EIE/NECC's activity to meet demands from many kinds of factories.
- In order to meet the objectives of the Japanese Official Development Assistance(ODA), the Team would like to maximize the impact of the Project through EIE/NECC's continuous effort to diversify the targets of its activities. It also expressed its hope that the results of the Project will contribute to increase the competitiveness of the Turkish economy in the long run, especially by supporting its medium and small sized factories.

As a result of the discussion, both sides agreed that the Project will take measures to resolve above-mentioned points and to assure sustainability of the technology transferred in the Project, with following activities and ideas in the second half of the Project;

- For the target 4 sectors, technology transfer will be continued as planned. The level of the technology transfer will be confirmed by the Monitoring sheet made by the Japanese Long and Short-term experts, and the EIE/NECC staff in charge, by the end of April 2003 of Japan, in order to make sure the sufficient technology transfer for sustaining the EIE/NECC's audit capacities.
- As a verification of achieving the target by the Turkish side, the Japanese side suggested that the EIE/NECC staff implement one successful model case of utility and common process energy audit in medium size factories with energy consumption around 2000TOE with the minimum support from the Japanese side. Although the details of this model-case audit will be decided later, the Japanese side suggested the following two activities for this model-case. First, the Project carries out this model-case audit, with financial assistance from relevant organizations. Second, the Project should fully utilize the output from this model-case as a good practice of energy

conservation by smaller factory though seminars or publications. Such promotion activities should be supported by other agencies which has extensive network with the industry, such as industrial associations and KOSGEB. This is because the Japanese side considers all of these activities could set a direction for expanding EIE/NECC's activities for the whole Turkish industry. The target sector of this model-case audit should be decided, judging from its contribution to the export and the Turkish economy, as well as from the level of audit skills required, and so on. The Japanese side explained that it will provide support to EIE/NECC for realizing the model-case audit based if necessary.

・The Turkish side also has similar idea to explore such model-case project with assistance from the Japanese Experts. According to EIE/NECC's explanation, this may be composed of energy audit and training possibly for SMEs.

・Both sides concluded that the Project will continue discussion to realize these two proposals.

c) Scope and methods of Technology Transfer for other sectors

Turkish side requested to add one (1) more industry sector, which is not yet specified. As a result of discussions, both sides agreed that whether the Project go further in the target 4 or expand to new one, will be discussed and determined by EIE/NECC, the Japanese Experts and JICA by the end of January 2004 (as the first deadline).

5-4 Plan of the Information Dissemination and Policy Advisory Activities

5-4-1 Scope and Methods of Technology Transfer and Project Activity concerning Energy Audit

Based on the result of the Mid-term Evaluation mentioned above, dissemination of new information to factories and industry on both process and cross-cutting energy saving technology are high priority. Also, EIE/NECC is in need of Japanese cases and examples of subsidies and incentive systems for energy conservation in industrial sectors. EIE/NECC further specifies the JICA experts about the suggestions and information.

The Turkish side requested and the Japanese side agreed that such information will be provided as the Project activity. The scope should also include sectors other than the current 4 target sectors. The preliminary list of the new technology will be submitted to the Japanese side by the Turkish side, based on the survey on the industry's needs, by the end of May 2003.

6 Recommendation from the Team to the Project

6-1 Training

In order to promote energy-conservation training activities of the EIE/NECC, the Mid-term Evaluation Team recommended that the EIE/NECC explore new activities to develop specific training courses such as 'Top-management Seminars', 'SME Course' in the near future.

Also, the Team identified lack of finance as one of bottlenecks in implementing energy conservation activities in the Turkish industry. It strongly recommended the Project explicitly emphasize the importance of no- or low- cost options of energy conservation, and include more knowledge and skills on these options found from examples in the Turkish industry in the Energy Manager Training.

6-2 Energy Audit

As described in the article 5-3-2 a).

6-3 Information Dissemination and Policy Advisory Activities

The Team emphasized the importance of the activities in this field, as these will be a basis for achieving the Overall Goal of the Project. The Team recommends the Turkish side to ensure necessary resources for these activities such as budget and human resources.

7 Attendants of the Meeting

Attendants of the Meeting are described in ANNEX 10.

END

List of ANNEX for the Minutes of Meetings

ANNEX1	Result of the Mid-term Evaluation
ANNEX 2	Organization Chart of EIE
ANNEX 3	List of Japanese Experts Dispatched to the Project
ANNEX 4	C/P Training in Japan
ANNEX 5-1	List of Machinery and Equipment provided by Japan
ANNEX 5-2	List of Machinery and Equipment provided by Japan (Procurement in the Republic of Turkey)
ANNEX 6	Allocation of the C/Ps to the Project
ANNEX 7	Allocation of the Budget for the Project by the Turkish side
ANNEX 8-1	Energy Manager Course organized by EIE/NECC in 2001/2002
ANNEX 8-2	Energy Manager Course held by EIE/NECC as of December 31, 2002 (1997-2002)
ANNEX 8-3	Energy Manager Course held by other Organization as of December 31, 2002
ANNEX 9	Energy Audits in 2002
ANNEX 10	List of Attendants of Discussions

Result of Mid-Term Evaluation

Evaluation Result	
0. Overall	**Abstract** ➢ The Mid-Term Evaluation Team concluded that, in general, the Project has been implemented effectively and have produced some tangible outcomes. The most C/Ps at EIE/NECC are able to improve teaching in the Energy Conservation. ➢ Manger Training in their respective fields by utilizing the Mini-Plant and developing new curriculum. ➢ Through hands-on training for the Energy Audit Training, the most C/Ps at EIE/NECC are able to acquire new knowledge and skills in their respective fields of expertise. ➢ The Project's basic design to provide the EIE/NECC members practical experience through the Energy Audit Training serves as the best motive for them to integrate the newly acquired learning from the Project and their own capacities. ➢ The Project, however, needs to improve some areas to maximize impact to overall energy conservation in Turkey. For example, the width and depth of subject matter that the Project will cover in the remaining period must be shared and clarified by the two sides to set realistic learning objectives, and priority of the activity needs to be determined based on balance between EIE/NECC's needs and availability of experts from Japan. ➢ Finally the on-going efforts of strengthening monitoring need to be continued. The monitoring system in the Project has been improved through lesson learned from the first half of the Project. The Mid-term Evaluation Team identified that the on-going discussion to upgrade the monitoring methodology has a potential to develop an example applicable to similar technical cooperation projects by JICA.
1. Relevance	**Abstract** ➢ The Evaluation Team concluded that the Project is relevant enough with regard to the following two items: ➢ First, promotion of energy-conservation technology is one of Turkish government's priorities in policies. It has been identified that the overall energy consumption of industry sector in Turkey need to be much improved through introduction of energy-saving technology, raising public awareness and strengthening legislative framework. ➢ Second, JICA identifies that the technology transfer in energy-conservation from Japan is relevant for her society that has overcome series of oil crises by promoting rational use of energy. Japan has much to offer to transfer her energy-saving experiences to Turkey, and it is in line with her Official Development Assistance (ODA). (1) Relevance of Overall Goal ➢ The Overall Goal of the Project is defined as "By implementing a promotion for the rational use of energy, energy efficiency in the whole country is increased." It is relevant to the current energy-related issues in Turkey and in accordance with the government's industry policy. ➢ In light of the current move to the candidacy for the EU membership, Turkey is required to comply with various international environmental accords and treaties. Turkish government has taken several measures to improve overall energy consumption in the country. In order to achieve such goals, promotion

Result of Mid-Term Evaluation

Evaluation Result	
	of energy conservation in various sectors is one of priority issues in Turkey. ➢ Regulation on Rational Use of Energy in Industry Establishments established in 1995 has served as an effective instrument to promote energy conservation in industry sectors of Turkey. Under the framework of the regulation, the technical cooperation by the Project was designed to strengthen EIE/NECC's capacity in promoting energy conservation in Turkey. (2) Relevance of Project Purpose ➢ The purpose of the Project is defined as "The function of EIE/NECC is strengthened in the training, audit, policy making and promotion activities." EIE/NECC's mission of promoting energy saving is consistent with the Project Purpose. ➢ Regulation on Rational Use of Energy in Industrial Establishments established in 1995 has served as an effective instrument to promote energy conservation in industry sectors of Turkey. Under the framework of the regulation, the technical cooperation by the Project was designed to strengthen EIE/NECC's capacity in promoting energy conservation in Turkey. (3) Relevance of implementing the Project as Japanese ODA ➢ Both sides agreed the fact that that rational use of energy can only be achieved when energy-saving technology are promoted and extended throughout every sectors of the country. Though the current target of the energy reduction strategy is concentrated to mid-to-large enterprises, the Project lays groundwork for extending energy saving technology to various sectors and raising awareness for rational use of energy in Turkey. (4) Factors Diminishing the Relevance ➢ There have been observed no factors that could diminish the relevance of the Project.

Result of Mid-Term Evaluation

Evaluation Result	
2. Effectiveness	<u>Abstract</u> ➢ Project Purpose, "The function of EIE/NECC is strengthened in the training, audit, policy making and promotion activities" has begun to be achieved in various parts of the Project. Comparing the previous capacities of EIE/NECC, much has been improved and renewed in various aspects of training and auditing activities. ➢ The Project has identified that the levels of the achievements, however, are still need to be improved in some sectors, individuals and specific subjects to be covered by the Project. (1) Achievement of Project Purpose, "The function of EIE/NECC is strengthened in the training, audit, policy making and promotion activities" ➢ C/P's acquired basic knowledge and skills in operating the mini plant JICA provided. Mini-Plant is already used in energy managers and other technical staff training. The level of newly acquired knowledge and skill is enough to implement and update EIE/NECC's own training course for the Energy Manager. ➢ The training course for the Energy Manger is already implemented by EIE/NECC's own initiatives. ➢ Overall satisfaction level of the participants who take the training in the past two years is generally high according to the preliminary interview conducted by the Mid-term Evaluation Team. It is, however, recommended that an extended (and comprehensive) survey to evaluate effectiveness of the Energy Manager Training should be implemented in the remaining duration of the cooperation. ➢ In line with the quality of the training program, it is effective to materialize the long-term experts' proposal to support and improve the grading of the final report submitted by the participants of the training course. ➢ The Project already covered the planned energy audit training in four priority sectors (steel, food, textile and ceramics). C/P's who participated the audit training generally reached a designated level of competency necessary for EIE/NECC. (The learning objective of energy audit in the Project is designated as that the trainees are able to discuss about general issues and recommendations on energy-saving practices with employees of designated industrial sector.) ➢ Through hands-on training for the Energy Audit Training, participants are able to acquire new knowledge and skills in their respective field of expertise. ➢ Combination of practical experience gained through use of the Mini Plant for the Energy Manager Training and the Energy Audit Training, the C/Ps form EIE/NECC are able to integrate the newly acquired learning from the Project and their own capacities. ➢ Other activities related to provide the most updated technical information on energy saving is implemented through updating textbook and a series of seminars. In particular, the long-term experts exemplify the quality of textbook according to their evaluation. ➢ Compared to others, Output 5, "Information supply, publicity and policy recommendation" is still in progress.

Result of Mid-Term Evaluation

Evaluation Result	
	(2) Factors hindering the achievement of the Project Purpose on basis on Outputs ➢ Lack of strong enforcement mechanism based on a legal framework prohibits EIE/NECC promote energy conservation to industry. ➢ In order to maximize the outcomes from the Project to be widely used by various sectors of Turkish industry, EIE/NECC must strengthen marketing and proposition strategies. Current effort of promoting the training program to the top 600 enterprises based on their energy consumption has been effective to demonstrate EIE/NECC's capacity and to present successful examples and good practice. It is, however, recommended that lack of awareness of top management is a fundamental obstacle for effectively reaching the Project's goal.

Result of Mid-Term Evaluation

Evaluation Result	
3. Efficiency	**Abstract** ➢ The planned outputs begun to achieve by effectively utilizing the given input while individual C/Ps have some additional capacities to grow in the remaining duration of the Project. (1) Achievement of Outputs Output 0: EIE/NECC's administration and management structure are developed for implementing energy manager training. 【Indicator: Staff, equipment allocation and budget preparation】 ➢ Both sides have brought designated resources to the Project as indicated in ANNEX 3, 4, 5 and 6 of the minutes. ➢ The National Energy Conservation Center of Department for Energy Resources Survey (EIE/NECC) is managed under the leadership of Mr. Kemal Koman. ➢ C/Ps, Industrial Energy Conservation Division, are managed by division manager Ms. Tulin Keskin. The division is staffed with 19 staff members. ➢ The structure and duties of the organization is explained in ANNEX 2. ➢ Budget of the Project is allocated as indicated in ANNEX 7. Output 1: C/Ps are able to operate and maintain the training facilities and measuring equipment. 【C/Ps are able to utilize training facilities in national/international training programs.】 ➢ Machinery and equipment appropriated have been provided, installed operated and maintained. The list of machinery provided is listed in ANNEX 5. ➢ The machinery and equipment mentioned above are well kept and utilized in a good condition at EIE/NECC. ➢ The Japanese side provided C/Ps technical assistance related the operation and maintenance of the machinery provided. For the maintenance, both sides identified that additional assistance from Japan such as short-term experts, training in Japan, and/or technical information is necessary. C/Ps have acquired knowledge and skills enough to utilize these machinery and equipment in the Energy Manager Training. ➢ Japanese experts have provided additional assistance as necessary and when requested by C/Ps to operate and maintain the machinery and equipment. According to observations done by the long-term experts, C/Ps are capable for utilizing these machinery and equipment for the training courses. Output 2: C/Ps acquire the knowledge and skills necessary for developing energy manager training. 【A knowledge and skills of C/Ps concerning energy efficiency is enhanced. 】 ➢ Technology transfer by JICA experts to the C/Ps in EIE/NECC was implemented through designated activities. Hands-on experiences through the training utilizing the Mini-Plant enhance their knowledge and skills in their respective fields. ➢ As stated above, the level of understanding to utilize the machinery provided in the Project has achieved to the level enough to use the machinery and

Result of Mid-Term Evaluation

Evaluation Result	
	equipment in EIE/NECC's Energy Manager Training courses. Japanese experts have provided additional assistance as necessary and when requested by C/Ps to operate and maintain the machinery and equipment. ➢ C/Ps have started to integrate newly acquired knowledge and skills through the Project and those of previous training and education. C/Ps are more confident and comfortable in teaching at the EIE/NECC's Energy Manager Training Courses. ➢ In order to evaluate tangible changes and improvement in the Energy Manager Training, an extended survey to measure reaction, learning and behavioral change of participants should be conducted. EIE/NECC has collected post-course evaluation (in Turkish) in the past Energy Manger Training courses. It is recommended that the evaluation should be analyzed in statistical manner to track the change before and after the Project. Output 3: Contents of energy manager training course is developed in both theoretical and practical parts. 【Number and quality of certified energy managers will be increased.】 ➢ EIE/NECC has organized twelve (12) training courses to date, trained one hundred and sixty five (165) trainees after the commencement of the Project (as described in ANNEX 8-1). ➢ As for the quality of learning of Energy Manager Training, lack of comprehensive record describing baseline of the participants makes it impossible to compare the quality of learning before and after the Project. ➢ C/Ps have started to integrate newly acquired knowledge and skills through the Project and those of previous training and education. C/Ps are more confident and comfortable in teaching at the EIE/NECC's Energy Manager Training Courses. ➢ Long-term experts have observed that the quality of the final reports submitted by the participants of the training is inconsistent. The evaluation team has found that it is difficult to grade the report for outside evaluator to see the change before and after the Project. It is expected that explicit grading criteria will ensure the quality of learning in the training course. Output 4: C/Ps develop energy audit and consultation in industrial factories. 【The Number of factories increases to which C/Ps give a service of energy audit and consultation. 】 ➢ In 2002, twenty two (22) factories were visited by the Project team. The number of factories to which C/Ps give a service of energy audit has been eight (8) with five (5) factories completed preparing energy audit reports (as described in ANNEX 9). ➢ C/Ps have requested JICA experts to expand factory-based energy audit training in the remaining duration of the Project. A larger number of field training, in particular process-specific training by assistance from both long and short-term experts, is necessary to strengthen the capacity of EIE/NECC. ➢ In order to increase efficiency in providing more accurate recommendations in the audit activity, some additional measuring devices may be requested based on the specific needs.

Result of Mid-Term Evaluation

Evaluation Result	
	Output 5: Information supply, publicity and policy recommendation. ➢ Output 5 is still in progress. As for Policy Advisory Activities, it is expected that the Energy Conservation Law is enacted in near future. The Project will continue to provide necessary information for this movement. ➢ The activities concerning this field need to be explored, as these will support the Project to move on to fulfill the Overall Goal. ➢ EIE/NECC should identify specific needs on information of new technology in order to effectively provide the information to the industry sectors in Turkey. 【Energy efficiency related information are accumulated increasingly.】 ➢ Provision of information on new technology is planned through updating the textbook. ➢ JICA experts provide information on energy efficiency technology as necessary and when requested. 【The frequency of holding seminar, issuing newsletter increases. 】 ➢ JICA experts give occasional seminars to provide information on energy efficiency technology as necessary and when requested. ➢ EIE/NECC has not yet issued a newsletter with its own initiatives as expected in the Project 【Policy recommendations for new energy conservation law and regulations are made.】 ➢ It is expected that the Energy Conservation Law is expected to be enacted. ➢ EIE/NECC is in need of Japanese cases and examples of subsidies and incentive systems for energy conservation in industrial sectors. EIE/NECC further specifies the JICA experts about the suggestions and information. (2) Adequacy of timing, quality of Input from the Japanese side ➢ Dispatch of Japanese Experts is shown in ANNEX 3 of the minutes. The duration, number and expertise were in accordance to the R/D. ➢ C/P Training in Japan was carried out as shown in ANNEX 4. Trainees are expected to serve as core members of the Project. ➢ Machinery and equipment have been provided by the Japanese side. They are already installed and operational. They are properly maintained and utilized by the Project. (3) Adequacy of timing and quality of Input from Turkish side. ➢ Provision and maintenance of building and facilities are properly carried out. The New office space for the Project and Laboratory for Mini-Plant are prepared according to the R/D. ➢ Necessary number of C/P and administrative personnel has been allocated as planned. Overall qualification of C/Ps is generally high to implement the Project, though matching of expertise to respective sector specialties vary. ➢ The Turkish side generally carries out maintenance of the machinery and

Result of Mid-Term Evaluation

Evaluation Result	
	equipment provided. ➢ Generally, local cost is covered properly. There are some problems in providing a sufficient amount of per diem and other travel expenses to C/Ps when they are on trip. Though it is still a minor problem expressed by a few C/P personnel, it is expected to allocate necessary budget to resolve the problem, because C/Ps have requested extended field-based energy audit training in the remaining duration of the cooperation. (4) Relevance of Input and Outputs (Important Assumptions) ➢ Economic instability is not negligible for maximizing the impact of the Project. It is commonly understood that the progress of energy saving in industry, achievement of Overall Goal could be often influenced by macro economic conditions.
4. Impact	**Abstract** ➢ The Project already starts producing some positive impact both expected and unexpected. Firstly, for instance, the Project activities increased the credibility and visibility of EIE/NECC. Secondly, EIE/NECC extends its training program by establishing a new course for technicians in factories. There have been two types of training, for steel and car industries, totaling 62 technicians to date trained in EIE/NECC. (1) Expected positive impact ➢ EIE/NECC becomes a reliable resource for factory-based energy managers. From time to time, energy manager who completed the training program request advices and most updated information from EIE/NECC. ➢ In some companies, energy managers who completed the course become focal point for extending energy conservation within their factory. ➢ Some factories are able to improve their energy consumption by participating the Energy Manager Training course. It is, however, difficult to measure specific contribution of the training to such energy saving measures in an objective manner at the moment. (2) Unexpected positive impact ➢ EIE/NECC extends its training program by establishing a new course for technicians in factories. There have been two types of training, for steel and car industries, totaling 62 technicians to date were trained in EIE/NECC. ➢ Two graduates from the energy manager training have started an Internet-based mailing list to build a national forum to discuss about energy-saving practices in Turkey. The mailing list serves, as a forum to exchange their idea on energy-saving issues needs to be resolved. (3) Expected negative impact ➢ No negative impact was identified at the time of the evaluation. (4) Unexpected negative impact ➢ No negative impact was identified at the time of the evaluation. The Evaluation Team advised the Project to continue monitoring to see if there is any unexpected negative impacts exist.

Result of Mid-Term Evaluation

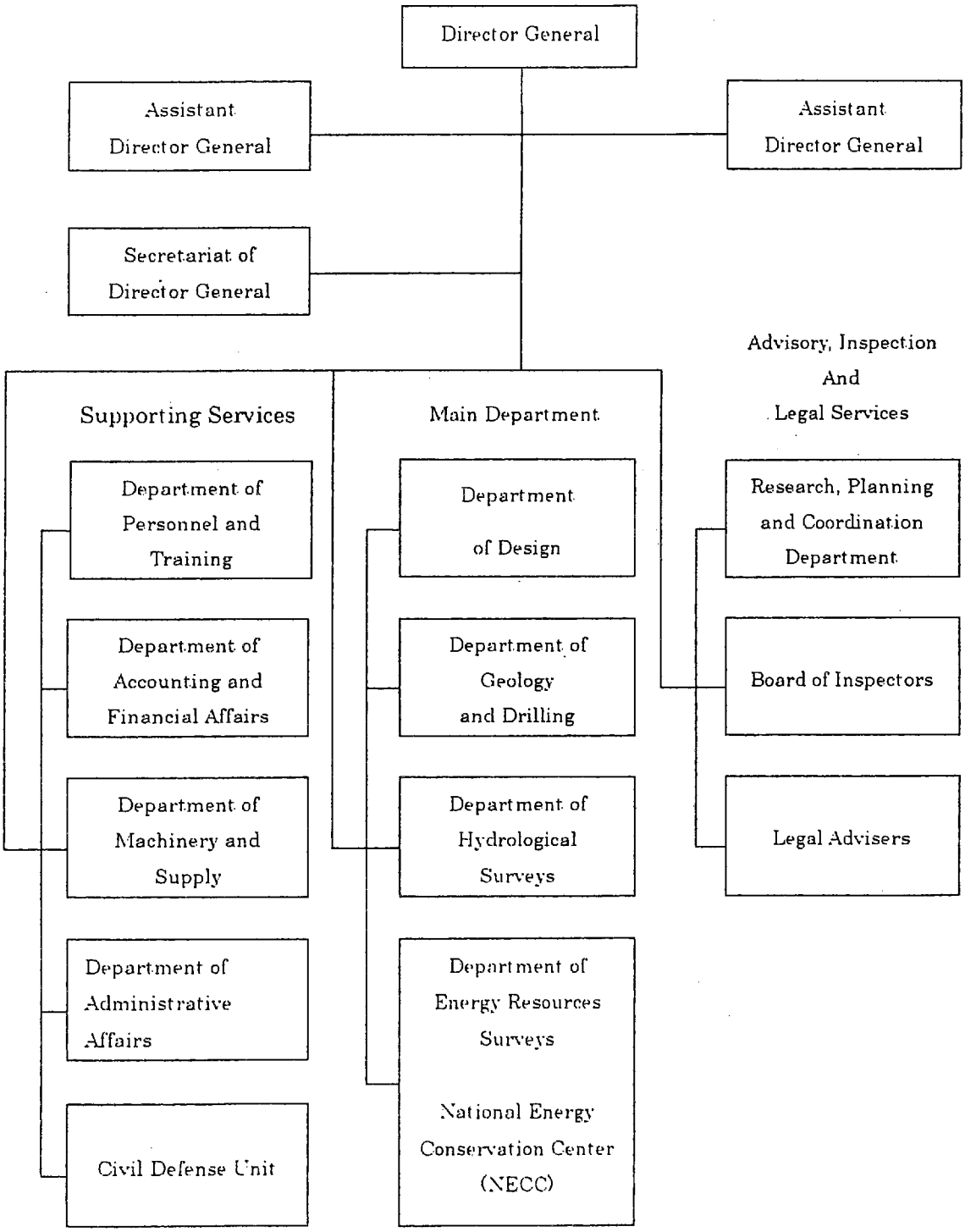
Evaluation Result	
5. Sustainability	**Abstract** ➢ The Evaluation Team concluded that it is still early to predict the sustainability of the Project. Under the current economic circumstances, the following two issues need to be addressed: ➢ First, the current focus on the enterprises over 2,000TOE needs to strengthen by on-going efforts of extending training to technicians, more tailored training (i.e. industry-sector-specific training and/or collaboration with Universities etc.) and seminars for top managers. Second, in the future plan, EIE/NECC should extend its services to a wider range of targets to promote energy-saving technology. (1) Overall energy reduction in the Republic of Turkey ➢ It is still early to predict the sustainability of the Project. Establishment of legislative support and other merits, such as tax break and subsidies are equally important and crucial for ensuring sustainability. (2) Cross Cutting Issues (2-1) Policy Aspects ➢ As stated above, additional supports from different approaches are prerequisite for achieving the goal. If JICA has a role to play to achieve Overall Goal, it is expected that additional support may be provided within the Project. ➢ The Evaluation Team suggests that the current focus on the enterprises over 2,000TOE needs to strengthen by on-going efforts of extending training to technicians, more tailored training (i.e. industry-sector-specific training and/or collaboration with Universities etc.) and training for top managers. (2-2) Technical Aspects ➢ Enterprises applying the energy-saving technology may need to develop their own capacity, as energy-saving measures require factory-wide activities to achieve its environmental goal. ➢ The Evaluation Team suggests that EIE/NECC extends its services to SMEs in the future direction for the promotion and transfer of energy-saving technologies are basis of improved productivity and quality that leads to more competitive industry-bases. (2-3) Environmental Aspects ➢ Adapting the technology directly contributes environmental compliance, such as reduction of carbon dioxide emission required by Inter-government Panel for Climate Change. Therefore once it is adapted, sustainability of the technology is high. (2-4) Socio-cultural Aspects ➢ The Project directly contributes to not only behavioral change in production, but also raising awareness of all level of public. (2-5) Institutional Management Aspects ➢ Adapting the technology may require much empowered organizational management in factory.

Result of Mid-Term Evaluation

Evaluation Result	
	(2-6) Economic and Financial Aspects ➢ Given that overall economic condition of Turkey is unpredictable, the Evaluation Team expressed its intention that training and energy audit activities should be self-financing.

ANNEX 2

Organization Chart of EIE



ANNEX 3

List of Japanese Experts Dispatched to the Project

FY	Long Term Experts		Field	Dispatch Period
2000	1	Ryoichi YOSHIDA	Chief Adviser	01.08.2000 – 31.07.2003
	2	Kuniko MAKI	Project Coordinator	01.08.2000 – 31.07.2002
	3	Taichiro KAWASE	Energy Conservation Training	01.08.2000 – 31.07.2003
	4	Iwao ASADA	Energy Conservation Technology	15.08.2000 – 14.08.2003
2002	5	Koji KOMURA	Project Coordinator	14.07.2002 – 13.07.2004
	Short Term Experts			
2000	1	Ryokichi UCHISHA	Scheduling and Bidding Assistance of Construction	28.10.2000 – 12.11.2000
2001	2	Hiroyosi MATSUDA	Guidance and Advice on Start-up Method of Training Units	16.04.2001 – 15.06.2001
	3	Kouji IWATA	Guidance and Advice on Installation of Training Units	16.04.2001 – 15.06.2001
	4	Akira NAYUKI	Guidance and Advice on Start-up Method of Training Units	07.05.2001 – 06.07.2001
	5	Koichi IKEDA	Guidance and Advice on Start-up Method of Training Units	03.06.2001 – 01.07.2001
	6	Junichi HAGIWARA	Guidance for Energy Audit of Textile Industry	20.01.2002 – 28.02.2001
	7	Shigeru KOMIYAMA	Guidance for Energy Audit of Iron-steel Industry	25.02.2002 – 25.03.2002
	8	Yukio FUSE	Assistance on Public Relations for Energy Conservation	31.01.2002 – 07.04.2002
2002	9	Junichi HAGIWARA	Guidance for Energy Audit of Textile Industry	16.06.2002 – 04.08.2002
	10	Masayoshi NAKASHIMA	Guidance and Advice on Process Control	07.09.2002 – 29.09.2002
	11	Shigeru KOMIYAMA	Guidance for Energy Audit of Iron-steel Industry	29.09.2002 – 27.10.2002
	12	Masaharu MIYAKE	Guidance for Energy Audit of Food Industry	19.10.2002 – 21.11.2002
	13	Hisao KIBUNE	Introduction and Guidance for Evaluation Method of Energy Saving	18.01.2003 – 31.01.2003

ANNEX 4

Counter Part Training in Japan

FY		Name	Course	Period	Title of Job
2000	1	Sureyya AKMAN	Energy Conservation	19.11.2000 – 17.12.2000	Senior Engineer
	2	Erdal ÇALIKOĞLU	Energy Conservation	19.11.2000 – 17.12.2000	Senior Engineer
	3	Turgut ÖZGEN	Energy Conservation	19.11.2000 – 17.12.2000	Administration Section Director
2001	4	Mehmet SEZER	Energy Saving Diagnosis	14.10.2001 – 16.11.2001	Senior Engineer
	5	Bülent Hakkı BUYRUK	Energy Saving Diagnosis	14.10.2001 – 16.11.2001	Senior Engineer
	6	Mehmet DEMİRTOLA	Policy and Promotion on Energy Conservation	09.12.2001 – 22.12.2001	Director General
2002	7	Birgül DUMAN	Energy Saving Diagnosis	17.11.2002 – 14.12.2002	Engineer
	8	Erol YALÇIN	Energy Saving Diagnosis	17.11.2002 – 14.12.2002	Engineer
	9	Ismail Yenal CEYLAN	Energy Conservation Measures	16.03.2003 – 01.03.2003	Engineer
	10	Mustafa CANBAZ	Energy Conservation Measures	16.03.2003 – 01.03.2003	Meteorology Engineer
	11	Hakan KOÇYĞIT	Energy Conservation Measures	16.03.2003 – 01.03.2003	Section Manager

ANNEX 5-1 List of Machinery and Equipment provided by Japan

JFY	No	Description of Goods	Quantity	Price(¥)	Tota Price (Incl. CIF, ¥)
2000		Steam Trap Checker with checking software & E.T.C.	1 Lot	81,720,000	89,439,676
	A12-01	Steam Trap Training Facility		11,896,000	
		Rotatin Machine Facilities			
	A12-02	1) Fan Training Facility		18,940,000	
	A12-03	2) Pump Training Facility		18,907,000	
	A12-04	Compressed Air Training Facility		27,577,000	
	A12-05	Power Source Box		4,400,000	
2000		Technical Equipment of JICA		3,140,091	3,842,166
	B12-01	Personal Computer PX-DB47K4RA	1 set	313,000	
	B12-02	Scanner GT-7600U AC100V	1 set	35,000	
	B12-03	Laser Printer LP-8300F AC100V	1 set	99,000	
	B12-04	Transfprmer 1500AE	1	24,000	
	B12-05	Automatic Voltage Regulator SVC-600ND-II	1	25,000	
	B12-06	Personal Computer PX-DB47K4RA	1 set	309,000	
	B12-07	Automatic Voltage Regulator SVC-600ND-II	1	27,500	
	B12-08	Personal Computer PX-DB47K4RA	1 set	313,000	
	B12-09	Printer BJ-F620 AC100V	1 set	43,500	
	B12-10	Automatic Voltage Regulator SVC-600ND-II	1	25,000	
	B12-11	Personal Computer PX-DB47K4RA	1 set	309,000	
	B12-12	Software MS-Access 2000	1 set	27,700	
	B12-13	Air Station WLS-T2W-M	1	55,000	
	B12-14	Digital Camera PowerShotS20	1	85,000	
	B12-15	Automatic Voltage Regulator SVC-600ND-II	1	27,500	
	B12-16	Stereo Cassette Corder TCS-100	1	22,100	
	B12-17	Electronic Book Player DD-S35	1	40,000	
	B12-18	Step Down Transformer TSD-N15LES	1	31,300	
2000	A12-05	Furnace(with paint) & E.T.C.	1 LOT	72,280,000	80,294,418
		Combustion Furnace SMC-FK20			
		1) Furnace (with paint)	1	21,240,000	
		2) Refractory/Insulation Material	1	2,300,000	
		3) Buener for Furnace (including Pilot Burner)	1	3,400,000	
		4) Cooling Water Jacket	1	2,100,000	
		5) Air Pre-heater (including By-pass Duct)	1	9,000,000	
		6) Blower	1	1,400,000	
		7) Burner Training Unit (Open burner)	1	2,350,000	
		8) Measuring Instruments	1 set	5,320,000	
		9) Power Cables for Measurement	1	160,000	
		10) Safety Devices (Flame Checker, Explosion hole, Safty Shut-off Valve)	1	1,150,000	
		11) Fuel Supply Unit	1	6,100,000	
		12) Air Compressor (Self-unload Control)	1	350,000	
		13) In-house Piping (Combustion Air, Fuel, Compressed Air, Water)	1	2,300,000	
		14) Flow Meter Unit	1	4,500,000	
		15) Exhaust Gas Duct & Damper(Flue)	1	2,300,000	
		16) Measuring Holes & Observation Windows	1	550,000	
		17) Power Control Panel	1	3,500,000	

JFY	No	Description of Goods	Quantity	Price(¥)	Tota Price (Incl. CIF, ¥)
		18) Explosion Experiment Unit with Ignition Device	1	1,100,000	
		19) Date Collection & Treatment Device and System	1 set	1,650,000	
		20) Tool Set	1	220,000	
		21) FM Receiver	1	900,000	
		22) Spare Parts	1	60,000	
		23) Flow Chart of Furnace Training Facility	1	90,000	
		24) Operation Manual (Japanese, English)	14	240,000	
2000	A12-06	Flue Gas Analyzer & Others	1 Lot	1,516,000	16,552,866
		1) Ultrasonic Flowmeter	1 set	1,674,800	
		2) Pitot Tube Flowrater	1 set	1,609,200	
		3) Portable Emission Thermometer	1 set	449,500	
		4) Digital Thermometer	10	511,000	
		5) Glip-on AC Power Meter	5	485,000	
		6) Oscillographic Recorder	1	433,000	
		7) Clamp-on Power Meter	1 set	464,400	
		8) Flue Gas Analyzer	1 set	3,244,100	
		9) Data Logger	2 sets	1,611,600	
		10) Television	2	216,000	
		11) Video Recorder	2 sets	66,000	
		12) Overhead Projector	2 sets	227,200	
		13) Video Projector	1 set	955,000	
		14) OA Board	3 sets	444,600	
		15) Screen	2	108,000	
		16) Personal Computer GX110	6	930,000	
		17) Personal Computer S010 9300	3	594,000	
		18) Printer DESK JET 1220C	1set	69,000	
		19) Laser printer Laser Jet 5000C	1 set	163,200	
		20) Uninterrupted Power Supply SCONSIP-50001FR	1	876,000	
2001		Equipment for Technical Cooperation of JICA		9,750,000	10,377,300
	A13-01	1) Oxygen Indicator	5 units	1,674,000	
	A13-02	2) Digital Thermometer	5	273,500	
	A13-03	3) Digital Surface High Function Meter	5 units	481,400	
	A13-04	4) Emission Thermometer	5 units	572,500	
	A13-05	5) Mano Gauge	5	66,000	
	A13-06	6) Pitot Tube	5	971,500	
	A13-07	7) Clamp on Power Meter	5 sets	1,313,500	
	A13-08	8) Vibration Meter	5 sets	560,200	
	A13-09	9) Fuel Gas Analyzer	5 units	3,086,100	
	A13-10	10) Electronic Termo-Hygrograph	2 units	295,800	
	A13-11	11) Conductivity Meter	1	94,600	
	A13-12	12) PH Meter	1 set	131,200	
	A13-13	13) Dissolved Oxygen Meter	1 set	288,700	
2001		Technical Equipment of JICA			
	B13-01	Personal Computer PX-DB60C/4RA	1 set	228,800	558,627
	B13-02	Software File Maker Pro 5 for Win	1	39,000	
2002		Technical Equipment of JICA		7,315,000	7,873,538
	A14-01	1) Panel Showing A Reheating Furnece	1 set	1,755,000	

JFY	No	Description of Goods	Quantity	Price(¥)	Tota Price (Incl. CIF, ¥)
	A14-02	2) Burner Cut Model	1 set	500,000	
	A14-03	3) Panel Showing A Burner	1 set	1,755,000	
	A14-04	4) PID Control Unit	1 unit	2,320,000	
	A14-05	5) Adjustment Valve	1 unit	465,000	
	A14-06	6) Level Gauge	1 set	520,000	
2002		Technical Equipment of JICA		431,300	452,865
	B14-01	Moisture Text Meter DMB-10	1	347,500	
	B14-02	Electrode 202	1	40,000	
	B14-03	Electrode 207	1	43,800	
Total					209,391,456

ANNEX 5-2 List of Machinery and Equipment provided by Japan

JFY	No	Description of Goods	Quantity	Price(US$)
2000	C12-01	Phot-copier TOSHIBA PPC 4570		10,845.90
	C12-02	Boiler Ernsan	1 unit	90,429.00
2001	C13-01	Toshiba Satelite 3000-400	1	2,949.00
	C13-02	Toshiba Satelite 3000-400	1	2,949.00
	C13-03	Sony Television Model:KV29FX65	1 set	1,369.00
	C13-04	Sony Multi Audio System Model: DVP S325/SLV E700k	1 set	1,104.00
	C13-05	Inverter	1set	80.00
	C13-06	Energy Conservation Type Lighting Display	1 set	5,074.00
	C13-07	Digital Lux Meter Lutron LX-105 RS232	1	165.00
	C13-08	Digital Lux Meter Lutron LX-105 RS232	1	165.00
	C13-09	Digital Lux Meter Lutron LX-105 RS232	1	165.00
	C13-10	Digital Lux Meter Lutron LX-105 RS232	1	165.00
	C13-11	Digital Lux Meter Lutron LX-105 RS232	1	165.00
	C13-12	Software for computer connection	1 set	70.00
2002	C14-01	Cooling Tower	1 unit	14,927.00
Total				130,621.90

NO	NAME AND SURNAME	FEMALE MALE	JOB	WORKING AREA	RESPONSIBILITIES AREAS
1	Kemal KOMAN	M	Department Head	Training	
				Audit	
				Other	
2	Tülin KESKİN	FM	Division Manager	Training	
				Audit	
				Other	
3	Ali DOĞAN	M	Mechanical Engineer	Training	Boiler Assist. Trainer
				Audit	
				Other	
4	B.Hakkı BUYRUK	M	Mechanical Engineer	Training	Improving the energy efficiency in boilers (lecturer), (practical), (coordinator)
				Audit	Food Sector (buscuit, macaroni, sugar, beer and drink diary)
				Other	Insulation in buildings and thermal camera measurement
5	Birgül DUMAN	FM	Industrial Engineer	Training	Economic Analyses Lecturer, Boiler Assist. Trainer, Coordinator
				Audit	Iron and Steel Sector, Fertilezer Sector
				Other	
6	Bora OMURTAY	M	Electrical Engineer	Training	Electrical Systems Lecturer, Fan training unit Trainer, Coordinator
				Audit	Cement Sector
				Other	Benchmarking study of cement sector
7	Cavit ÜNVER	M	Electrical Engineer	Training	Lighting Lecturer
				Audit	
				Other	
8	Erdal ÇALIKOĞLU	M	Mechanical Engineer	Training	Insulation Lecturer, Furnaces Trainer, Coordinator
				Audit	Energy audits, Responsibility of Ceramic Sector stadio
				Other	Thermal camera audits, Manual updating, Modification in model plant
9	Erol YALÇIN	M	Industrial Engineer	Training	Energy and Environment Lecturer, Furnace Assist. Trainer, Coordinator
				Audit	Textile Sector
				Other	Energy saving potential studies all sector, energy saving and climate change
10	F.Figen AR	FM	Chemical PhD. Engineer	Training	Steam System Lecturer, Practical studies on steam traps, Coordinator of course
				Audit	Food Sector (Meat, Can, Edible Oil), soap and detergent, medisine, dying
				Other	Lecture in University, web page coor. , hydrogene energy, fuel-cell, environment

NO	NAME AND SURNAME	FEMALE MALE	JOB	WORKING AREA	RESPONSIBILITIES AREAS
11	Halil İbrahim GÜNDOĞAN	M	Mechanical Engineer	Training	Energy and Mass Balances Lecturer, Furnaces Assist. Trainer, Coordinator
				Audit	Paper and Cardboard Sector,
				Other	
12	Hüseyin ÇİFTÇİ	M	Technician	Training	
				Audit	
				Other	Model Plant equipments maintain
13	İ.Yenal CEYLAN	M	Mechanical Engineer	Training	Compressed air Lecturer, Compressed air Trainer, Coordinator
				Audit	Otomotiv Sector
				Other	
14	Mehmet BALCI	M	Physics Engineer	Training	
				Audit	
				Other	
15	Mehmet SEZER	M	Electrical Engineer	Training	Electrical Systems Lecturer, Pomp training unit Trainer, Coordinator
				Audit	Nonferro Metal Industry Sector
				Other	
16	Ömer KEDİCİ	M	Physics MsC Engineer	Training	Energy Management
				Audit	All sectors especially petrochemical
				Other	General Administrative work and Coordinator
17	Necip ÖZTÜRK	M	Industry Engineer	Training	Steam System Lecturer, Practical studies on steam traps, Coordinator of course
				Audit	Metal product sector (I want to textile sector)
				Other	Energy Manager Data Base, Certificate Data Base, Certificate number
18	Süheda GÜMÜŞDERELİOĞLU	FM	Chemical MsC Engineer	Training	General sitiation of Turkish Energy Sector
				Audit	
				Other	International contacts, report preparation, policy and promotion studies
19	Süreyya AKMAN	M	Chemical MsC Engineer	Training	Measuring equipmens, Measurement Tecnics and Combustion Lecturer
				Audit	All sectors especially textile sector
				Other	Model Plant and Model Plant equipments Coordinator
20	Zehra KAYGISIZ	FM	Secretary		

ANNEX 7

Allocation of the Budget for the Project by the Turkish Side

ITEM	APPROXIMATE TOTAL COST (Billion Turkish Lila)	YEAR OF EXPENDITURE
Custom Clearance	30	2001
Equipment Transportation	10	2001
Seminar and Office Building Construction	500 (Including update cost)	2000
Furniture	20	2001
Transportation for Experts' official travel	6 / year	With the value of 2003
Heating of Mini-plant	10 / year	With the value of 2003
Operation cost of Mini-plant for the training course (Energy)	5 / year	With the value of 2002
Communication (Internet and domestic call)	3 / year	With the value of 2003
Maintenance	6 / year	With the value of 2002
Office expense (heating)	1 / year	With the value of 2002
Staff charge (for 15 C/Ps)	108 / year	With the value of 2003

ENERGY MANAGER COURSE ORGANIZED BY EIE/NECC IN 2002

Number	Duration of Course	Number of Participant	Name of Sectors	Type of Course
1	07-16 January 2002	18	12 Food,5 Textile, 1 Utility Sector	Energy Manag Course
2	23-25 January 2002	10	Iron Steel	Short Course
3	13-15 February 2002	10	Iron Steel	Short Course
4	20-22 March 2002	10	Iron Steel	Short Course
5	25.Marc-04.Apr 2002	13	11 Food,1 Fertilizer, 1Non-Ferros Metal	Energy Manag Course
6	10-12 April 2002	11	Automative	Short Course
7	24-26 April 2002	10	Iron Steel	Short Course
8	8-10 May 2002	9	Iron Steel	Short Course
9	04-14 June . 2002	32	21 ESCAP,2 Food,2 Cement,2 Pet.Kim,1 Iron Stel,1 Glass,1 Met.Eşya,2 Ceramic	Energy Manag Course
10	23 Sep.04 Oct.2002	13	2 Met.Eşy.,1 Hizm.,3 Textil.,2 Fertilizer,3 Iron Steel.,1 Araşt. Mrk.,1 Amb.San.	Energy Manag Course
11	18-29 Novemb 2002	19	2 Cam,2 Seram.,3 Kağıt.Kart.,4 Met.Eşy.,4 Tekst.,1 Döküm, 2 Kimya. 1 Dem.Çel	Energy Manag Course
		155		

PS : In 2001 December, a short course was held for steel sector technicians, 10 trainee participeted with this course totel members for course and participants have reached to 12 and 165 respectively.

Energy Manager Courses held by EIE/NECC as of December 31, 2002

No	Sector	Duration of Course	Organized	Total Number of Factories	Number of Energy Managers Attending The Course	Certificated Energy Managers
			BEFORE PROJECT START			
1	Iron-Steel	30 June.-9 july.1997	EIE/NECC	5	10	10
2	Arc Furnace	17 Nov.-28 Nov.1997	EIE/NECC	12	16	16
3	Paper	16 Feb.-26 Feb.1998	EIE/NECC	17	19	19
4	Fertilizer	04 May.-15 May.1998	EIE/NECC	7	20	19
5	Ceramics	28 Sept.-98 Oct1998	EIE/NECC	11	15	15
6	Non-Ferrous Metal	30 Nov.-11 Dec1998	EIE/NECC	10	22	14
7	Sugar	26 April.-30 April.1999	EIE/NECC	29	34	27
8	Automotive	22 Feb.-5 March.1999	EIE/NECC	10	12	11
9	Ceramics	01 Nov.-13 Nov.1999	EIE/NECC	11	14	12
10	Fabricated Metal Products	22 Nov.-03 Dec.1999	EIE/NECC	13	13	12
11	Iron-Steel	21 Feb.-03 March.2000	EIE/NECC	8	11	10
12	Textiles	22 May.-02 June.2000	EIE/NECC	11	13	11
			WITHIN JICA PROJECT			
1	Food	07 Januar.-16 Janua.2202	EIE/NECC	9	18	14
2	Food	25 March.-04 April 2002	EIE/NECC	13	13	13
3	ESCAP	04 June-14 June 2002	EIE/NECC	9	32	11
4	General	23 Septem - 4 Octo 2002	EIE/NECC	10	13	-
5	General	18 Nove- 29 Nove 2002	EIE/NECC	16	19	-
17	**GENERAL TOTAL**	**In 6 Years (1997-2002)**	**EIE / NECC...17**	**201**	**262**	**214**

ANNEX 8-2

Energy Manager Courses held by other Organizations as of December 31, 2002

No	Sector	Duration of Course	Organized by	Attended Number of Factories	Number of Energy Managers Attended the Course	Certificated Energy Managers
1	Cement	12 Jan.-23 Jan.98	TUBITAK	16	21	21
2	Cement	16 Mar.-27 Mar.98	TUBITAK	10	11	11
3	Food	07 Dec.-18 Dec.98	TUBITAK	18	19	16
4	Glass	03 May.-07 May.99	TUBITAK	11	26	24
5	Textiles	22 Nov.-03 Dec.99	TUBITAK	9	9	6
6	Petro-Chemistry	20 Nov.-01 Dec.00	TUBITAK	16	26	16
7	Cement	11 Mar -22 Mar 02	TUBITAK	8	9	7
	TOTAL- 1			**88**	**121**	**101**
1	Textiles	12 Jan.-23 Jan.98	EGE	10	10	7
2	Food	25 May.-05 Jun.98	EGE	18	21	10
3	Chemistry	12 Oct.-23 Oct.98	EGE	10	11	4
4	Textiles	03 May.-14 May.99	EGE	11	13	8
5	Food	07 Feb.-18 Feb.00	EGE	9	10	6
	T0TAL- 2			**58**	**65**	**35**
1	Textiles	31 Aug.-14 Sep.98	OGU	15	17	14
2	Mining-Chemistry	22 Feb.-5 Mar.99	OGU	8	13	12
3	Fabricated Metal Products	04 Oct.-16 Oct.99	OGÜ	12	12	10
4	General	09 Dec- 20 Dec.02	OGÜ	6	7	-
	TOTAL-3			**41**	**49**	**43**
	GENERAL TOTAL	**In 5 Years (1998-2002)**	**TUBITAK..... 7 EGE- ..... 5 OGU..... 4**	**187**	**235**	**172**

Students : Ege University 12 Person, Gaziantep University 6 Person, OGU University 2 Person
JICA : 5 Person
Total : 25 Person

TUBITAK : TUBITAK-MAM and İstanbul Technical University Gebze-İSTANBUL
EGE : EGE University, Chamber of Mechanical Engineers İZMİR
OGU : Osmangazi University - ESKİŞEHİR

ANNEX 8-3

ENERGY AUDITS IN 2002

	Duration of Study	Name of Sector and City	Type of Research	Study Group	Explanation
1	29-31.Junuary 2002 (3 days)	Güney Sanayi, ADANA	Pre- Audıt	Süreyya AKMAN Erol YALÇIN Ryoichi YOSHIDA Taichiro KAWASE Junichi HAGIWARA	
2	03-07.Feb 2002 (5 days)	Söktaş Pamuk ve Tarım, SÖKE/AYDIN	Pre- Audıt	Süreyya AKMAN Erol YALÇIN Mehmet SEZER Ryoichi YOSHIDA Taichiro KAWASE Junichi HAGIWARA	
3	11-15.Feb 2002 (5 days)	GAP Malatya İplik Fab. MALATYA	Pre- Audıt	Erol YALÇIN Süreyya AKMAN Bora OMURTAY Taichiro KAWASE Junichi HAGIWARA Kuniko MAKI	
4	28.Feb-04.Marc.2002(5day)	Kardemir A.Ş. Karabük/ZONGULDAK	Pre- Audıt	Erdal ÇALIKOĞLU Birgül DUMAN Iwao ASADA Shigeru KOMIYAMA	
5	05-08.March.2002 (4 days)	Erdemir A.Ş. Kdz. EREĞLİ	Pre- Audıt	Erdal ÇALIKOĞLU Birgül DUMAN Iwao ASADA Shigeru KOMIYAMA	
6	11-15.March.2002 (5 days)	İsdemir A.Ş. İskenderun/HATAY	Pre- Audıt	Erdal ÇALIKOĞLU Birgül DUMAN Mehmet SEZER Iwao ASADA Shigeru KOMIYAMA	

	Duration of Study	Name of Sector and City	Type of Research	Study Group	Explanation
7	13-15.May.2002 (3 days)	Efes Pilsen ADANA	Pre- Audit	B.Hakkı BUYRUK Mehmet SEZER Taichiro KAWASE	
8	15-17.May.2002 (3 days)	Coats İplik San. Mudanya/BURSA	Pre- Audit	Erol YALÇIN Bora OMURTAY Taichiro KAWASE	
9	29-31.May.2002 (3 days)	Dardanel A.Ş. ÇANAKKALE	Pre- Audit	B.Hakkı BUYRUK F.Figen AR Ryoichi YOSHIDA Taichiro KAWASE	
10	25-28.June.2002 (4 days)	Saray Halı A.Ş. Develi/KAYSERİ	Pre- Audit	Süreyya AKMAN Erol YALÇIN Mehmet SEZER Ryoichi YOSHIDA Taichiro KAWASE Junichi HAGIWARE	
11	01-03.July.2002 (3 days)	Efes Pilsen Çumra/ KONYA	Pre-Audit	B.Hakkı BUYRUK Ryoichi YOSHIDA Taichiro KAWASE	
12	07-13.July.2002 (7 days)	İsko Dokuma İşl.A.Ş. İnegöl/BURSA	AUDIT	Süreyya AKMAN Erol YALÇIN H.İbrahimGÜNDOĞAN Bora OMURTAY Cavit ÜNVER Ryoichi YOSHIDA Taichiro KAWASE Junichi HAGIWARE	Gathering Data, Measurement and PI Diagram Calculations energy saving where measured points Audit Report was completed and sent to the factory
13	11-12.July.2002 (2 days)	Toprak Ceramics Bozüyük/BİLECEİK Toprak Ceramic Factory. ESKİŞEHİR Toprak Ceramic SG Bozüyük/BİLECİK Eczacıbaşı Ceramic Bozüyük/BİLECİK Eczacıbaşı Vitrify, Bozüyük/BİLECİK Yurtbay Ceramic Karo Fab. ESKİŞEHİR	Short visit	Erdal ÇALIKOĞLU Mehmet SEZER Iwao ASADA	

	Duration of Study	Name of Sector and City	Type of Research	Study Group	Explanation
14	02-07September.2002 (6 days)	Efes Pilsen Çumra/KONYA	AUDIT	B.Hakkı BUYRUK İ.Yenal CEYLAN Mehmet SEZER Ryoichi YOSHIDA Taichiro KAWASE	
15	06-18.October.2002 (13 days)	İsdemir A.Ş İSKENDERUN	AUDIT	Erdal ÇALIKOĞLU Necip ÖZTÜRK Birgül DUMAN Bora OMURTAY Iwao ASADA Shigeru KOMIYAMA	
16	21-26.October.2002(6 days)	Efes Pilsen ADANA	AUDIT	B.Hakkı BUYRUK İ.Yenal CEYLAN Mehmet SEZER Taichiro KAWASE Masaharu MIYAKE	
17	23-25.October2002 (3 days)	Yakateks Textil İnegöl/BURSA	Pre-Audit	Süreyya AKMAN Erol YALÇIN	
18	05.November.2002 (1 day)	Aytaç Food A.Ş. Çerkeş/ÇANKIRI	Short Visit	F.Figen AR Taichiro KAWASE Masaharu MIYAKE Koji KOMURA	
19	11-15.November.2002 (5 days)	Dardanel Food A.Ş.ÇANAKKALE	AUDIT	B.Hakkı BUYRUK İ.Yenal CEYLAN Mehmet SEZER F.Figen AR Taichiro KAWASE Masaharu MIYAKE Koji KOMURA	Audit in cooling system, in boiler and in steam system Audit Report to preparaing

ANNEX 10

List of Attendants of Diacussions

1 Joiont Evaluation and Coordination Committee

(1) The Turkish Side

Mr. Temel ERYILMAZ	Asistant Undersecretary of Ministry of Energy and Natural Resource
Mr. Mehmet ÇAĞLAR	Acting General Director of EİE
Mr. Atilla GÜRBÜZ	Asistant General Director of EİE
Ms. Çiğdem HATUNOĞLU	Head of Foreign Affairs Department, MENR
Mr. Kemal KOMAN	Head of Department , EİE
Ms. Tülin KESKİN	Division Manager, EİE
Mr. İsmail YILMAZ	Energy Expert, SPO
Mr. Süleyman BASA	Advisor, MENR
Ms. Ayça KUMAN	Ankara Chember of Industry
Mr. Ömer KEDİCİ	Energy Conservation Expert, EIE
Ms. Suheda GÜMÜSDERELİOĞLU	Energy Conservation Expert, EIE

(2) The Japanese Side

(Mid-Term Evaluation Team)

Mr. Yusuke MURAKAMI	Leader
Mr. Masateru MATSUO	Energy Conservation
Ms. Masayo TERAKADO	Project Management
Mr. Masato ONOZAWA	Project Evaluation

(Embassy of Japan in the Republic of Turkey)

Mr. Yuichi ODAWARA	Second Secretary

(JICA Office in the Republic of Turkey)

Mr.Yasushi INABA	Resident Representative
Mr. Makoto ASHINO	Deputy Resident Representative

(Project Team)

Mr. Ryoichi YOSHIDA	Chief Adviser
Mr. Iwao ASADA	Energy Conservation Technology
Mr. Taichiro KAWASE	Energy Conservation Training
Mr. Koji KOMURA	Project Coordinator

2 Other Meetıngs and Discussions

(1) Ministry of Energy and Natural Resources

Mr. Temel ERYILMAZ	Asistant Undersecretary of Ministry of Energy and Natural Resources

(2) Mınistry of Envıronment

Dr. Zekı NECIPOĞLU	Head of Air Management Department, General Directorate of

Ms. Ece TOK	Ennvironmental Pıllution Prevention and Control Divısion Chelf, Aır Management Department

(3) State Planning Office (SPO)

Ms. Sema BAYAZIT	Expert pn Environmental Sector, General Directorate of Soial Sectors and Coordination

(4) KOSGEB

Mr. Erkan GÜRKAN	President

(5) European Union (EU)

Mr. Gürbüz GÖNÜL	Energy Transport, Telecommunication, Information Society,Representation of the EUROPEAN COMMISSION to Turkey

(6) Iron and Steel Producers Association

Dr. Veysel YAYAN	Secretary Geneal
Ms. Serpıl Çımen	Mettallurgical Engineer

(7) Bursa TİCARET ve SANAYİ ODASI (Chamber of Commerce of Bursa)

Mr. Kayıhan KAYA	Industrial Manager

END