



### FINAL NARRATIVE REPORT IRFFI/UNDG IRAQ TRUST FUND (UNDG ITF)

**Participating UN Organization(s)** 

United Nations Development Programme

Sector(s)/Area(s)/Theme(s)

Old Cluster: E

Infrastructure Rehabilitation

# New Sector: ERDSOT

## **Programme/Project Title**

**Project No. and Project Title:** E4-08 Rehabilitation of Units Nos. 1,4, and 6 at Taji Gas Power Station (TGPS) Programme/Project Number ATLAS Project Number: UNDG 66981 UNDP Iraq 38906 ATLAS Award Number: UNDG 54981 UNDP Iraq 35999

Programme/Pr	oject Budget	Programme/Project Location			
UNDG ITF:	USD 25,891,860	Region (s):			
Govt. Contribution:	USD	Governorate(s): Baghdad Governorat			
Agency Core:					
Other:		District(s)	Taji		
TOTAL:	USD 25,891,860				

Final Programme/ Project Evaluation	<b>Programme/Project Timeline/Duration</b>
<b>Evaluation Done</b> Yes X No <b>Evaluation Report Attached</b> Yes No X	<ul> <li>Overall Duration <ul> <li>16 August 2004-30 November 2008</li> </ul> </li> <li>Original Duration <ul> <li>Original programme/project duration. 16 August 2004 - 16 June 2006</li> <li>Timeline extended till Nov. 2008.</li> <li>Project operationally closed August 2008.</li> </ul> </li> <li>Programme/ Project Extensions <ul> <li>16 March 2008 approved until 30 November 2008</li> </ul> </li> </ul>

## FINAL NARRATIVE REPORT

#### I. PURPOSE

a. Brief introduction project

The project has contributed to the recovery of electricity generation output that is urgently needed for the electricity sector in Iraq. An additional 50 MW is to become available with the completion of the project through the use of the three rehabilitated units. With the current two units (Unit 1 and 6) of the TGPS in operation, an additional 36-40 MW capacity has now become available. Supply of spare parts has been provided ensuring the sustainability of the project, through the next 2-3 years of operation and maintenance.

- **b. Objectives**: There were two main objectives:
  - 1. The generating capacity, availability and reliability of Taji Gas Power Station (Units Numbers. 1, 4 & 6) increased.
  - 2. The plant management and staff able to operate and maintain the units in accordance with international standards.

**Outputs:** The planned outputs were to ensure that:

- 1. Gas Units Number 1, 4 & 6 at Taji GPS were rehabilitated with increased operational reliability.
- 2. Selected essential spare parts were supplied to Taji GPS, which will be available in stock for emergency repairs and routine maintenance, in order to improve the reliability of generation.
- 3. Training of a substantial number of plant engineers, who will be able to operate and maintain the power plant for higher levels of performance and in turn, train other junior technical personnel (engineers and technicians).
- **c.** Relevance of the project is in accordance to the following benchmarks and associated outcomes which are stated in the:
  - UN Assistance Strategy for Iraq: UN Cluster 4 Infrastructure and Results Matrix Housing:

The relevant excerpt from the 2006-2007 UN Assistance strategy for Iraq is as follows:

- UNCT Goal 2: Assist in the provision of basic services and promotion of community development and participation:
- Cluster Outcome 2.6: Rehabilitation and governance of infrastructure at local level.
- E3: Increased availability of electricity, particularly to rural and low income areas.
  - UN Millennium Development Goals (MDG): MDG 7 Target D, by 2020, to have achieved significant improvement in the lives of at least 100 million slum dwellers.
  - Iraq National Development Strategy: The rehabilitation of Taji GPS is based on Pillar 2 10 that prioritizes increasing electricity generation and distribution to meet current and projected needs.

- The International Compact with Iraq (ICI): The rehabilitation of Units to generate electricity at Taji Gas Power Plant links into several components of the ICI. Section 4 Realising the Vision-the Socio-Economic Context in point 2; Revitalize the private sector particularly through the creation of an enabling environment; and point 3; improve the quality of life starting with the provision of basic services.
- d. Primary implementing partners and stakeholders including key beneficiaries.

The implementing partners are: Ministry of Electricity of Iraq (MoE); Hitachi Limited Japan and Taji Gas Power Station (TGPS). Key beneficiaries include the entire population of Iraq as the increased production capacity feeds into the national electricity grid

### II. ASSESSMENT OF PROGRAMME/ PROJECT RESULTS

a. Report on the key outputs achieved and explain any variance in achieved versus planned results. Who have been the primary beneficiaries and how they were engaged in the programme/ project implementation?

This project is operationally closed with regular post commissioning monitoring ongoing. Key outputs achieved include:

- ✓ All planned / contracted rehabilitation works were completed on all the units. Additionally, Unit Number 1 and Unit Number 6 conversion works from gas to liquid fuel use were completed. The conversion was an additional work task and has provided a significant increase of MW of electricity production supplied to the national electricity grid.
- ✓ Units 1 and 6 were energized to produce approx. 38 MW. Unit Number 4 is completed and can be commissioned in future with the availability of gas. It is 100% complete.
- $\checkmark$  A conditional certificate of final completion has been issued for Unit Number 4.
- ✓ A certificate of final completion was issued for Units Number 1 and 6. Thus their rehabilitation is 100% complete.
- ✓ Approximately 175 tons of spare parts and equipment were procured and arrived at site or store. The activities are 100% complete. All drawings, manuals and test certificates have been issued, thus 100% completion is registered.
- ✓ Twelve (12) Taji site engineers have received extensive training at the manufacturer's facility in Japan in turn, becoming potential trainers. One (1) Iraqi technical adviser was trained in Japan, thus increasing national capacity for rehabilitation and commissioning.

✓ Forty (40) un-skilled/semi-skilled workers were provided with "on the job" training. Forty (40) to sixty (60) persons from the local communities in Baghdad were employed during rehabilitation and commissioning thus benefitting directly up to 60 households or some 300 family members of the households. The activities are 100 % completed.

The Ministry of Electricity and in particular the TGPS are the primary beneficiaries of this project. UNDP international engineers and specialists have worked closely with the TGPS engineers, representatives of the Ministry of Electricity finalizing the scope of work for the various systems, overall plant requirements versus priorities and developed specifications and related contracts. Local expertise was utilized to the extent possible with the aim of ensuring technology transfer and capacity building, beneficial when carrying out similar projects by Iraqi engineers independently.

b. An overview of how achieved outputs have contributed to the achievement of the outcomes and variance in actual versus planned contributions to the outcomes.

On the achievement of specific outcomes for Units 1, 4 & 6:

- $\checkmark$  All the contracted rehabilitation works were completed on all three units.
- Subsequently, all the pre-commissioning tests which were possible without availability of gas were completed except energizing Unit 4 which was not possible due to non availability of gas fuel. After discussion with MoE and Hitachi, a provisional substantial completion certificate was issued and signed by both parties (UNDP and Hitachi) deducting the work portion which related to energizing the unit. The following tests could not be carried out:
  - 1. AVR dynamic characteristic and synchronization test.
  - 2. Load Operation Test (as per contracted scope of work.)
  - 3. Reliability Test (as per contracted scope of work.)
- ✓ Since the repairs to the pipeline supplying gas to the power plant could not be carried out due to security reasons, Hitachi / UNDP assisted in the conversion of the Unit Number 1 and 6 to burn liquid fuel instead of gas. The conversion was carried out as additional work at the request of MoE, and the units (1 and 6) were commissioned. The two units are now capable of operating both on liquid and gas fuels.
- Although all rehabilitation works have been completed for Unit No.4, it was not converted to gas as MoE did not request this due to the amount of work involved and the fact that liquid fuel forwarding pumps and equipment were not available. The unit has however been tested to function on gas and the unit is now operative.
- ✓ After carrying out the conversion and performing all required precommissioning tests, Unit 1 and 6 were energized. The units have been tested for gas firing as well. At present the units are capable of operating on both fuels i.e. gas and liquid. The two units are jointly producing 38 MW of electricity which is satisfactory.

- ✓ All the financial obligations have been released, upon the achievement of milestones as per contractual obligations, making possible operational closure.
- ✓ After completion of the defect liability period, a final completion certificate for the project has been issued and financial obligation i.e. the 5% retention was released. Additionally, the release of performance security has been completed.
- c. Contribution of the project/ to the ICI, NDS, MDGs and Iraq UN Assistance Strategy.

The rehabilitation of TGPS reflects a project addressing the MoE expressed need to assist in ensuring efficient operation, management and maintenance of national electricity production and supply to the grid network. The overall outcome resulting from rehabilitated generation capacity and subsequent increased availability of electricity has contributed to the socio-economic recovery of the private sector and better provision of basic essential humanitarian public services in Iraq.

With regard to the International Compact with Iraq (ICI), the rehabilitation of electricity power generation units at TGPS links into several components of the ICI:

Section 4 realising the vision-the socio-economic context in point 2; Revitalize the private sector, in particularly through the creation of an enabling environment; and point 3; improve the quality of life starting with the provision of basic services. This is further elaborated in the section 4.5 Energy (Oil, Gas and Electricity) page 20-21. Under 4.5 Energy Goal it is stated: *"The Government will develop an energy sector that meets Iraq's needs and maximizes the benefits of hydrocarbons for all Iraqis and reinforces national unity and institutions."* Moreover, the Government of Iraq will develop an Energy Master Plan on the basis of an Energy Balance...for the electricity sector, the Government will formulate a plan for least cost development of the power system.... TGPS links directly into these actions which are activities within the larger scope of UNDP infrastructure projects.

In respect to the Iraqi National Development Strategy: The rehabilitation of Tajil GPS is based on:

➢ Pillar II 10 that prioritizes increasing the electricity generation and distribution to meet current and projected needs. Within the document it is acknowledged that there is an electricity shortage caused by numerous problems such as sabotage, looting, lack of security for workers, lack of training and obsolete technologies. It is also acknowledged that Baghdad accounts for over 40% of the Iraqi power load. One of the planned goals on page 38 refers to two actions specific to this project which are; 1) reconstruct power network, increase power generation and guarantee a continuous supply and 2) update power distribution.

With reference to the UN Millennium Development Goals (MDG):

MDG 7 Target D: by 2020, to have achieved significant improvement in the lives of at least 100 million slum dwellers.

The relevant excerpts from the 2006-2007 UN Assistance Strategy for Iraq are as follows:

• UNCT Goal 2: Assist in the provision of basic services and promotion of community development and participation:

- Cluster Outcome 2.6: Rehabilitation and governance of infrastructure at local level.
- E3: Increased availability of electricity, particularly to rural and low income areas.

Programme outputs:

-Generation capacity enhanced;

-Technical and management capacity enhanced;

-Power plant equipped with sufficient spare parts and operation;

-Maintenance manuals and drawings for ready reference in efficient operation and maintenance.

d. Explain the contribution of key partnerships including national, international, inter-UN agency, CSO or others towards achievement of programme/ project results.

Because of restrictions placed on the movement of UN staff in Iraq due to the volatile security situation and the resulting restricted freedom of movement for safety concerns, UNDP Iraq sought ways to overcome the difficulties arising on the ground to attain the required interventions at the power plant. Hence, a strong partnership was developed with Iraqi line ministries and the station management. This partnering relationship allowed UNDP to assess the local institutions' capacities for project implementation as well as supporting the counterparts in identifying their major priorities. New implementation modalities were adopted where the MoE engineers played a larger role in overseeing the installation of work which built capacity for future sustainability.

These de-facto partnerships with beneficiaries and contractors were flexible to permit efficient operational modalities in Iraq's difficult conflict environment.

Close collaboration with beneficiaries and the contractor allowed for a revised implementation strategy to take account of the concerns of all, adapting to the security situation, bottlenecks on world markets and the needs of the Iraqi people.

During the initial start up meeting, a project organization chart was agreed on between Hitachi, UNDP and MoE with clearly defined responsibilities. This proved to be an efficient management tool towards achieving the project goals:



View of the communication structure leading to an effective and efficient partnership on the ground for TGPS project implementation.

Key partnerships included MoE and Hitachi Ltd. Inter-agency collaboration was very limited due to the specialized nature of the works. UNDP was the main and only implementing agency.

e. Contribution of the project on cross-cutting issues:

The rehabilitation of TGPS was to respond to the immediate humanitarian needs of the waraffected Iraqi people by ensuring the supply of reliable and safe electricity to permit operation of essential basic services such as water supply, hospitals, schools, sewage treatment plants and other community services. Thus, the Iraqi population at large, using essential basic services benefitted as a result of increased availability of electricity. Since the station is connected to the national grid, as such, the entire population of Iraq will have benefited from the additional megawatts generated. If TGPS had not been connected to the national grid, then some 150,000 inhabitants residing in Baghdad and the Central Region of Iraq would have benefited.

The project is of a gender neutral nature, having benefitted all Iraqis regardless of income or gender through the improvement of infrastructure serving the entire country. No initial Environmental Impact Assessments were conducted, as the scope of the project was to rehabilitate existing equipment at the original site with no major changes to the existing facilities.

Initially, the poor security situation resulted in all activities i.e. project negotiation, preparation of tender documents and procurement taking place outside Iraq. At that stage, the impact of the worsening security situation was minimal. However, in view of the daily deterioration in security, close monitoring of the situation and adjustments in implementation modalities were essential to minimize the impact on programme delivery.

After placing the contract, at the stage of delivery of material to the work site, difficulties were encountered. Due to the volatile security situation, the following activities were delayed:

- Pre-contract assessments and negotiations
- Transport of material within Iraq to the work location
- Establishment of storage facilities
- Security of stores
- Obtaining waivers from customs a time consuming task due to the security situation, the irregular attendance of customs staff in the office adversely affected the pace of work there
- Security concerns during implementation were experienced.

This project has been helpful in providing jobs to skilled and unskilled workers throughout the implementation stages. Depending upon the pace and quantity of works at different stages forty (40)- fifty (50) male workers both skilled, and semi skilled were employed, thus benefitting approximately 40-50 Iraqi households - of up to 300 individuals directly through the revenue generated.

Project implementation indirectly:

- Generated commercial activity and employment opportunities for national contractors;
- Created and sustained employment opportunities within the MoE;
- Enhanced the employment terms, conditions and future opportunities through the capacity building of relevant MoE staff;

• The availability of increased electricity in Baghdad and the central region will provide an incentive for economic development and serves as a pre-requisite for private sector development.

f. Assessment of the programme/ project based on performance indicators as per approved project document

Please see page 11

### **III. EVALUATION & LESSONS LEARNED**

a. Final project evaluation and key findings

The report by the independent Norwegian Consultant Scanteam A/S covering 27 UNDP Recovery and Crisis Prevention Unit projects was produced on 15 April 2009. The rehabilitation of Taji power station was one of the projects to be assessed. The report assessed the outcome of the project and described the project as "Partly successful but problematical". It has been queried by UNDP RCP as to what exact criteria were used to reach these conclusions and ranking as "partly successful", since the project manager was not consulted by the Scanteam A/S. RCP also felt that consideration had not been given to the complexity of activities undertaken within this large rehabilitation project as well as to the externalities experienced due to the difficult context with a fluctuating security situation affecting the outputs of the project components. This could not be compared to other relatively simpler projects not requiring the same level of work and procurement inputs in Iraq.

b. Key constraints including delays project implementation:

Delays amounting to a total of 19 months were encountered - some similar in scope to those experienced with the Mosul Power Plant Project. Others were additional, caused by several externalities most of which were beyond the scope of UNDP. For example:

- The gas pipeline supplying fuel to TPS was sabotaged in 2006, and as gas was no longer available, pre-site works testing of the units was not possible at the start of the project. Subsequently, after completion of rehabilitation, the units could not be energized. Therefore, Units Nos. 1 and 6 were then converted to oil firing and energized according to a request from the MoE/TPS.
- The deteriorating security situation in Iraq impeded the progress of works, to the point where four employees of a subcontractor were kidnapped and murdered in January 2007. Work was suspended which brought about a significant delay in implementation.
- In order to restart work, and provide safe working and commuting conditions, a camp facility with accommodation and dining facilities was established at the power station ensuring the availability of project workers and enabled works to progress.
- c. Key lessons learned that would facilitate future programme design and implementation.

Throughout this project UNDP (Iraq) gained significant experience in designing and conducting activities with maximum impact. The following summarizes some important aspects:

- Adoption of a participatory approach is crucial for programme/project success from conceptualization through to Operation & Maintenance.
- Capacity building benefitting Iraqi counterparts and know-how transfer are crucial for sustaining all programmes / project-provided assets and for sustaining the sector.
- > Clearly defining the operations and responsibilities is essential in all projects for their success
- > Having the means to monitor project activities by using the latest technologies is essential
- Close coordination with the counterparts at all levels is the route to success. Mutual respect by considering the opinions of counterparts' play an important role in achieving targets.
- Transparency in all matters boosts morale and increases confidence among the implementing partners and project team members. Regular communication helps eliminate misunderstanding and distrust. The approach of transparency and sharing information with counterparts, colleagues has proven to be very useful in taking critical decisions through consultation and reaching of mutual and consent.
- Time-consuming initial negotiations with counterparts during the project quantification stage proved to be useful in finalizing the contract details and plants.
- Initial negotiations play an important role and it should be given a thorough working. Plan it realistically, and allow some slack."
- > Timely actions decisions play important role in saving extra cost and limiting delays.
- Plan the project fully. Identify the goal and keep this as the focus to drive the project forward. The methodology should be well thought out, and scope definitions should be strictly adhered to.
- Most equipment works "as built," i.e., not as the designer planned. This is due to the layout of the design that could change in physical installation, which, in turn, leads to modification. Therefore, as built drawings and manuals after completion of a project are essential for rehabilitation projects to be successful. At times, difficulties were faced after disassembly when components were noted to be different than originally shown in the manufacturer's design. This could have been a post completion/subsequent alteration, but it resulted in consumption of valuable time.
- Maintain focus and priority of the project. Without 100% day-to-day time commitments from team members, the project overview would be lost in the shuffle of daily duties and responsibilities.
- Non-availability of past operation and maintenance records of the units made it difficult to carry out assessments from the remote location in particular. A system is necessary in order to have daily, weekly and monthly records of the unit's operation and maintenance for future assessment works.
- Commutation planning and changes as per demand of the situation was a continuous process through out project implementation.
- Effective communication arrangements helped in obtaining a day to day situation overview and facilitated monitoring.
- Timely passing on of all critical information about incidences, project progress and additional works if any that were to be undertaken, to the management makes it easier for the management to take managerial decisions to achieve planned targets.

A comprehensive technical final report of some 150 pages has been prepared and submitted to the UNDG ITF in hard copy to complement this final narrative.

## IV. INDICATOR BASED PERFORMANCE ASSESSMENT

	Performance	Indicator	Planned	Achieved	Reasons for	Source of	Comments			
	Indicators	Baselines	Indicator	Indicator	Variance	Verification	(if any)			
			Targets	Targets	(if any)					
IP Outcome 1										
The humanitarian needs of the war-affected Iraqi people addressed by ensuring the supply of reliable and safe electricity to permit operation of										
essential humanitarian services such as water supply, hospitals, schools, sewage treatment plants and other community services.										
IP Output 1.1	Indicator 1.1.	Unit 1	50 MW of	Unit 1	Unit No.4 was	Daily morning	It has been			
Gas Units 1, 4	Implementation	Poor	electricity	running at	energized on gas	web camera	confirmed by			
and 6 at Taji	of scheduled	condition,	becomes	18MW	firing only,	meetings with	the manager of			
GPS	rehabilitation	limited	available.	satisfactorily	whereas other two	plant engineers	Taji Power Plant			
rehabilitated	works to three	output;		on gas/oil.	units (1 and 6) are	with UNDP/	that instruments			
with increased	(3) turbine		Reduce	Exceeded	capable of	Hitachi engineers	measure what is			
operational	units; 1, 4 and	Unit 4	further	commitment;	operating on both	in close co-	being generated			
reliability.	6.1	Not	deterioration		gas and liquid	operation with	by the unit			
		Working	of units.	Unit 4	fuel. MoE had	Taji GPS	(approx. 50			
		rotor		Energize as	arranged liquid	engineering staff.	MW) to the			
		damaged;		gas becomes	fuel for two units		national grid			
				available;	but left Unit No.	Careful	system,			
		Unit 6		Running at 15-	4 from conversion	verification made				
		Poor		18 MW	to oil firing. This	by UNDP	Initially when			
		condition,		depending	was due to	engineers in close	the gas line was			
		limited		upon gas	amount of work	co-operation with	damaged by			
		output;		pressure.	involved and	Mosul GPS	sabotage and			
					limited resources,	engineering staff.	later when four			
				Unit 6	as essential	This was	project workers			
				Running at 18-	equipment	achieved through	were killed, the			
				19MW	required for oil	three party	task became			
				satisfactorily	conversion was	meetings held	almost			
				on gas/oil.	not installed at	during and after	impossible, but			
				Exceeded	site.previously	the completion of	with constant			
				commitment.		rehabilitation	discussions,			

						works. The last	persuasion
						meeting was held	motivation and
						on $14^{\text{th}}$ - $15^{\text{th}}$	monitoring both
						January 2008	on the part of
						The achievement	UNDP and
						of objectives has	Hitachi the work
						been verified	could continue
						Regular contacts	First Unit No 1
						are being	and 6 were
						maintained by	energized with
						telephone and e-	liquid firing and
						mail to confirm	later with gas
						the latest	when it became
						operating status	available
						of the units.	Unit No.4 was
						Technical tests	energized on gas
						included:	firirng only.
						AVR dynamic	ining only.
						characteristic and	Daily real time
						synchronization	monitoring
						test:	through web
						Load operation	cameras and
						test:	VSAT was
						Reliability test:	initiated to
						Certificate of	continue work
						Final Completion.	with minimum
							delays.
IP Outcome 2		1	1		1		1
The generating ca	pacity, availability	and reliability	y of Units No.1	and 6 at Taji Gas	Power Station increas	sed.	
IP Output 2.1	Indicator 2.1.1	Lack of	Spare parts	Delivery of 175	Nothing to remark		Timely
Set of selected,	Provision of	spare parts	available for	tons of spare	-	Careful	arrangements
essential spare	specified spare	and	2-3 years of	parts and		verifications were	for waiver of
parts supplied to	parts and	severely	repair.	equipment.		conducted under	custom letters
Taji Gas Power	relevant	deteriorated				the guidance of	and monitoring

Station for	rectification of	plant.	Ability of	Twelve site	UNDP engineers	the security
emergency	selected	-	plant staff to	engineers from	in close co-	situation while
repairs and	components		operate and	Taji and Mosul	operation with	the cargo was
routine	coming from		maintain the	trained as	Taji GPS	being
maintenance, in	disassembled		power plant	trainers in	engineering staff.	transported by
order to sustain	units.		after being	Japan;	This was	road was
the increased			trained		achieved through	difficult but
generation.				One Iraqi	daily web camera	achieved
				technical	meetings and	through constant
				advisor trained	three party	liaison with the
				in Japan,	meeting during	ground staff.
				increasing	and after the	
				national	completion of	The delivery of
				capacity for	rehabilitation	spare parts to
				rehabilitation	works. The last	the station was
				and	meeting was held	confirmed by
				commissioning;	on $14^{\text{th}}-15^{\text{th}}$ .	various
					January 2008.	documentations
				Forty un-	The achievement	prepared at site.
				skilled/semi-	of objectives has	Proper checks
				skilled workers	been verified.	were also
				from the TPS		conducted by a
				were provided	In addition	third party
				on the job	comprehensive	inspection agent
				training.	weekly reports	in Japan prior to
					with photographs	shipment.
					were issued to	
					document the	
					activities	
					undertaken.	
					Post completion	
					monitoring by	
					telephone and e-	
					mail confirm that	

						the units are operating without interruption.			
IP Outcome 3 The capacity of staff and plant management to operate and maintain the units in accordance with international standards built									
IP Output 3.1	Indicator 3.1.1	Capacity	Iraqi	Twelve site	Nothing to remark		Nomination of		
Trained plant	Implementation	needed to	engineers	engineers from		Careful	engineers from		
engineers to	of relevant	conduct	better able	Taji and Mosul		verifications were	MoE was the		
operate and	training carried	repair	to operate	trained as		conducted under	first step of the		
maintain the	out both at site		and	trainers in		the guidance of	training process.		
power plant for	in Taji and at		maintain the	Japan;		UNDP engineers	This was a		
higher levels of	the		power plant			in close co-	lengthy process		
performance and	manufacturer's		to its best	One Iraqi		operation with	and could be		
skills to train	worksnop.		capabilities	technical		Taji GPS	achieved only		
other junior			and	in Jonon		This was	by constant		
technical personnel			standards.	in Japan,		This was	IOHOW-up by		
(onginoors and			Thoy will be	notional		doily web comore	UN Stall.		
(engineers and technicians)			able to train	capacity for		meetings and	visas and a		
teeninerans).			other junior	rehabilitation		three party	training		
			engineers	and		meeting during	programme to		
			engineers.	commissioning.		and after the	suit the		
				commissioning,		completion of	requirements		
				Forty un-		rehabilitation	needed was		
				skilled/semi-		works. The last	only possible		
				skilled workers		meeting was held	with the		
				from the TPS		on $14^{\text{th}} - 15^{\text{th}}$ .	remarkable help		
				were provided		January 2008.	of MoE and		
				on the job		The achievement	Hitachi.		
				training.		of objectives has			
				_		been verified.	The contents of		
							the training		

			In addition	programme was
			comprehensive	finalized with
			weekly reports	the MoE and
			with photographs	adhered to for
			with photographs	immentine
			were issued to	imparting
			document the	training to the
			activities	staff. The
			undertaken.	duration of the
				training course
			Post completion	was also settled
			monitoring by	with the help of
			telephone and e-	previous
			mail confirm that	experience of
			the units are	Hitachi and after
			operating without	discussion with
			interruption.	the
				representatives
				of MoE and
				Taji.