

United Nations Development Group Iraq Trust Fund
Project #66983: E4-15
Date and Quarter Updated: 1 July-30 September 2012 - 3rd Quarter 2012

Participating UN Organisation: UNDP **Priority Area Two: Inclusive Economic Growth (formerly , Economic Recovery and Diversification Sector)**

Government of Iraq – Responsible Line Ministry: Ministry of Electricity

Title	Emergency Rehabilitation of Mussayib Power Station- Stage II				
Geo. Location	Karbala Governorate, Mussayib				
Project Cost	US\$ 33,000,000				
Duration	24 months + 66 months extension				
Approval Date (SC)	08/06/2005	Starting Date	15/06/2005	Completion Date	15/06/2007 extended to 31/12/2012
Project Description	<p>The rehabilitation of Unit 1 (now Unit 4) of Mussayib Thermal Power Station (TPS) is essential for improving electrical power supply to the national grid, particularly in Central Iraq. Under Stage I, previously identified rehabilitation/repairs of Thermal Unit 1 controls and turbine/generator problems were corrected wherever possible. Under Stage II, the technical capabilities of the plant staff will be upgraded to not only operate and maintain the unit once rehabilitated, but also to assess the requirements for rehabilitation of other units and to undertake repair and maintenance works with minimum international supervision. The Ministry of Electricity capacity for these undertakings will be supported by modern maintenance management software and installation of a mobile video/audio system for plant equipment condition assessment.</p> <p>Note: An official request has been approved by ITF to change the Scope of Work from the rehabilitation of Unit 1 to Unit 4 and the modality has changed to national execution by the Ministry of Electricity.</p>				

Development Goal and Immediate Objectives

1. To respond to the immediate humanitarian needs of war-affected Iraqi people through ensuring reliable and safe electricity supply to all consumer categories, in particular key humanitarian essential services.
2. The generating capacity, reliability, availability, and efficiency of Unit No.1 (now Unit No. 4) of Mussayib Thermal Power Station increased. (Unit 1 changed to Unit 4 as of Q2 2010.)
3. Plant staff able to conduct complete maintenance and full repairs of thermal units utilizing latest available technology, modern tools, and state-of-art software for unit maintenance and overhauls.
4. Core team of MoE staff specialized in the overall condition assessment of thermal units trained in the application of state-of-art maintenance management software for monitoring, recording, reporting and planning future maintenance of thermal units in the MoE Fleet.

Outputs, Key Activities and Procurement

Outputs	<p>1.1 Mussayib Thermal Power Station (TPS) Unit 1 rehabilitated and providing 60-80 MW greater capacity, reliability, availability and efficiency by June 2007.</p> <p>2.1 Comprehensive set of selected and essential spare parts supplied to Mussayib TPS, which will be available in stock for emergency repairs and routine maintenance; in order to sustain Unit 1 future generation and reliability.</p> <p>3.1 Thirty-four (34) plant staff trained in Unit 1 rehabilitation skills suited for erection, calibration, testing and commissioning. In addition, a core team of MoE staff proficient in the application of maintenance management software and able to train other junior technical personnel to enlarge MoE in-house capabilities in maintenance management, planning, monitoring and record keeping.</p>
Activities	<p>1.1.1 Finalization of the list of equipment, parts and relevant components with their detailed technical specifications to be provided based on assessments of the unit.</p>

	2.1.1 Unit repair and rehabilitations works conducted by plant staff under contractor guidance. 3.1.1 Implementation of the relevant training overseas for unit rehabilitation works and the training on maintenance management software in Amman, Jordan.
Procurement	Delivery of 135 tons of equipment for rehabilitation completed 2 nd Quarter 2009.

Funds Committed	USD 27,652,600	% of approved	83.8%
Funds Disbursed	USD 23,337,157	% of approved	70.72%
Forecast final date	31 December 2012 with ITF. The MOE timeline with completion of additional works suggests end of 2012	Delay (months)	66 months

Direct Beneficiaries	Number of Beneficiaries	% of planned (current status)
Men	Population as a whole	
Women	Population as a whole	
Children	Population as a whole	
IDPs	Population as a whole	
Others	Population as a whole	
Indirect beneficiaries	34 MoE staff trained	
Employment generation (men/women)		

Quantitative Achievements against Objectives and Results		% of planned
Completion of activity 1 that involved assessment of need for rehabilitation and initiation of procurement	Determining scope of rehabilitation needed, included full negotiation of prices and delivery schedules (Activity 1).	100
Pre-shipment inspection	Coordination and supervision of factory-witness tests in Japan of selected equipment successfully completed during March - April 2006.	100
Spare parts and equipment	135 tons of equipment delivered to site.	100
Training of Trainers	Specifications for training prepared. 10 engineers trained. * This component is no longer applicable to this project as it is in NIM	25%
Installation works	The change of scope was approved by ITF and UNDP and MoE are currently discussing the payment modality. The bidding documents are developed and bids closed for the boiler of Unit 4 during 4 th Quarter. Companies were shortlisted. Additional spare parts may be required. Contractor has been selected and mobilized. Physical work of the boiler to commence soon after shutting down and handing over the same to Contractor. Boiler Unit 4 was handed over to contractor for rehabilitation during 1 st Quarter 2012. Dismantling work of major components completed 1 st Quarter 2012. Installation of new equipment/parts has commenced 1 st Quarter 2012. Installation of all major equipment and parts was completed by end of 2 nd Quarter 2012. About 60% of the works under the Variation Order has been completed. Boiler including its auxiliaries was tested successfully and the Unit was re-commissioned on 5 th July 2012 by generating 100MW. Remaining minor works of the main Boiler and the works under Variation Order were shifted to Autumn for completion. After fine adjustments of operational parameters of the Unit during a brief shut down output was increased to 200MW Unit was continuously generating 175-200MW during the Quarter 3.	95%

Qualitative Achievements against Objectives and Results

1. Unit 1 at Mussayib Power Station received an overall cold assessment with information reviewed by MoE, Hitachi/Hyundai in Amman on 25-29 September 2005;
2. Shipment of Container 2 arrived on 4 August 2008;
3. Shipment of Container 3 arrived on 10 October 2008, resulting in a total of 135 tons of equipment total delivered to site;
4. Five Mussayib engineers trained on Auxiliary Equipment at Hitachi;
5. Five trainees participated in training on instrumentation and control for the implementation of installation and commissioning of equipment from 15 September to 7 October 2008;
6. Correcting the problems in Unit 1 could increase power generation to Iraqi grid and improve the overall reliability of the power system. Therefore, the GoI has agreed to cover the difference in rehabilitation up to a ceiling of US\$ 20 Million.
7. The Government of Iraq agreed in 4th Quarter 2008 to cover the difference in the rehabilitation up to a ceiling of US \$20 Million.
8. Shipment of manufacturing parts completed by Hitachi in Japan and Philippines. All the goods under shipment were delivered successfully to Mussayib Thermal Power Station in May 2009 (2nd Quarter 2009).
9. Short-listing of potential construction companies for undertaking boiler installation was completed and 3 companies have been shortlisted.
10. Procurement process for the selection of consultant for managing/monitoring of the installation contract has reached its final stage.
11. A letter has been sent to MoE on the progress of the project, requesting confirmation on the availability of MoE funds agreed by HE MoE to bridge the budget gap (USD 20.0 million) for boiler implementation work.
12. During 2nd Quarter 2009, a meeting was held between the UNDP Deputy Country Director and H.E. the Minister of Electricity at the International Zone in Baghdad. The Minister explained that due to the decline of oil prices, the budget of the Ministry has been reduced; therefore, the Ministry of Electricity would not be in a position to bridge the funding gap for the implementation of the boiler works as agreed at the Dead Sea Meeting on 30th November 2008.
13. During 3rd Quarter the project remained in a state of limbo regarding the cost -share. Remaining funds are not adequate to carry out the scope of the planned rehabilitation works.
14. The ITF donor partner, the Government of Japan, was consulted and identified three possible ways forward during 3rd Quarter 2009.
15. Consultation was made with UNAMI and intervention sought by the SRSG in the 4th Quarter 2009 to resolve this impasse. A one-day meeting was held with MoE in the presence of GoJ to discuss the options and reach a solution to complete the project scope. Due to a defect in Unit 4, MoE has requested using the parts supplied for Unit 1 in Unit 4.
16. GoI clarified in 4th Quarter that during financial year 2010 they will allocate funds in line with this project agreement. Presently, in parallel, the project will require extension by ITF and funding transferred from the Ministry of Electricity, as well as an agreement forthcoming from the GoJ to shift from Unit 1 to Unit 4.
17. In 1st Q 2010 the Ministry of Electricity officially requested a change of scope of the project from Unit 1 to Unit 4.
18. In 1st Q 2010 the Embassy of Japan received a request for the Ministry of Electricity to change the scope of the project from Unit 1 to identical Unit 4, which collapsed.
19. After analysis in 1stQ 2010 UNDP has given a no objection for change of scope pending ITF approval.
20. During 1st Q 2010 The Ministry of Foreign Affairs, Japan, has stated no objection to change the scope with written approval pending.
21. The Ministry of Electricity re-confirmed its commitments to bridge the fund gap of USD 8 million on 13 May 2010.
22. On 17 June 2010, the Ministry of Electricity and UNDP concluded the Letter of Agreement, which stipulates that MoE will be responsible for all activities with UNDP's technical assistance and that UNDP will release USD10 million for the installation works. The detailed financial arrangement is now under discussion. This project will move to National Execution.
23. On 17 June 2010, the requests for extension of project duration, change of scope and budget revision were approved by ITF.

24. On 21 July 2010 UNDP and the Ministry of Electricity (MoE) staff from the Generation Group conducted a meeting in Baghdad to discuss the details of the LoA between UNDP and MoE and the conditions of the project extension approval of ITF and tentatively agreed on the basic Work-Plan and the time schedule for the completion of the project.
25. A workshop was held 14-17 August 2010 in Istanbul, Turkey, between UNDP and Ministry of Electricity staff to discuss in detail the project implementation schedule, milestones, payment modalities, short-listing of potential bidders and engagement of construction supervision consultants.
26. Detailed discussion on the Commercial Part of the bid document continued and the Ministry of Electricity submitted comments during 3rd Quarter 2010.
27. Detailed discussions on the Technical Part of the bid document, including Technical Specifications resulted in the Ministry of Electricity preparing the technical component of the bidding document which was submitted to UNDP and reviewed and submitted to MOE as agreed in the Workshop in August 2010 before the end of 3rd Quarter
28. Completed the first draft of the bid document with input from both parties during 3rd Quarter 2010.
29. Workshop II was held on 29 September-1 October 2010 in Erbil. At this workshop UNDP and the Ministry of Electricity discussed in detail the draft bidding document and prepared the final draft including revisions to the Technical and Commercial Sections.
30. Recruitment initiated for a National Engineer in Baghdad to assist the project coordination between UNDP and Ministry of Electricity during 3rd Quarter 2010.
31. A revised Project Implementation Schedule was prepared considering the delays during 3rd Quarter 2010.
32. A review was conducted on the short-listing process and short-listed bidders during 3rd Quarter 2010.
33. Bid document in engaging a contractor was finalised and issued to the 5 short-listed companies with the bid closing date of 3rd December during the 4th Quarter 2010.
34. Only 2 short-listed companies procured the bid document.
35. Bid clarifications were received from several companies including requests for extension of bid closing date.
36. Responses on various clarifications were sent to the bidders and the bid closing date was extended till 2nd January 2011.
37. UNDP issued a letter to all 5 companies requesting them to actively participate in the bidding process.
38. Four out of 5 short-listed companies apologized to participate in the bidding process providing different reasons. However, one out of four indicated willingness to submit and offer, if bid closing date be extended till 1st March 2011.
39. Terms of Reference were prepared for engaging Owner's Engineer to assist MoE in managing the project during 4th Quarter 2010.
40. A consultancy company, established under MoE, expressed willingness to take on the role of Owner's Engineer and a meeting was arranged with this company for further discussions/negotiations in Erbil 4th Quarter 2010.
41. A National Boiler Engineer joined UNDP to support the project, including frequent visits to Mussayib Thermal Power Station January 2011.
42. Only one offer was received and remains sealed therefore, competitive bidding was reopened in January 2011.
43. An extension was requested to match the timeline of the Ministry of Electricity during 1st Quarter 2011.
44. A workshop was held in Istanbul 8-10 March 2011 with MoE and UNDP to discuss the evaluation of offers.
45. The formation of the new Government of Iraq initiated in 1st 2011 Quarter and a new Minister of Electricity was named and took up the position. H.E. the Minister of Electricity required debriefs and updating regarding the project.
46. Six Offers were received and bids were opened April 2011.
47. Immediately evaluation of offers was initiated by both parties- MoE and UNDP.
48. Three Bidders were shortlisted for financial evaluations and extensive correspondence and clarifications were exchanged in Quarter 2 2011.
49. Details and references were taken regarding the three shortlisted Bidders in Quarter 3 2011.
50. Each Bidder provided a customer list and UNDP in partnership with MoE checked the customer satisfaction towards the performance of each Bidder.
51. Two Bidders were recommended for final evaluation during 3rd Quarter 2011.
52. Final evaluation concentrated on the lowest evaluated Bidder and a field visit was arranged to visit the Bidder and customers to assess the capability and capacity of the Bidder to undertake the rehabilitation of the Mussayib Unit 4 Boiler.

53. A 3 member team from UNDP and a 4 member team from MOE visited the lowest Bidder and two of its customers.
54. MoE and UNDP Team concluded the evaluation process of the offers after making the visit to the lowest evaluated bidders and its customers.
55. MoE accepted the recommendations of the Team and paved the way for contract negotiations and signature.
56. UNDP witnessed signing of the contract on 18th November in Istanbul between MoE and the Contractor (M/S Energoremont, Russia) after conducting detailed contract negotiations.
57. More than 30 Russian expats mobilized to site during December 2011 to commence the initial preparation work.
58. During this initial preparation/ assessment work, MoE identified several additional works on boiler Unit 4 which required urgent attention to maximize the benefit of the proposed rehabilitation work.
59. A workshop was arranged for January 2012 between MoE and UNDP to discuss the above additional works, cost estimates and its implementation modality.
60. As the value of the Contract was within the UNDP budget, a decision was made for UNDP to pay directly to the Contractor after obtaining necessary approvals from MoE.
61. The LoA between UNDP and MoE was amended to reflect the above change of paying modality in consultation with UNDP Headquarters.
62. MoE was not able to shutdown and handover the Unit 4 boiler for rehabilitation due to a major break down of the sister Unit 3 and the contractor was also unable to submit the Security Guarantees for Performance Bond and the Advance Payment.
63. Performance Guarantee was submitted by the contractor and informed that it is ready to commence the contract work without receiving the Advance Payment.
64. Contract was amended to exclude the requirement of advance payment and the submission of the security bond for Advance Payment.
65. Unit 4 was shut down on 18th January 2012 and the Boiler was handed over to contractor on 22nd January for rehabilitation.
66. Contractor mobilized 31 expatriates from Russia and commenced the dismantling work soon after receiving the boiler.
67. Engineer appointed by MoE commenced the supervision work of the rehabilitation work by the contractor.
68. Workshop was held in Amman during 8-9 January 2012 to review and discuss the additional works proposed by the Mussyaib team.
69. MoE team made a presentation of the overall work planned for execution utilizing MoE funds for the whole Unit 4 (Turbine, generator, BoP, etc) during the shutdown and elaborated the requirement of additional works for the boiler to enhance its capacity and reliability. Details of the 3 packages, including scope, specifications, etc for the boiler were submitted for review and Team consideration.
70. A request for proposal was made to the Boiler Contractor to submit a proposal for the additional works under the 3 packages to be considered under a Variation Order.
71. A proposal was submitted by the Contractor by the deadline and initial screening/evaluation was done by a Committee appointed by MoE.
72. A Workshop was arranged during 23-24 March 2012 in Istanbul to review the evaluation process by the Team.
73. A Variation Order to the current contract was signed between MoE and Energoremont to proceed with the additional work.
74. According to the contract, the additional works need to be completed within the original contract period.
75. During the Workshop discussions, the Contractor agreed to take all possible efforts to complete the whole contract work, including the additional works by 25th of May.
76. Contractor submitted 2 invoices for payment and UNDP made payment for the invoice No1 during 1st Quarter 2012.
77. Arrangements were made to request 1 year project extension to cover the Defect Liability period and any other critical/urgent additional work which will further enhance the capacity of the Unit 4 after oncoming summer operation.
78. Preliminary discussions were held with ITF staff regarding the possible extension request of the project in order to complete the contracted work.
79. A request for “no objection” was made to GoJ for the proposed project extension.
80. MoE made a request to UNDP for extension of the project for 1 year up to 15 May 2013.

- 81 A request was prepared and submitted to ITF for project extension up to 31 December 2012 considering cessation of major operation of ITF by the end of 2012.
- 82 ITF granted approval of the project extension up to end of 2012 with several pre-conditions.
- 83 The contractor continued rehabilitation work of the boiler after mobilizing more than 100 expat workers.
- 84 After opening and analyzing the condition of the super-heater (under Variation Order) it was found that full rehabilitation of the same will prevent commissioning of the whole Unit 4 during the summer. Therefore work on the super-heater was shifted to autumn 2012 with agreement of both contract parties.
- 85 Work on the scope of the main contract was completed by end of 2nd quarter and about 60% of the work under the Variation Order was also completed by end of 2nd Quarter 2012.
- 86 Testing and commissioning of all major works were successfully completed by end of June 2012.
- 87 Final commissioning, energizing and connection to the National Grid of the whole unit has been scheduled during the 1st week of July 2012.
- 88 An official ceremony has been planned during 3rd Quarter at the power station with participation of senior officials from MoE, EoJ and UNDP to commemorate the re-commissioning of Unit 4.
- 89 MoE commenced developing detailed scope and technical specifications of the additional works to increase the Unit capacity from 200MW to 250 MW.
- 90 Official ceremony was successfully held on 24th July to commemorate the re-commissioning of the Unit 4. Staff from the Mid Euphrates Region office and the Mussaib TPS participated in the ceremony with the UNDP Country Director
- 91 MoE was very thankful for the assistance given by Government of Japan, by providing funds to procure the parts for the Boiler and the installation work. MoE thanked UNDP for implementation of the work. Unit was generating about 170MW providing very critical electricity generation to National Grid during the summer
- 92 After a brief shutdown of the Unit 4 and improvement/calibration of operational parameters of the Unit, output generation of the Unit was increased to 200MW
- 93 Unit 4 provided continuous, reliable and stable power of 170-200MW power to the National Grid during the Quarter 3
- 94 A workshop was held in Istanbul among MoE, UNDP and the Contractor of the Boiler Rehabilitation Work (Energoremont) to review the progress of the remaining works (not completed) and warranty issues
- 95 MoE agreed to shut down the Unit 4 for 1 month from the beginning of October to attend the above works. Contractor agreed to complete the unfinished works and attend to warranty issues within one month after receiving visas for its staff to enter Iraq
- 96 Senior project staff of MoE and UNDP attended several workshops and finalized scope of additional works, costs and implementation schedule in order to complete the additional works within the project validity period (end 2012).

Main Implementation Constraints and Challenges

UNDP, based on the initial estimated cost received from Hitachi in 2004-2005, reserved US\$ 13 Million for rehabilitation of Unit 1. This reserve was based on the assumption that the implementation work was to be carried out by a MoE appointed contractor. The MoE requested that Hitachi directly hire a contractor to undertake the implementation. With this new arrangement UNDP received a new price quotation of US\$38 million in July 2008. After careful study of the quotations, available funds and identification of several implementation modalities, options for implementation were presented to the Minister of Electricity. It was agreed among the parties present that UNDP would initiate an international tendering process and the MoE and Government of Iraq would cost share in covering the difference in cost up to a ceiling of US\$20 Million. Based upon the recommendation by the Minister, UNDP commenced negotiation with the Government of Japan to initiate the implementation work by an international contractor.

Agreement has been made by the MoE that funds will be made available within the 2010-2011 budgets. The MoE and UNDP have entered into a Letter of Agreement where the MoE will be responsible for all activities with UNDP's technical support. Therefore, the implementation modality has changed to national execution. The MoE will prepare the bidding documents and finalize the bidding process and UNDP will provide the technical assistance on the entire process from the bidding to the completion of installation works. UNDP has to find the most suitable payment modality for the installation works.

The political fragility of the latest Iraqi elections and the delay in the formation of a new Government has affected

this project as there is as of 1st Quarter 2011 no Minister of Electricity. Some commitments could be affected in this delay of nomination. A new Minister was named but left the post in 3rd Quarter 2011. The Minister position is presently vacant.

Unrest in the Middle East could potentially spill over into Iraq especially with the concept developed during 1st Quarter of the 100 days of the Maliki Government.

There has been an attack on another electrical plant in the country and concerns are expressed for the safety of the contractors and UNDP consultants and now a second attack.

Due to an unfortunate incident at the Mussyaib Power Station with a major breakdown of Unit 3, the generation output of the Mussyaib Power Station has reduced considerably. Therefore, the shutting down of the Unit 3 for the contract work is being delayed until suitable arrangements with other power stations are made to compensate the electricity generated from Unit 3.

Arrangements were made to request 1 year project extension to cover the Defect Liability period and any other critical/urgent additional work which will further enhance the capacity of the Unit 4 after oncoming summer operation.

Timely issuance of Iraqi visas for the contractor's staff is very critical to commence the works under Variation Order of the contract and to fix the warranty issues of the boiler rehabilitation works. Delay in remobilization of the contractor may delay the completion of the works and payment by UNDP within the project validity period.

Timely conclusion of a contract between MoE and the contractor for supply of plant and equipment and delivery of the same under Additional Works is very vital to complete the Additional Works and the payments by UNDP. Delay in supplying of the plant and equipment by the contractor may not allow UNDP to disburse the funds within the deadline.