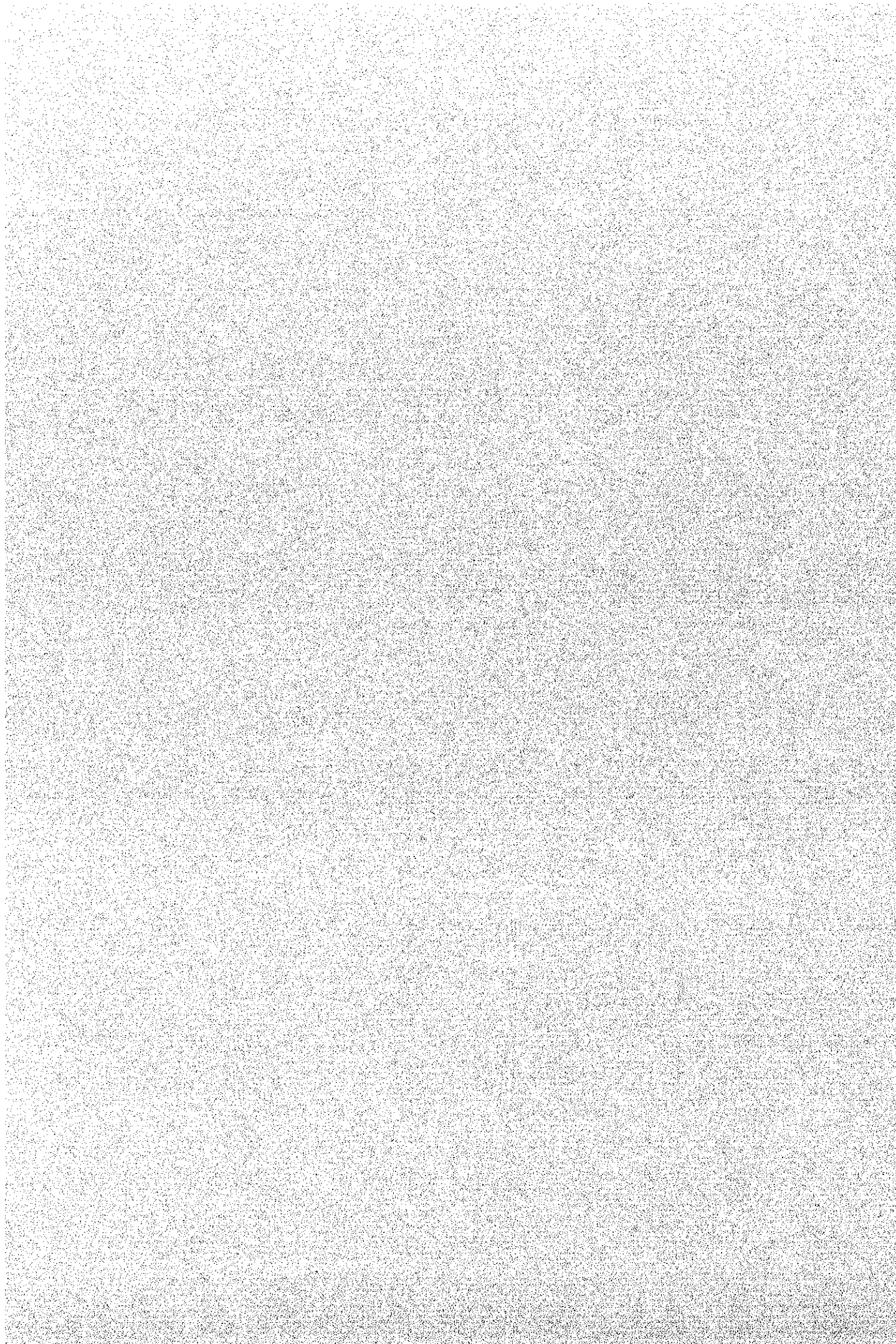


## **Chapter 3 Planning of Project**



## **Chapter 3 Planning of Project**

### **3.1 Implementation Plan of Project**

#### **3.1.1 Implementation Policy**

This project will be executed at No3 and No4 units of Baniyas power station in Syria on the basis of Japanese government grant aid. At the planning of project execution, the adequate organization and the project schedule shall be set by considering the schedule based on the cooperation system on Japanese government grant thoroughly.

The organization executing the project shall be Public Establishment for Electricity Generation and Transmission (PEEGT), and the president of PEEGT shall have overall responsibility for the project. And Superintendent of Baniyas power station shall take practically responsibility.

Maintenance section of Baniyas power station shall be mainly assigned for the project, and shall be supported by operation section and also by other sections according to necessity.

At the project execution, since the project shall be appropriate as Japanese governmental grant one, the project shall be performed at the high-grade of technical accomplishment within the project schedule. Therefore, the whole support and cooperation of Japanese consultants to PEEGT shall be required.

After exchange of note (E/N) is made by both governments, the Japanese consultants assigned for this project shall be in charge of the investigation for detailed design, the preparation and issuing of ITB (Invitation To Bid) document, the evaluation of bid, the assistance of contracting work, the management of project execution, etc under the overall management and cooperation of PEEGT. And the scope of work of consultants is defined in paragraph 3.1.4.

On the other hand, the procurement of equipment and materials required for the overhaul and the dispatch of specialists shall be made by the contractors selected at the bids. The contractors shall execute the works according to the contract and drawings & documents attached to the contract under the management of PEEGT's project execution organization and the supervision of consultants.

The principal works of contractors are as follows;

- (1) Preparation of drawings for approval
- (2) Procurement and manufacturing of equipment and materials

- (3) Execution of shop test
- (4) Shipping
- (5) Ocean and inland transportation
- (6) Assistance of equipment and materials controls at project site
- (7) Issuing of Major Overhaul manual
- (8) Witness and advice on works on overhaul, inspection, repair, assembly
- (9) Witness and advice on test and adjustment operation
- (10) Technology transfer

This overhaul work is the first experience in Syria. The important point for the overhaul works is to fulfill the function of the whole power generation system after dismantling, adjustment and reassembling of the equipment within the shortest time.

Therefore, restarting time of each equipment is determined by considering critical pass of the each equipment on the schedule. The consultants shall advise to adjust the whole schedule not to overlap upper and lower works simultaneously at same location from the viewpoint of safety.

In order to make the instruction on dismantling, assembling, adjusting, etc. of equipment and the technology transfer for completion of major overhaul, the contractors shall dispatch the specialists having rich experiences of overhaul for boiler and steam turbine, and the specialists for valves and instrument in power generation.

### **3.1.2 Consideration on Project Implementation**

During overhaul works, many works will be carried out in same time within short time. As work will be relevant to other, it is important to minimize a waiting time to proceed to next step of work. Therefore, following points are to be considered.

- (1) Planning for shutdown time of the concerned power plant

It will take one hundred days to execute the overhaul work for No3 and No4 unit each.

As the shutdown will affect supply and demand balance of electric power in whole Syria, the shutdown plan of the concerned power plant should be completed at previous year.

(2) Advanced preparation

As there is the equipment on which Syrian side has no overhaul experience among the equipment to be overhauled, it is necessary that the studies on work procedure, inspection items, etc. shall be made in advance. Unless a responsible person for the concerned work understand its procedure and can make instruction to workers, it will waste a time.

For a boiler, since it is required to install scaffolding at inside of a boiler, it is necessary to hand-over the manual of scaffolding assembling to the concerned person for understanding in advance. And also the required number of scaffolding materials shall be prepared in advance.

(3) Management of overhaul schedule

It is necessary that a machine's overhaul time and its restart time after assemble shall be well-timed. Although the progress or delay will be happened on overhaul work of individual equipment in comparison with the original schedule, the adjustment and the countermeasure shall be made at the schedule control meetings held daily and weekly for understanding the status and the mutual relationship.

Since crane will be occupied for a long time to dismount the overhaul work of turbine and it will be worried that crane utilization will be overlapped at generator rotor pulling-out work, the adjustment on crane utilization shall be made thoroughly.

And as the time of test operations are nearing, the schedule control meeting will have further importance.

(4) Technology transfer

Overhaul schedule management, and technology-transfer for dismantling and assembling of the equipment shall be made in this project. Technical-instruction on the dismantling, assembling and trial operation for the main equipment shall be made by the Japanese engineers.

On this opportunity, it is especially desirable that engineers from other power stations in Syria will join this project and learn the technical know-how on overhaul. On the management of overhaul schedule, the engineers who can manage the schedule for boiler, turbine, electrical and instrumental works shall be

stationed in the power station through the overhaul period, and technology-transfer on the management of overhaul schedule shall be through the actual work.

(5) Safety management

Concerning to the safety management in Baniyas power station, the staffs have not on helmet and safety belt at present. In this project, there are dangers resulted from the scaffolding assembling works at high elevation of the boiler inside and the simultaneous works at upper and lower elevations at same location. And when the time of equipment test operation is nearing, it is worried that the accident may happen by the shock due to putting on electric switch. Therefore, it is very important that the lecture on safety management should be carried out for whole staffs engaged in the major overhaul works to eliminate the accidents in advance.

### 3.1.3 Scopes of Work and Supply

At the execution of this project, the scopes of work and supply are as follows;

(1) Scopes of Supply and Work by Japanese side

- (a) Procurement of equipment and materials in Japan
- (b) Ocean and inland transportation of equipment and materials
- (c) Advisory services for installment, assembling and adjustment, and preparation of manuals

(2) Scopes of Supply and Work by Syrian side

- (a) Preparation of all manpower required for the overhaul work
- (b) Scaffolding required for dismantle, inspection, assembly and adjustment works
- (c) General tools, special tools, materials for temporary use and measuring instruments
- (d) Welding rods, argon gas, oxygen gas, grinding stone, sandpapers, materials for dye-penetration-check, waste cloth, etc.
- (e) Lubricating oil, grease and consumable materials for replacement (excepted the materials procured by Japanese side)
- (f) Installation of temporary lights and welding machines, and electricity supply work

- (g) Provision of space required for temporary stock of equipment and materials for the work, and space for temporary project office.
- (h) Provision of electric power, water and telephone required for the work at the inside of the power station.
- (i) Exemption of all kind of import custom duties and taxes to the equipment and materials procured in Japan and to Japanese concerning execution of the work shall be made smoothly and certainly by Syrian government.

### 3.1.4 Plan of Work Management

This project is executed as Japanese government's grant project, and its detailed design and work management are executed by the consultants of Japanese firms.

#### (1) Consultant's Scope of Works

Table 3-1 Detail of Work executed by Consultants

	Detail of Work
1. Stage of Preparatory Work	Investigation for detailed design. Preparation of ITB (Invitation To Bid) document. Contractor selection in behalf of Syrian side. Evaluation of bid result. Support on contracting work with contractors. Review of manufacturing drawings. Witness to test done at manufacturer's works.
2. Stage of Work Execution	Management work at site. Preparation of status report on project progress. Preparation of report, etc.

#### (a) Basic policy at detailed design stage

- At the detailed design , the overhaul plan of the power station and the procurement plan of the equipment and materials for overhaul shall be decided by the result of detailed site survey. Cost estimation of this project shall be made in according to result of the detailed design. ITB document shall be prepared according the institution of Japanese government's grant project
- At the bid stage, the consultants shall work on behalf of the project executing organization, so as to be that the bid shall be made in accordance with the institution of Japanese government's grant project.

And the consultants shall evaluate the result of bid and also support the contracting work between the project executing organization and the contractor.

- The consultants shall witness shop test of equipment after completion of manufacturing.

(b) Basic policy at work management stage

Basic policy at work management stage is as follows ;

- The consultants shall work to confirm receipt of equipment and materials together with the plant owner and the contractors.
- At work stage, the consultants shall make advice of the coordination with the project execution organization and the concerned organizations of Syrian side, and make the quality and schedule control of the overhaul work.
- At completion of the overhaul work, the consultants shall make the examination on the completion of the overhaul together with the plant owner and the contractors and preparation of the completion report.

(2) Specialists' Works and Work Duration

At this project, the specialists shall be dispatched and execute the management works as described in Table 3-2.

Table 3-2 Work of Specialists and Duration of Work

Classification of Specialist	Concerned Work	Dispatch Time /Work Duration
Chief of Management	Management of Overall Works	During work execution/ 1.4 M/M
Specialist for Turbine	Management of Overhaul Work for Turbine and its Auxiliary	During work execution/ 2.1 M/M
Specialist for Boiler	Management of Overhaul Work for Boiler and its Auxiliary	During work execution/ 3.9 M/M
Specialist for Electricity and Instrumentation	Management of Overhaul Work for Electricity and Instrumentation	During work execution/ 2.6 M/M

(3) Project Executing Organization

The project executing organization shown in Figure 3-1 is expressing schematically the relation between the concerned Syrian governmental organizations and the management organization of the consultants at project execution.



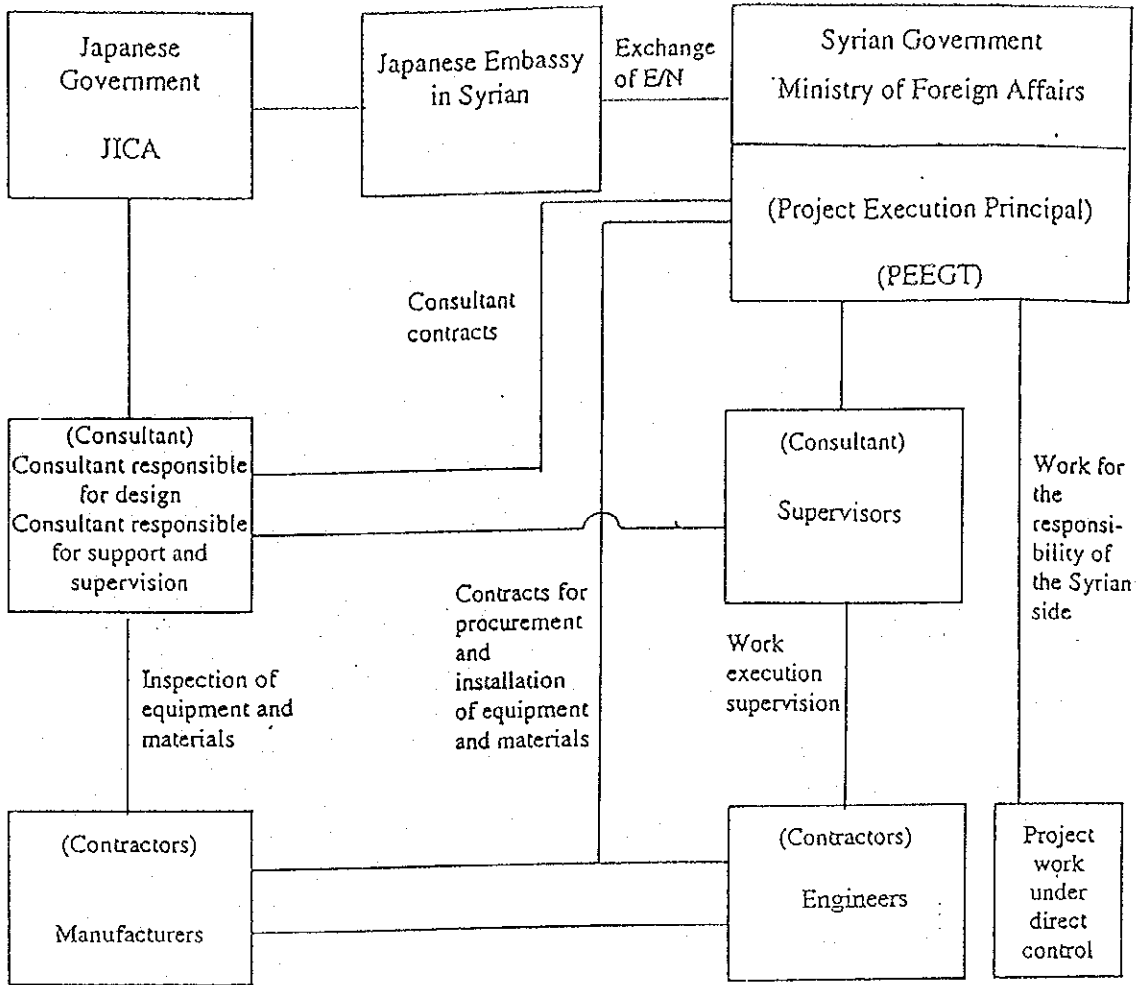


Fig.3-1 Project Execution System

### 3.1.5 Procurement Plan of Equipment and Materials

The equipment and materials required for this project shall be procured from the Japanese manufacturers. But, the equipment and materials which the power station is already possessing shall be used preferentially.

Table 3-3 is showing the procurement sources of equipment and materials.

Table 3-3 Procurement Sources of Equipment and Materials

Name of Equipment and Materials	Procurement Sources		
	Local	Japan	Third Countries
Equipment and materials for Boiler Units		○	
Equipment and materials for Turbine Units		○	
Equipment and materials for electric units		○	
Equipment and materials for instrumentation		○	
Television monitoring flue gas Condition		○	

### 3.1.6 Project Implementation Schedule

As Japanese government's grant project, the project implementation schedule shall be as follows;

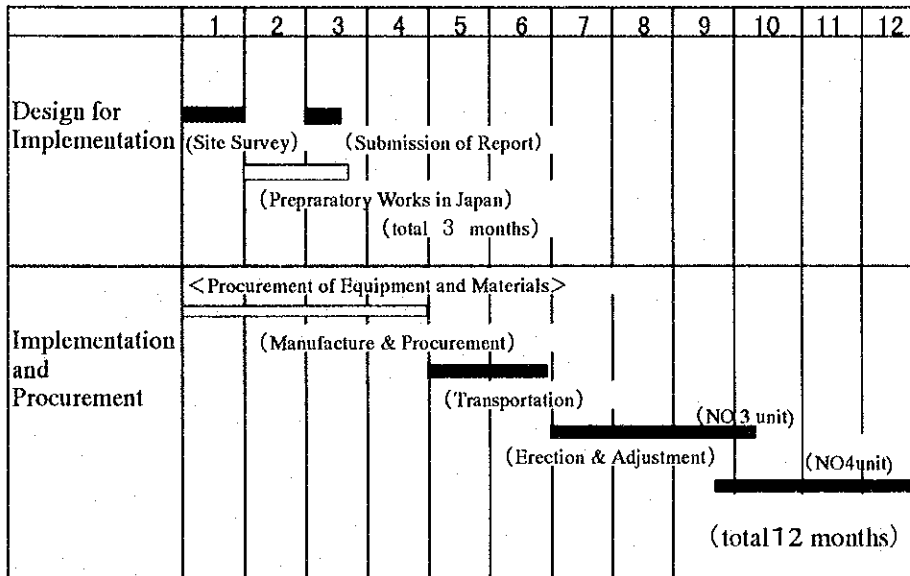
- (1) Exchange of Note between both governments (E/N)
- (2) Contract with consultants
- (3) Detailed design, and preparation of ITB (Invitation To Bid ) document
- (4) Bid, bid evaluation and contract with contractor
- (5) Procurement of equipment and materials
- (6) Transportation and customs clearance of equipment and materials
- (7) Major overhaul work at site
- (8) Completion and acceptance

The project implementation schedule is shown in Fig. 3-2.

About three months will be required for the detailed design and the preparation of ITB document, and about twelve months will be required for the erection and adjustment

works including the periods for the manufacturing and transportation of equipment and materials.

Fig. 3-2 Implementation Schedule



### 3.1.7 Obligations of Recipient Country

The government of the recipient country shall undertake the following obligations ;

- (1) Outside works like site boundary fence, gate or outside lighting
- (2) The necessary measures on the tax exemption and on the customs clearance for the equipment and materials required for the project.
- (3) The necessary measures on the exemptions of domestic and other taxes, and of customs duties.
- (4) Japanese contractors shall be accorded to bring in the facilities to Syria, which may be required in connection with the supply of the equipment and work, when they entry into Syria and stay therein for performing their work.
- (5) The equipment and materials procured for this project and the overhauled units shall be used properly and effectively, and maintained.
- (6) All expenses for the man-power, materials and consumable materials require for this project shall be borne, as well as for the transportation and the installation of the equipment.

### 3.2 Operation and Maintenance Plan

In order to maintain the steady supply of electric power and the generation efficiency, it is important to implement the proper maintenance management of the power station, which is composed from operation management, routine inspection and periodical overhaul.

At Banias power station, it is desired that the maintenance section shall implement the maintenance management according to the operation and maintenance plan.

#### (1) Operation Management

It is necessary to prepare the operation management standard and to implement the proper operation management on the following items described in Table 3-4.

Table 3-4 Operation Management Items

Classification of Power Generation Units	Operation Management Items
Boiler Units	Pressures and temperatures at outlet of steam superheater and reheater
	Evaporation rate of steam and feed rate of boiler feed water
	Water level of steam drum
	Pressure of steam drum
	Qualities of boiler water and boiler feed water
	Quality of fuel to be used
	Rate of spray water at steam super heater and reheater
	Efficiency of boiler
Steam Turbine Units	Output of power generators
	Pressures and temperatures of main steam and reheated steam
	RPM of steam turbine
	Pressure of steam turbine exhaust steam
	Pressure and temperature of extracted steam
	Pressures and temperatures of oil at inlet and outlet of steam turbine bearings
	Pressure of regulating oil of steam turbine
	Opening of valve controlling steam flow
	Amplitude of steam turbine vibration
	Efficiency of steam turbine

#### (2) Routine Inspection

It is necessary to establish the routine inspection method and to implement the inspection by using the check sheet on the items described in Table 3-5. And it is required that the frequency of inspection shall be more than once a day.

Table 3-5 Routine Inspection Items

Power Generation Unit	Routine Inspection Items
Safety Valves at Boilers	Steam leakage from valve seat
Main Piping	Hangers in abnormal condition
	Steam leakage from piping
	Vibration of piping
Fired Furnaces	Firing condition
	Fired furnace inside in abnormal condition
Main Rotating Machines	Vibration, abnormal noise and temperature rise
	Steam leakage from grand part
	Oil temperature, oil level and oil leakage at bearings
Main Valves	Vibration and abnormal noise from valve body
	Steam leakage from grand part and seat part of valve
	Valve actuator in abnormal condition
Steam Turbines	Vibration and abnormal noise
	Steam leakage from wheel chamber
	Looseness of bolts and nuts
	Vibration, abnormal noise, overheat of bearing, and condition of waste oil
Heat Exchangers	Leakage of steam
	Water level

(3) Overhaul

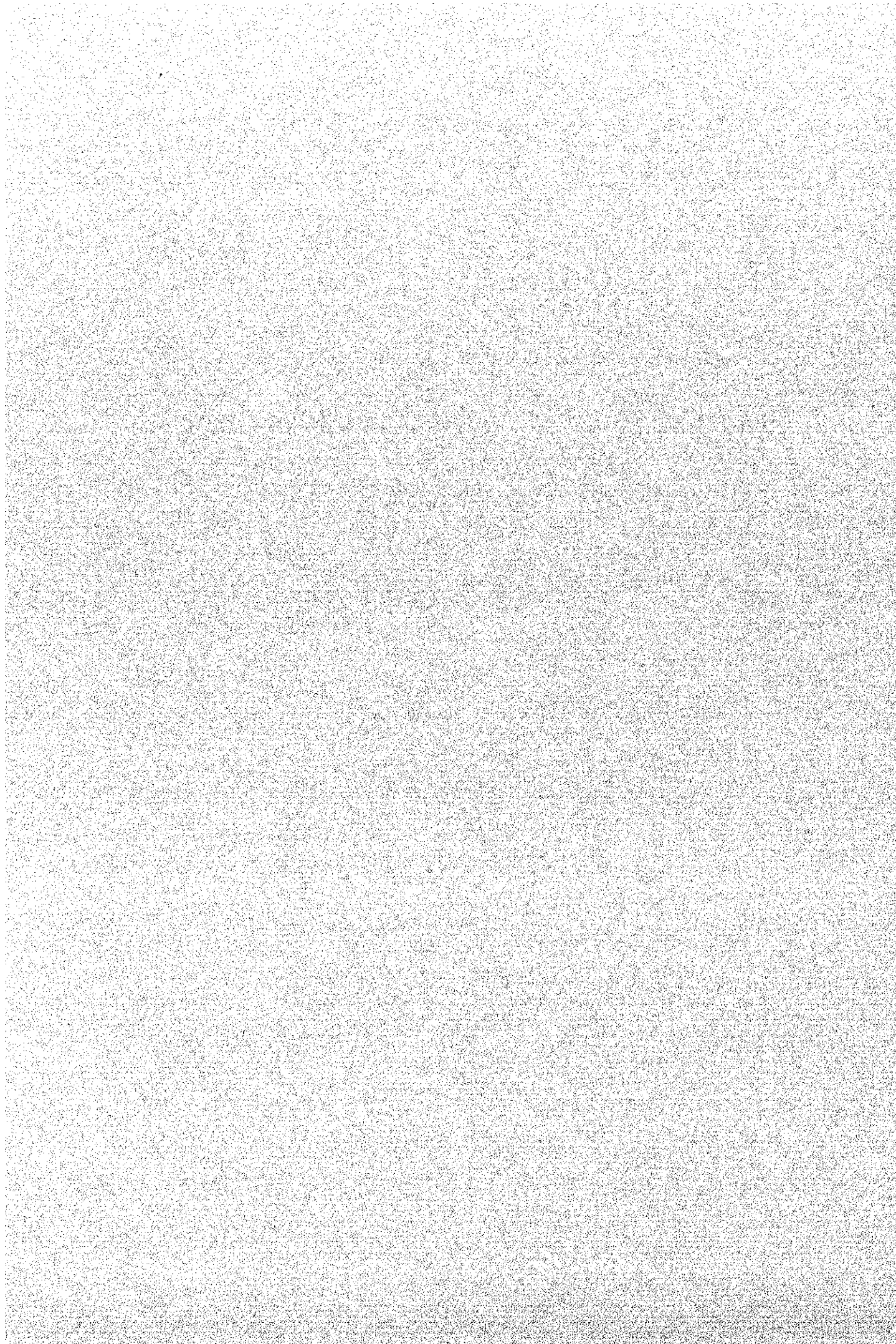
By considering priority of importance, operation condition, etc for each equipment, the method, frequency and decision standard, etc of inspection shall be set definitely at overhaul, and the overhaul shall be implemented according to the actual situation of units.

The detail of works at overhaul is described in paragraph 2.4.3, and after the completion of this project, it is desired that Baniyas power station shall implement continuously the overhaul according to the work items and the implementation cycles described in Table 2-5.

And, the maintenance cost may occupy approximately 1% in total expenditure of the power station, and it seems to be very little. Accordingly, it is required to secure the cost for overhaul in future.



## **Chapter 4 Project Evaluation and Recommendation**





## Chapter 4 Project Evaluation and Recommendation

### 4.1 Proof, Verification and Benefit on Project Propriety

This project is to rehabilitate the power generating facility for No3 and No4 units of the Baniyas power station in order to improve the efficiency and to recover the reliability for power generation by replacing the equipment and materials.

The followings are evaluation and recommendation as the proper project of Japanese government's grant project.

#### 4.1.1 Expected Effects

The direct effect can be expected by execution of this project as shown in Table 4-1.

Table 4-1 Effects expected by Implementation of this Project

Planned Items	Effects
Joint Implementation of Major Overhaul	<ul style="list-style-type: none"> <li>• Verification of soundness of main equipment and parts.</li> <li>• Planning of maintenance and inspection items at next overhaul</li> <li>• Improvement of plant efficiency</li> <li>• Steady supply of electric power</li> </ul>
Procurement of Equipment and Materials Required for Major Overhaul	<ul style="list-style-type: none"> <li>• Reduction of FOR</li> <li>• Improvement of availability</li> <li>• Recovery of plant efficiency</li> <li>• Reduction of operation and maintenance cost</li> <li>• Reduction of air pollutants emission</li> </ul>
	Effects by Dispatch of Specialists
	<ul style="list-style-type: none"> <li>• Proper advises on work and management</li> <li>• Instruction on precision inspection and repair work for the concerned equipment</li> <li>• Implementation of overhaul by Syria themselves</li> <li>• Technology spread to other power stations in Syria</li> </ul>
Procurement of Television monitoring Boiler Flue Gas	<ul style="list-style-type: none"> <li>• Reduction of generating rate of black Smoke</li> <li>• Reduction of air pollutants emission</li> </ul>

And, after the implementation of this project, the target of improvement for the power generation units described in Table 4-2 seems to be obtained due to executing the proper operation and maintenance of Baniyas power station by Syrian side.

Table 4-2 Target of Improvement for Power Generation Units

Items	Index	Unit No.	Before this project	Targets
Improvement of Reliability for Power Generation Units	FOR	No. 3 Unit	4.4 %	1.5 %
		No. 4 Unit	4.6 %	
	Availability	No. 3 Unit	86 %	90 %
		No. 4 Unit	70 %	
Improvement of Plant Efficiency	Efficiency at power generator end	No. 3 Unit	33 %	36 %
		No. 4 Unit		
Environmental Improvement	Figures of air pollutant emission	No. 3 Unit	(not available)	About 8 % reduction before this project
		No. 4 Unit		

#### 4.1.2 Economic Evaluation

##### (1) Economic Evaluation on Improvement of Plant Efficiency

The present plant efficiencies at the power generator end in Baniyas power station are as follows ;

No. 1 and 2 Units	:	28 %
No. 3 and 4 units	:	33 %

At No. 3 and 4 Units in connection with this project, 8% of improvement can be expected as relative efficiency by repairing air preheaters and exchanging its heat exchanging elements.

On the other hand, the plant efficiency seems to be recovered to 35.6% (= 33% X 1.08), namely about 98% to the plant efficiency at the initial installation.

By repairing air preheaters of No.3 and 4 units, the fuel cost seems to be reduced by about 8% annually due to increase of the heat exchange volume, i.e. 200 – 400 million Japanese Yen seems to be saved. The large amount of merit will produce. The estimation is shown in Appendices (Data 6-5).

(2) Economic Evaluation on Improvement of Forced Outage Ratio (FOR) and Recovery of Power Generation Output

Due to that FOR is improved from the present figure of 4.5% to 1-3%, the effect is the increase of power generation volume by the increase of operating duration, namely 112 MWh – 147 MWh per unit. This leads the decrease of power generated at the other power stations having the lower efficiencies (i.e, excessive firing is being required) and higher power generation cost as compared with Baniyas power station. The differences between both will produce the merit.

The increase of fuel cost, due to improvement of FOR at No. 3 and No.4 units in Baniyas power station, will be annually about 300 million Japanese Yen per two units. And its 10% may be considered as the merit (the difference) due to the reduction of additional firing at the other power stations and it will be estimated at about 30 million Japanese Yen annual.

On the other hand, since the leakage of combustion air into flue gas side will be reduced by repairing the air preheaters, the combustion air to burners can be increased. At present, in summer season, the maximum power generation output is limited at 160MW due to the shortage of combustion air.

By implementing the major overhaul the output seems to be recovered to the rated output of 170MW, and its merit leads total 800 – 1,200 million Japanese Yen in term of construction cost as the reduction effect of investment cost. The estimation is shown in Appendices (Data 6-6).

(3) Overall Economic Evaluation

The economic effect, which will be produced by the improvement of the power generation output, is 800 – 1,200 million Japanese Yen in term of construction cost. Since the annual expense rate of power generation plant may be about 18%, this improved amount may be equivalent to about 200 million Japanese Yen in term of the annual expense.

In addition to the above merit, there will be the annual merit of 200 – 300 million Japanese Yen produced by the reduction of fuel resulted from the repair of air preheater, and the annual merit(the difference) of 30 million Japanese Yen produced by the reduction of excessive firing at the other power stations. Namely, as total, there will be 400 – 500 million Japanese Yen of the reduction of annual expense.

Accordingly, the investment cost required for the major overhaul will be collected during about 3 years. The improvement effect of efficiency resulted from the repair of air preheater will be reduced year by year, and the preheater may back to the present condition after about 10 years. But the overhaul will bring the considerable economic effect to Baniyas power station.

(4) Evaluation of Technology Transfer

As result of the technology transfer, overhaul can be implemented by Syrian at the other power stations as well as Baniyas power station. The stations can be operated so as not to produce troubles by complementing the weak points of equipment.

Due to that Baniyas power station and the other power stations generate steady and planned power, the investment for construction of new thermal power plant can be restrained, which will secure the power generation capacity in the total system.

(5) Evaluation of Environmental Improvement

The fuel reductions will contribute consequently the environmental improvement, which will be resulted from the improvements of efficiency and shutdown rate, the equipment to be well-suited by the implementation of the overhaul and the combustion air to be controlled in proper flow by the installation of the television monitoring flue gas.

## **4.2 Technical Cooperation and Cooperation with Other Donors**

### **4.2.1 Technical Cooperation**

(1) Technical Cooperation by JICA's Specialists

Baniyas power station has the rated capacity of 680MW with 4 units and has been operated as one of the leading power stations in Syria since 1983.

Although the power station has the rich experiences on the management of station and the operation and the maintenance for individual equipment, but the power station is inferior in comparison with Japanese power station on the preservation of the plant performance and the preventive maintenance by the periodical inspection.

By the request of PEEGT, JICA's specialists will be dispatched at the time of implementation of this project and will make the advise on the planning of the overhaul implementation to the all power stations of PEEGT, and will make the

grasp of actual situation of the major overhaul in Baniyas power station and the advise on the repair work to be implemented after the overhaul.

#### **4.2.2 Cooperation with Other Donors**

There is no cooperation with other donors in this project.

### **4.3 Issues to be Considered**

#### **4.3.1 Implementation of Overhaul**

The equipment and parts composing power station have their own lives, and it is especially required that the corroded or eroded parts shall be exchanged periodically. The power station can be operated economically for the long period of 20 – 30 years.

In Japan, the power station has been stopped periodically for the preventive maintenance, and the repair work has been made on the degraded part, and also the measure to prolong the life of the station by making the diagnosis on the degraded part at the aged station.

On the other hand, at Baniyas power station, the overhaul is described in the guide-line but has not been implemented. The proper maintenance and management for the power station shall be continuously made by implementing the overhaul after the completion of the major overhaul in this project, since the economic effect of the overhaul implementation will be extensive as stated in paragraph 4.1.2 “Economic Evaluation”.

#### **4.3.2 Securing of Overhaul Cost**

Since the demand and supply balance of electric power in Syria is being improved by installing more power stations, Baniyas station can be stopped and the overhaul can be implemented. On the other hand, as stated in 2.1.2 “Financial Situation”, the financial deficit has been continued since the initial operation of Baniyas station, and has been eliminated superficially due to that the allocation method of power station cost was altered in 1995.

At present, the maintenance cost is insufficient and the situation can not appropriate the sufficient overhaul cost. It is desired that PEEGT shall manage the budget so as to implement the proper maintenance and management in Baniyas station.

## **Appendices**

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2. Survey Schedule
3. List of Party concerned in the Recipient Country
4. Minutes of Discussion
  - 4-1 Minutes of Discussions
  - 4-2 Minutes of Discussions (Explanation of the Draft Report)
5. Cost Estimation Borne by the Recipient Country
6. Other Relevant Data
  - 6-1 Overhaul Inspection Works
  - 6-2 Overhaul Schedule
  - 6-3 Supervisor Schedule
  - 6-4 Parts List for Major Overhaul
  - 6-5 Economic Effects by Gas Air Heater
  - 6-6 Economical Merits reducing FOR

## 1. Member List of Survey Teams

### Member List of the Survey Teams

#### First Session

Title	Name and Position
1 Leader	: Taknobu Kuroda Grant Aid Division Economic Cooperation Bureau Ministry of Foreign Affairs
2 Chief Consultant System Operation Specialist	: Hiroshi Isaka EPDC International Ltd.
3 Boiler Specialist	: Tadakatsu Miyatake EPDC International Ltd.
4 Turbine Specialist	: Yoshio Noguchi EPDC International Ltd.
5 Electricity & Instrument Specialist	: Kiyoo Endou EPDC
6 Procurement & Cost Estimator	: Kazuaki Fuse Tech & soft service Co.

#### Second Session

1 Leader	: Hayao Adachi Power Development Specialist Japan International Cooperation Agency
2 Coordinator	: Takeharu Kojima Grant Aid project Study department Japan International Cooperation Agency
3 Chief Consultant System Operation	: Hiroshi Isaka EPDC International Ltd.
4 Turbine Specialist	: Yoshio Noguchi EPDC International Ltd.



### Survey Schedule (OCTOBER 1998)

Mr.KURODA           OCTOBER 31~NOVEMBER 8  
 Mr.ISAKA            OCTOBER 23~NOVEMBER 20  
 Mr.MIYATAKE       OCTOBER 23~NOVEMBER 20  
 Mr.NOGUCHI         OCTOBER 23~NOVEMBER 20  
 Mr.ENDOU           OCTOBER 23~NOVEMBER 20  
 Mr.FUSE             OCTOBER 23~NOVEMBER 20

NO	Date		Description
1	OCT. 23	FRI	LV Tokyo 11:10(NH201)→Heathrow
2	OCT. 24	SAT	Heathrow (BA6705)→AV Damascus 22:20
3	OCT. 25	SUN	AM: Courtesy call of JICA office, Ministry of Electric , PM: PEEGT,SPC
4	OCT. 26	MON	Courtesy call of Japan Embassy, Explanation of Inception report to JICA office, Leave Damascus to Banias
5	OCT. 27	TUE	Explanation of Inception report and questionnaire
6	OCT. 28	WED	Explanation of the boiler ,turbine Investigation items, Site survey for boiler part
7	OCT. 29	THU	Explanation of the boiler ,turbine parts list, Investigation of the power station
8	OCT. 30	FRI	Inner meeting
9	OCT. 31	SAT	Site survey for store house, Mr. KURODA LV Tokyoo
10	NOV.01	SUN	Site survey for the power station, Mr. KURODA AV Damascus
11	NOV.02	MON	Site survey for the power station, Mr. KURODA courtesy call for Japan embassy, JICA office MOE, PEEGT(Join two consultants)
12	NOV.03	TUE	Site survey for the power station, Mr. KURODA make M/M
13	NOV.04	WED	Site survey for the power station, Mr. KURODA make M/M
14	NOV.05	THU	Site survey for the power station, Mr. KURODA signed M/M
15	NOV.06	FRI	Inner meeting,
16	NOV.07	SAT	Site survey for the power station, Mr. KURODA LV Damascus
17	NOV.08	SUN	Site survey for the power station, Mr. KURODA AV Tokyo
18	NOV.09	MON	Discussion of the overhaul schedule
19	NOV.10	TUE	Site survey for the power station,
20	NOV.11	WED	Site survey for the power station,
21	NOV.12	THU	Site survey for the power station,
22	NOV.13	FRI	Inner meeting,
23	NOV.14	SAT	Site survey for the power station,
24	NOV.15	SUN	Site survey for the power station,
25	NOV.16	MON	Move to Damascus Discussion of the draft minute of meeting
26	NOV.17	TUE	Discussion and finalization of the draft M/D AM : Visit Ministry of Environment, signing of minute ,
27	NOV.18	WED	PM : Report to Japan Embassy and JICA office
28	NOV.19	THU	LV Damascus 08:10(RB405)→ORLY
29	NOV.20	FRI	CHARLES DE GAULLE(NH206)→ AV Tokyo 14:05

## Survey Schedule (February 1999)

Mr.ADACHI                      February 21-March 3  
 Mr.KOJIMA                     February 21-March 3  
 Mr.ISAKA                      February 21-March 3  
 Mr.NOGUCHI                 February 21-March 3

NO	Date		Description
1	21-Feb	SUN	LV Tokyo(NH209)→Frankfurt
2	22-Feb	MON	Frankfurt (LH3620)→AV Damascus Courtesy call of Ministry of Japan Embassy,
3	23-Feb	TUE	JICA office, Ministry of Electric , PEEGT
4	24-Feb	WED	Explanation of draft basic design
5	25-Feb	THU	Explanation of draft basic design
6	26-Feb	FRI	Inner meeting
7	27-Feb	SAT	Discussion of the draft minute of meeting
8	28-Feb	SUN	Discussion and finalization of the draft M/D AM : signing of minute ,PM : report to Japan
9	1-Mar	MON	Embassy and JICA office
10	2-Mar	TUE	LV Damascus(LH3621)→Frankfurt
11	3-Mar	WED	Frankfurt(NH210)→ AV Tokyo

### 3. List of Party concerned in the Recipient Country

#### List of party concerned in the Recipient Country

<b>Organazation</b>	<b>Name</b>	<b>Title</b>
<b>Japan Embassy</b>	Kagami	Embassy
	Katsuto Saka	First secretary
	Jyouji Koike	Second secretary
<b>JICA Office</b>	Hayahiko Ebina	Representative
	Sinji Gotou	Assistant Resident Representatives
	Hiroyuki Mori	Assistant Resident Representatives
<b>SPC</b>	Mr. Bassam Al Sibai	Director of Scientific & Technical Cooperation
<b>Ministry of Electricity</b>	Eng. Sufian Al - alao	Deputy Minister
<b>Ministry of Environment</b>	Dr.T. Abousamra	Center For Industrial Consultantcy & Control
	Prof. Dr.D.S.C. Mahmud Salih Soliman	Scientific & Environmental Reseach Center
	Dr.Eng. Ali Subeh	Scientific & Environmental Reseach Center
<b>PEEGT</b>	Eng. Zaki Odeh	General Director
	Eng.Mohamad Abou Jaish	D.General Director
	Eng. Akram Kharifeh	Power Generation Director
	K.Massoud	Power Generation Deputy Director
	Eng. Nagiwan Alkhoury	Power Generation Dept.
	Adnan Zarrei	Director of Account
Michaeel Kazma	Planing Department	

**BANIAS Power Station**

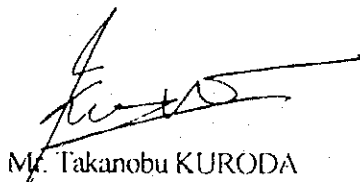
Eng. Abdul Razzak Yussef	General Director
Eng. Mohamad Kamal Ghanem	Maintenance Director
Eng. Ali Hawshi	Operation Director
Eng. Daoud Jaafar	Technical Department
D. Eng. Yaroub Dayoub	Instrumentation Department Chief
Eng. Ahmad Khasan Ali	Electrical Department Chief
Eng. Mohamad Alcheikh	Turbine Control System & Supervisory
Eng. Aiman Youssef	Mech. Department
Eng. Shadi Germano	Boiler
Eng. Atiah.A	Turbine
Eng. Nassim Wassuf	Instrumentation (BMC)
Eng. Baseem Tajour	Instrumentation (ABC)

**MINUTES OF DISCUSSIONS  
ON  
THE BASIC DESIGN STUDY  
OF  
THE PROJECT  
FOR  
REHABILITATION  
OF  
BANIAS POWER STATION  
(Units No.3 and No.4)**

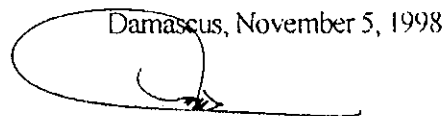
In response to the request of the Government of Syrian Arab Republic (hereinafter referred to as "Syria"), the Government of Japan decided to conduct a Basic Design Study of the Project for Rehabilitation of Baniyas Power Station (units No.3 and No.4) (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

The JICA sent to Syria a study team (herein after referred to as "the Team"), which is headed by Mr. Takanobu KURODA, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs, and is scheduled to stay in the country from October 24 to November 19, 1998. The Team held discussions with the officials concerned of Syria and conducted a field survey at the study area.

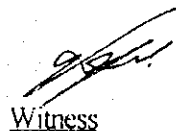
In the course of the discussions and field survey, both parties have confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare for the Basic Design Study Report.



Mr. Takanobu KURODA  
Leader  
Basic Design Study Team

Damascus, November 5, 1998  


Mr. Zaki ODEH  
General Director  
Public Establishment of Electricity  
for Generation & Transmission  
(PEEGT)



Witness  
Mr. Bassam Al-SIBAI

Director  
Technical & Scientific Cooperation  
State Planning Commission (SPC)

## ATTACHMENT

### 1. Objective of the Project

The objective of the Project is to rehabilitate Baniyas Power Station (units No.3 and No.4) (hereinafter referred to as "the Power Station"), and to contribute to the sustainability and stability of electricity supply in Syria, by enabling the application of the experience obtained through the major overhaul at Baniyas Power Station to other thermal power stations.

### 2. Project Site

The site for the Project is in the premises of the existing Baniyas Power Station in Baniyas city, which is located in the western part of Syria.

### 3. Responsible and Executing Organizations

- (1) The responsible organization for the Project is the Ministry of Electricity, which is to act as a coordinating authority for the Japan's Grant Aid Cooperation to consult with each other in respect of any general matter that may arise from or in connection with the Project.
- (2) The executing organization for the Project is the Public Establishment of Electricity for Generation & Transmission (hereinafter referred to as "PEEGT"), who is to operate and manage the Power Station. The director of the Power Station is responsible for implementing the Project through making technical and administrative arrangements with JICA and other Syrian organizations and/or authorities as required.

### 4. Japan's Grant Aid System

- (1) The Government of Syria has understood the system of Japan's Grant Aid, explained by the Team which is outlined in ANNEX I.
- (2) On condition that the Japan's Grant Aid is extended to the Project, the Government of Syria will take necessary measures as described in ANNEX II for smooth implementation of the Project.

### 5. Items Requested by the Government of Syrian Arab Republic

After discussions with the Team, the following items were finally requested by the Syrian side. The details are described in the application form of Grant Aid for the Project. However,

the final components of the Project will be decided by the Japanese side after further studies.

(1) Supply of parts for following equipment of units No.3 and No.4.

Parts for boilers and their auxiliaries

Parts for turbines and their auxiliaries

Parts for generators and their auxiliaries

Parts for common auxiliaries

Exhaust gas analyzers (NOx, SOx etc.)

Industrial Television for monitoring exhaust gas

(2) Dispatch of supervisors for major overhaul of boilers, steam turbines, generators, and their auxiliaries of units No.3 and No.4.

## 6. Schedule of the Study

(1) The Team will remain in Syrian Arab Republic and proceed with the further studies until November 19, 1998.

(2) Based on the Minutes of the Discussions and further studies, JICA will prepare for the Draft Basic Design Report and dispatch another mission to explain the results of the Basic Design Study in due course, expected around the beginning of February, 1999.

(3) In case that the contents of the Draft Basic Design Report are accepted in principle by the Government of Syria, JICA will complete the Final Report for submission to the Government of Syria. It is expected that such a submission would be by the end of March, 1999.

## 7. Other Relevant Issues

7.1 The PEEGT shall prepare for the budget and personnel required for the proper execution of the Project as scheduled.

The PEEGT provided the Team with information about the recent balance sheet, profit and loss statements, tariff tables, etc., to evaluate the financial situation of the energy sector.

7.2 The scope of the major overhaul

It is confirmed by the both parties that the major overhaul for boilers, turbines and generators of the units No.3 and No.4 should be executed under the joint work by the Syrian side and the Japanese side.

Some principles of the demarcation of work between the Syrian side and Japanese side are described as mentioned below:

The Japanese side will provide;

- necessary parts and materials considered to be required for the execution of the major overhaul in accordance with the results of the study.
- supervisors required for the major overhaul.

The Syrian side will provide;

- all the personnel including the workers available at the Baniyas Power Station for the major overhaul.
- parts and materials which are not supplied by the Japanese side, and are indispensable for the execution of the major overhaul.

### 7.3 The progress of privatization

The Syrian side confirmed that there would be no expectation of privatizing the Baniyas Power Station.

The Japanese side insisted that the Syrian Government must take any necessary measures in maintaining properly its ownership of the equipment and materials procured under Japan's Grant Aid even after the Power Station becomes partly privatized.

The Syrian side accepted the proposed idea.

### 7.4 Questionnaire and Answers

In reply to the questionnaire of JICA, the Syrian side will submit the data and information while the Team is in Syria. These data and information shall be written in English.

### 7.5 The Grant Aid Assistance

The Syrian side explained that the severe shortage of electricity and lack of technical experience in the past decades did not allow PEEGT to suspend operation of the Power Station for major overhaul.

The Team found urgent necessity for major overhaul to the Power Station.

Noting that the Syrian side had not carried out all the maintenance necessary as prescribed in the Article 8 (b) of Exchange of Notes for Japanese Loan for the implementation of the Baniyas Power Station Extension Project signed on October 18, 1986; "The Government of the Syrian Arab Republic will take necessary measures to



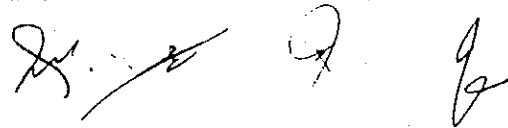
ensure that the facilities constructed under the Loan be maintained and used properly and effectively for the purposes prescribed in this understanding", the Team explained that after implementation of the Project, the Syrian side should carry out all the maintenance works for proper operation of the Power Station and other power stations in Syria by its own account and responsibility.

The Syrian side understood that Grant Aid to the Project is considered as exceptional, in the light of urgent necessity for overhaul of power stations and for increase of experience of the Syrian staff, and that experience obtained through the execution of the Project will contribute to proper operation and maintenance of other thermal power stations.

The Syrian side confirmed that it will take necessary measures to do all the maintenance work including major overhaul for all power stations in Syria in the future.

#### 7.6 Shut down Schedule for Major Overhaul

The Syrian side prepares for necessary permission by January 1999, from the authorities concerned in Syria for major overhaul of the Power Station (units No. 3 and No. 4), in accordance with the schedule proposed by the Team.



## ANNEX I

### Japan's Grant Aid System

#### 1. Grant Aid procedure

(1) Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Government of Japan and the recipient country)

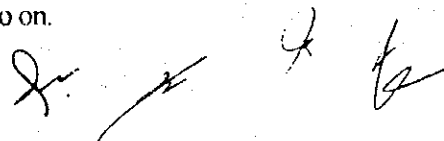
(2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondary, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Government of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.



## 2. Basic Design Study

(1) The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are as follows:

- a) Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- b) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
- c) Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- d) Preparation of a basic design of the Project
- e) Estimation of costs of the Project

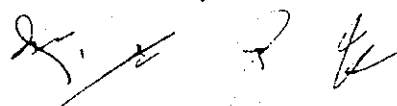
The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid Project. The Basic Design of the Project is confirmed considering the guideline of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

### (2) Selection of consultants

For smooth implementation of the Study, JICA uses (a) registered consultant(s). JICA select (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference by JICA.

The consulting firm(s) used for the Study is(are) recommended by JICA to the



recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency and also to avoid any undue delay in implementation should the selection process be repeated.

### 3. Japan's Grant Aid Scheme

#### (1) What is Grant Aid ?

The Grant Aid program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulation of Japan. Grant Aid is not supplied through the donation of materials as such.

#### (2) Exchange of Notes(E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions, and amount of the Grant Aid , etc., are confirmed.

#### (3) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes , concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed.

However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

#### (4) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However the prime contractors, namely, consulting constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means

persons of Japanese nationality or Japanese corporation controlled by persons of Japanese nationality).

(5) Necessity of "Verification"

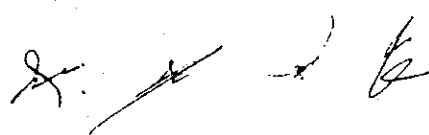
The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(6) Undertakings required of the Government of the Recipient Country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

- a) To ensure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.
- b) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.
- c) To secure buildings prior to the procurement in case the installation of the equipment.
- d) To ensure prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
- e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
- f) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

g) "Proper Use"



The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

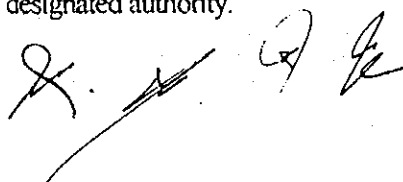
h) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

i) Banking Arrangements (B/A)

The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the designated authority under the Verified Contracts.

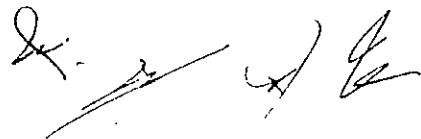
The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

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## ANNEX II

### Necessary measures to be taken by the Government of Syria in case Japan's Grant Aid is executed

1. To undertake incidental outdoor works such as gardening, fencing, gates and exterior lighting in and around the sites.
2. To bear commissions to the Japanese bank for the banking services based upon Banking Arrangement.
3. To exempt taxes and to take necessary measures for customs clearance of the materials and equipment brought for the project at the port of disembarkation.
4. To exempt Japanese nationals from customs duties, internal taxes and other levies which may be imposed in Syria with respect to the supply of products and the services under the verified contractors.
5. To accord Japanese nationals whose services may be required in connection with the supply of products and the services under the verified contracts, such facilities as may be necessary for their entry into Syria and stay therein for the performance of their work.
6. To use and maintain properly and effectively all the facilities rehabilitated and equipment purchased under the Grant.
7. To bear all the expenses other than those to be borne by the Grant, necessary for rehabilitation of the facilities as well as for the transportation and the installation of the equipment.

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4-2 Minutes of Discussions (Explanation of the Draft Report)

MINUTES OF DISCUSSIONS  
ON THE BASIC DESIGN STUDY  
OF THE PROJECT  
FOR REHABILITATION  
OF BANIAS POWER STATION  
(Units No.3 and No.4)  
(Explanation of the Draft Report)

In October 1998, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team for the Project for Rehabilitation of Baniyas Power Station (hereinafter referred to as "the Project") to Syria, and, through discussions, field surveys, and technical examination of the results in Japan, has prepared the Draft Report of the study.

In order to explain and consult with the Syrian side on the components of the Draft Report, JICA sent to Syria the Draft Report Explanation Team, which is headed by Mr. Hayao ADACHI, Power Development Specialist, JICA. The Team has stayed in the country from February 22 to March 2, 1999.

As a result of discussions, both parties have confirmed the main items described on the attached sheets.

Damascus, March 1, 1998



Mr. ADACHI Hayao  
Leader,

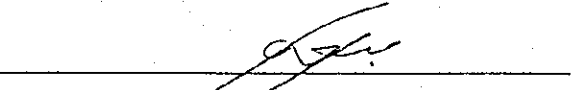
Basic Design Study Team,  
JICA



Mr. Zaki ODEH  
General Director,

Public Establishment of  
Electricity for  
Generation and  
Transmission,  
Ministry of Energy

Witness



Mr. Bassam AL-SIBAI  
Director,  
Technical and Scientific  
Cooperation,  
State Planning Commission



## ATTACHMENT

### 1. Components of the Draft Report

The Syrian side has agreed and accepted in principle the components of the Draft Report proposed by the Team. Both parties have finally agreed on the items covered by the Project as listed in Annex I.

### 2. Japan's Grant Aid System

(1) The Syrian side has understood the system of Japan's Grant Aid explained by the Team, as described in Annex II.

(2) The Syrian side will take necessary measures as described in Annex III herewith, to facilitate the smooth implementation of the Project, on condition that Grant Aid Assistance by the Government of Japan is extended to the Project.

### 3. Further Schedule

The study team will formulate the Final Report, and send it to the Syrian side by the end of May , 1999.

### 4. Other Relevant Issues

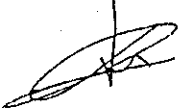
(1) Both parties have confirmed that the Project of the major overhaul for boilers, turbines and generators of the units Nos.3 and 4, would be implemented under the joint works between the Syrian and Japanese sides, under the scheme of Japan's Grant Aid.

(2) Referring to the item 6 in ANNEX III of the Minutes of Discussions herein, the Syrian side has agreed that the PEEGT should provide the budget and personnel required for the proper execution of the Project as described in the Draft Basic Design Report (hereinafter referred to as "the Report").

- (3) Both parties have agreed the principle of the demarcation of the works between Syrian and Japanese sides as mentioned below: Japanese side would provide; (a) necessary parts and materials required for the execution of the major overhaul in accordance with the Report and its attachments and; (b) supervisors as designated in the Report, and: Syrian side would provide ; (a) all the personnel, including workers, available at the Baniyas Power Station and ; (b) parts and materials which are indispensable and not covered by Japan's Grant Aid.
- (4) Both parties have envisaged that an optional procurement method might be required with the supplier of the existing equipment in the Baniyas Power Station to secure the consistency of system design, installation accuracy and operation reliability, before and after the major overhaul. In this regard, both parties have recognized that actual results of prices in similar projects should be referred to, to reflect reasonable market prices to the Project.
- (5) The Syrian side explained that the privatization of Baniyas Power Station is presently not in sight. The Team has requested that the Syrian side should take necessary measures in maintaining properly its ownership of the equipment and materials to be procured under Japan's Grant Aid. The Syrian side has confirmed the Team's request.
- (6) The Team has requested that the shutdown for the major overhauls of the Power Station, units Nos. 3 and 4, should be implemented as designated in the Report. The Syrian side has pledged to authorize the shutdown schedule without any delay in accordance with the schedule designated in the Report and with the procedures of the Grant Aid Project.
- (7) The Syrian side has requested to JICA to dispatch a Japanese expert to establish and to control the operation and maintenance program of the Power Station after the major overhaul. The Team has suggested that the request should be given to the Government

of Japan in due course.

(8) The Team has suggested that PEEGT should take necessary arrangements for the ordinal maintenance and periodical overhauls as suggested in the Report to achieve the goals and effects mentioned in the Report. The Syrian side has understood the suggestion and pledged to execute the proper maintenance and overhauls as suggested.

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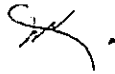
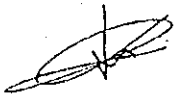
ANNEX I

A. Parts and Materials to be provided by Japan's Grant Aid

1. For Boiler & it's Auxiliaries for Major Overhaul
2. For Turbine & it's Auxiliaries for Major Overhaul
3. For Electric & it's Auxiliaries for Major Overhaul
4. For Instruments & it's Auxiliaries for Major Overhaul
5. Observation Television for Exhaust Gas

B. Technical supervisors to be dispatched by Japan's Grant Aid

1. For No.3 unit	22 personnel, 616 man·day
2. For No.4 unit	9 personnel, 381 man·day
Total	31 personnel, 997 man·day



## ANNEX II

### Japan's Grant Aid System

#### 1. Grant Aid procedure

(1) Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Government of Japan and the recipient country)

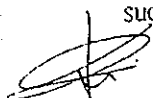
(2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Government of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.



## 2. Basic Design Study

(1) The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are as follows:

- a) Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- b) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
- c) Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- d) Preparation of a basic design of the Project
- e) Estimation of costs of the Project

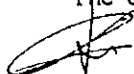
The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid Project. The Basic Design of the Project is confirmed considering the guideline of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

## (2) Selection of consultants

For smooth implementation of the Study, JICA uses (a) registered consultant(s). JICA select (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference by JICA.

The consulting firm(s) used for the Study is(are) recommended by JICA to the



recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

### 3. Japan's Grant Aid Scheme

#### (1) What is Grant Aid ?

The Grant Aid program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulation of Japan. Grant Aid is not supplied through the donation of materials as such.

#### (2) Exchange of Notes(E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions, and amount of the Grant Aid , etc., are confirmed.

#### (3) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes , concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed.

However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

#### (4) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However the prime contractors, namely, consulting constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporation controlled by persons of

Japanese nationality).

(5) Necessity of "Verification"

The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.


(6) Undertakings required of the Government of the Recipient Country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

- a) To ensure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.
- b) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.
- c) To secure buildings prior to the procurement in case the installation of the equipment.
- d) To ensure prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
- e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
- f) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

(7) "Proper Use"

The recipient country is required to maintain and use the facilities constructed





and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

(8) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

(9) Banking Arrangements (B/A)

The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the designated authority under the Verified Contracts.


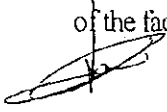
The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.



### ANNEX III

#### Necessary measures to be taken by the Government of Syria in case Japan's Grant Aid is executed

1. To undertake incidental outdoor works such as gardening, fencing, gates and exterior lighting in and around the sites.
2. To bear commissions to the Japanese bank for the banking services based upon Banking Arrangement.
3. To exempt taxes and to take necessary measures for customs clearance of the materials and equipment brought for the project at the port of disembarkation.
4. To exempt Japanese nationals from customs duties, internal taxes and other levies which may be imposed in Syria with respect to the supply of products and the services under the verified contractors.
5. To accord Japanese nationals whose services may be required in connection with the supply of products and the services under the verified contracts, such facilities as may be necessary for their entry into Syria and stay therein for the performance of their work.
6. To use and maintain properly and effectively all the facilities rehabilitated and equipment purchased under the Grant.
7. To bear all the expenses other than those to be borne by the Grant, necessary for rehabilitation of the facilities as well as for the transportation and the installation of the equipment.



## 5. Cost Estimation Borne by the Recipient Country

### Cost Estimation Borne by the Recipient Country

#### (1) Rough Project Cost

- (a) Man-power cost 2.72 million Syrian Pound (SP)  
(Approximately 7.4 million Japanese Yen (¥))

Breakdown :

Overall responsible person 1 person x 6 months  
70,000 SP  
(Approx. 200,000 ¥)

Engineers 24 persons x 6 months  
990,000 SP  
(Approx. 2,700,000 ¥)

Other staffs 60 persons x 6 months  
1,660,000 SP  
(Approx. 4,500,000 ¥)

- (b) Materials cost 95.33 million Syrian Pound (SP)  
(Approximately 259 million Japanese Yen (¥))

Breakdown :

Stored spare parts (about 6,000 parts)  
94,960,000 SP  
(Approx. 258,000,000 ¥)

Consumable materials  
370,000 SP  
(Approx. 1,000,000 ¥)

#### (2) Estimation Conditions

- (a) Estimation Time : March of 1999
- (b) Exchange rates of currencies : 1 US\$ = 125 Japanese Yen  
1 Syrian Pond = 2.717 Japanese Yen

- (c) Work period:

The periods for detailed design, procurement of equipment and materials and construction work are same as the project implementation schedule.

- (d) Other:

This project shall be implemented according to the institution of Japanese government's grant project