OFFICE OF INSPECTOR GENERAL

AUDIT OF USAID/PAKISTAN'S ACTIVITIES RELATED TO JINNAH POST GRADUATE MEDICAL CENTER AND JACOBABAD INSTITUTE OF MEDICAL SCIENCES

AUDIT REPORT NO. G-391-15-002-P
JANUARY 29, 2015

ISLAMABAD, PAKISTAN

Office of Inspector General

January 29, 2015

MEMORANDUM

TO: USAID/Pakistan Mission Director, Gregory C. Gottlieb

FROM: Office of Inspector General/Pakistan Director, William S. Murphy /s/

SUBJECT: Audit of USAID/Pakistan's Activities Related to Jinnah Post Graduate Medical Center and Jacobabad Institute of Medical Sciences (Report No. G-391-15-002-P)

This memorandum transmits our final report on the subject audit. In finalizing the audit report, we considered your comments on the draft and included them in their entirety, excluding attachments, in Appendix II.

The audit report contains eight recommendations to assist the mission in improving various aspects of the program. After reviewing information provided in response to the draft report, we determined that the mission has taken final action on Recommendations 3 and 5 and made management decisions on the remaining Recommendations except for Recommendation 6. Please provide evidence of final action on the open recommendations to the Audit Performance and Compliance Division.

Thank you and your staff for the cooperation and assistance extended to the audit team during this audit.

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Abbreviations

The following abbreviations appear in this report:

ADS	Automated Directives System
COR	contracting officer's representative
FAR	Federal Acquisition Regulation
IGCE	independent government cost estimate
IQC	indefinite quantity contract
OAA	USAID/Pakistan Office of Acquisition and Assistance
OB/GYN	obstetrics and gynecology
OIG	Office of Inspector General
OMB	Office of Management and Budget
PKR	Pakistani rupee

SUMMARY OF RESULTS

USAID/Pakistan launched its Pakistan Earthquake Reconstruction and Recovery Program on October 27, 2006. It was a 5-year, $120 million program to design and reconstruct schools and health-care facilities in earthquake zones. The mission awarded this program to CDM Constructors Inc. through an indefinite quantity contract (IQC).[1] In June 2011, the mission increased the program's budget to $180 million and expanded its scope of work and its duration. The expanded scope of work included the construction of health, education, and other infrastructure throughout Pakistan. In August 2014, the mission again extended CDM's end date from October 26, 2014, to November 30, 2014, and increased the budget to $180.5 million.

The mission issued the Rehabilitation of Health Facilities task order in September 2011 under the expanded earthquake reconstruction and recovery program. The mission initially planned to build an obstetrics and gynecology (OB/GYN) wing at the Jinnah Post Graduate Medical Center in Karachi (Karachi Medical Center) and rehabilitate the Jacobabad hospital under the task order. However, the mission abandoned plans to rehabilitate the hospital and decided to build an entirely new facility—the Jacobabad Institute of Medical Sciences—to fulfill a commitment that a senior Department of State official made in 2010. The Sindh government collaborated with the mission to help make the institute a reality. In August 2014, the mission extended the end date for the health facilities rehabilitation task order from September 30 to November 30, 2014, and increased the task order ceiling to $19.1 million.

CDM provided design-build[2] services for the new OB/GYN wing at the medical center and the institute under a hybrid contract. It combined elements of a cost-plus-fixed-fee[3] contract for the design, construction supervision, furniture, equipment, and management services, with elements of a firm-fixed-price[4] contract for construction. The task order's total cost was slightly more than $19 million, and as of February 2014, the mission had disbursed slightly more than $10 million. The table below shows CDM's construction budget for the rehabilitation of health facilities and CDM's fees for other services.

CDM's Budget and Fees (not audited)

Facility	Component	Budget ($)
OB/GYN Wing	Construction, and furniture and equipment	2,139,855
Jacobabad Institute	Design, construction, and furniture and equipment	11,191,115
	Contingency fund for change orders	200,000
	CDM*	5,577,981
Total		**19,108,951**

* Includes CDM's fees and costs for labor, support services, management, administration, and overhead.

[1] Title 48, Section 16.504, of the Code of Federal Regulations describes an IQC as a contract for an indefinite quantity of supplies or services acquired within a fixed time.
[2] According to Federal Acquisition Regulation (FAR) 36.102, design-build is a way to combine design and construction in a single contract with one contractor.
[3] According to FAR 16.3, a cost-plus-fixed-fee contract is a cost-reimbursement contract with a fee fixed at the start of a contract. This type of a contract is usually used when the work might present a risk to contractors. However, it gives the contractor little incentive to control costs.
[4] FAR 16.202-1 defines a firm-fixed-price contract as one whose price a contractor cannot adjust.

The OB/GYN wing of the Karachi Medical Center is a four-story building with a square footage of 40,000 and six wards (one shown below). The center contains 60 beds, an ultrasound department, and a learning and teaching institute (also shown below). The wing officially opened in December 2012.

At left is one of the six OB/GYN wards just prior to opening. At right is the medical center's learning and teaching institute, a 155-seat auditorium. (Photos by USAID/Pakistan, October 2013)

CDM expected to finish the institute (construction of which is shown below) by September 30, 2014. It was to have a square footage of 115,000, approximately 150 beds and provide access to health care for more than 1 million poor people in the surrounding area, including the city of Jacobabad and the provinces of Sindh and Balochistan.

A CDM architectural rendering at left shows the institute's layout. The photo on the right depicts the progress on the construction of the institute as of February 12, 2014. (Photo by OIG)

The USAID Office of Inspector General (OIG) conducted this audit to determine whether CDM followed selected terms of the IQC and the health facilities task order and whether USAID/Pakistan's activities were improving access to and the quality of health-care services, as planned.

The audit concluded that CDM met most of the requirements in the IQC and the task order and that USAID/Pakistan's activities were improving both access to and the quality of health-care services. However, several problems were identified that could adversely affect the long-term success of the facilities such as such as a lack of sustainability, some procedural and process deficiencies, and several design and construction shortcomings.

Compliance. CDM developed detailed construction policies and procedures as required by the IQC and the task order and complied with them during the construction phase of both facilities.

- **OB/GYN Wing.** CDM met the IQC's requirements by providing a complete, detailed bill of quantities and construction specifications. CDM provided and installed furniture and medical equipment that met contract requirements. Further, CDM prepared a warranty plan, an operations plan, and maintenance plans; provided training to the medical center's staff; and submitted a complete inventory list to the mission after construction finished in September 2012, as required.

- **Jacobabad Institute.** CDM developed work plans such as a health and safety plan, quality control and quality management plans, guidelines and procedures for construction projects in locations without regional support, a security plan, operations and maintenance manuals, and a monitoring and evaluation plan. CDM complied with its technical policies and procedures by assessing the site; performing an environmental review and geotechnical analyses; conducting surveys and engineering analyses; and preparing site-specific construction plans and specifications, drawings, and a detailed bill of quantities. CDM's construction subcontractor maintained site safety plans, provided workers with personal protective equipment, and placed fire extinguishers onsite.

Access and Quality. The mission built the OB/GYN wing and the institute to provide different services.

- **OB/GYN wing.** The Karachi Medical Center is the largest specialty hospital in Sindh Province, and people come to it from throughout Pakistan. It specializes in obstetrics, gynecology, and medical instruction. It also provides preventive care and treatment for women with obstetric fistulas, services provided by only a few hospitals in Pakistan. The mission's expected results after adding the wing were to treat at least 200 fistula patients annually, reduce patient load on the medical staff, reduce wait times for surgical patients, and provide enhanced teaching and training facilities for doctors and fourth-year student nurses.

  According to the Sindh government and a local nongovernmental organization that specializes in health, the wing provides greater access to health services than Karachi Medical Center did before. In 2013, nearly 200 women received treatment for fistulas, and more than 3,500 medical professionals used the learning and teaching auditorium for 22 seminars, 68 meetings, 24 workshops, and 41 classroom exams.

  Furthermore, the OB/GYN department head and its administrator said the quality of care and the attention given to female patients have increased. The poor facilities that existed before the wing opened made patients want to leave the OB/GYN ward as soon as possible. The officials said many women were taking advantage of the medical services provided in the new wing, and fistula patients were "kept with dignity." Infection rates and patient wait

times have decreased as well. A department official also said she was "extremely grateful to USAID" since women in Pakistan are usually ignored.

- **Jacobabad Institute.** The mission planned the institute to provide Jacobabad and its surrounding areas with improved local health facilities, quality general health-care services at a low overall cost, and state-of-the-art treatment for many ailments. The institute was expected to have specialized services for mothers, newborns, and children, as well as critical care and intensive care units; operating rooms; diagnostic facilities; patient treatment and recovery wards; a hepatitis ward; a dialysis area; and clinics for other diseases. A Jacobabad District health officer said the institute would help alleviate problems that Pakistani women experience—like a lack of access to health care. The Sindh government anticipated the institute would meet most of the district's medical needs.

Notwithstanding the positive aspects of the project, several weaknesses were noted:

- Facilities and systems needed for the Jacobabad Institute's opening were behind schedule (page 6). Dependence on them will delay health-care services for the people of Jacobabad and the surrounding areas.

- Jacobabad Institute was unlikely to be sustainable (page 8). The Sindh government's proposed operating and maintenance budget was insufficient to maintain the institute's facilities and services at the planned level of quality. Additionally, the institute's personnel may lack the training and skills to operate and maintain the electrical power backup systems.

- The new wing of the medical center had design and construction shortcomings, and the institute had design problems (page 10). The design problems in the two facilities may lessen their ability to provide quality health care.

- The mission approved an incorrect currency exchange rate for the Jacobabad Institute (page 14). The oversight resulted in a price tag nearly $1.6 million higher than it would otherwise have been.

- CDM's procurement process was deficient (page 15). It resulted in a construction subcontract possibly not being awarded to the most qualified contractor.

- The mission did not prepare an independent government cost estimate (page 16). Consequently, the mission cannot ensure that the construction bids it received were reasonable.

To address the areas noted above, the audit recommends that USAID/Pakistan:

1. Work with the Sindh government to implement a written contingency plan engaging the Jacobabad Institute's board of governors to protect the U.S. Government-provided medical equipment and furniture after installation (page 7).

2. Consult and collaborate with the Sindh government to implement a written strategy for the long-term sustainability of the Jacobabad Institute of Medical Sciences (page 10).

3. Consult with the Karachi Medical Center's management to implement a written plan to identify and address construction and workmanship deficiencies (page 13).

4. Inspect the Jacobabad Institute of Medical Sciences before its construction warranty period expires, and document and address the inspection findings (page 14).

5. Hire an independent electrical engineer to determine whether the primary and backup power systems meet the needs of the Jacobabad Institute of Medical Sciences and document the findings. Then take appropriate action to address the findings. (page 14).

6. Determine the allowability of and recover from CDM Constructors Inc., as appropriate, ineligible questioned costs of $1.6 million (page 15).

7. Implement written procedures for its staff to determine and use correct exchange rates for local contracts priced in Pakistani rupees and billed in U.S. dollars (page 15).

8. Implement written procedures for the Islamabad Office of Acquisitions and Assistance (OAA) to verify that independent government cost estimates have been prepared (page 17).

Auditors identified three additional problems (page 18). One related to planning, while the other two were for nonperformance. However, since CDM's task order under which these projects were being implemented ended in November 2014, we have made some suggestions instead of recommendations to help USAID/Pakistan administer future infrastructure and construction projects.

Detailed findings follow. The audit's scope and methodology appear in Appendix I. Management comments appear in Appendix II, and our evaluation of them is on page 21. Six photos of deficiencies in the new wing of the Karachi Medical Center are in Appendix III.

AUDIT FINDINGS

Facilities and Systems Needed for Jacobabad Institute's Opening Were Behind Schedule

The National Conference on Building Commissioning has defined "Total Building Commissioning" as verifying and documenting that all facility systems perform as designed and according to the owner's operational needs, including preparation of operations personnel. Verification and documentation should continue at least 1 year after construction.

USAID/Pakistan and CDM conceptualized and designed Jacobabad Institute, solicited contractors, and began construction almost 10 months after the Pakistan Government acquired the land. However, the institute's ability to start operating and providing people with the high-quality health care the mission anticipated within a reasonable time after opening was uncertain for the following reasons.

- **Water and utilities.** A mission official said that the institute would need an agreement with the Jacobabad municipality to secure the amount of water it will require. Yet Jacobabad's drinking water supply, sewage system, and wastewater treatment systems are substandard. The mission confirmed that Jacobabad's water requires treatment for biological impurities before it can be used. Furthermore, most of the Jacobabad District does not have a functioning sewage system.

  Another USAID/Pakistan project has been working to improve Jacobabad's water systems. However, its contracting officer's representative (COR) said the project would not be finished until September 2015, a full year after the institute's construction ends.

- **Staff housing.** The provincial government offered housing to attract competent staff because Jacobabad is quite remote, impoverished, and has a high rate of petty crime with limited law enforcement. The Sindh government was responsible for building the housing for medical and paramedical staff, as well as training facilities for nurses. The Sindh government was supposed to finish building housing by June 2014 but issued the contract late because of financial constraints. Therefore, construction did not begin until February 2014 and was not scheduled to be completed until June 2015.

- **Staffing levels.** According to a Sindh government official, the Jacobabad Institute would need 665 employees to be fully staffed.

  To help the board[5] recruit a sufficient number of qualified staff and begin operations, USAID/Pakistan offered to assist in developing a hiring strategy and preparing operating procedures. However, the board did not take the mission up on its offer. A senior mission official noted that the board was not obligated to follow any of the mission's

[5] A team of Pakistani experts in hospital management determined that the best way to manage the Jacobabad Institute would be through an independent governing board representing the government, senior doctors, representative groups of doctors, and others.

recommendations and that having plans and procedures did not guarantee starting on time or having the personnel to meet its health-care objectives.

- **Equipment.** Both the mission's and the Sindh government's roles and deliverables were specified in a Pakistan Government planning commission document issued in September 2012. The mission was responsible for providing plant and machinery to operate the institute; establishing an emergency blood transfusion unit; enhancing maternal, newborn, and child health services; and providing the operating rooms with equipment.

  In February 2014, the mission shared a preliminary list of equipment with the Sindh government. A Sindh government official said that important medical equipment worth about $2 million was not included on the mission's list. The mission had budgeted only $407,149, or almost 83 percent less for medical equipment than the Sindh government had envisioned. As of July 2014, the mission still had not finalized the list of equipment to be provided.

The institute's timely opening was uncertain because the mission and the Sindh government did not fully explore how dependent the institute was on associated infrastructure projects, housing facilities, staff levels, and equipment during the concept, planning, design, and construction phases. Both parties focused instead on building the institute because a senior U.S. Government official committed in July 2010 to providing two hospitals in Sindh. Mission officials felt compelled to fulfill that commitment, and the Sindh government collaborated with the mission to make the institute a reality by acquiring the land for it and preparing the planning commission document specifying both parties' roles and responsibilities. However, details other than facility design and construction, including funding, were ironed out piecemeal.

In addition, turnover among the mission's staff and Sindh government officials undermined institutional knowledge and impaired progress. Sindh government officials noted that the political and bureaucratic environment in Pakistan is difficult to manage because of competing interests among governmental entities, which further hinders their ability to make changes.

The consequences of dependence on other facilities and systems go beyond a delay in providing services. Inadequate staffing could result in a lack of trained personnel to operate the planned state-of-the-art equipment, compromising the high quality of care the mission intended the institute to provide. Any furniture and expensive medical equipment installed before the institute opens could be damaged or stolen. Warranties might also expire before staff uses the equipment. Finally, depending on how long the institute's opening is delayed, the building itself might not be used before its 1-year construction warranty expires, thwarting the timely discovery of construction defects. Since the institute is nearing completion, we make the following recommendation to protect the U.S. Government's investment in the equipment and furniture.

Recommendation 1. *We recommend that USAID/Pakistan work with the Sindh government to implement a written contingency plan engaging the Jacobabad Institute's board of governors to protect the U.S. Government-provided medical equipment and furniture after installation.*

Jacobabad Institute Was Unlikely to Be Sustainable

Automated Directives System (ADS) 200.3.1, "Operational Principles," describes two operating principles: to integrate sustainability from the start of activities, and to collaborate with entities such as the host government. ADS 200.3.1.5 states that sustainability cannot be an afterthought because it is about building skills, knowledge, institutions, and incentives to make development activities self-sustaining. ADS further states that missions should nurture effective institutions and ensure that activities or services link to sustainable financing models, either through private-sector participation or through publicly managed arrangements. Finally, ADS 200.3.3 notes that missions should select objectives that are lofty and inspiring while being achievable. All these directives require that host-country governments, institutions, other donors, civil society, and the private sector collaborate.

The Jacobabad Institute may struggle to continue operating and providing the expected level of care for the following reasons.

- **Budget shortfall.** The Sindh government may not have allocated enough money for the institute's successful operation. The Sindh government budgeted $1.3 million annually for the institute's operations, excluding maintenance. For comparison, the operating budget, excluding maintenance, for Jacobabad hospital—which continued operating although it was not rehabilitated—was $1.3 million for 2013-2014. Although both the budgets were similar, planned staff levels at the institute will be more than double the old hospital's, with staffing costs representing most of the budget at both facilities.

  Mission officials approved the project although they knew future budget shortfalls were likely. For example, at a design meeting a mission official noted, "there are severe budget constraints at the existing facility [Civil Hospital] and . . . this situation is unlikely to improve significantly at the new facility [Jacobabad Institute]." At another meeting, a mission official noted, "The [Jacobabad] hospital has a minimal budget and operation and maintenance costs apparently are not adequately covered. As a matter of fact, it would appear that the situation is desperate." Since funds were already short, expecting the Sindh government to commit large funds to the new facilities was not realistic.

- **Inadequate backup power systems.** Frequent power outages are common in Jacobabad, some lasting more than 12 hours. Reliable backup power systems at the hospital are crucial for its safe operation. Accordingly, the institute was designed with both diesel and solar backup systems.

  However, operators at the old hospital have not been able to maintain its diesel generators, and the complexity of modern solar power systems makes it even less likely that operators will be able to maintain them in the institute.

  Regarding solar power systems in general, Pakistan's oldest and most widely read English-language newspaper wrote of some of the pitfalls to be encountered with such systems in Pakistan:

  > Apart from general hurdles of cost effectiveness, collection, conversion and storage of solar energy the other potential bottle neck in promotion of solar power is lack of trained technicians to design, install and maintain solar electric system

particularly in country-wide remote areas. Proponents of solar electricity systems for off-grid small villages fail to understand the key fact of illiteracy in our villages. The vital point to consider is that when technically qualified staff of concerned authorities has failed to demonstrate and make pilot scale solar generated system run efficiently, how can we expect that a non-qualified illiterate dwellers of our remote areas will supervise and operate a solar system?

To top it all another significant barrier in promotion of solar power in Pakistan which has never been considered by the proponents of solar energy is our dusty atmosphere. Whether it is a photovoltaic type or thermal collector type solar electricity generation unit, the performance of the system directly depends upon obstacle-free contact of sunlight to the system.

Any blockage of the sunlight to the system would certainly decrease the efficiency of the system.

- **Excessive political influence.** Many government officials shared concerns that the board of governors might not be able to hire competent staff because of favoritism in the hiring process. The institute's ability to maintain operations and provide quality services depends on competent staff.

  The mission said that an independent board would prevent favoritism in hiring. However, two senior Sindh government officials expressed skepticism. Another senior Sindh government official suggested outsourcing the institute's management functions to a reputable, voluntary organization, especially to build the staff's capacity.

The above issues represent potential impediments to sustainability that were not sufficiently mitigated for the following reasons:

- The mission did not compare the government's budgets and staffing levels for the old hospital with those for the institute.

- The mission did not pay sufficient attention to previous technical reports that its consultants prepared. These reports cited problems that hospital staff were having operating a commonly used piece of equipment such as a diesel generator and might have compelled mission staff to reconsider whether a state-of-the-art solar power backup system was a reasonable and viable alternative. More importantly, Karachi Medical Center personnel were already having difficulties operating other common equipment, such as the air-conditioning plant, chillers, elevators, and the septic system (mentioned in the next finding).

- The mission did not obtain the Sindh government's commitment to maintain and operate the solar power system. CDM staff noted that Sindh government officials had asked about the system's maintenance, and CDM staff told them that subcontractors and other suppliers could maintain the solar power system for them. However, hiring subcontractors would place an additional burden on a budget already facing future shortfalls.

By not mitigating the above problems, the institute may struggle to remain financially and operationally viable and may devolve into the same condition as the Jacobabad hospital. A mission document noted in January 2011, "The general conditions at the [Jacobabad] hospital are horrific. Water, sewage, and solid waste are all major problems. Facilities are in a general

state of disrepair and equipment is lacking. The only good piece of news is that the buildings are apparently structurally intact."

Additionally, the mission's efforts to install the solar power system in the institute run a high risk of failure. Many health professionals responsible for allocation of limited financial and human resources for public health programs see renewable energy technologies as costly, experimental technologies with a poor record of accomplishment. If the institute degenerates into a facility that cannot provide the quality of health care planned, the U.S. Government's image will be damaged, and a large U.S. Government investment will be wasted. To ensure the continued operation and long-term sustainability of the institute, we make the following recommendation.

> ***Recommendation 2.*** *We recommend that USAID/Pakistan consult and collaborate with the Sindh government to implement a written strategy for the long-term sustainability of the Jacobabad Institute of Medical Sciences.*

Medical Center's New Wing Had Design and Construction Shortcomings, and Institute Had Design Problems

Hospitals are not the same as houses, offices, schools, or even clinics. The National Institute of Building Sciences' *Whole Building Design Guide* describes hospitals as "the most complex of building types." The guide goes on to state:

> Each hospital is comprised of a wide range of services and functional units. These include diagnostic and treatment functions, such as clinical laboratories, imaging, emergency rooms, and surgery; hospitality functions, such as food service and housekeeping; and the fundamental inpatient care or bed-related function. This diversity is reflected in the breadth and specificity of regulations, codes, and oversight that govern hospital construction and operations. Each of the wide-ranging and constantly evolving functions of a hospital, including highly complicated mechanical, electrical, and telecommunications systems, requires specialized knowledge and expertise.

The mission's objective for this project was to build and furnish safe, quality buildings and to incorporate lessons learned from previous USAID construction programs. The IQC added that "building back better" requires time, local community buy-in, and rigorous construction supervision. The IQC made CDM responsible for quality control under all aspects of the contract, including the performance of subcontracted local Pakistani construction firms. The IQC said that design standards should comply with internationally acceptable practices, and building designs for schools and health-care facilities would be prepared in accordance with Pakistani Government and international building code standards.

Besides the IQC, many other standards and guidance materials apply to health-care facilities. USAID's *Basic Principles For Building Health Infrastructure: A Primer* notes that partnering in the predesign phases is important because USAID can contribute to a healthier environment beyond the facility's clinical services. USAID's *Powering Health: Electrification Options for Developing Country Health Facilities* states that an electric load inventory provides valuable insights into a facility's energy use and can be used to save on energy costs, increase

productivity, and protect critical assets. Finally, CDM's Quality Manual states that CDM's quality management system provides products and services that meet or exceed clients' requirements and enhances clients' satisfaction.

CDM generally met the IQC and task order requirements. However, it did not properly design both medical facilities, and the new wing's construction and workmanship could have been better. Some of the problems (also identified by Karachi Medical Center management) may already have compromised its operations and patient safety. Similarly, the design problems in the institute may hinder its ability to provide quality health care. Significant design problems and obvious construction and workmanship flaws are listed below. Appendix III contains six photos of deficiencies in the new wing.

Design Problems in the OB/GYN Wing of Karachi Medical Center. CDM designed the new wing with insufficient provisions for keeping out sand, dirt, insects, rainwater, and debris or for accommodating waiting patients,

- CDM installed floor-to-ceiling grills in at least four locations to help circulate air (the medical center is not fully air-conditioned). However, the grills do not have screens over them. Without screens, rainwater, dirt, insects, and small animals enter the building. For example, we saw a pigeon nesting in a washbasin and a cat prowling the corridors.

- One of the two elevators is frequently out of service. According to CDM officials, the medical center's management typically uses only one elevator to save power. The second elevator is used occasionally during rush hours and when very important persons visit the facility. Yet it is often unreliable. The medical center's managers believe rainwater entering the elevator shaft causes the sand and dirt to harden, preventing the elevator doors from operating.

- The septic system releases foul odors that enter the consultants' offices and the restrooms, making it unpleasant for people to use them. The maintenance staff said the septic tank was not required because Karachi has a functioning sewage system. Staff also complained that the suction side of the septic pump does not have a mesh screen over it, allowing debris to enter the pump and damage it. In fact, staff said they once discovered a dead cat blocking the suction side of the pump.

- The waiting area does not have seats to accommodate all those who seek treatment, forcing pregnant and sick patients to stand. This factor made the atmosphere inside very congested and suffocating. USAID's primer notes that waiting and circulation areas should preferably be outside to help avoid spreading infection inside the facility.

Design Problems in the Jacobabad Institute. CDM designed the institute without considering or taking steps to lessen the noise coming from an adjacent airbase, without adequately estimating electrical load requirements, and without providing electrical backup.

- CDM officials said they were installing double-glazed windowpanes in the operating theatres and in critical and intensive care units to reduce noise. However, the windows CDM specified are meant to reduce only heat, not noise, and they come from a foreign supplier even though locally available glass reduces both noise and heat. Officials added that they were using exterior cavity walls and insulating roofs, installing solid core doors, and planting trees. However, most of these measures will reduce heat, not noise to any significant degree.

- CDM did not properly prepare an inventory of the electrical load requirements. USAID's Improving Health Facility Infrastructure Project determined that lights, fans, air-conditioning, and refrigeration equipment use almost 60 percent of the electrical load at a typical hospital. Hospital equipment and computers use the remaining 40 percent. However, CDM allotted only about 20 percent of its total electrical design load for equipment and computers at the institute.

- The electrical power system does not have sufficient backup to maintain operations. CDM designed the solar power backup system as three independent systems that power different wards. Two have battery backups, one with 4 hours of battery life, and the other with 12 hours of battery life. The third system has only a diesel generator backup.

  If the sky is overcast during the day and the municipal electrical grid experiences an outage in the night, the wards powered by the two systems with battery backups will not have lights and fans after their batteries are exhausted.

  Reliance on battery backups could result in above-normal battery replacement costs. The COR said Jacobabad often loses power for 4 to 12 hours during the day. Outages cause frequent battery discharges, shortening battery life and raising plant and maintenance costs. As mentioned in the previous finding, the institute's budget may not be able to support the purchase of replacement solar power batteries.

Construction and Workmanship Flaws in the New Wing. Less than 18 months after its opening, construction and workmanship problems surfaced at the Karachi Medical Center. Those discovered by auditors or reported by staff are listed below.

- Plumbing in the ultrasound room, blood laboratory, and some other rooms was not functioning.

- Air-conditioning chiller plants were not working.

- Some electrical circuits were undersized for the loads they handle. Maintenance staff said they informed CDM that the electrical circuits did not work; however, CDM had not repaired them.

- Other deficiencies (shown in Appendix III) were visible, such as deteriorated wall plaster, leaking water causing wall and structural damage, poorly mounted electrical fittings, and deep cracks in wall finishing.

The design, construction, and workmanship problems occurred for many reasons. CDM's quality control manuals and other policies and procedures were written for traditional, general-use buildings such as schools and small clinics, not for state-of-the-art, modern hospitals. CDM officials said they discussed design requirements for the institute with "stakeholders including USAID and the Government of Sindh Health Department." Additionally, CDM noted that it had compared the requirements "with guidelines published by the Pakistan Medical and Dental Council." However, Pakistan Medical and Dental Council's mission is "to establish uniform minimum standard of basic & higher qualifications in Medicine & Dentistry throughout Pakistan," and it does not develop standards for the construction of health-care facilities. In fact, Pakistan Standards and Quality Control Authority is responsible for developing such standards for primary and secondary health-care facilities.

Additionally, the mission did not pay enough attention to design, construction, operational needs, or quality assurance details and did not learn lessons from its construction portfolio or other analyses it conducted. The IQC states that just because the COR reviews or approves the contractor's submittals, it was not to "be construed as a complete check, but will indicate only that the contractor furnished design, general method of construction, materials, detailing and other information [that] appear to meet the Task Order and contract requirements." This statement in the IQC played a role in the mission's insufficient involvement in project details by deflecting responsibility to its contractor.

Karachi Medical Center managers said CDM and its architectural and engineering contractor lacked knowledge of construction practices for hospital and health-care facilities. Managers added that during the design phase CDM personnel ignored the on-ground realities that hospitals are roughly used public utilities, and money and people for maintenance are limited.

Further, the mission's Office of Infrastructure and Engineering had only civil engineers on staff, no electrical and mechanical engineers. Therefore, it could not properly and independently assess CDM's electrical and mechanical system designs. CDM officials said that although they shared their design philosophy with the mission, they knew it lacked engineering expertise and therefore designed the electrical systems without the mission's input.

Finally, the mission's and CDM's site inspectors missed these problems during construction. The COR's inspections of the new wing at the medical center were inadequate and infrequent because of travel difficulties and other work responsibilities. The USAID/Karachi office collaborated with the Sindh government to acquire construction permits but was not involved in inspections. Since the mission's Islamabad office did most of the site inspections, the mission could not inspect the construction rigorously, although doing so was required and was a lesson learned from previous projects.

The design, construction, and workmanship deficiencies have many adverse implications:

- Besides hindering other operations, an unreliable power supply can interfere with the storage and preservation of medical supplies that require refrigeration, such as blood, testing reagents, vaccines, drugs, and rapid test kits.

- Unsanitary and unhygienic conditions may introduce disease and infection in already ailing people.

- Flaws place unnecessary operational and budget burdens on management.

- Construction and workmanship deficiencies discovered in the new wing of the medical center may manifest themselves in the institute.

- Deficiencies reflect poorly on the U.S. Government.

Therefore, we make the following recommendations to correct the deficiencies in the Karachi Medical Center and the Jacobabad Institute.

> ***Recommendation 3.*** *We recommend that USAID/Pakistan consult with the Karachi Medical Center's management to implement a written plan to identify and address construction and workmanship deficiencies.*

Recommendation 4. *We recommend that USAID/Pakistan inspect the Jacobabad Institute of Medical Sciences before its construction warranty period expires, and document and address the inspection findings.*

Recommendation 5. *We recommend that USAID/Pakistan hire an independent electrical engineer to determine whether the primary and backup power systems meet the needs of the Jacobabad Institute of Medical Sciences and document the findings. Subsequently, USAID/Pakistan should take appropriate action to address the findings.*

Mission Approved an Incorrect Currency Exchange Rate for the Jacobabad Institute

According to Federal Acquisition Regulation (FAR) 52.215-11 (b), if, after award, pricing data for contracts priced in local currency are found to be noncurrent on the date final price is agreed on, the government is entitled to a price adjustment, including profit or fee. Additionally, the Department of Defense OIG's report, *Impact of Fluctuating Exchange Rates on Contract Prices*,[6] noted that the contracting officer should determine the reasonableness of the exchange rate the contractor uses to convert prices for contracts in U.S. dollars. The report noted that this determination is important because an unreasonable rate can result in overpriced contracts.

The mission's OAA deputy director acknowledged that a contracting officer mistakenly approved an exchange rate that deviated from the office's practice of using the exchange rate on the date the task order or modification was signed. CDM fixed the institute's construction cost with its subcontractor at 879,654,003 Pakistani rupees (PKR). It then quoted the mission a price—which the mission accepted—of $9,540,716 by using an exchange rate of $1=PKR 92.2 on December 2, 2013 (the date the modification was signed). However, the bank exchange rate on that day was $1=PKR 108.05, which would have resulted in a price of $8,141,175. Thus, the mission agreed to a price that was about $1.4 million greater than it should have been. Furthermore, fees of almost 13 percent were added to the base price paid to the contractor. Those fees on the $1.4 million overcharge would add about $200,000 to the overcharge, for a grand total of $1.6 million.

According to CDM, it used an exchange rate that represented the average exchange rate for 2012. However, CDM should have used the exchange rate on December 2, 2013.

The mission approved the incorrect exchange rate because it does not have written guidance on the application of correct exchange rates for local currency contracts priced in PKR. Even without written guidance, testing of a sample of other mission agreements confirmed that many contracting officers were applying the correct exchange rate. CDM officials said they used the average 2012 exchange rate because of "fluctuating exchange parity" instead of using the December 2, 2013, exchange rate.

By approving the inflated exchange rate, USAID/Pakistan agreed to an award amount that was inflated by nearly $1.6 million. Therefore, we make the following recommendations.

[6] Report No. 92-090, May 14, 1992.

Recommendation 6. *We recommend that USAID/Pakistan determine the allowability of and recover from CDM Constructors Inc., as appropriate, ineligible questioned costs of $1.6 million.*

Recommendation 7. *We recommend that USAID/Pakistan implement written procedures for its staff to determine and use correct exchange rates for local contracts priced in Pakistani rupees and billed in U.S. dollars.*

Contractor's Procurement Process Was Deficient

FAR 52.244-5 states that the contractor will select subcontractors competitively to the maximum practical extent consistent with the objectives and requirements of the contract. USAID's *Basic Construction Tendering Principles for Development Professionals: A Primer* says that the tendering process must comply with the FAR, ADS, and USAID Acquisition Regulations. Finally, CDM's policy notes that awards for architectural, engineering, or other professional services may be made based on qualifications and subsequent negotiation of rates, costs, or prices, based on data that bidders submit. Bidders were required to submit the following information:

- Professional qualifications to demonstrate their ability to perform the specific services.
- Specialized experience and technical competence in the type of work required.
- Capacity to accomplish the work in the required time.
- Past performance reports on cost control, quality of work, and ability to meet schedules.
- Evidence of awareness of the particular challenges posed by the project's location.

According to CDM officials, after ranking the bids, they discuss the proposals with top-ranked, qualified firms, in descending order. If negotiations with the highest-ranked firm fail, negotiations continue with the second-highest-ranked firm, and so forth. CDM's policy further states that the company advises potential suppliers or subcontractors of the basis for awarding the contract: price alone, or price and other factors such as past performance, quality, and timeliness.

However, CDM did not follow its own procedures in selecting its main construction subcontractor, and its evaluation of bids was deficient in the following ways:

- The company did not publish its evaluation criteria for prequalification and tender, as required.

- The weights the company allotted to its evaluation criteria for prequalification were not sound. For example, little weight was given to prior hospital construction experience and technical staff qualifications.

- The company negotiated only with the lowest bidder before asking all bidders to submit their best and final offers, a deviation from its own policy.

- One best and final offer was not dated or time stamped, raising concerns about its legitimacy.

- Other bidders had more experience than the firm chosen to build the institute did.

Although CDM has an international procurement policy, its officials said they did not follow it. Officials said they evaluated the bids based only on cost, contrary to CDM's policy as well as to procurement best practices. Finally, according to CDM, mission personnel had limited involvement in procurement meetings.

CDM's procurement process makes it doubtful that there was fair and open competition. By not choosing the most qualified subcontractor, the company left itself open to the kind of construction and workmanship flaws we discovered in the Karachi Medical Center, which may recur in the Jacobabad Institute.

Since the institute's construction was expected to end on November 30, 2014, we make no recommendation. Instead, we suggest that the mission should be more involved in reviewing key decisions made by its implementing partners on future projects.

Mission Did Not Prepare an Independent Government Cost Estimate

According to the Department of Defense Contracting Officer's Representative Handbook,[7] an independent government cost estimate (IGCE) is the government's estimate of the projected costs a contractor will incur to do the work specified in the contract. These costs include direct costs such as labor, supplies, equipment, and transportation, and indirect costs such as overhead.

FAR 36.203, "Government estimate of construction costs," says that an IGCE "shall be prepared and furnished to the contracting officer at the earliest practicable time for each proposed contract and for each contract modification anticipated to exceed the simplified acquisition threshold." FAR 36.605, "Government cost estimate for architect-engineer work," states that an IGCE is prepared based on a detailed analysis of the required work as though the government were submitting a proposal. Both FAR clauses state that information concerning the estimate will be limited to government personnel whose official duties require knowledge of the estimate.

USAID's *Independent Government Cost Estimate Guide and Template—A Mandatory Reference for ADS Chapter 300* stipulates that the IGCE is the U.S. Government's own estimated cost/price of the proposed acquisition or assistance activity. It remains confidential, and the estimate's information may not be provided to contractors. It goes on to assert that a well-constructed and supported estimate provides a baseline for comparing costs or prices proposed by contractors.

USAID/Pakistan did not prepare an IGCE for architectural and engineering services, construction, or other activities such as gender analysis, social assessment and formation of health committees for communities, environmental review, topographic survey, and geotechnical investigations. According to the mission's OAA Director, the mission did not prepare an IGCE for the construction work because it considered CDM's architectural and engineering firm's estimate for construction as its own estimate. The COR noted that CDM had subcontracted the design to a local architectural and engineering firm, which prepared the estimate using market rates that the mission reviewed. The COR also said he considered the

[7] Available through the Defense Acquisition Portal at https://acc.dau.mil/docs/cor/USA001390-12_DoD_COR_Handbook_Signed1.pdf.

architectural and engineering firm's estimate reasonable because it was lower than the construction bids received.[8]

Mission officials justified use of the subcontractor's estimate. The director of the Office of Infrastructure and Engineering said, "Preparing the IGCE is within the scope of the CDM contract, which requires them to provide 'a broad range of technical services.'" The mission's OAA director agreed and added, "I interpret our practice to meet the requirements of FAR Part 36 as well to be consistent with the practices of other missions where I have served." He added that the FAR is written at the federal level and that the mission does not have the capacity to do what the Department of Defense or the U.S. Army Corps of Engineers does; in short, the mission does not have the resources to develop an IGCE.

Nonetheless, the mission did not attempt to obtain the services of experts in developing IGCEs for construction projects funded by other U.S. Government organizations such as the Department of Defense, the U.S. Army Corps of Engineers, or the General Services Administration.

Since the mission did not create its own IGCE, it cannot assert that the construction bids were reasonable. In light of the Agency's September 30, 2014, Notice on "Senior-Level Review of Planned Acquisition and Assistance (A&A) Awards" requiring more rigorous project design and costing standards, we make the following recommendation.

> ***Recommendation 8.*** *We recommend that USAID/Pakistan implement written procedures for its Islamabad Office of Acquisition and Assistance to verify that independent government cost estimates have been prepared*.

[8] Although CDM officials said the bidders did not know its architect and engineering firm's estimate, the estimate coincidentally became the floor price for bids. In fact, the lowest bidder in the second round came within PKR 20,000 ($200) of CDM's subcontractor's estimate, but did not go below the estimate.

OTHER MATTERS

Mission Neglected to Use Two Process Improvement Approaches

The mission did not perform value engineering in a disciplined way and did not conduct a cost-benefit analysis for the solar power system.

Value Engineering. Office of Management and Budget (OMB) Circular A-131 provides guidance to federal departments and agencies for value engineering. It states that value engineering is used to reduce costs, improve performance, enhance quality, and encourage innovation. Circular A-131 and FAR 48.102 say that agencies should have value engineering policies and procedures to plan and develop programs, projects, activities, and architectural, engineering, and construction contracts. Finally, the *Whole Building Design Guide* describes value engineering as "a conscious and explicit set of disciplined procedures designed to seek out optimum value for both initial and long-term investment."

The mission's Office of Infrastructure and Engineering staff conducted limited value engineering in designing the Jacobabad Institute. For example, staff suggested CDM eliminate elevators and evaporative coolers, use light-emitting diode bulbs to reduce operating costs, plant more trees for shade, reduce power consumption, and not include a thalassemia ward because the Jacobabad Civil Hospital had one already. A disciplined value engineering approach, however, would have looked at civil design, construction, materials, mechanical plant, electrical systems, operations and maintenance, sustainability, and the interaction among them.

The mission did not undertake value engineering formally and in a disciplined way because USAID does not have the value engineering policies and procedures that OMB and the FAR require. The director of the Office of Infrastructure and Engineering said its contracting mechanisms do not permit value engineering and would have to change because of a conflict of interest if the office undertook value engineering. However, mission officials could not explain clearly why they believed there was a conflict of interest or why the contracting mechanisms USAID uses cannot be adapted to include a value-engineering clause.

As a result, the mission may be missing opportunities to lower operating and maintenance costs, improve quality, simplify procedures, increase efficiency, and optimize construction expenditures in its vast construction portfolio in Pakistan.

Therefore, we suggest that the mission review the use of value engineering principles and processes and determine how to incorporate them into its infrastructure activities.

Cost-Benefit Analysis. *USAID Project Design Guidance* says cost-benefit analysis is a decision-making approach used to determine if a proposed project is worth doing, or to choose among several alternative ones. It involves comparing the total expected costs of each option against the total expected benefits to see whether the benefits outweigh the costs, and by how much.

The mission did not prepare a cost-benefit analysis, and it did not require CDM to carry out one to determine whether the solar power backup system (including initial cost and operations and maintenance) would cost more than adding another diesel generator, the alternative.

According to mission officials, they did not do a cost-benefit analysis for the solar power backup system because they learned from previous studies that the Sindh government did not have money to operate and maintain the Jacobabad Hospital's diesel generators. Therefore, the mission assumed that the institute would also lack the ability to maintain diesel generators. However, CDM installed three 100-kilowatt diesel generators in addition to the solar power system.

Without a cost-benefit analysis, the mission neglected to consider all costs, some of which turned out to be excessive. For example, it added 88 kilowatt of solar power at a cost of $1.3 million, while adding one diesel generator providing 100 kilowatt of power at a cost of $38,000. Additionally, the Pakistan Government will have to bear other costs, such as training institute personnel on maintaining the solar power system and the diesel generators, which the mission did not consider. Although we are not issuing a recommendation, we suggest that the mission include such analysis in future activities where appropriate.

Mission Did Not Prepare a Social Assessment or Activate Health Committees

The mission's task order required CDM to prepare a social assessment of the communities and their members' readiness to participate in managing the hospital, and to activate health committees in the communities. The task order noted that CDM should use health committees to provide design suggestions for the facilities, while the IQC said that building designs would be developed in collaboration with beneficiaries to ensure local buy-in and reflect cultural perspectives, needs, and recommendations.

Contrary to requirements, CDM did not perform the social assessment[9] and did not activate health committees in Jacobabad or the neighboring communities that the institute will be serving.

CDM did not perform these activities because both the COR and CDM officials misunderstood the social assessment to mean social mobilization, and they may not have known what health committees were supposed to accomplish. Neither the COR nor the CDM requested guidance from the mission's health office on what the social assessment and health committees were expected to accomplish and why they were important. In fact, the COR said that the social assessment and formation of health committees for communities' activities were included in the task order by mistake.

By not performing these activities, the contractor may have weakened the project's design and overall objective. For instance, forming the health committees would have given residents the opportunity to provide input on the institute's design and services. Furthermore, by not performing the social assessment, the mission may not know how the institute will affect the local people, or whether it has already generated adverse social impacts.

[9] A social assessment identifies the social impacts resulting from development proposals and is used to mitigate a project's social impacts.

We are not issuing a recommendation. However, we suggest that the mission's technical offices engage with one another and the contractor to ensure greater understanding of required tasks, especially those outside the contractor's area of technical expertise.

Contractor's Gender Analysis Report for the Institute Lacked Relevant Information

ADS 201.3.15.3.a, "Planning," states that gender analysis for a project should be deeper than a gender analysis prepared for the country development cooperation strategies, and provide more detail on the gaps in the status of males and females by age, ethnicity, disability, and other factors. USAID's *Guide to Gender Integration And Analysis—Additional Help for ADS Chapters 201 and 203* adds that gender analysis is used to identify, understand, and describe gender differences and the impact of gender inequalities. Finally, the task order states that gender analysis should focus on the use of and access to facilities by both males and females, collect data disaggregated by sex, include other relevant information, and be shared with the mission.

CDM's October 2012 gender analysis report did not meet ADS and task order requirements because it did not include enough information and lacked rigor. The report discussed common themes, such as Jacobabad's geography, economy, religious composition, law and order situation, and the hospital's staffing, budget, and facilities, while neglecting to answer questions describing gender roles and responsibilities, norms and expectations, and access to resources.

This happened because CDM's subcontractor may not have known or understood the purpose of USAID's gender analysis. In addition, the COR wrote that he knew about construction management but had not attended training on gender analysis. Still, he did not ask the mission's help in evaluating the gender analysis report to determine whether it was adequate. He also could not remember if he had obtained program office and mission director clearance of the report, as required.

As a result, CDM's gender analysis report did not offer the mission and CDM insights on ways to improve the institute's design to serve the health needs of girls and women, an objective of the project.

We are not issuing a recommendation because in February 2013 the mission issued a gender analysis and integration mission order adding gender requirements to all its programs and activities.

EVALUATION OF MANAGEMENT COMMENTS

In its response to the draft report, USAID/Pakistan generally agreed with five recommendations and disagreed with three. We reviewed management's comments and supporting documentation, and we acknowledge management decisions on seven recommendations (all except 6) and note final action on Recommendations 3 and 5.

Recommendation 1. USAID/Pakistan agreed with the intent of the recommendation and made a management decision to award a new contract to protect the U.S. Government-provided medical equipment and furniture. It planned to complete this action by March 31, 2015. We acknowledge the mission's management decision.

Recommendation 2. USAID/Pakistan agreed and made a management decision to collaborate with the Sindh government to implement a written strategy for the long-term sustainability of the Jacobabad Institute. It planned to complete this action by February 28, 2015. We acknowledge the mission's management decision.

Recommendation 3. USAID/Pakistan disagreed with the recommendation and submitted documentation dated March 31, 2014, and June 24, 2014, providing evidence that USAID/Pakistan had rectified the defects we brought to its attention. Accordingly, we acknowledge the mission's management decision and final action.

Recommendation 4. USAID/Pakistan agreed and made a management decision to address all inspection findings identified during the Jacobabad Institute walk-through by December 31, 2014. We acknowledge the mission's management decision.

Recommendation 5. USAID/Pakistan disagreed with the recommendation and provided documentation explaining the Jacobabad Institute's lighting design philosophy and the electrical load calculations derived from the equipment inventory. Review of the load analysis documentation provided demonstrates that an electrical load analysis was conducted and incorporated into the design of the facility. Therefore, we acknowledge the mission's management decision and final action.

Recommendation 6. USAID/Pakistan neither agreed nor disagreed with the recommendation. However, it agreed to investigate further whether CDM used the appropriate exchange rate when it submitted its vouchers. It expects to complete its review and issue a determination on the allowability of the questioned costs by March 31, 2015. Since the mission has not yet made a determination on the allowability of the questioned costs, it has not made a management decision.

Recommendation 7. USAID/Pakistan agreed with the recommendation in principle and made a management decision to, as a best practice, communicate the appropriate procedures on determining the correct exchange rate to all agreement and contracting officers' representatives to enable them to help the mission ensure that its implementing partners use the correct rate. It planned to complete this action by March 31, 2015. We acknowledge the mission's management decision.

Recommendation 8. USAID/Pakistan disagreed with the recommendation, stating that the mission prepares IGCEs and has procedures to ensure that OAA accepts no acquisition requisitions without an IGCE. The mission added that the regulations cited in the draft report apply when the government is seeking to make a direct award, and that other federal acquisition regulations apply to subcontracts. Because CDM issued a subaward, the regulations we cited did not apply. The mission decided no corrective action was necessary since, according to the response, it consistently follows the appropriate regulation by doing a rigorous review of subcontracts. Accordingly, we acknowledge the mission's management decision. To achieve final action, the mission needs to provide the written procedures referred to above by January 31, 2016.

SCOPE AND METHODOLOGY

Scope

We conducted this audit in accordance with generally accepted government auditing standards. 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 audit's objectives were to determine whether CDM Constructors Inc. complied with selected terms of the indefinite quantity contract and the health facilities task order, and whether USAID/Pakistan's hospital improvement program was improving access to and the quality of health-care services, as planned.

The audit covered two hospitals in Pakistan under Task Order AID-391-TO-11-00008. The mission handed the Karachi Medical Center over to the Sindh government in December 2012, and the Jacobabad Institute's planned completion date was September 30, 2014. Therefore, for the medical center we covered activities from the handover until the end of our fieldwork, along with reviewing how CDM procured furniture and equipment. For the institute, we covered concept, design, gender analysis, and other technical activities specified in the IQC, task order, and related amendments.

The audit team conducted fieldwork from January 29 through March 18, 2014, in Islamabad, Karachi, and Jacobabad. We visited the Jacobabad Institute and the Karachi Medical Center in February 2014. Our audit did not cover activities in the medical center and the Jacobabad Civil Hospital that another implementer did under a cooperative agreement. However, we did review documents that CDM and the mission provided us to learn about the processes they used and about the Sindh government's operational and maintenance practices. We compared aspects of the hospital and the institute. We tested construction activities in the Jacobabad Institute valued at slightly more than PKR 509 million ($5.1 million), or nearly 60 percent of the total cost of the institute's construction.

We reviewed applicable laws and regulations as well as USAID and mission policies and procedures. We obtained an understanding of and assessed the following significant internal controls: the project's management structure; contracting mechanisms; procurement, budget, and data management systems; and monitoring and evaluation of project activities.

Methodology

We met with and received written answers to our questions about the policies, procedures, and processes related to the task order for the Karachi Medical Center and Jacobabad Institute from USAID/Pakistan officials in Islamabad and Karachi. We met with mission officials from OAA and the Infrastructure and Engineering, Health, and Program Offices. Additionally, we met with and received written answers to our questions from CDM's principals in Islamabad and from its technical and construction subcontractors. Further, we met with officials from the Pakistan and Sindh Governments, a foundation, the Karachi Medical Center, and the Jacobabad Hospital. Finally, we met with medical center beneficiaries and workers constructing the institute.

In conducting our audit, we:

- Examined the mission's IQC, task order, related modifications, negotiation memorandum, program and project approval documents, and the 611(e)[10] certifications.
- Reviewed the COR's designation letter.
- Evaluated CDM's policies and procedures, including quality maintenance plans, quality improvement plans, security plans, health and safety plans, and monitoring and evaluation plan.
- Assessed CDM's design specifications, including bills of quantities.
- Verified some architectural, structural, plumbing, and electrical features against as-built condition in the Karachi Medical Center and the Jacobabad Institute.
- Tested whether and how CDM followed its quality management plans, quality control plans, health and safety plans, and site security plans at the institute.
- Evaluated other technical reports, such as geotechnical reports and material test results for the Jacobabad Institute.
- Reviewed procurement records, budgets, and expenditures for the task order.
- Measured some features at the Karachi Medical Center to confirm widths or heights of some structural and architectural attributes affecting access by those with disabilities.
- Analyzed CDM's calculations for the transformer and diesel generators for the Jacobabad Institute.

Additionally, we examined USAID/Pakistan's 2011-2013 annual self-assessments of management controls, which it is required to perform to comply with the Federal Managers' Financial Integrity Act of 1982, to determine whether its assessment cited any relevant weaknesses.

To answer the audit's first objective pertaining to compliance with selected terms of the IQC and the task order, we identified 230 compliance requirements in the IQC and its ten modifications, and the task order and its seven amendments. Therefore, we segregated the compliance requirements into high, moderate, and low risk. We defined high-, moderate-, and low-risk compliance requirements as follows:

- **High risk.** Compliance requirements that if not followed will adversely impact the project deliverables, including health, safety, and security of people, technical soundness, and development objectives.

[10] Section 611(e) of the Foreign Assistance Act requires that the mission director certify the host country's ability to effectively maintain and use a project when more than $1 million will be spent on it.

- **Moderate risk.** Compliance requirements that are significant but do not adversely affect project deliverables including health, safety, and security of people, technical soundness, and development objectives.

- **Low risk.** Compliance requirements that were primarily administrative in nature.

We used the above breakdown to test whether CDM developed policies and procedures for the high-risk compliance requirements and executed its policies and procedures accordingly. Our materiality threshold was that if CDM complied with at least 90 percent of the high-risk compliance requirements, the answer to our audit objective would be positive. Additionally, during the course of our audit we assessed a few moderate- and low-risk requirements.

Further, we tested the construction practices of CDM's onsite subcontractor using checklists we developed from requirements in CDM's manuals. Finally, since the Institute's successful launch and operations will depend on other projects and activities, we briefly assessed them to determine the interrelationships among them and their effects on the institute's start date.

To determine the sustainability of the Jacobabad Institute, we used the Agency's definition of sustainability, which is "the capacity of a host country entity to achieve long-term success and stability and to serve its clients and consumers without interruption and without reducing the quality of services after external assistance ends." We operationalized USAID's definition by specifying that sustainability is the ability of the Sindh government to operate and maintain the institute in the condition required to produce the projected benefits. To determine what kind of issues might affect the sustainability of the institute, we reviewed CDM's initial site assessment reports to learn about operating and maintenance practices at the hospital. We reviewed planning documents such as the Sindh government's planned operations budget, staffing plan, and power supply for the institute. Finally, we interviewed key hospital officials to understand their key sustainability concerns for the institute.

To test construction costs, we compared construction prices for similar items in the Institute and the medical center. For the institute we tested 22 civil and structural works items in the main building and 17 civil and structural works in the service building, travelers' rest house, and cafeteria. These items accounted for more than 40 percent of the total cost of these buildings. Additionally, we tested six water supply and six electrical items with the same specifications and using the same unit of measurement. Finally, we tested 26 civil and structural works prices in the institute's main building against prices in the institute's rest house, service, cafeteria, laundry, and kitchen. Finally, for simplicity throughout this report, we used an exchange rate of $1=PKR 100, although the exchange rate varied between PKR 90 and PKR 110 for $1 from September 2011 through December 2013.

We answered our audit's second objective by assessing the mission's fiscal year 2011 health strategy for Pakistan. Since the task order referenced the Millennium Development Goals endorsed by the Pakistani Government, we assessed relevant documents to verify that these two facilities fit the mission's health strategy. Additionally, our site visit to the Karachi Medical Center and our interviews helped us confirm that it is meeting the needs of its beneficiaries, as the mission had planned. Finally, the Jacobabad Institute's plans, drawings, and specifications—coupled with interviews with Sindh government officials—helped us determine that the institute was planned to provide a variety of health-care services, as the mission had envisioned.

MANAGEMENT COMMENTS

MEMORANDUM

Date	**December 15, 2014**
To	**William Murphy- Director/OIG Pakistan**
From	**Gregory Gottlieb- Mission Director USAID/Pakistan /s/**
Subject	**Management Decision on the Performance Audit of USAID/Pakistan's Activities Related to Jinnah Post Graduate Medical Center (JPMC) and Jacobabad Institute of Medical Sciences (JIMS)**
Reference	**Draft Audit Report No. G-391-15-00X- P dated Nov 07, 2014**

USAID/Pakistan is pleased to have worked with the OIG team over the last several months to examine the history and accomplishments of these two very successful projects, one of which (the JPMC) is already providing services to some 115,000 expectant and new mothers per year (mainly from the poorest segment of Karachi and neighboring Balochistan), while the other (the JIMS) will soon offer first-rate medical care to a population of some 1.5 million people.

We would like to first comment on some of the findings presented in the audit report.

As the audit report notes on pg. 6, "Jacobabad's drinking water supply, sewage system, and wastewater treatment systems are substandard." Also as noted, the mission is currently funding, through USAID's Sindh Municipal Services Program (MSP Sindh), the rehabilitation of those systems. This component of MSP Sindh was delayed as USAID worked with the Government of Sindh's (GoS) Department of Planning and Development to put in place the systems and procedures needed to allow it to effectively manage and oversee a project of this magnitude. The construction began in the spring of 2014 and is on track for completion by the end of 2015. Once completed, a dedicated potable water connection will be provided to JIMS from the new system. In the meantime, the project team has developed feasible temporary alternatives for provision of adequate water supply during the interim period. Two alternatives are being pursued, at least one of which (the delivery of water by truck) will be commissioned before the official opening of the hospital.

With respect to the hospital's sewage system, please note that it is not dependent on the USAID-funded drainage system, which is only financing the construction of the city's inner drainage system at the

household level. Instead, sewage from JIMS will be disposed of by a GoS drainage system which the GoS is implementing itself. Waste water from JIMS will be discharged to Channa Mohallah Pumping Station where waste water will be pumped to the oxidation lagoons for final disposal. Most of this phase of the project, a component of a larger overall GoS drainage system that cost nearly PKR 1.1 billion, has already been completed. Some components and links are missing for final commissioning. USAID's Karachi Office is working with the GoS to operationalize this part of the overall drainage system as early as possible.

The audit report states on pg.7 that "USAID/Pakistan offered technical assistance to the institute's board in developing a hiring strategy and preparing operating procedures… However, the board did not take the mission up on its offer." This is incorrect. USAID has provided, and is currently providing, technical assistance to the JIMS Board of Governors in all these area through the Health Systems Strengthening component of the USAID-funded Maternal and Child Health Program.

Further on pg. 7, the report states that "As of July 2014, the mission still had not finalized the list of equipment to be provided." While that may technically be true, the list was finalized very shortly thereafter, and a total of $1.255 million (excluding generators, and solar power) of equipment and furniture has now been procured, delivered to, and installed in the hospital. USAID is confident that this equipment is commensurate with the hospital providing a level of service appropriate to a facility of this nature.

With respect to the audit findings presented on page 11-13 of the audit report related to Recommendation No. 3, care must be taken to separate the issues arising out of modifications undertaken by the JPMC management to the structure after handover and problems surfacing due to inadequate operation procedures and maintenance, from those that might appear to be deficiencies in construction. The plumbing plugging issue highlighted in the audit report pertains to the owner's improper use of the facilities after turnover/expiry of the construction warranty period of 1 year. The owner (hospital management) informed USAID that they do not place waste receptacles in the toilets as they get stolen. This leaves limited options for disposal of non-flushable items which is the primary cause of waste line plugging. Also, there is no signage in the toilets explaining proper disposal practices for non-flushable items.

The poorly mounted electricity wall receptacles are owner installed after handover and are not attributable to contractor deficiency. As regards undersized circuits, the designs are based on equipment loads determined jointly by the contractor and hospital management. The owner informed USAID that the circuitry overload, since corrected, was caused by failure of the transformer serving another structure on the compound. As an interim measure, extension cords were used to carry electricity from the ObyGn structure to the other structure. This caused a temporary overload to the ObyGn circuits. These are operational issues and not the responsibility of the contractor.

To help it deal with these issues, in 2012 the JPMC entered into an agreement with the Mariam Ali Mohammad Tabba Foundation to help it maintain this new facility. As part of its' ongoing relationship with the JPMC, USAID staff regularly participate in meetings between the Tabba Foundation and JPMC management to help clarify issues and offer advice on major maintenance challenges. The most recent such meeting was held on November 26, 2014. USAID will raise the issues cited by the audit at the next such meeting, which is scheduled to take place in early January 2015.

The OIG statement on pg. 12 of the audit report, paragraph 2 "CDM did not properly prepare an inventory of the electrical load requirements" is not supported by evidence, see Annex B. The electrical load requirements distribution mentioned in the audit report are the same as for a hospital USAID funded in Haiti. Of the Haiti loads, 39% are for fans and air conditioning and 14% for lighting. For JIMS, a conscious effort was made during design to significantly reduce such loading, which is why window size and placement interact with ward width and structure orientation to maximize air circulation (reduce demand for fans) and eliminate the need for day lighting. The placement and shapes of the individual building blocks was determined in part by requirements to maximize day lighting and natural air flow through and around structures. The pergola shades over the outdoor circulation spaces, cavity walls, insulated roofs, fountains, and water features also contribute to reducing cooling needs and electricity demand.

Please find below Mission's management comments on the specific recommendations included in the draft audit report.

Recommendation No. 1 We recommend that USAID/Pakistan work with the Sindh government to implement a written contingency plan engaging the Jacobabad Institute's board of governors to protect the U.S. Government-provided medical equipment and furniture after installation.

Management Comments

The Mission agrees with the need to ensure that U.S. Government-provided medical equipment and furniture is protected. However, the Mission feels that it is not necessary for the Mission and the JIMS Board of Governors to develop a written contingency plan for safeguarding the equipment and furniture after installation in order to protect these assets, since USAID is already in the process of awarding a new contract to CDM Smith to carry out this function until such time as the Board has an adequate number of employees on site to take on this responsibility. The Mission plans to have this award in place by March 1, 2015. The related final action is expected to be completed by March 31, 2015.

Recommendation No. 2 We recommend that USAID/Pakistan consult and collaborate with the Sindh government to implement a written strategy for the long-term sustainability of the Jacobabad Institute of Medical Sciences.

Management Comments

We agree with this recommendation. The Mission would be happy to consult and collaborate with the Sindh Government to implement a written strategy for the long-term sustainability of the Jacobabad Institute of Medical Sciences. The Mission plans to have this strategy in place by February 28, 2015.

With respect to the audit findings on Budget Shortfall presented on pg. 8, the report states that "the Sindh Government budgeted [only] $1.3 million for the institute's operations." Yet in Pakistan's FY 2015 budget, the GoS has budgeted $2.0 million for the hospital. We believe that this amount is adequate to allow the hospital to deliver the expected level of service between now and the end of Pakistan's financial year 2015 on June 30, 2015.

Recommendation No. 3 We recommend that USAID/Pakistan consult with the Karachi Medical Center's management to implement a written plan to identify and address construction and workmanship deficiencies.

Management Comments

This Mission does not agree with the recommendation as a formal procedure was already in place for the end user, JPMC management, to identify and report to CDM, the contractor, any construction or workmanship issues that arose during the warranty period. Please find attached as Annex- A and A-1, an example of one such communication chain between CDM and JPMC. This includes CDM's response and rectification report on defects identified by JPMC. The rectification report is signed off by both CDM and JPMC.

It must be noted that JPMC was completed and handed over to the end user on December 14, 2012 and its warranty period expired a year later in December 2013. During the final inspection of the JPMC completed structure, participants in the inspection (the contractor and the recipient/owner of the structure) identified a punch list of remaining deficiencies requiring remediation which were not resolved during the active construction phase. All such issues identified were addressed before the handover of the structure. Moreover, any deficiencies that surfaced over the one year warranty period were also resolved at the contractor's expense.

In view of the above, the Mission reports that no further action is required and hence requests closure of this recommendation upon issuance of the final audit report.

Recommendation No. 4 We recommend that USAID/Pakistan inspect the Jacobabad Institute of Medical Sciences (JIMS) before its construction warranty period expires, and document and address the inspection findings.

Management Comments

The Mission agrees with the recommendation. As of the date of this response, the construction of JIMS is complete. The final inspection has also recently been completed, documented, and signed by the contractor and the JIMS management. The punch list identifying any shortcoming in construction will be addressed before the facility is turned over to the owner. The one year warranty period commences upon turnover. As part of its contractual obligations, any deficiencies that appear and are covered under the warranty will be repaired by CDM at no cost to the owner.

USAID/Pakistan plans to address all the inspection findings identified during the walk-through by December 31, 2014.

Recommendation No. 5 We recommend that USAID/Pakistan hire an independent electrical engineer to determine whether the primary and backup power systems meet the needs of the Jacobabad Institute of Medical Sciences and document the findings. Subsequently, USAID/Pakistan should take appropriate action to address the findings.

Management Comments

The Mission does not agree with this recommendation as an electrical engineer employed by the architectural firm analyzed the load requirement of JIMS at the design phase and the findings of the

analyses were incorporated in the design of JIMS. Please find attached as Annex- B, electrical load calculations, which presents the inventory with demands for grid power, diesel generator, and solar supplied power. The attached Annex- C Design Philosophy explains the rationale used in sizing the solar power system.

In view of the above, the Mission reports that no further action is required and hence requests closure of this recommendation upon issuance of the final audit report.

Recommendation No. 6 We recommend that USAID/Pakistan determine the allowability of and recover from CDM Constructors Inc., as appropriate, ineligible questioned costs of $1.6 million.

Management Comments

The Mission management agrees to investigate further whether or not an appropriate exchange rate was used by CDM when they submitted their vouchers for costs incurred in local currency to USAID for reimbursement.

The accepted practice, as codified in the U.S. Generally Accepted Accounting Principles (GAAP), is for a contractor whose prime award is denominated in US dollars to invoice in US dollars even when the expenses are incurred in local currency, but at the current exchange rate at the time of the actual transaction. Based on the data we have gathered so far, it seems as if this is in fact essentially what happened. In an email dated May 29, 2012 from the Chief of Party for the USAID Pakistan Reconstruction Program to the COR, he stated:

> "The exchange rate in this Cost Plus Task Order is used to establish the budget for the activity. This estimated rate is based on the average exchange rate over the previous 12 months. This is just an estimate considering exchange rate did fluctuate downwards as well as upwards during the last 12 months. Please note that the billing to USAID in these Cost Plus Task Orders is done on the exchange rate established during the month of the invoice in our Local Currency Report, which uses the exchange rate that the Bank offers our transfers during the previous month. Besides, we do also provide exchange gain/loss adjustments to USAID on these cost plus task orders as required."

We wish to point out that the exchange rate PKR 92.2:US$ 1 mentioned in the January 17, 2013 request to subcontractor M/s Principal Builders for an agreed upon price of PKR 879,654,003 was only an estimate and was used to illustrate the point that there were sufficient funds in the prime contract to cover the proposed subcontract even at that outdated exchange rate. The approval to subcontract dated January 19, 2013 stipulated that the cost of the subcontract must not exceed PKR 879,654,003. Appropriately, the approval letter mentions neither a US dollar cost nor an exchange rate.

The Mission expects to complete its investigation and issue a final determination on the allowability of the identified questioned cost by March 31, 2015.

Recommendation No. 7 We recommend that USAID/Pakistan implement written procedures for its staff to determine and use correct exchange rates for local contracts priced in Pakistani rupees and billed in U.S. dollars.

Management Comments
The Mission agrees with the recommendation in principle; however, as also explained under the previous management comment in response to Recommendation No. 6, we would like to point out that it is not USAID staff that determines the correct exchange rate to be used when contractors invoice for local currency expenses against a contract denominated in US dollars. Ensuring that appropriate exchange rates are employed by contractors should be a typical function of a financial audit. Nonetheless, as a best practice, the Mission will communicate the appropriate procedures to all AOR/CORs so that they help to ensure that our implementing partners are properly vouchering USAID.

The Mission expects to complete the final action on this recommendation by March 31, 2015.

Recommendation No. 8 We recommend that USAID/Pakistan implement written procedures for its Islamabad Office of Acquisition and Assistance to verify that independent government cost estimates have been prepared.

Management Comments
Mission Management disagrees with this recommendation. Independent Government Cost Estimates (IGCE) are prepared and procedures are in place to ensure that no GLAAS requisition is accepted by OAA Islamabad without an adequate IGCE. These procedures are in compliance with Agency policy and practice as stated in ADS 302.3.4, M/OAA Mandatory Templates, and Pakistan Mission Order: Project Design NO 200.6 which has been updated and reissued as of October 31, 2014. The new management of OAA/Pakistan is re-emphasizing the importance of these existing procedures with OAA staff.

The draft audit report cites FAR 36.203 and FAR 36.605. These citations clearly require an IGCE when the Government is seeking to make a direct award. However, the concern of the audit report seems to be that an IGCE was not developed for a “sub-award” issued by the prime contractor. The appropriate sections of the FAR related to subcontract approval is found in FAR 44.201-1(b) and the related Subcontract clause at FAR 52.244-2. The rigorous review required by this clause has been, and continues to be, consistently followed as required.

In view of the above, the Mission reports that the required final action has already been taken hence requests closure of this recommendation upon issuance of the final audit report.

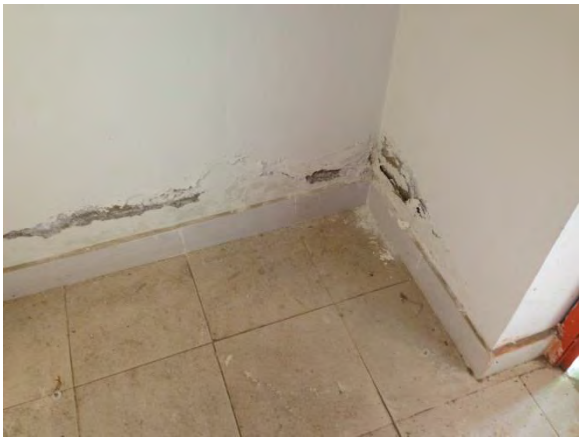
DEFICIENCIES NOTED

Pictures of Deficiencies in the OB/GYN Wing of Karachi Medical Center
(Photos by OIG, February 26, 2014)

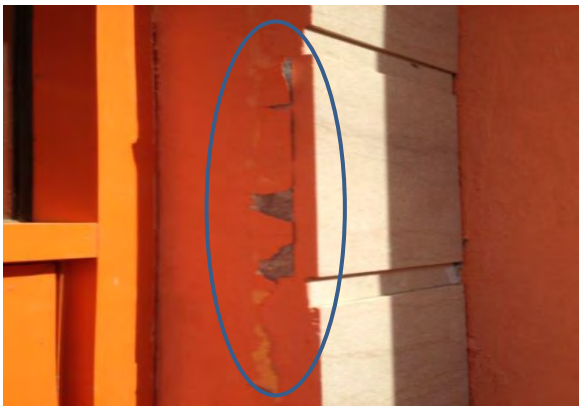
Poorly mounted electrical fittings may be dangerous for users.

Stain indicates wet structural beam.

Water leaks from the ceiling damage column and wall.



Peeling paint shows water damage.



Broken wall plaster signals poor workmanship.

Deep cracks mar wall plaster.

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