

添付資料

添付資料

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添付資料-1

協議議事録

1-A. Minutes of discussion signed on 14th November, 1994

*SYRIA POWER PLANTS
MINUTES OF MEETING*

**MINUTES OF MEETING
FOR
MASTER PLAN STUDY
ON
REHABILITATION & MAN-POWER TRAINING FOR POWER PLANTS
IN
THE SYRIAN ARAB REPUBLIC**

Date : 30 October - 14 November, 1994

Place : SPC, MOE and PEGT office

Attendants : SYRIAN SIDE

Mr. Ali Chabaani, Chief of Steering Committee
Mr. Soleman Geriass, Deputy Chief of Steering Committee
Mr. Walid Wafi, Member of Steering Committee
Mr. Kaziem Masoud, Member of Steering Committee
Mr. Sabri Bechar, Member of Steering Committee
(All other members participated at meetings and field survey are referred to Annex-1)

JICA

Mr. T. Morimura, JICA
Mr. N. Chiba, Leader, Study Team, JICA
Mr. M. Nishikawa, Study Team, JICA
Mr. Y. Muraki, Study Team, JICA
Mr. K. Kakurai, Study Team, JICA
Mr. Y. Watanabe, Study Team, JICA
Mr. K. Nakamura, Study Team, JICA
Mr. Y. Koshimizu, Study Team, JICA
Mr. A. Iio, Study Team, JICA
Mr. K. Matsui, Study Team, JICA

The Study Team (the Team), organized by Japan International Cooperation Agency (JICA) and headed by Mr. Noritsune CHIBA, visited the Syrian Arab Republic from October 29, 1994 for the first field survey of Master Plan Study on Rehabilitation & Man-Power Training for Power Plants in The Syrian Arab Republic (the Study) in accordance with Scope of Work (S/W) agreed between MOE and JICA Preparatory Study Team on July 7th, 1994.

At the first meeting held on 30th October 1994, Mr. T. Komori, Manager of JICA Syria Office and Mr. N. Chiba, the team leader, introduced all the JICA members, and Mr. Basam Al-Sibae, Director of Scientific and Technical Cooperation, State Planning Commission, introduced all the PEGT and other Syrian officials concerned attended at the meeting.

The Study results during from 30th Oct. to 14th Nov. 1994 is summarized as follows.

1. Inception Report

The Team submitted thirty (30) copies of the Inception report to PEGT, and discussed with PEGT and Syrian officials concerned with the study procedure, schedule, Syrian side task force, seminar plan and other related subjects of the study.

2. Syrian Side Task Force

Syrian side submitted and explained to the Team the organization plan of the Syrian Side Steering committee and Task Force team in which Mr. Ali Chabaani, Director of Energy Production, PEGT, is a chief of Steering Committee and Mr. Soleman Geriass, Director of Energy Planning, PEGT, is a task force manager.

Members of both Steering committee and Task force team are attached on Annex-2.

3. Seminar Plan

The Team explained the seminar plan described in the Inception Report and requested PEGT to arrange a hall for the seminar. PEGT agreed a request made by the Team.

Seminar was successfully held on 3rd November, which titled by "Maintenance and Inspection of thermal power plants" and more than 30 Syrian engineers were attended at such Seminar.

4. Data and Information Request

The Team submitted the Data and Information Request Sheets necessary for the Study and explained PEGT its contents. PEGT agreed to collect such data and information and will submit them to the Team as soon as possible. Some of information and data were submitted to the Team as attached on Annex-3.

5. Study Schedule

The Team explained overall study schedule, in which the first field survey is conducted in November 1994 and discussion of Progress Report, Interim Report and Draft Final Report is scheduled in January 1995, March 1995 and June 1995 respectively and the study is to be completed by August 1995.

PEGT and the Team discussed the field survey schedule which drafted by the Team. Both parties agreed to conduct the field survey for Thermal Power Plants in Syria as much as possible, and to have meetings in order to select target power plants for Rehabilitation after the field survey.

SYRIA POWER PLANTS
MINUTES OF MEETING

First field survey was done from November 5th to 9th and the Team reported the results of such survey to PEGT and following 3 power plants were selected as subject plants to be rehabilitated by both parties. (Final selection of subject plants will be made after analysis of data and information collected at the work in Japan(1st stage) and consultation by Japanese officials concerned.)

- (1) No.3, 4 and 5 units of Kattenh Power Plant including No 6 unit *✓*
- (2) No.1 and 2 units of Mehardeh Power Plant *✓*
- (3) No.1 and 2 units of Baniyas Power plant

Second field survey will be started around 19th November 1994 in order to collect more detailed information and data for selected power plant necessary for preparation of rehabilitation plans.

6. Training in Japan

Concerning with the Study(this Master Plan Study), the Team requested PEGT to determine a PEGT staff to be trained in Japan and to submit an official request form to JICA Syria office urgently through SPC. PEGT agreed to submit such form to JICA Syria office immediately.

7. Equipment for Field Survey

The Team brought the following equipment for the field survey.

- Ultrasonic Flaw Detector
- Fiber Scope
- Portable Water Quality Analyzer

The Team is ready to hand over the equipment shown above to MOE after field site survey.

Mr. Ali Chabaani
 Chief of committee
 Director of Energy Production
 PEGT

14.11.94

N. Chiba

Mr. Noritsune Chiba
 Leader,
 JICA Study Team

Annex-1

Attendance Lists for Meetings and Field Survey

1. Meeting from 30th Oct., to 1st Nov. 1994 at SPC and MOE offices(Inception report, Field survey schedule, etc.)
2. Field survey on 5th Nov.1994 at Tichrin Power Plant
3. Field survey on 6th Nov.1994 at the construction site of Jandar Power Plant
4. Field survey on 6th Nov.1994 at Kattineh Power Plant
5. Field survey on 7th Nov.1994 at Mehardeh Power Plant
6. Field survey on 8th Nov.1994 at Latakia Technical Institute
7. Field survey on 9th Nov.1994 at Baniyas Power Plant
8. Field survey on 10th Nov.1994 at National Control center
9. Field survey on 12 th Nov.1994 at Adra Technical Institute
10. Meeting on 13th Nov.1994 at MOEV(collection of data and information)
11. Meeting on 13th Nov.1994 at SPC (collection of data and information)
12. Meeting on 14th Nov.1994 at MOE(selection of subject Power Plant)

Nov-30-'94

Ms. ESSA , Deputy director of energy S.P.C.
 Ms. HURUD, Assist. of Scientific and Technical cooperation
 Mr. As-sibace , Director of = = = =

Ms. Omayma Essa
S.P.C.

Ms. ILAAM Hurud
S.P.C.

Mr. Basim As-sibace
S.P.C.

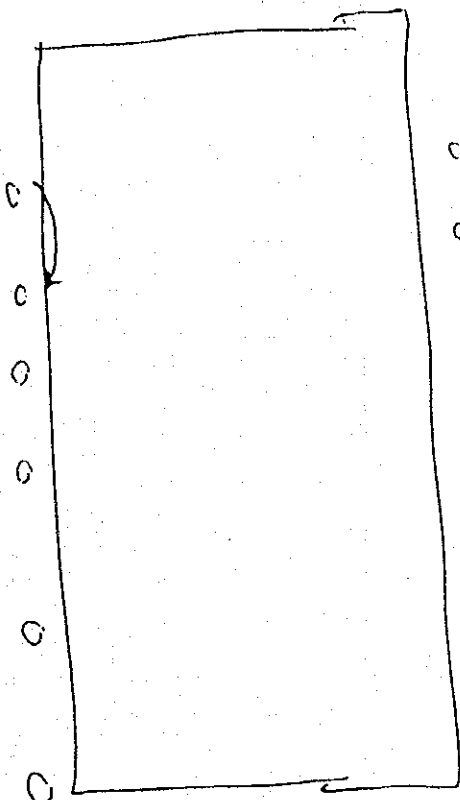
Engr ALI Shabaani
M.D.E

Engr. Nabeel Astafaan
M.D.P.

Engr. Ms. HANAL AS-SAGH
M.D.EV.

ANUAR BRAYEZ
JICA Syria office

Solaiman
Engr Salmaan JRAYS
M.D.E



Mr. MATSU

Mr. MURAKI

Mr. KOBORI (JICA Syria office)

Mr. CHIBA (Team Leader)

Mr. KOSHIMIZU

Mr. HORIMURA (JICA)

Mr. KAKURAI

ATTENDANCE LIST

Place : Jandar P/S

Date : 6/11/94

1. Mr. Alzein Rouhi Site Manager of Jandar P/S,
PEGT
2. Mr. Veijo Kumpulainen Project
Director
of EKONO ENERGY LTD.
3. Mr. Mohamed Khalil Shaki PEGT

ATTENDANCE LIST

PLACE : SPC

Date : 13/11/1994

1. Mr. Basam As-sibace SPC.

2. Mr. Mohamed Khalil Shaki PEGT

ATTENDANCE LIST

Place: Min. of Env.

Date: Nov. 13, 1994

Name	Status	Office
<u>Y. M. Al-Sayid</u>	<u>Asst. Eng.</u>	<u>Ministry of Env.</u>
<u>Mohamed M. Ghalib</u>	<u>Asst. Eng.</u>	<u>"</u>
<u>Abik Samir</u>	<u>Env. Eng.</u>	<u>"</u>
<u>Mohamed El-Sayed</u>	<u>Asst. Eng.</u>	<u>"</u>
<u>MOHAMED KHALIL SHEHAT</u>	<u>EL ENG</u>	<u>PEGETEE</u>
<u>M. W. Al-Sayid</u>	<u>Asst. Eng.</u>	<u>"</u>
<u>N. KAKURAI</u>	<u>STATION CHIEF TRANSLATOR</u>	<u>BKH TECHNOS LTD</u>
<u>A. Ito</u>	<u>Env. Eng.</u>	<u>PEGETEE</u>

MINISTRY OF STATE FOR THE ENVIRONMENT AFFAIRS
YAHYA AWADAH

11 3370510
TAX # 3370510 PG BOX 3227

- HME : Intermediate Institute for Mechanic and Electricity
- JICA : Japan International Cooperation Agency
- MOE : Ministry of Electricity
- MOEV : Ministry of State for the Environment
- MOP : Ministry of Petroleum and Mineral Resources
- NCC : National Control Center
- PEGT : Public Establishment for Generation and Transmission
- SPC : State Planning Commission

ATTENDANCE LIST

Place : MOE

Date : 14/11/194

1. Mr Ali Chabaani , Committee Chief
2. Mr Soleman Geriass , Deputy Committee Head
3. Mr Kaziem Masoud , Committee Member (Steam Turbine)
4. Mr. Sabri Bechar , Committee Member (Gas Turbine)

Annex-3

Data and information collected as of 14th Nov. 1994

<u>No.</u>	<u>Title</u>	<u>Published by</u>	<u>Year</u>
01	Statistics Abstract	Office of the Prime Minister, Central bureau of Statistics	1993
02	Climatic Atlas of Syria	Service of Military Geography	1977
03	Energy Sector Management Assistant Program	UNDP/World Bank	1988
04	Electricity Prices as from 1/1/1991	PEGT	1994
05	Load Growth and Total Generation (1994 - 2000)	PEGT	1994
06	Capacity Demand (1995 - 2020)	PEGT	1994
07	Existing Generation Plant 1993	PEGT	1994
08	Route of Transmission Lines (230kV & 400kV)	PEGT	1994
09	Worker Plan (Mehardeh P/S, Banias P/S and Kateneh P/S)	PEGT	
10	Program of Institute	Latakia Technical Institute	1994
11	Budget Plan of Institute	Latakia Institute	1994
12	Operation Data (For turbines in Kateneh P/S only)	PEGT	1994
13	Layout and/or Arrangement Drawings (Partially)	PEGT	1994

1-B. Memorandum signed on 29th November, 1994

*SYRIA POWER PLANTS
MEMORANDUM*

**MEMORANDUM
FOR
MASTER PLAN STUDY
ON
REHABILITATION & MAN-POWER TRAINING FOR POWER PLANTS
IN
THE SYRIAN ARAB REPUBLIC**

Date : 15 - 29 November, 1994

Place : MOE and PEGT office

Attendants : SYRIAN SIDE

Mr. Zaki Odeh, General Director, PEGT

Mr. Soleman Geriass, Leader of Task force Team, PEGT

Mr. Mohamed Kharil Sheki, Member of Task force Team, PEGT

Mr. Micheal Kazuma, Member of Task Force Team, PEGT

Mr. Tammam Mahmoud, Member of Task Force Team, PEGT

(All other members participated at meetings and field survey are referred to M/M dated 14 th November 1994)

JICA

Mr. M. Nishikawa, Study Team, JICA

Mr. Y. Muraki, Study Team, JICA

Mr. K. Kakurai, Study Team, JICA

Mr. Y. Watanabe, Study Team, JICA

Mr. K. Nakamura, Study Team, JICA

Mr. Y. Koshimizu, Study Team, JICA

Mr. Iio, Study Team, JICA

The Master Study Team (the Team), organized by Japan International Cooperation Agency (JICA), have continued the first field survey of Master Plan Study on Rehabilitation & Man-Power Training for Power Plants in The Syrian Arab Republic(the Study) from 15 th to 29 th November 1994 with cooperation and friendship of the Syrian Task Force Team.

The Study activities and results from 15th Nov. to 29th Nov. 1994 are summarized as follows.

*SYRIA POWER PLANTS
MEMORANDUM*

1. Survey of Subject Thermal Power Plants

According to the results of the meeting held on 14th Nov. 1994 between Syrian side Steering Committee and the Team (Please refer to M/M dated 14th Nov. 1994), the Team visited and surveyed Subject Thermal Power Plants to be studied in order to collect detailed information and data necessary for the preparation of rehabilitation alternatives for each Power Plants with the following schedule.

From 19th to 20th Nov. 1994	Banias Power Plant
From 21st to 22nd Nov. 1994	Mehardeh Power Plant
From 23rd to 24th Nov. 1994	Katteneh Power Plant

Data and Information collected during above survey will be analyzed and used for the preparation of the rehabilitation alternatives during the Work in Japan(1st stage).

After consultations with officials concerned in Japan, Results of the Work in Japan will be shown in the Progress Report which will be submitted and explained to the Syrian side on middle of January 1995.

2. Manpower Training

During field survey of thermal power plants, the Team found that they do not have enough numbers of Engineers, Assistant engineers and Technicians for operation and maintenance who have sufficient capabilities and most of such personnel are old.

As same as aged equipment & machineries, lack of such personnel is causing of low operation efficiencies of existing power plants

In Addition to that, young operation and maintenance personnel are required more for new power plants such as Jandar, Aleppo and Al-Zara power plants which are under construction and will be planned to complete in a few years.

Therefore, the Team, in principle, understood the necessity of the establishment of the new training center as soon as possible.

3. Location of New Training Center

Both parties, Syrian side and the Team, agreed that the New Training Center will be established at Jandar Power Plant Construction site because it is located at the center of Syrian country and has enough area.

The Team has collected necessary data, information and drawings for preparation of the conceptual design of the new training center which will be shown in the Progress Report.

4. Data and Information Collected

Data and Information collected by the Team through the first field survey are attached

SYRIA POWER PLANTS
MEMORANDUM

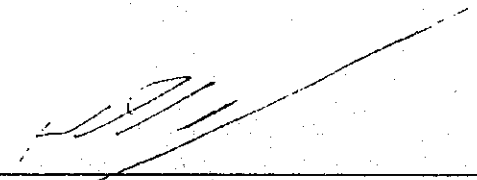
on Annex-1.

In case it is found necessities of more data and information through the Work in Japan(1st stage) for the Study, Syrian side agreed that required data and information will be sent to Tokyo head office of Yachiyo Engineering Co., Ltd. by telefax in compliance with the request of the Team.

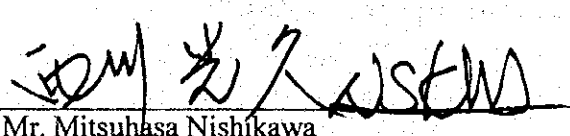
Telefax No. are as follows

- PEGT, 963-11-2229062 Attention Mr. Soleman
- YEC, 81-3-3715-1604 Attention Mr. N. CHIBA

29th November. 1994



Mr. Soleman Geriass
Depty Chief of Steering Committee
Leader of Task Force Team
PEGT



Mr. Mitsuhasa Nishikawa
Sub Leader
JICA Study Team

Annex-1

Data and Information Collected from 15 to 28 Nov. 1994**1, General Data and Information**

- (1) Energy Balance in Syria
- (2) Efficiency in Thermal Power Plants
- (3) Produced Electrical Energy and Requirement of Production with average of their consumption in Steam Generation Unit in 1992 and 1993.
- (4) Organization Chart of NCC
- (5) Record of Generating Power as of 19/11/94
- (6) Arrangement Dwg. of Power Transmission System

2, Data and Information related to Rehabilitation of Power Plants

(1) Katteneh Power Plant

1) Operation data

	<u>Output</u>	<u>Dated</u>	<u>Data for</u>
Unit-3	100t/h	14-06-89	Boiler
	108		Boiler
	60	27-01-91	Boiler
Unit-5	85	27-10-92	Boiler
	65	26-06-94	Boiler
	100		Boiler
Unit-6	50MW	22-11-94	Turbine
	48	21-11-94	Boiler
	50	22-11-94	Boiler
	60	02-01-82	Boiler
	60	01-01-82	Boiler
	50	24-06-89	Boiler

2) Drawings

Dwg-No. 1501144 · 7	Layout Dwg	for Unit-3,4,5
1494597 · 7 · 8	ditto	ditto
1501144 · 7	ditto	ditto
1494594 · 4	Hot air piping	ditto
148379 · 0	Layout Dwg(Reference Dwg.)	
E-275644/2	Air Fan	
2-11 · 8500-022	ID Fan	for Unit-3
4-11-9851-029	Characteristic of Fan(FDF)	

L SKM

SYRIA POWER PLANTS
MEMORANDUM

4-11-9848-104 ditto (IDF)

- 3) Instrument List
- 4) P & I Diagram(Boiler and Turbine for Unit-4)
- 5) Electrical One-line Diagram
- 6) Organization Chart
- 7) General layout Drawing

(2) Mehardeh Power Plant

1) Operation and Planned Data

	<u>Planned data</u>	<u>Operation data</u>
Unit-1	150MW	110MW
Unit-2	150	130
Unit-3	165	165
Unit-4	165	125
Unit-3	Superheater steam output data(dd. 22-11-94/70MW) Reheater steam output data(dd. 22-11-94/71MW) 154MW output data(dd. 03-04-90) * Air/Flue Gas * Reheater * Surperheater * Thermal cycle * MW, Oil, Air, STM & DIFF Pressure, O2 * Generator output 156MW output data(dd. 03-04-90) * Air/Flue Gas(2 kinds) * Reheater * Surperheater(2 kinds) * Thermal cycle(2 kinds) * MW, Oil, Air, STM & DIFF Pressure, O2 * Generator output	
Unit-4	175MW output data(dd.11-06-89) * Air/Flue Gas * Reheater * Surperheater * Thermal cycle * Load regulation operation	

Others

SYRIA POWER PLANTS
MEMORANDUM

- 2) Instrument List
- 3) Spare Parts list to be procured for Instrumentation
- 4) General Layout Drawing
- (3) Baniyas Power Station
 - 1) Operation Data

	<u>Output</u>	<u>Dated</u>	<u>Data for</u>
Unit-1	100MW	10-11-94	Boiler
	100	ditto	Turbine
	145	ditto	Boiler
	145	ditto	Turbine
Unit-2	85	15-11-94	Boiler
	85	ditto	Terbine
Unit-3	170	15-11-94	Boiler
	70	13-11-94	Boiler
	150	ditto	Boiler
Unit-4	140	12-11-94	Boiler
	100	15-11-94	Boiler
	155	ditto	Boiler

- 2) Records of Chemical Analysis dated ; 13-06-92, 14-06-92, 04-07-92, 05-07-92, 04-11-94, 05-11-94
- 3) Records of Maintenance of Air Preheater(section-3)
- 4) Instrument List
- 5) Electrical One-line Diagram
- 6) Program of Seminar(Apr. 16 1994)
- 7) Energy Audit(July 1994)
- 8) General Layout Drawing
- 9) Organization chart
- (4) Hameh Power Plant
 - 1) Operation Reports
 - 2) Technical Proposal for Rehabilitation and Maintenance

3, Data and Information related to Manpower Training

- (1) Jandar Power Plant
 - 1) Location Map
 - 2) General Arrangement Dwg.
 - 3) Simulator Building Dwgs.
 - * Floor plan
 - * Elevation and Section

SYRIA POWER PLANTS
MEMORANDUM

- 4) Dwg for Workers House Plan
- 5) Dwgs. for Dormitory
 - * Floor plan
 - * Elevation and Section
- 6) Simulator Specifications(MHI Proposal)
- 7) Construction Schedule for Jandar C/C Power Plant
- (2) Katteneh Power Plant
 - 1) Worker and Staffing Plan for the year of 1995
- (3) Mehardeh Power Plant
 - 1) Worker and Staffing Plan for the year of 1995
- (3) Banias Power Plant
 - 1) Worker and Staffing Plan for the year of 1995
- (4) Lattakia Technical Institute
 - 1) Study Plan of Mechanical and Electrical Institute
 - 2) Financial Program for the year of 1994
- (5) Adra Technical Institute
 - 1) Study Plan of Mechanical and Electrical Institute
- (6) Aleppo Technical Institute
 - 1) General Layout drawing
 - 2) Schedule of Registered Students
 - 3) Schedule of Graduated Students

Appendix-1 Minutes of Discussion**2. Minutes of meeting signed on 4th February, 1995**

SYRIA POWER PLANTS
M-M,2nd F/S

**MINUTE OF MEETING
FOR
MASTER PLAN STUDY
ON
REHABILITATION & MAN-POWER TRAINING FOR POWER PLANTS
IN
THE SYRIAN ARAB REPUBLIC**

Date : 14 January - 04 February, 1995

Place : PEGT office and Subject Power Plants

Attendants : SYRIAN SIDE

Mr. Sufian Al Allow, Deputy Minister, MOE

Mr. Zaki Odeh, General Director, PEGT

Mr. Ali Chabaani, Chief of Steering Committee

Mr. Soleman Geriass, Leader of Task Force Team, PEGT

Mr. Bassam Kouider, Director of Training Department, PEGT

Mr. Walid Wafai, Director of Jandar Training Center

Mr. Kazem Masood, Vice Director of Generating Department, PEGT

Mr. Mohamed Kharil Sheki, Member of Task Force Team, PEGT

Mr. Micheal Kazuma, Member of Task Force Team, PEGT

Mr. Tammam Mahmoud, Member of Task Foece Team, PEGT

General Manager of each power plant

(The staff interviewed at subject power plants are the same as 1st survey's)

JICA

Mr. N. Chiba, Leader, Study Team, JICA

Mr. M. Nishikawa, Study Team, JICA

Mr. K. Kakurai, Study Team, JICA

Mr. Y. Watanabe, Study Team, JICA

Mr. K. Nakamura, Study Team, JICA

Mr. Y. Koshimizu, Study Team, JICA

The Master Plan Study Team for the Captioned Project (the Team), organized by Japan International Cooperation Agency (JICA), have carried out the second field survey of Master Plan study on Rehabilitation & Man-power Training for power Plants in The Syrian Arab Republic (the Study) from 14th January to 4th February 1995 with cooperation and friendship of the Syrian Task Force Team.

The Study activities and results of the second field survey are summarized as follows.

Progress Report

The Team submitted thirty(30) copies of the Progress Report to PEGT, which were prepared by the Team at the Work in Japan (first stage) based on the first field survey results. And the Team explained of and discussed on the Progress Report with MOE and PEGT officials with the Study background, Rehabilitation and Renovation Alternatives for Subject Power Plants, Conceptual design of the New Training Center and other related subjects of the Study.

2. Detailed Survey of Subject Thermal Power Plants

The Team visited and surveyed Subject Thermal Power plants to be rehabilitated in order to collect detailed information and data necessary for the preparation of rehabilitation proposal(s) for each Power Plant with the following schedule.

From 21st to 22nd Jan. 1995	Banias Power Plant
From 23rd to 24th Jan. 1995	Mehardeh Power Plant
On 25th Jan.1995	Katteneh Power Plant

Data and Information collected during above survey will be analyzed and used for the preparation of the rehabilitation Proposal(s) during the Work in Japan(2nd stage).

3. Rehabilitation Proposal

After the detailed field survey for Subject Power Plants carried out from 21st to 25th January 1995 as shown above, both PEGT and the Team agreed that the following rehabilitation proposals will be studied more detail during the Works in Japan (2nd stage) by the Team.

- | | |
|---|---|
| (1)Banias Power Plant
(for Unit No.1 &2) | <ul style="list-style-type: none"> 1)Cleaning, Detailed inspection and Repair 2)Renewal of Reheater and Superheater 3)Renewal of Control system,Instruments and Electrical equipment |
| (2)Mehardeh Power Plant
(for Unit No.1 &2) | <ul style="list-style-type: none"> 1)Cleaning, Detailed inspection and Repair 2)Renewal of Reheater and Superheater 3)Renewal of Control system,Instruments and Electrical equipment |
| (3)Kattineh Power Plant | |
| 1)For Unit No.3,4&5 | — These units are too defective to restore the performance due to long years of service; no rehabilitation plan is proposed. |
| | Note: Instead of proposing rehabilitation plan, a new installation of NG and/or HFO fired 150 - 200MW unit is proposed. |
| 2)For Unit No.6 | <ul style="list-style-type: none"> 1)Cleaning, Detailed inspection and Repair 2)Renewal of Control system,Instruments and Electrical equipment |

After consultations with the officials concerned in Japan, Results of the Work(2nd stage) will be shown in the Interim Report which will be submitted and explained to the Syrian side on the middle of March 1995.

Manpower Training

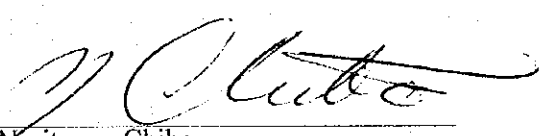
As stated in the Progress Report, both Syrian side and Team recognized the necessities of the New Training Center. Based on this understanding, both parties have made discussions for the contents of the New Training Center during the second field survey. Main results of discussions are summarized as follows.

- (1) Location of the New Training Center will be proposed at Jandar C/C construction site.
- (2) Training courses, Number of students for each course and Total number of students to be graduated are attached on Attachment - 1.
- (3) Syrian side agreed to provide necessary Syrian instructors to the New Training Center as proposed by the Team as per the Attachment - 2.
- (4) Tentative list of main training equipment to be installed in the New Training Center are attached on Attachment - 3.
- (5) Expected total staff requested in the New Training Center is attached on Attachment - 4.
- (6) As for the scope of the New Training Center construction, Syrian side requested to the Team to show Syrian side undertakings and scope of Japanese side supply in case the New Training Center will be granted by the Government of Japan. The Team agreed to explain the Japan's Grant Aid System to Syrian side at the time of 3rd field survey scheduled on March 1995.

Results of discussions shown above will be analyzed during the Work in Japan (2nd stage) and will be reflected to the Interim Report which will be submitted and explained to the Syrian side on the middle of March 1995 after consultations with the officials concerned in Japan.

4th February, 1995

Mr. Ali Chabaani
Chief of Steering Committee
Director of Energy Production
PEGT


Mr. Moritsune Chiba
Leader
JICA Study Team

Attachment - 1

Training Schedule for New Training Center

Training Courses	No. of Students per class	Training Schedule	Total No. of Students to be Graduated
(1) Maintenance Training Courses			
1) Basic Course			
① Mechanical Course	20		Note:
② Electrical Course	20		M- Month
③ Control & Instrumentation Course	20		S - Students
2) General Course			
① Mechanical Course	20		T - Number of annual session
② Electrical Course	20		20Sx2T= 40
③ Control & Instrumentation Course	20		20Sx2T= 40 (120)
3) Advanced Course			
① Mechanical Course	10		10Sx2T= 20
② Electrical Course	10		10Sx2T= 20
③ Control & Instrumentation Course	10		10Sx2T= 20
4) Welding Course	10		10Sx2T= 20 (80)
(2) Operation Training Course			
1) Basic Course			
① Boiler Course	15		
② Turbine Course	15		
③ Electrical Facility Course	10		
2) Advanced Course			
① Boiler Course	15		15Sx4T= 60
② Turbine Course	15		15Sx4T= 60
③ Electrical Facility Course	10		10Sx4T= 40 (160)
Total			360

Attachment - 2

**Summary of Necessary Instructors
in Accordance with Training Courses
(Syrian Staff)**

Courses	Division Directors	Chief Instructors	Instructors	Assistant Instructors
1) Maintenance Training Division	1			
① Mechanical Section		1		
a) Basic Course			1	1
b) Advanced Course			1	1
② Electrical Section		1		
a) Basic Course			1	1
b) Advanced Course			1	1
③ Control & Instrumentation Section		1		
a) Basic Course			1	1
b) Advanced Course			1	1
④ Welding Section			1	
a) Electric Welding				1
b) Gas Welding				1
2) Operation Training Division	1			
① Boiler Section		1		
a) Basic Course			1	
b) Advanced Course			1	
② Turbine Section		1		
a) Basic Course			1	
b) Advanced Course			1	
③ Electrical Facility Section		1		
a) Basic Course			1	
b) Advanced Course			1	
3) Planning Section			1	1
Sub-Total	2	6	14	9
Total			31	

Attachment - 3

Reference Only

**List of Necessary Training Equipment & Materials
for New Training Center**

I . Maintenance Training Courses

(1) Basic Course (Consists of Mechanical,Electrical and Control & Instrumentation Courses)

Subjects	Equipment and Materials			Remarks	
	Items	Q't y	Unit		
1. Basics	-Audio visual equipment . Video recorder with CRT . Video camera . OHP	1 1 3	set set sets	Common use with a basic course of operation training course.	
	-Visual aid	1	lot		
(1)Boiler	-Plastic model of boiler . Main body . Drum . Safety valve	1 1 1	pc pc pc		
	-Burner	1	pc		
(2)Turbine	-Plastic model of turbine . Main body . Rotor . Governor . Condenser	1 1 1 1	pc pc pc pc		
	-Graphic panel of boiler & turbine steam water supply system	1	set		
(3)Generator	-Plastic model of rotor	1	pc		
2. Tools and measuring	-Measuring instruments	1	lot		Common facility
	-Electric operated over head crane(5ton)	1	set		

Reference Only

(2) General Courses
1) Mechanical Course

Subjects	Equipment and Materials			Remarks
	Items	Q'ty	Unit	
1. Liquid penetrant testing	-Dye check kit	1	lot	
	Kit contains:			
	• Cleaning liquid			
	• Penetrant liquid			
	• Exposure liquid			
	-Test piece	1	lot	
	-Loupe (Various scale)	1	lot	
2. Ordinary valves	-Gate valve, 4" ~ 10"	1	lot	
	-Globe valve, 4" ~ 10"	1	lot	
	-Check valve, 4"	1	lot	
	-Packing cutter set	1	lot	
	-Packing tool set	1	lot	
	-Packing: Gland packing	1	lot	
	" Sheet packing	1	lot	
-Cut-away model(Gate Valve)	1	pc		
3. Centering (Alignment)	-Dial gauge	1	lot	
	-Magnet base	1	lot	
4. Electric operated valve	-Electric operated gate valve	1	pc	
	-Electric operated globe valve	1	pc	
5. Measuring	-Caliper	1	lot	
	-Micrometer(outer measure)	1	lot	
	-Gap gauge	1	lot	

Reference Only

Subjects	Equipment and Materials			Remarks
	Items	Q'ty	Unit	
6. Vibration	-Vibration meter - -ditto- (portable type)	2 2	sets sets	
7. Piping	-Pipe cutter -Bending tool -Flaring tool -Copper tube -Fittings	1 1 1 1 1	lot lot lot lot lot	
8. Small pump inspection	-Loop equipment for water	1	set	Common use
	-General tools *Including; Lath, Milling machine Grinder, Electric drill Machine vise, Anvil and other hand tools	1	lot	

Reference Only

2)Electrical Course

Subjects	Equipment and Materials			Remarks
	Items	Q't y	Unit	
1. Centering (Alignment)	- Dial gauge - Level instrument - Gap gauge - Adjustment liner - Horizontal pump with motor	1 1 1 1 1	lot lot lot lot set	
2. Vibration	- Vibration meter	1	set	Common use with 6.
3. Wiring	- Sequence practice panel	3	set	
4. Protection relay system	- Protection relay practice panel	1	set	
5. Switchboard auxiliary	- Sequence practice panel	-	-	
6. Small electric motor	- (Loop equipment) . Electric motor for small pump use . Small electric motor - Disassembling tools for centering	4 4 1	pcs pcs lot	
7. Medium voltage cable (Up to 22KV)	- Cable termination materials (Various size) - Termination tools - Dielectric test equipment - Jointing terminals	1 1 1 1	lot lot set lot	
	- Common items . Multi tester . Insulation resistance tester . Wiring tools	1 1 1	lot lot lot	

Reference Only

3)Control & Instrument Course

Subjects	Equipment and Materials			Remarks
	Items	Q'ty	Unit	
1. Regulating valve	- Regulating valve	2	pcs	
2. Manometer & Pressure switch	- Manometer (Various pressure)	1	lot	
	- Pressure switch (Various pressure)	1	lot	
	- Pressure test equipment	2	sets	
	- Thermometer			
3. Recorder	- Temperature Recorders . Chopper bar type recorder	1	set	
	. Pen type recorder	1	set	
4. Chemical instrument	- pH meter	1	pc	
	- Conductivity meter	1	pc	
	- Turbidity meter	1	pc	
	- Fuel Analyzer	1	set	
5. Control drive	- Electric control drive device	1	lot	
	- Pneumatic control drive device	1	lot	
	- Disassembling tools	1	lot	
	- Common items . Disassembling tools	1	lot	

Reference Only

(3) Advanced Courses

1) Mechanical Course

Subjects	Equipment and Materials			Remarks
	Items	Q'ty	Unit	
1. Non-destructive testing	- Dye check kit	(1)	lot	Common materials Portable type
	- Magnetic particle inspection set	1	lot	
	- Ultrasonic testing set	1	set	
	- Radio graphic examination set	1	set	
	- Film exposure equipment	1	set	
	- Reflecting microscope	1	set	
	- Sump film	1	lot	
	- Test piece	1	lot	
2. Air compressor inspection	- Air compressor (Large)	1	pc	Reciprocating type
	- Air compressor (Small)	2	pcs	
	- Tollory chain block	1	pc	
3. Ventilator inspection	- Ventilating fan (Large)	1	pc	
	- Packing	1	lot	
	- Fan rotor supporting frame	1	pc	
4. Horizontal type pump inspection	- Horizontal pump set			On loop equipment
	. Double suction type	1	set	
	. Single suction type	1	set	
	- Packing	1	lot	
	- Shaft supporting frame	1	pc	

Reference Only

Subjects	Equipment and Materials			Remarks
	Items	Q'ty	Unit	
5. Vertical type pump	- Vertical pump set - Packing - Shaft suporting frame	1 1 1	set lot pc	
6. Turbine control valve	- Control valve - Gasket & Packing	1 1	lot lot	For governor (Hydraulic drive)
7. Main stop valve	- Main stop valve - Gasket & Packing	1 1	lot lot	
	-Common items . Disassembling tools . Measuring tools . Slinging tools	1 1 1	lot lot lot	

Reference Only

2)Electrical Course

Subjects	Equipment and Materials			Remarks
	Items	Q'ty	Unit	
1. Metal clud panel (MBB,VCB) Power center (ACB)	- Magnetic blowout circuit breaker (MBB)	1	set	22kV class
	- Vacuum circuit breaker (VCB)	1	set	22kV class
	- Air circuit breaker	1	set	600V class
	- Test panel	1	set	
2. Automatic voltage regulator	- Automatic voltage regul- ator panel	1	set	
	- Testing device	1	set	
3. Large electric motor	- Electric motor(6kV)	2	pcs	
	- Rotor supporting frame	1	pc	
4. Analog relay for generator	- Relay panel	1	lot	
	- Current relay	1	lot	
	- Voltage relay	1	lot	
	- Power relay	1	lot	
	- Differential relay	1	lot	
	- Testing device	1	set	
	- Common items			
	. Disassebling tools	1	lot	
	. Slinging tools	1	lot	
	. Measuring tools	1	lot	

Reference Only

3)Control & Instrumentation Course

Subjects	Equipment and Materials			Remarks
	Items	Q't y	Unit	
1. Local control device	- (Loop equipment) - Pneumatic control device - Electric control device	- 1 1	- lot lot	Common use
2. Turbine supervisory instrument	- Detectors (Rotation,Eccentricity, Shaft position) - Ductilometer - Elongation differential meter - Vibration meter (with attachments)	1 1 1 1	lot set set set	

Reference Only

(4) Welding Course

Subjects	Equipment and Materials			Remarks
	Items	Q'ty	Unit	
1. Arc welding	-Electric welding machine	10	sets	Common use
	-Argon arc welding	5	sets	
	-Welding protector	1	lot	
	-Weldingrods	1	lot	
	-Welding practice materials	1	lot	
	-Disc thunder	5	pcs	
	-Cutting machine	1	pc	
	-Dye check kit	1	lot	
2. Gas cutting	-Oxy-acetylene welding & cutting apparatus	5	sets	
	- Tools for cutting torch	1	lot	

Reference Only

II . Operation Training Courses

Subjects	Equipment and Materials			Remarks
	Items	Q't y	Unit	
(Basic Course)				
1. Basics	-	-	-	
2. Normal operation	-	-	-	
3. Start & shut down and emergency shut down and mal-operation	- Simulator	1	set	Basic simplified simulator
(Advanced Course)				
1. Normal operation	(Simulators installed at Jandar C/C will be used.)	-	-	
2. Handling accidents	- ditto -	-	-	

Appendix

The following equipment are requested by Syrian side during the discussions in addition to the Attachment - 3.

The master plan study team will review its propriety in consulting with the officials concerned in Japan.

Courses	Requested Equipment		
I Maintenance Training Courses (1) Basic Course	<ul style="list-style-type: none"> • Plastic model of rotating air-heater • Practical material of turbine by-pass system • Bearing (Journal/Thrust/Ball type) • Generator visual aid 		
(2) General Courses 1) Mechanical Course	<ul style="list-style-type: none"> • Solenoid valve • Steam drain valve • Micrometer (Inner measure) • Small balancing machine with a sample of rotor 		
2) Control & Instrumentation Course	<ul style="list-style-type: none"> • Regulating valve → <table style="display: inline-table; vertical-align: middle; margin-left: 10px;"> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">Pneumatic type-1 (each 1)</td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">Hydraulic type -1 (each 1)</td> </tr> </table> • Recorder for manometer • Transducer • O₂ analyzer • Special tools for adjustment & calibration 	Pneumatic type-1 (each 1)	Hydraulic type -1 (each 1)
Pneumatic type-1 (each 1)			
Hydraulic type -1 (each 1)			
(3) Advanced Courses 1) Mechanical Course	<ul style="list-style-type: none"> • Horizontal pump set → Multi stage type • Vertical pump set → Multi stage type • Intercept valve • Safety valve 		
3) Control & Instrumentation Course	<ul style="list-style-type: none"> • Practical materials for inspection of electronic cards system 		
(4) Welding Course	<ul style="list-style-type: none"> • Pre-heating & heat treatment equipment and materials 		

Note: Arrow(→) indicates the requested type of equipment.

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Additional request by PEGT for Training Equipment
and Materials on January 31, 1995

The following equipment are requested by Syrian side during the discussions in addition to the Attachment- 3.

The master plan study team will review its propriety in consulting with the officials concerned in Japan.

Mechanics Repair and measurement

Tools

GAUGE BLOCK,

KNIFE FOR THREAD CONTROL, 1

SURFACE GAUGE WITH GRADUATED ROD,

STEEL CALIPER WITH I , 7

STEEL INTERNAL CALIPER,

STEEL EXTERNAL CALIPER,

UNIVERSAL ANGLE PROTRACTOR,

SLIDING CALIPER CALIBRATED IN FIFTIETHS

SLIDING DEPTH CALIPER

SET OF EXTERNAL MICROMETERS,

MICROMETRIC TIPS FOR INSIDE
MEASUREMENTS

BORE MEASURING INSTRUMENT

- . 10 MM CENTESIMAL COMPARATOR
-). 50 MM CENTESIMAL COMPARATOR
- . COMPARATOR HOLDER WITH MAGNETIC BASE
- . SUPPORT FOR MICROMETERS
- . MOBILE SET OF DRAWERS WITH 4 DRAWERS
- . SET OF DOUBLE FORK WRENCHES

SET OF PIN EXTRACTORS (2-3-4-5-6-8)

BURIN

FLAT CHISEL

FLAT CHISEL

CROSS-CUT CHISEL

SET OF MALE ALLEN WRENCHES

ADJUSTABLE MONKEY WRENCH

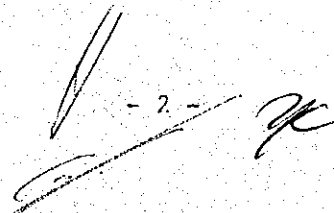
FLAT JAW PINCERS

PINCERS FOR CIRCLIPS
for holes, with curved jaw

PINCERS FOR CIRCLIPS
for shafts, with curved jaw

250 MM SELF-LOCKING PINCERS
concave jaws

DIAGONAL NIPPERS

A handwritten signature in black ink is written over the page number. The signature is stylized and appears to be 'J. K.' or similar. The page number '- 2 -' is centered below the signature.

UNIVERSAL PINCERS

STRAIGHT-BLADED SHEARS

SET OF FLAT TIP SCREWDRIVERS

SET OF PHILLIPS TIP SCREWDRIVERS

... HAMMER S

PLASTIC HEAD HAMMERS

HACKSAW

SET OF SECOND-CUT FILES (5 PCS)

SLIDING CALIPER CALIBRATED IN
TWENTIETHS

FLEXOMETER

SCRIBER

BLADE PRECISION THICKNESS GAUGE

WHITE SAFETY GOGGLES

WORKSHOP EQUIPMENT

SET OF DOUBLE-ENDED WRENCHES,

SET OF PERCUSSION FORK WRENCHES

SET OF PERCUSSION BOX WRENCHES

SET OF MALE ALLEN WRENCHES

1-3-7C

RIBBED CHISEL,

ADJUSTABLE MONKEY WRENCH

FLAT JAW PINCERS

PINCERS FOR CIRCLIPS
for holes, with curved jaw

PINCERS FOR CIRCLIPS
for shafts, with curved jaw

SELF-LOCKING PINCERS
concave jaws

DIAGONAL NIPPERS

UNIVERSAL PINCERS

STRAIGHT-BLADED SHEARS

SET OF FLAT TIP SCREWDRIVERS

SET OF PHILLIPS TIP SCREWDRIVERS

SET OF UNIVERSAL EXTRACTORS

SET OF SECOND-CUT FILES

SET OF SOCKET WRENCHES,
complete with accessories

SET OF DOUBLE BOX WRENCHES

SET OF T-WRENCHES

- 4 -
[Handwritten signature]

SET OF UNIVERSAL T-WRENCHES, 100 MM

SET OF SPIRAL DRILL BITS, 100 MM

SET OF DRILL BIT ADAPTORS

SET OF SCREW TAPS AND THREADING DIES

VARIOUS TOOLS
(hacksaw, oilers, scribes etc.)

PORTABLE ELECTRIC DRILL

TOOL CABINETS

OVERHEAD PROJECTOR

MAGNETIC BOARD

PEARL PROJECTION SCREEN 1

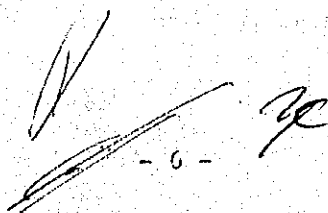
PEARL PROJECTION SCREEN 1

PEARL PROJECTION SCREEN 1

Electrical Repair & Measurements

Tools

1. PORTABLE ELECTRODYNAMIC AMMETER
2. PORTABLE ELECTRODYNAMIC AMMETER
3. PORTABLE ELECTRODYNAMIC AMMETER
1. PORTABLE ELECTRODYNAMIC VOLTMETER
1. SINGLE-PHASE PORTABLE WATTMETER
1. SNAP-ON AMMETER
1. INSULATION RESISTANCE METER
1. INSULATION RESISTANCE METER
1. PORTABLE EARTH RESISTANCE METER
1. PORTABLE SINGLE-PHASE VOLTAGE CONVERTER
1. PORTABLE THREE-PHASE VOLTAGE CONVERTER
1. PHASE INDUCTION CONVERTER
1. PORTABLE INDEX FREQUENCY METER
1. PORTABLE ELECTRODYNAMIC PHASEMETER
1. WHEATSTONE BRIDGE
box with built-in galvanometer to measure resistance
1. BOX-TYPE MAXWELL BRIDGE
to measure inductance up to 100 H


- 6 -

BOX-TYPE DE SAUTY BRIDGE
to measure capacity

STABILISED POWER SUPPLY

MANUAL DIGITAL TACHOMETER

VARIABLE CAPACITOR

VARIABLE RESISTOR

VARIABLE INDUCTOR

RATIO METER
to measure the turns ratio of 1/1000 transformers

ELECTRIC MAGNET GALVANOMETER

DECADE-TYPE UNIVERSAL REDUCTION UNIT

INDICATOR OF THE CYCLE DIRECTION

PORTABLE THREE-CURRENT RATING SHUNT

LINEAR SLIDER RHEOSTATS

- 10 Ohm/10 A
- 50 Ohm/5 A
- 100 Ohm/2.5 A
- 500 Ohm/1 A
- 1000 Ohm/1 A
- 10000 Ohm/1 A

SPARK GAP STRENGTH METER

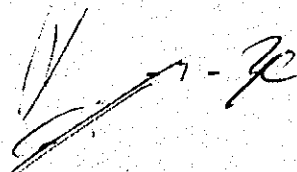
PORTABLE AMPEROMETRIC TRANSFORMER

PORTABLE VOLTAGE TRANSFORMER

UNIVERSAL TEST METER

PORTABLE DIGITAL MULTIMETER

PORTABLE RELAY TESTER



5. SET OF INSULATED CABLES

with cable terminal and plug, of the following lengths:

- 0.5 m.
- 0.75 m.
- 1 m.
- 1.5 m.

i. SET OF KEYS FOR CIRCUIT MEASUREMENT

- simple key
- double key
- reversal key

ELECTRICAL LABORATORY BENCH

double-seated bench in channelled steel, with 1500x1000 mm. rubber covered top, with toolbox. Supplied with two drawers to store the tools.

WINDING MACHINE FOR SMALL TRANSFORMER WINDINGS

WINDING MACHINE FOR MOTOR WINDINGS

PILLAR DRILL

TIMER

FAULT-FINDING BOX

COMPUTERISED TEACHING SIMULATOR

for practise on electrical machines, electric systems and applied electrotechnics

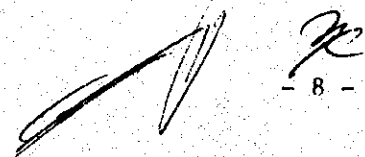
COMPUTERISED WORKSTATION

composed of:
personal computer
printer
data display

SINGLE-PHASE METER

SWITCH HOOK FOR TEACHING PURPOSES

OSCILLOSCOPE

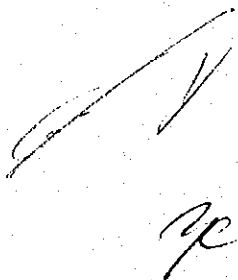


- 8 -

-
8. **PRACTISE PANEL**
size mm 1600x800
complete with motor, inverter, contactors, switches,
temperature relays, terminals and all the necessary
elements for cabling practise
9. **PRACTISE PANEL**
size mm 1600x800
complete with motorised valve, contactors, switches,
temperature relays, limit switches, terminals and all
the necessary elements for cabling practise
1. **OVERHEAD PROJECTOR**
- MAGNETIC BOARD**
- PEARL PROJECTION SCREEN**
- ELECTRIC OVEN**
- TUB FOR INSULATING VARNISH**
- COMPLETE KIT**
cables, fuses, cable terminals, etc.
- CABINETS, TABLES, CHAIRS**
- WORKBENCH**
size mm 2000x1000
wooden counter, two drawers and two vices
- PORTABLE ELECTRIC DRILL**
- SET OF DRILL BITS**
- AIR COMPRESSOR L. 50**
- SET OF SCREW TAPS AND THREADING DIES**
complete with accessories
- VARIOUS TOOLS** 1
(hacksaw, oiler, chisels, etc.)
- SET OF DOUBLE ENDED WRENCHES** 1
6-32 mm

V - 9 - R

- 1. SET OF MALE ALLEN WRENCHES
- SET OF FLAT TIP SCREWDRIVERS
- SET OF PHILLIPS TIP SCREWDRIVERS
- SLIDING GAUGE 1/50
- EXTERNAL MICROMETER 0-25
- SET OF ROUND, FLAT AND HALF-ROUND FILES
- SET OF SOCKET WRENCHES
- ENAMELLED WIRE FOR WINDINGS 7
- TOOL CABINETS 6
- 1



Electrical

- Protection
- Elec. Motors 5.5 KV
- U.P.S Unit Power Supply
- Extinction system.
- SF6 S.B
- Inverters
- Sample Transformer (Cross section)

Mechanical

- soot blowers
- Balancing machine
- heat exchangers
- hydraulic couplings.

Y
yc

Instrument & Control.

Subjects	Equipment and Materials			Remarks
	IT & MS	Qty	Unit	
1. Pressure Controller	<ul style="list-style-type: none"> - Pneumatic Controller - D.P. Controller 	<p>1 1</p>	<p>set. set</p>	
2. Temperature Measurement or maintenance	<ul style="list-style-type: none"> - Temperature source with $^{\circ}C$ to $^{\circ}F$ - Kinds of Sensor & probes. - Temperature Transducer - Temperature switch. - adjustment THE Temperature Controller. 	<p>1 1 1 1 1</p>	<p>pcs. set. set. pcs set</p>	
3. Volume & Flow Counters (Fuel, light fuel, Demeter, Gas...)	<ul style="list-style-type: none"> - Fuel oil Counter oval with tools & Calibration Circuits. 	<p>1</p>	<p>Set</p>	<p>ملك التركيب وعملية لصنادق الفيو د. VAP/1/2 من</p>

Attachment - 4

Reference Only

**Expected Total Staff Including Instructors in New Training Center
(Syrian Staff)**

Personnel	No.	Qualifications/Experience	Salary Estimated
1)-General Director	1	-	
-Secretary	1	-	
2)Maintenance Training Division			
-Director	1	Engineer / 15years or more	
(Mechanical Section)			
-Chief Instructor	1	Engineer/ 10years or more	
-Instructor (Basic Course)	1	Assistant Engineer/ 5years or more	
-Instructor (Advanced Course)	1	Assistant Engineer/ 5years or more	
-Assistant Instructor	2	5years or more in the technical field	
(Electrical Section)			
-Chief Instructor	1	Engineer/ 10years or more	
-Instructor (Basic Course)	1	Assistant Engineer/ 5years or more	
-Instructor (Advanced Course)	1	Assistant Engineer/ 5years or more	
-Assistant Instructor	2	5years or more in the technical field	
(Control & Instrument Section)			
-Chief Instructor	1	Engineer/ 10years or more	
-Instructor (Basic Course)	1	Assistant Engineer/ 5years or more	
-Instructor (Advanced Course)	1	Assistant Engineer/ 5years or more	
-Assistant Instructor	2	5years or more in the technical field	
(Welding Section)			
-Instructor	1	Assistant Engineer/ 5years or more	
-Assistant Instructor (Electric & Gas Welding)	2	Skilled in the field	
3)Operation Training Division			
-Director	1	Engineer / 15years or more	
-Chief Instructor (Boiler)	1	Engineer/ 10years or more	
-Instructor (Boiler, Basic)	1	Assistant Engineer/ 5years or more	
-Instructor (Boiler, Advance)	1	Assistant Engineer/ 5years or more	
-Chief Instructor (Turbine)	1	Engineer/ 10years or more	
-Instructor (Turbine, Basic)	1	Assistant Engineer/ 5years or more	
-Instructor (Turbine, Advance)	1	Assistant Engineer/ 5years or more	
-Chief Instructor (Electrical Facilities)	1	Engineer/ 10years or more	
-Instructor (Electrical, Basic)	1	Assistant Engineer/ 5years or more	
-Instructor (Electrical, Advance)	1	Assistant Engineer/ 5years or more	

Cont'd ...

A1 - 7x

Personnel	No.	Qualifications	Salary Estimated (US\$)
4)Planning Section			
-Planner	1	Assistant Engineer/ 5years or more	
-Assistant Planner	1	5years or more in the technical field	
5)Administration Division			
-Director	1	-	
(Accounting Section)			
-Section Chief	1	-	
-Purchasing	1	-	
-Clerk	1	-	
-Typist	1	-	
(General Affairs Section)			
-Section Chief	1	-	
-Personnel Affairs	1	-	
-Clerk	1	-	
-Typist	1	-	
-Receptionist	1	-	
-Driver	2	-	
-Store keeper	1	-	
-Janitor (for facility maintenance)	1	-	
-Security Guard	2	-	
-House Cleaner	2	-	
(Dormitory):Subordinate section of General Affairs			
-Manager	1	-	
-Janitor	2	-	
(Canteen): -ditto-			
-Manager	1	-	
-Chief Cook	1	-	
-Cook Helper	4	-	
Total	60		

Note: Division directors and chief instructors shall be equipped with an english language ability both writing and speaking.

3. Minutes of meeting signed on 20th March, 1995

**MINUTES OF MEETING
FOR
MASTER PLAN STUDY
ON
REHABILITATION & MAN-POWER TRAINING FOR POWER PLANTS
IN
THE SYRIAN ARAB REPUBLIC**

Date : 11 March - 21 March, 1995

Place : MOE office and PEEGT office

Attendants : SYRIAN SIDE

Mr. Sufian Al Allow, Deputy Minister, MOE

Mr. Zaki Odeh, General Director, PEEGT

Mr. Ali Chabaani, Chief of Steering Committee

Mr. Soleiman Geriass, Deputy Chief of Steering Committee

Mr. Bassam Kouider, Director of Training Department, PEEGT

Mr. Walid Wafai, Member of Steering Committee

Mr. Kaziem Masoud, Member of Steering Committee

Mr. Sabri Bechar, Member of Steering Committee

Mr. Mohamed Khalil Sheki, Member of Task Force Team, PEEGT

JICA Study Team

Mr. N. Chiba, Leader, Study Team, JICA

Mr. M. Nishikawa, Study Team, JICA

Mr. Y. Muraki, Study Team, JICA

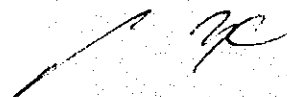
Mr. K. Kakurai, Study Team, JICA

Mr. K. Nakamura, Study Team, JICA

The Study Team (the Team), organized by Japan International Cooperation Agency (JICA) and headed by Mr. Noritsune CHIBA, visited the Syrian Arab Republic from March 11th, 1995 for the third field survey of Master Plan Study on Rehabilitation & Man-Power Training for Power Plants in The Syrian Arab Republic(the Study) in accordance with Scope of Work (S/W) agreed between MOE and JICA Preparatory Study Team on July 7th, 1994.

During the third field survey in Syria, the Team has submitted and explained the Interim Report which are showing the results of the Work in Japan(2nd stage) to the Syrian side and has held a seminar on 16th March 1995.

The Study results during the third field survey from 11th to 21st March 1995 are summarized as follows:



1. Interim Report

The Team submitted thirty (30) copies of the Interim Report to the Syrian side, and explained and discussed with PEEGT and Syrian officials concerned.

2. Rehabilitation Proposals

Syrian side has understood and has principally agreed to the rehabilitation proposals shown in the Interim Report. The concepts of the rehabilitation proposals and the Syrian side comments are shown as follows;

2.1 Rehabilitation Proposals for Subject Power Plants

Plant Name and Units	Boiler	Turbine & Generator	Control & Instruments
Banias Unit-1&2	1. Detailed inspection, Cleaning and Repair. 2. Renewal of Reheater and Superheater	1. Detailed inspection and Repair	1. Renewal of Control System (From Pneumatic to Electric) 2. Renewal of Instruments and Electrical equipment
Mehardeh Unit-1&2	1. Detailed inspection, Cleaning and Repair. 2. Renewal of Reheater and Superheater	1. Detailed inspection and Repair	1. Renewal of Control System (From Pneumatic to Electric) 2. Renewal of Instruments and Electrical equipment
Kattineh Unit-6	1. Detailed inspection, Cleaning and repair	1. Detailed inspection and Repair	1. Renewal of Control System (From Pneumatic to Electric) 2. Renewal of Instruments and Electrical equipment
Kattineh Unit-3,4&5	These units are too defective to restore the performance. Therefore, no rehabilitation alternatives are proposed. Instead, a new installation of NG and/or HFO fired 200MW unit is proposed.		

2.2 Available installed capacity

The Syrian side has requested the Team to revise a Table and Graphs of the Available installed capacity (Table 1.2.3-1 and Fig 1.2.3-1 & 2 in the Interim Report) according to the latest information given by the Syrian side.

The Team agreed to revise the Table and Graphs at the time of preparing the Draft Final Report.

2.3 Cooling Water at Katteneh Power Plant

For the New Installation Proposal of 200MW at Katteneh Power Plant, the Syrian Side suggested to provide a cooling tower for the condenser cooling, taking the environmental effect(discharged water temperature) into consideration.

3. Manpower Training

The Syrian side has agreed to the Conceptual Design of the New Training Center such as Training Programs, Training Curriculum, Organization, Management system, Training Equipment and Materials, Facilities Plans which were prepared by the Team through the Work in Japan(2nd stage) and proposed in the Interim Report.

As for the operation cost for the New Training Center, an average amount of salary for operating staff including fringe benefit will be revised in accordance with the latest information obtained from the PEEGT.

4. Seminar

The Seminar has successfully been held on 16th March 1995, which titled as "Rehabilitation and Maintenance Proposals for selected thermal power plants" and some 20 Syrian engineers were attended at the Seminar.

5. Draft Final Report

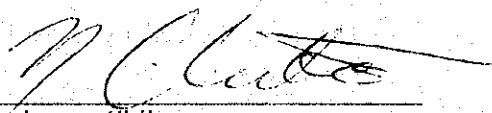
The draft Final Report will be submitted and be explained to the Syrian side on the middle of June 1995.

6. Counterpart Training in Japan

Related to the Study(this Master Plan Study), the Team suggested the PEEGT to determine a PEEGT staff to be trained in Japan and to submit an Official Request Form (Form A2A3) to JICA Syria office immediately through SPC as suggested during the first field survey on November 1994. PEEGT agreed to submit such Request Form to JICA Syria office urgently.

As for the Number of trainee, the PEEGT strongly hope to dispatch two(2) trainees to Japan, one for Rehabilitation and the other for Manpower training.

Mr. Ali Chabaani
Chief of Steering Committee
Director of Energy Production
PEEGT



Mr. Noritsune Chiba
Leader,
JICA Study Team

4. Minutes of meeting signed on 15th June, 1995

**MINUTES OF MEETING
FOR
MASTER PLAN STUDY
ON
REHABILITATION & MAN-POWER TRAINING FOR POWER PLANTS
IN
THE SYRIAN ARAB REPUBLIC**

Date : 08 June - 15 June, 1995

Place : MOE and PEEGT office

Attendants : SYRIAN SIDE

Mr. Ali Chabaani, Chief of Steering Committee

Mr. Soleman Geriass, Deputy Chief of Steering Committee

Mr. Kaziem Masoud, Member of Steering Committee

Mr. Sabri Bechar, Member of Steering Committee

Mr. Mohamed Khalil Sheki, Member of Task force Team

JICA STUDY TEAM

Mr. T. Morimura, JICA

Mr. N. Chiba, Leader, Study Team, JICA

Mr. M. Nishikawa, Study Team, JICA

Mr. K. Kakurai, Study Team, JICA

Mr. K. Nakamura, Study Team, JICA

The Study Team (the Team), organized by Japan International Cooperation Agency (JICA) and headed by Mr. Noritsune CHIBA, visited the Syrian Arab Republic from June 7, to June 17, 1995 for the Fourth Field Survey of Master Plan Study on Rehabilitation & Man-Power Training for Power Plants in The Syrian Arab Republic (the Study) in accordance with Scope of Work agreed between MOE and JICA Preparatory Study Team on July 7th, 1994. Main Subject of Fourth Field Survey of the Study are explanation on and discussion of the Draft Final Report with Syrian side.

The Study results during the period from 8th June to 15th June 1995 are summarized as follows.

1. Draft Final Report

The Team submitted thirty (30) copies of the Draft Final Report(the Report) to MOE and PEEGT, and discussed with MOE, PEEGT and Syrian officials concerned for the study results and other related subjects of the study.

2. Rehabilitation Proposals

Syrian side has basically agreed to the contents of the Rehabilitation Proposals shown on the Draft Final Report. Based on the results of discussion, the Team has agreed that the following items will be re-studied and be reflected to the Final Report by the Study Team.

(1) Fig. 4.3-1 Rehabilitation Master Schedule

The Team will prepare an alternative schedule based on the following conditions and it will be attached to the Final Report

- 1) Two(2) units in the same power station will not be stopped simultaneously for the overhaul.
- 2) Three(3) units will not be stopped at the same time.

(2) Current Environmental Protection

Syrian side pointed out that some of Environmental Protection Facilities such as Neutralizer and Oil Separator for Waste Water, etc., are already provided to all thermal power plants in Syria and requested to reflect this fact to the Final Report. The Team agreed to the Syrian side request.

(3) Economic Analysis

Based on the Syrian side comment(s) such as the discounted ratio(from 12 % to 9-10%) for the cost streams, etc., the Team agreed to review the Economic Analysis and reflect such results to the Final report. The Team requested Syrian side to inform their further comments, if any, as soon as possible.

(4) Table 3.2-1 Existing Power Generation Plants as of 1993

Table of Existing Power Generation Plants as of 1993 will be revised in accordance with the latest information as of 1994, which will be informed to the Team as soon as possible by PEEGT.

3. New Training Center Construction Proposal

Syrian side has basically agreed to the contents of the New Training Center Construction Proposal shown on the Draft Final Report. Based on the results of discussion, the Team has agreed that the following items will be re-studied and be reflected to the Final Report.

(1) The Number of Operation and Maintenance staff that require training and education

The Team agreed to revise Number of Operation and Maintenance staff that require training and education in accordance with to the latest information from Syrian side.

(2) Plastic Model of Gas-turbine

A Plastic model of Gas-turbine is added to the list of Necessary Training Equipment & Materials(Common Subject of Basic & General for Maintenance Training Course in Table 5.2.3-1)

4. Comments from Syrian side

All the Comments on the Draft Final Report from Syrian side, if any, will be informed to JICA before the end of June 1995 to reflect those in its finalization.

5. Final Report

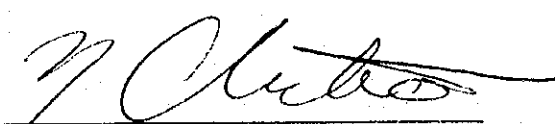
Fifty(50) copies of the Final Report will be submitted to Syrian side through JICA Syria office by the end of August 1995 after reflecting the comments of Syrian side through consultations with the Japanese officials concerned.

6. Equipment for the Study

Syrian side strongly requested to transfer the following equipment and instrument which had been used for the Study in Syria.

- | | |
|-----------------------------------|-------|
| - Ultrasonic Flow Detector | 1 set |
| - Fiber Scope | 1 set |
| - Portable Water Quality Analyzer | 1 set |

Mr. Ali Chabaani
Chief of Steering Committee
Director of Energy Production
PEEGT



Mr. Noritsune Chiba
Leader,
JICA Study Team

添付資料-2

面談者リスト

Appendix-2 List of Persons Interviewed

1. SPC Office

Eng. Nabeel Astafaan	Syrian Petroleum Co., MOP
Eng. Manal As-Saga	Ministry of Environment
Mr. Bassam Al-Sibaee	Director of Scientific and Technical Cooperation, SPC
Ms. Ilhaam Murad	Assistant, SPC
Ms. Omayya Essa	Deputy Director of Energy, SPC

2. MOE Minister's Office

Eng. Moneeb Sayem-Adaher	Minister, MOE
Eng. Sufyaan Al Alow	Deputy Minister, MOE
Eng. Nazeh Yanes	Technical Advisor, MOE

3. PEEGT Office

Mr. Zaki Odeh	General Director, PEEGT
Mr. Ali Chabaani	Chief of Steering Committee, PEEGT
Mr. Soleman Geriass	Deputy Chief of Steering Committee and Chief of Task Force Team, PEEGT
Mr. Bassam Kouider	Director of Training Department, PEEGT
Mr. Walid Wafai	Director of Jandar Training Center
Eng. Kaziem Masoud	Committee Member in charge of Steam Turbine Power Plants
Eng. Sabri Bechar	Committee Member in charge of Gas Turbine Power Plants
Eng. Mohamed Khalil Sheki	Member of Task Force Team, PEEGT
Eng. Micheal Kazuma	Member of Task Force Team, PEEGT

- Eng. Tammam Mahmoud Member of Task Force Team, PEEGT
- 4. Tishreen Power Station**
- Eng. Hashim Mishfig General Director, Tishreen Power Station
- Eng. Ramadan Mehop Operation Manager, Tishreen Power Station
- 5. Jandar Power Station**
- Eng. Alzein Rouhi Site Manager of Jandar Power Station, PEEGT
- Eng. Veijo Komulainen Project Director of Ekono Energy Ltd.
- 6. Katteneh Power Station**
- Eng. Farhan Al Haji General Director, Katteneh Power Station
- Eng. Abdra Latif Wali Boiler Maintenance Engineer, Katteneh Power Station
- Eng. M. Salomi Turbine Maintenance Engineer, Katteneh Power Station
- Eng. J.D. Droubi Spare Parts Department, Katteneh Power Station
- Eng. I. Toumi Instrumentation & Control Chief Engineer, Katteneh Power Station
- Eng. F. Al Yafi Electrical Maintenance Engineer, Katteneh Power Station
- Eng. A. Scharbek Instrumentation Engineer, Katteneh Power Station
- Eng. M. Bahboha Chief Engineer for Production, Katteneh Power Station
- Eng. Mohamad Mahmoud Electrical Engineer for Production, Katteneh Power Station
- 7. Mehardeh Power Station**
- Eng. Ghassan Salloum General Director, Mehardeh Power Station
- Eng. Ali Haifa Chief of Operation Department, Mehardeh Power Station

Eng. Kareem Douna	Instrumentation Engineer, Mehardeh Power Station
Eng. Rami Abdo	Instrumentation Engineer, Mehardeh Power Station
Eng. Mohammad Jarari	Head of Mechanical Maintenance, Mehardeh Power Station
Eng. Omar Ganis	Mechanical Engineer, Mehardeh Power Station
Eng. Akram Ashmeh	Chief of Electrical Service, Mehardeh Power Station
Eng. Abdo Rajab	Operation Engineer, Mehardeh Power Station
Eng. Youcef Kaourmd	Chief of Spare Parts Department, Mehardeh Power Station

8. Banias Power Station

Eng. Abd Al Rrazak Yossef	General Director, Banias Power Station
Eng. Jaafar Daqud	Training Engineer, Banias Power Station
Eng. Wafik Mohamad	Operation Engineer, Banias Power Station
Eng. Hyaim Amar Ali	Electrical Engineer, Banias Power Station
Eng. Ahmad Hasan Ali	Electrical Engineer, Banias Power Station
Eng. Mohammad Mansour	Instrumentation and Control Maintenance Engineer, Banias Power Station

9. Zamarka Power Station

Eng. Id Abbara	PEEDE (in charge of Frame 5 Gas Turbines)
Eng. Ismail Sabek	Site Manager of Zamarka Power Station, PEEDE

10. Hame Power Station

Eng. Bassam Breaghle	General Director, Hame Power Station
Eng. Zaid Kinari	Assistant Engineer, Hame Power Station

11. NCC

Eng. Maher Mtanos

Director, NCC

Eng. Naja Maalouf

Maintenance Engineer, NCC

12. Latakia Technical Institute

Mr. Mustafa Farusi

Director, Latakia Technical Institute

Mr. Fauzi Gabbur

Administration Director,
Latakia Technical Institute

Mr. Muniv Fateh

Financial Director, Latakia Technical Institute

13. Adra Technical Institute

Dr. Tansin Musfi

Director, Adra Technical Institute

Eng. Abdal Rahman Oarraznly

H.V. Laboratory, Adra Technical Institute

Chem. Moustafa Altal

Chemical Laboratory, Adra Technical Institute

14. Aleppo Technical Institute

Eng. Fysal Shikh Ahmed

Director, Aleppo Technical Institute

15. MOEV Office

Eng. Yahya Awaidah

Chief Engineer, MOEV

Eng. Khaled Kallaly

Mechanical Engineer, MOEV

Eng. Abir Zeno

Environmental Engineer, MOEV

Eng. Mamal Al Sakka

Environmental Engineer, MOEV

Abbreviations:

MOE:	Ministry of Electricity
MOEV:	Ministry of State for the Environment
MOP:	Ministry of Petroleum and Mineral Resources
NCC:	National Control Center
PEEDE:	Public Establishment of Electricity for Distribution and Exploitation
PEEGT:	Public Establishment of Electricity for Generation and Transmission
SPC:	State Planning Commission

添付資料-3

現地調査時収集資料

Appendix-3
List of Data Collected During Field Survey

1. Data Collected During First Field Survey

1.1 General

- (1) Energy Sector Management Assistance Program Activity Completion Report (Joint UNDP/World Bank)
- (2) Statistics
- (3) Geographical Data
- (4) Program of Seminar (General Training Seminar)
- (5) Development of the Peak of Electric Power Production (1964 – 2005)
- (6) Capacity Demand 1995 – 2020
- (7) Load Growth and Total Generation 1994/2000
- (8) Energy Balance in Syrian Arab Republic –1993–
- (9) Work Plans, 1995 (Banias, Mehardeh and Katteneh Power Stations)
- (10) Electrical Energy Produced from Generation Utilities Related to PEE and Euphrates Dam and Consumed from General Sector with Shedding Energy and Peak of Production also demanded Energy during the Year of 1992
- (11) Produced Electrical Energy and the Used Requirement of Production with their Average in Steam Generation Units during the Year of 1992
- (12) Produced Electrical Energy and the Used Requirement of Production with their Average of their Consumption in the Operation of Production also the Rate of Production and Reability during the Year of 1992
- (13) Electrical Energy Produced from Generation Utilities Related to PEE and Euphrates Dam and Consumed from General Sector with Shedding Energy and Peak of Production also demanded Energy during the Year of 1993
- (14) Produced Electrical Energy and the Used Requirement of Production with their Average in Steam Generation Units during the Year of 1993
- (15) Produced Electrical Energy and the Used Requirement of Production with their Average of their Consumption in the Operation of Production also the Rate of Production and Reability during the Year of 1993

- (16) Efficiency in Thermal Power Plants
- (17) Existing Generation Plants 1993
/ Power Plant Expansion Program during 1994-1997
- (18) Electricity Prices as from 1/January/1991 (S.P./kWH)
- (19) 230 - 400kV O.H.L Network (Map)
- (20) 400kV Network (Schematics)
- (21) 230 - 400kV O.H.L Network (Schematics)
- (22) Location of Substations
- (23) Report and Recommendations of Second Working Circular for General
Advising to Specify the Environmental Effects on Different Industries in the
Arab World (Cairo: 27-29/6/1994)
- (24) The Environment Protection Act (Draft)
- (25) Syrian Project for Industrial Waste water Range
- (26) Syrian Standards Project for Component Gases of Air
- (27) Commission for Environmental Affairs Organogram
- (28) List of Committees Particate in the Ministry of Environment
- (29) Policy to Establish National Institute

1.2 **Banias Power Station**

- (1) Tubes Diagram - Lower Part Longitudinal Section
- (2) Tubes Diagram - Upper Part Longitudinal Section
- (3) Single Line Diagram
- (4) Instrument List
- (5) List of Production and Consumption of Power in Oct. '94
- (6) Organization Chart of the P.S.

1.3 Katteneh Power Station

- (1) General Layout
- (2) General Layout (ABB's Offer)
- (3) Layout Plan (Boiler #4)
- (4) Single Line Diagram
- (5) Instrument List (Boiler #4)
- (6) P & I D (Boiler #4)
- (7) P & I D (Turbine #4)
- (8) Fuel-Air Ratio Control (Boiler #4)
- (9) P & I D (Boiler #5)
- (10) Organization Chart

1.4 Mehardeh Power Station

- (1) Brochure of Mehardeh Power Station
- (2) General Layout
- (3) Boiler Arrangement Drawing
- (4) Boiler Bottom/Furnace
- (5) Overhaul Schedule (Boiler)
- (6) Overhaul Schedule (Turbine)
- (7) Overhaul Schedule (Instruments)
- (8) Instrument List for Process System
- (9) Spare Parts List to be Purchased (17/11/'94)

1.5 Hame Power Station

- (1) Bill of Production and Consumption in Sept. '94
- (2) Letter to PEGT from Hame Power Station

1.6 Zamalka Power Station

- (1) Data Sheet

1.7 Jandar Power Station

- (1) Jandar Layout
- (2) Erection Schedule
- (3) Site Plotting Plan
- (4) Ware House
- (5) Simulator Building
- (6) Training Simulator
- (7) Soil Investigation Report

1.8 National Control Center

- (1) 230kV, HV Network
- (2) Organization Chart
- (3) Table of Instantaneous Loads for Generation Units in Syria on 19.11.'94

1.9 Electrical and Mechanical Institute

- (1) Study Plan -1
- (2) Study Plan -2
- (3) Schedule of the Registered Students
- (4) Schedule of the Graduated Students
- (5) Arrangement Drawing(Aleppo)

2. Data Collected During Second Field Survey

2.1 General

- (1) Thermal Power Plant Periodical Inspection and Rehabilitation Plan
- (2) Revised Forecast of Available Installed Capacity of All Power Plants up to 2020 year
- (3) Revised Power Balance Forecast up to 2020

2.2 Banias Power Station

- (1) Unit No.2 Boiler Inspection report prepared by the Industrial Testing and Research Center
- (2) Expected Overhaul or Detailed inspection schedule
- (3) Daily Operation Report
- (4) Work Request Card
- (5) Spare Parts Requirement
- (6) Instrument & Control Report
- (7) Dimensional and Project Features of the Main Boiler Parts
- (8) Boiler Tube Arrangement Table which indicates specifications and heating surface of tubes for superheaters, reheaters and economizer

2.3 Katteneh Power Station

- (1) Heavy Fuel Oil(HFO)Specification
- (2) Expected Overhaul or Detailed Inspection schedule
- (3) Work Request Card

2.4 Mehardeh Power Station

- (1) Expected Overhaul or Detailed Inspection schedule
- (2) Schedule of Instrumentation department work during shut down of unit Nos.1 & 2
- (3) Inspection and Repair Work Schedule of Boiler Unit No.1

- (4) Work Order Sheet
- (5) Report for Spear Parts Order System
- (6) Drawings related to Boilers of Unit Nos.1 & 2
(Total 15 sheets)