



OFFICE OF INSPECTOR GENERAL

AUDIT OF USAID/PAKISTAN'S DESIGN FOR SUSTAINABILITY IN THE JAMSHORO THERMAL POWER STATION REPAIR AND REHABILITATION PROJECT

AUDIT REPORT NO. G-391-13-001-P
JANUARY 17, 2013

ISLAMABAD, PAKISTAN



Office of Inspector General

January 17, 2013

MEMORANDUM

TO: USAID/Pakistan Mission Director, Jonathan M. Conly

FROM: Office of Inspector General/Pakistan Director, Matthew Rathgeber /s/

SUBJECT: Audit of USAID/Pakistan's Design for Sustainability in the Jamshoro Thermal Power Station Repair and Rehabilitation Project (Report No. G-391-13-001-P)

This memorandum transmits our final report on the subject audit. In finalizing the report, we considered your comments and included your response in Appendix II.

The report contains three recommendations to help improve the Jamshoro Thermal Power Station Project. Based on the mission's comments, it took final action on one recommendation and made management decisions on the others. The Audit Performance and Compliance Division will determine final action on the remaining recommendations when the mission completes planned corrective actions.

I want to thank you and your staff for the cooperation and courtesies extended to us during this audit.

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Abbreviations

The following abbreviations appear in this report:

AEAI	Advanced Engineering Associates International Inc.
ADS	Automated Directives System
FY	fiscal year
OIG	Office of Inspector General
PNSC	Pakistan Naval Shipping Corporation

SUMMARY OF RESULTS

Pakistan experiences frequent power shortages that affect the country's political and economic stability. Government investment in the energy sector is not enough to maintain equipment. According to USAID/Pakistan, some constraints to investment in the energy sector include limited managerial and technical expertise, unsustainable tariffs, subsidies, and payment arrangements.

USAID/Pakistan is assisting the Government of Pakistan in improving the energy sector with the Jamshoro Thermal Power Station Repair and Rehabilitation Project and two other thermal energy projects in Guddu and Muzaffargarh. The Jamshoro Thermal Power Station is in Sindh Province, about 18 kilometers from Hyderabad. A thermal plant owned by the Government of Pakistan, Jamshoro is one of the major power stations connected to the national electricity grid. When the project was implemented, the power station had a total capacity of 560 megawatts.

On May 20, 2010, USAID/Pakistan entered into an agreement with the Government of Pakistan to provide \$18.4 million to repair and rehabilitate the Jamshoro Thermal Power Station by purchasing new equipment. In April 2012, USAID/Pakistan amended the agreement to increase funding to \$19.3 million. The main objective of the project is to increase capacity by 150 megawatts by June 30, 2013, by purchasing and installing more than 20 pieces of new equipment. To accomplish the increased capacity objective, USAID/Pakistan established an interim target of increasing output to 50 megawatts by September 2012. As of September 2012, USAID/Pakistan had spent \$9.7 million of the approximately \$19.3 million obligated.

USAID/Pakistan hired a U.S.-based engineering contractor, Advanced Engineering Associates International Inc. (AEAI), to implement the project. The contractor provides technical assistance to the power station, including monitoring progress and certifying that equipment purchases comply with specifications in the agreement.

In April 2010, before signing the agreement, USAID/Pakistan conducted a preaward assessment of the power station. This assessment identified five areas where policies and procedures could be improved to help long-term sustainability: financial management, internal audit, procurement, human resources, and information technology. In December 2011, USAID/Pakistan tasked Associates in Development, a local organization implementing the mission's Assessment and Strengthening Program, to help improve policies and procedures and to train power station employees on the new procedures.

USAID's Office of Inspector General in Pakistan (OIG) conducted this audit to determine whether USAID/Pakistan built sustainability into the design of the Jamshoro Thermal Power Station Repair and Rehabilitation Project.

USAID/Pakistan built sustainability into its design of the Jamshoro Thermal Power Station Repair and Rehabilitation Project through the following measures:

- Required procurement of equipment directly from the manufacturer that would need little maintenance.
- Required the power station to prepare an inventory of critical spare parts for managing its inventory.

- Required the power station to forecast future funding needs.
- Developed a capacity-building component to improve the operation of the power station by remedying the weaknesses identified in the preaward assessment.
- Planned to assist the power station in revising billing rates.

The power station has shown its commitment to completing the project and achieving the goal of increasing capacity by 150 megawatts by June 2013. As of November 2012, the power station had procured 19 pieces of USAID-funded equipment, including the drain valves pictured below, and \$2 million worth of equipment with its own resources. OIG conducted site visits to the power station from October 10 through October 12, 2012, and observed newly installed equipment, such as a computerized control system to better manage the power station, and large components that reduce energy consumption.



The project is replacing drain valves. The bright silver ones are new. (Photo by OIG, October 2012, Jamshoro)

Notwithstanding USAID's efforts to build sustainability into the project design, without Government of Pakistan policy reforms, this project will not achieve sustainability.

Factors beyond the mission's control, such as a lack of Government of Pakistan policy reforms relating to energy subsidies and the purchase of furnace oil instead of a less expensive energy supply, will affect the financial sustainability of the power station after the project is completed. If the government does not reform its energy policies, the audit reached the following conclusions:

- The project will not be financially sustainable (page 4).

In addition to sustainability, the audit team identified two areas to improve project implementation:

- The project missed an interim target for increasing capacity (page 5). It did not achieve a 50-megawatt increase in fiscal year (FY) 2012. If the delays continue, the project may not achieve its overall goal of increasing capacity by 150 megawatts by June 2013.
- The project did not complete any capacity-building activities (page 6). Because of the slow progress, the power station continues to lack management capacity that would provide sustainability after the project ends. If management weaknesses identified in the preaward assessment are not addressed, the power station will continue to experience problems.

The report recommends that USAID/Pakistan:

1. Implement a plan to engage with the Government of Pakistan continually to promote policy reform in the energy sector (page 5).
2. Review and revise in writing the Jamshoro Thermal Power Station Project's target date for increasing energy capacity by 150 megawatts (page 6).
3. Update the capacity-building schedule for the Jamshoro Thermal Power Station to reflect an achievable completion date, and document the results (page 7).

Detailed findings follow. The audit scope and methodology are in Appendix I. The full text of management comments is in Appendix II; our evaluation of management comments is on page 8.

AUDIT FINDINGS

The Project Will Not Be Financially Sustainable

According to USAID's Automated Directives System (ADS) 200.3.1.5, "The ultimate goal of development cooperation is to enable developing countries to devise and implement their own solutions to key development challenges and to develop resilience against shocks and other setbacks." To meet this goal, USAID must "ensure that activities or services are tied to sustainable financing models." Furthermore, ADS 201.3.9.3(g) states that during the project design phase, the mission should have a plan that includes "an appropriate sustainability strategy to ensure that the institution(s) will remain administratively and financially sustainable by the end of the project and equipped to continue to play their roles in local development."

Although USAID/Pakistan built sustainability into the project's design, the power station may not be financially sustainable after the project ends. Despite committed efforts to complete the project and increase capacity by 150 megawatts by June 2013, the power station will need additional funding from other donors to cover the increased operating costs. According to AEAI, the cost of maintaining the power station has increased by 34 percent from 2008 to 2012, reducing profits.

In addition, the power station will need more equipment. Because it is unable to procure this equipment with its own funds, the power station plans to request a loan from the Asian Development Bank for \$76 million. According to a power station official, when station managers need to repair equipment, they focus on inexpensive repairs and depend on external donors to fund more expensive, critical repairs.

The lack of Government of Pakistan policy reforms in the energy sector will prevent the power station from becoming financially sustainable. The Government of Pakistan subsidizes the power sector, of which Jamshoro and other thermal plants (Guddu and Muzaffargarh) are part. In addition, the government establishes billing rates that each thermal plant must charge its customers. A power station official explained that the Government of Pakistan established the rates for the Jamshoro power station in 2007. However, customer demand has increased significantly since then, as has the cost of producing energy. From FY 2008 to FY 2012, the power station's total revenue was \$1.4 million, while it spent approximately \$1.5 million to operate the plant.¹ The government subsidized the shortfall. To address this problem, power station officials asked the Government of Pakistan to conduct a review of the station's energy consumption by December 2012 to increase the rates charged to customers.

Another policy that undermines sustainability is the government's use of alternative fuels. Because of the shortage of natural gas in the country, Government of Pakistan authorities have limited the amount provided to the power station. According to AEAI, the government does not designate the power station as a priority to receive natural gas. As a result, the power station uses more expensive furnace oil to generate power. When the power station used natural gas, the cost of energy production was 7 rupees per megawatt-hour; since the power station began using furnace oil, the cost has been between 21 and 24 rupees per kilowatt-hour.

¹ These figures were not audited.

Furnace oil is also harder on the equipment. A power station official noted that with natural gas, one piece of very expensive (\$670,000) equipment required replacement every 7 years. However, using furnace oil continuously for the last 2 years, the station had to replace this piece of equipment after about 18 months. The overall wear and tear on equipment has caused the plant to generate less than its original 850-megawatt capacity, further increasing costs and diminishing investment in plant maintenance.

If the Government of Pakistan does not make policy reforms—such as reducing subsidies, increasing billing rates, and using alternative fuels—in the energy sector, donors may not be willing to continue investing in it. Even if the power station is able to increase its power capacity by 150 megawatts by June 2013, long-term financial sustainability is impossible without policy reforms. To encourage USAID and the Government of Pakistan to make reforms in this sector, we make the following recommendation.

***Recommendation 1.** We recommend that USAID/Pakistan implement a plan to engage with the Government of Pakistan continually to promote policy reform in the energy sector.*

The Project Missed an Interim Target for Increasing Capacity

The contract between USAID/Pakistan and AEAI requires the contractor to develop a monitoring plan to measure the project's quarterly progress. According to the monitoring plan, the Jamshoro Thermal Power Station Repair and Rehabilitation Project was to increase output by 50 megawatts by September 2012 and by 150 megawatts by June 2013.

USAID/Pakistan may not be able to meet the June 30, 2013, target. Contrary to the mission's monitoring plan, USAID/Pakistan did not achieve its September 30, 2012, target. Instead, it planned to meet this target by December 2012, 3 months later than originally scheduled.

Several factors contributed to the missed interim target. First, there were delays processing procurement documents. The power station needed to obtain credit approvals from various Government of Pakistan ministries. This process took 30 days or more. For example, although one piece of equipment was ready for shipment from Spain on September 6, 2012, the credit approval did not come until October 15, 2012.

Second, the power station faced delays with shipping. The Government of Pakistan requires the power station to use Pakistan Naval Shipping Corporation (PNSC) ships. However, the PNSC ships were not always available when needed. According to a power station official, because of the limited number of PNSC ships, some equipment remained at the manufacturer for an additional 20 to 25 days before being shipped to Pakistan.

Third, a fire in April 2012 damaged five out of six fans in the station's cooling tower. The station replaced these with its own funds, but the time it took to get replacements delayed implementation. Despite these constraints, USAID/Pakistan still planned to increase capacity by 150 megawatts by June 30, 2013.

To help the project meet its objective, we make the following recommendation.

Recommendation 2. *We recommend that USAID/Pakistan review and revise in writing the Jamshoro Thermal Power Station Project's target date for increasing energy capacity by 150 megawatts.*

The Project Did Not Complete Any Capacity-Building Activities

According to ADS 200.3.1.5, sustainability includes “building skills, knowledge, institutions, and incentives that can make development processes self-sustaining. . . . [Building] the skills and capacity of local stakeholders [is] critical for maintaining gains after the program or project ends.”

The preaward assessment that USAID/Pakistan conducted of Jamshoro Thermal Power Station in April 2010 identified weaknesses in management capacity. In December 2011, USAID/Pakistan tasked Associates in Development, an organization helping implement the mission's Assessment and Strengthening Program, to provide capacity building to the power station until December 2012. Specifically, the organization was to assess and improve current policies and procedures and train staff on the updated policies and procedures. These activities are designed to improve capacity in the following areas:

- Accounting and Financial Management
- Internal Audit
- Procurement
- Human Resources
- Information Technology

As of November 2012, activities in all five areas had begun, but none had been completed. For example, Associates in Development had drafted a procurement manual; however, it remained in draft pending approval by the power station's board of directors. Furthermore, substantial work remained to complete activities by December 2012. No draft manuals on accounting and financial management, internal audit, human resources, and information technology had been provided to the power station for review and comment, and no training had been conducted on updated policies and procedures.

Progress was slow for several reasons. First, USAID/Pakistan did not request capacity-building activities until more than a year after the project started. Although the preaward assessment was completed in April 2010, capacity-building activities did not begin until December 2011. A USAID/Pakistan official explained that AEAI was hired for monitoring, evaluating, and providing technical assistance to the power station. USAID/Pakistan anticipated that AEAI would also provide capacity building, as implementing partners traditionally do with all USAID projects. However, the mission later determined that the power station's needs were greater than anticipated and put a separate program in place to focus on capacity building.

Second, some power station employees resisted the changes that capacity building entailed. For example, Associates in Development wanted the employees to follow the current Government of Pakistan Public Procurement Rules of 2004. However, the employees were reluctant because they were more accustomed to following the Water and Power Development Authority procurement manual, which was prepared in 1980.

Because of the slow progress, the power station continues to lack management capacity that would help ensure sustainability after the project ends. If management weaknesses identified in the preaward assessment are not addressed, the power station will continue to experience problems. We believe that the capacity-building activities may not be completed on schedule; therefore, we make the following recommendation.

Recommendation 3. *We recommend that USAID/Pakistan update the capacity-building schedule for the Jamshoro Thermal Power Station to reflect an achievable completion date and document the results.*

EVALUATION OF MANAGEMENT COMMENTS

USAID/Pakistan agreed with the three recommendations in the report.

On the basis of the information that the mission provided in its response to the draft report, it took final action on Recommendation 1 and made management decisions on Recommendations 2 and 3.

Recommendation 1. USAID/Pakistan agreed and has taken action. It has worked with the Government of Pakistan to promote policy reform in the energy sector. It has initiated five efforts with the Government of Pakistan by recommending policy solutions for problems affecting the energy sector, such as recommendations to remove \$9.13 billion of circular debt, and advising the Government of Pakistan on generation and transmission policy reforms. Accordingly, final action has been taken.

Recommendation 2. USAID/Pakistan agreed to review and by January 31, 2013, revise the target date for increasing energy capacity by 150 megawatts. However, USAID/Pakistan did not agree with the first two factors to which the report attributed the missed interim target—the processing of procurement documents and the requirement to use PNSC ships.

OIG stands by the information in the report. During the audit, OIG analyzed the procurement process and obtained information from several sources, including employees of the Jamshoro power station. They cited the processing of procurement documents and the requirement to use PNSC ships as factors contributing to implementation delays.

Despite disagreeing with some of the factors identified in the finding, the mission agreed with the recommendation and made a management decision.

Recommendation 3. USAID/Pakistan agreed to revise the completion date for capacity building. This constitutes a management decision. The mission planned to provide a copy of the revised and approved capacity-building plan by January 31, 2013.

The Audit Performance and Compliance Division will determine final action when the mission completes the planned corrective actions for Recommendations 2 and 3. The mission's written comments are included in their entirety in Appendix II of this report.

SCOPE AND METHODOLOGY

Scope

We conducted this performance audit in accordance with generally accepted government auditing standards.² Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions in accordance with our audit objective. We believe that the evidence obtained provides that reasonable basis.

The purpose of this audit was to determine whether USAID/Pakistan built sustainability into the Jamshoro Thermal Power Station Repair and Rehabilitation Project. No previous audits addressed the areas reviewed.

The audit covered activities implemented from May 20, 2010, through September 30, 2012. The program started on May 20, 2010, and is to end on June 30, 2013. As of September 30, 2012, USAID had spent \$9.7 million of the \$19.3 million obligated for the program. OIG tested eight items that the power station procured and for which USAID reimbursed the station \$2.6 million.

We reviewed applicable laws and regulations as well as USAID policies and procedures pertaining to the program, including ADS Chapters 200 and 201. The audit relied on the following sources of evidence: the activity agreement; project implementation letters; the Associates in Development capacity-building plan; Jamshoro quarterly progress reports; and interviews with officials from the mission, Associates in Development, and the Government of Pakistan. We reviewed and analyzed documentation maintained at the mission and at the implementers' offices in Islamabad. Audit fieldwork was performed at the USAID/Pakistan mission and at the contractors' program offices in Islamabad. The audit also included field visits to Jamshoro from October 10 through October 12, 2012.

In planning and performing the audit, the audit team assessed relevant controls used by the mission to manage the program and to ensure that it provided adequate oversight of program activities. These controls included reviewing the power station's documentation for eight procured items to assess whether the station followed GOP procurement regulations. In addition, to assess whether the power station procured the correct USAID-funded items, the audit team verified all pieces of the equipment that were installed or in storage at the power station.

Methodology

To answer the audit objective, the audit team interviewed USAID/Pakistan mission officials, officials from AEAI, Associates in Development, and the Jamshoro Thermal Power Station. The audit team also reviewed financial reports and mission documentation used to manage and monitor the program. To validate the results reported by the program, the audit team checked them against supporting data maintained by the implementers. Additionally, through interviews, documentation reviews, and data analysis, the audit team obtained an understanding of (1) the

² U.S. Government Accountability Office, *Government Auditing Standards*, December 2011 Revision.

project's main goals, (2) how the mission monitors implementation of the program, (3) how the mission checks the quality of the data reported, and (4) whether the mission was aware of any allegations of fraud or other potential illegal acts or noncompliance with laws and regulations.

MANAGEMENT COMMENTS



USAID | **PAKISTAN**
FROM THE AMERICAN PEOPLE

MEMORANDUM

Date: December 19, 2012

To: Joseph Farinella
Director OIG/Pakistan

From: Jonathan M. Conly /s/
Mission Director USAID/Pakistan

Subject: Management Comments on the Audit of USAID/Pakistan's Design for Sustainability in the Jamshoro Thermal Power Station Repair and Rehabilitation Project

Reference: Draft audit report G-391-13-001-P

We appreciate the professional and objective manner in which the auditor performed the audit of the USAID/Pakistan's design for sustainability in the Jamshoro Thermal Power Station Repair and Rehabilitation Project. Mission management concurs with the three recommendations in the report. The findings reinforce the priorities of the Mission and will serve to improve the implementation of this project to achieve its targets and goals in more efficient way. In response to the referenced audit report, Mission's management comments on the recommendations included therein are as follows.

Recommendation No. 1: We recommend that USAID/Pakistan implement a plan to engage with the Government of Pakistan continually to promote policy reform in the energy sector.

Management comments:

Mission management concurs with the recommendation. USAID/Pakistan has been and will continue to engage the Government of Pakistan to promote policy reform in the energy sector. Our efforts in this regard have included the following:

1. USAID/Pakistan led in the development of the Friends of Democratic Pakistan report. This report contains a comprehensive analysis of problems in the Pakistan energy sector and recommends policy solutions.
2. The USAID Office of Energy is in the final stages of preparing a circular debt report for the Deputy Chairman of the Planning Commission. This report identifies all of the primary and secondary causes and financial impacts of circular debt and provides policy recommendations to remove all \$9.13 billion of the circular debt.
3. The Energy Policy Project is advising the Government of Pakistan on generation and transmission policy reforms. The Power Distribution Program is advising the Government of Pakistan on policy reforms related to the nine government owned power distribution companies. About twelve advisors are seconded to the Ministry of Water and Power through these two programs.
4. USAID/Pakistan recently facilitated a series of bilateral discussions between the Assistant Administrator and Director of Afghanistan and Pakistan Affairs and senior Government of Pakistan energy sector officials on policy reform.
5. USAID/Pakistan is supporting senior USG officials, including Thomas Nides, the Deputy Secretary of State for Management and Resources, who are closely associated with the energy sector development in Pakistan. These USG officials conduct frequent energy policy discussions.

The Mission will continue its efforts to promote energy policy reform with the Government of Pakistan with future dialogues and interventions similar to those illustrated. The Mission believes that necessary actions are being taken to engage the Government of Pakistan to promote policy reform in the energy sector. Therefore, no further corrective action is required and Mission requests the closure of the recommendation on issuance of the report.

Recommendation No. 2: We recommend that USAID/Pakistan review and revise in writing the Jamshoro Thermal Power Station Project's target date for increasing energy capacity by 150 megawatts.

Management comments:

Mission management concurs with the recommendation. The USAID Office of Energy in Pakistan is in the process of reviewing the impacts of the delays that have already occurred. This analysis will be used to inform a decision on a revised project completion date. Mission will complete the analysis and provide a target date for increasing the energy efficiency capacity by January 31, 2013.

We would like to note, the audit identifies three contributing factors to the delayed interim power generation capacity target; however, in our opinion, the first two factors listed did not contribute to the delay of this particular interim target. The first factor relates to the procurement of post September intervention and thus cannot be attributed to the delay in achieving the target set for September 30, 2012. Also, there were no shipment delays affecting the interim target which is the second intervening factor highlighted in the report.

Recommendation No. 3: We recommend that USAID/Pakistan update the capacity building schedule for the Jamshoro Thermal Power Station to reflect an achievable completion date and document the results.

Management comments:

Mission management concurs with the recommendation. The Mission has worked with ASP-AiD and revised the capacity building plan to reflect an achievable completion date of June 30, 2013 for the capacity building activities. The revised capacity building plan is under review and approval by the Agreement Officer. Mission will provide the copy of the revised approved capacity building plan by January 31, 2013.

U.S. Agency for International Development
Office of Inspector General
1300 Pennsylvania Avenue, NW
Washington, DC 20523
Tel: 202-712-1150
Fax: 202-216-3047
<http://oig.usaid.gov>