Bechtel, USAID, and the Iraq Infrastructure Reconstruction Program:

ACCOMPLISHMENTS AND CHALLENGES

On February 12, 2003, as the likelihood of conflict grew, the U.S. Agency for International Development (USAID) issued an urgent Request for Proposal (RFP) to six leading U.S. contractors for emergency rebuilding work in Iraq. The contractors, including Bechtel, were prequalified on the basis of their proven capacity to undertake nationwide repairs of civilian infrastructure and their ability to comply with complex federal regulations.[1]

Bechtel, which had built major facilities throughout the Middle East for 60 years and had managed the multinational effort to extinguish hundreds of oil fires and restore Kuwait's oil industry after the Gulf War, won the competitive bid. USAID announced its 18-month, $680 million cost-plus-fixed-fee contract for the Iraq Infrastructure Reconstruction Project on April 17, after the fall of Saddam. Political controversy over the conflict with Iraq spilled over to USAID's contract award, eliciting ill-founded but widely publicized charges of political favoritism and sweetheart "no-bid" contracts. USAID Administrator Andrew Natsios refuted such charges during a national news interview:

> There was no political involvement by anybody in AID on choosing who the companies were. . . . It was done by career officers based on the merits of which companies have worked with us before through Democratic and Republican administrations. . . . [Bechtel] had the highest quality rating, highest score, for the technical requirements of the project and the lowest price. That is the ideal for federal contractors. We almost never get it that good, where we have the highest score for the technical and engineering side of it and the lowest price of the bids that were made.[2]

A monumental task

Although the initial contract was modest, the potential scope of the project was enormous, posing exceptional challenges even to a company as experienced as ours. Our job was to help return basic services to pre-war levels as quickly as possible by recruiting and managing skilled

---

[1] USAID explained its choice of procedures as follows: "As the U.S. Government's first responder to foreign emergencies, disasters and humanitarian crises, USAID undertakes contingency planning for . . . relief and reconstruction scenarios in all corners of the developing world. In the case of Iraq, USAID made the determination that it could very well be called upon at any time to deliver assistance rapidly in order to meet various contingencies. At that point, USAID decided to undertake specific procurement planning actions, but did not want to do anything that might have complicated diplomatic efforts to prevent war. Therefore, contract negotiations had to be conducted on a sensitive and expedited basis. Events have confirmed that these contracts needed to be awarded and available for use as soon as possible. . . . USAID chose to limit competition -- in full compliance with the Federal Acquisition Regulations -- for these Iraq reconstruction contracts to certain U.S. companies that are known to have a combination of demonstrated technical capability, proven accounting mechanisms, ability to field a qualified technical team on short notice or the requisite clearance to handle classified national security material. This was done in accordance with existing regulations . . . when it is necessary to move forward quickly with foreign assistance programs." (USAID statement, April 11, 2003)

[2] ABC Nightline, April 23, 2003.

teams of international and Iraqi subcontractors to repair or reconstruct key facilities. Based on specific job orders approved by USAID, sectors of work included power production and transmission facilities; water, irrigation, and sewage systems; transportation links including airports, railways, and roads; telecommunications infrastructure; and civilian buildings such as hospitals and schools. The task was monumental, but essential to helping Iraqis resume a normal day-to-day existence and to stabilizing and strengthening Iraq's economy.

Bechtel hit the ground running, mobilizing its first team in the region only three days after the contract award. Cliff Mumm was the first program director. He was aided by Deputy Program Director Terry Valenzano and an initial team of about two dozen seasoned Bechtel employees.

Assessing the damage

Upon arriving in Iraq, we discovered many of the infrastructure surveys that were to be performed by USAID and other agencies had not been started. Bechtel took on the responsibility for identifying key contacts, assessing current infrastructure conditions and establishing requirements for rehabilitation. The goal was to help USAID set priorities based on a sophisticated understanding of Iraq's interrelated needs and capabilities, rather than pursuing showcase projects that might have little practical value.

Bechtel's fact-finding teams criss-crossed the country, checking high-voltage transmission towers and lines, inspecting water treatment facilities, and documenting the damage to airports, bridges, and other buildings. They found abundant evidence of war damage (bombed out bridges and telephone exchanges); power and water facilities that were far more dilapidated than anyone expected due to years of neglect; and rampant looting by thieves and saboteurs who stripped power substations and transmission lines across the country of valuable parts and copper wire, leaving them a shambles. [3]

Based on these observations and other data, Bechtel completed a 151-page assessment and implementation plan for seven key infrastructure areas in June 2003. USAID and the Coalition Provisional Authority (CPA) approved the plan in July 2003. Projects were largely drawn from the initial assessment, but USAID amended the scope of work under each job order as required to meet evolving needs and the reality on the ground.

No one assumed that $680 million, the cost of building a medium-sized power plant in the United States, represented more than a small down payment on Iraq's vast infrastructure needs. Paul Bremer, the CPA's administrator, said in July 2003 that "getting the country up and running again" could cost as much as $100 billion.[4] Bechtel's estimate of the cost to complete all work identified in our assessment—not including renovation of oil infrastructure or many other sectors—was $15 billion.

In contrast, the total value of Bechtel's work over four years was less than one-sixth of that figure, about $2.34 billion. USAID increased Bechtel's Phase I contract from $680 million to $1.03 billion over the course of our work. Bechtel later won (January 2004) a competitively bid Phase II USAID contract from a field of four bidders. The second contract was worth up to $1.8 billion that is currently on track to finish at approximately $1.31 billion.

---

[3] When Bechtel first surveyed Iraq's electrical transmission system in May 2003, we observed thirteen destroyed towers. By September, a survey by the U.S. Army Corps of Engineers tallied 623 destroyed transmission towers. At one point, saboteurs cut all four electrical transmission lines running to Basrah's refinery, making the country run short of fuel supplies and causing riots in the city.

[4] Associated Press, August 11, 2003.

Even at this early stage, Bechtel realized that security would be a critical issue determining how much work could be accomplished on USAID's budget. Bechtel's contract with USAID specified that our work would take place in a "permissive" or non-threatening environment. We highlighted the challenges in our June 2003 assessment report:

> Due to the instability of the security situation in Iraq, a strict security regime has been imposed upon the Bechtel assessment teams. The requirement to be in a safe location before nightfall, and to have military or other security protection as our teams travel, has resulted in an inability to conduct assessments as quickly and as easily as anticipated. This has also added cost and complexity to the assessment process.
>
> Looting and vandalism continue unabated in many areas of Iraq . . . . The armed theft of a crimping machine, the recent break-in at warehouses at the Port of Umm Qasr, [and] the ongoing destruction of 400 kV transmission towers in southeastern Iraq . . . are a few examples of this situation. . . . In addition, the validity of the assessment becomes compromised when additional damage occurs after the assessment team has completed its review.[5]

Recruiting Iraqis

Iraqis attending Baghdad supplier and contractor conference

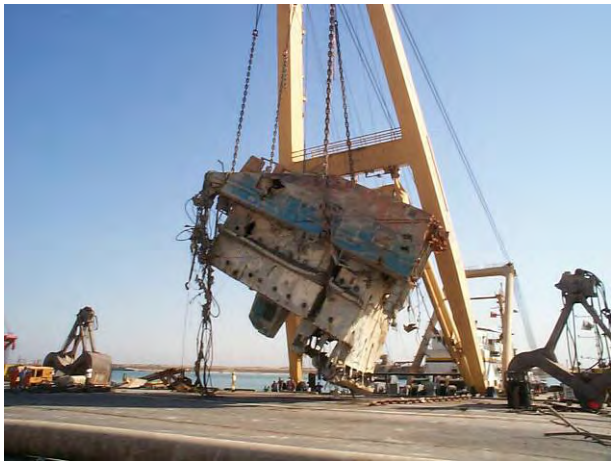
To manage the unprecedented interest in our reconstruction work, Bechtel set up a Web portal to register suppliers and subcontractors with experience in the region and in relevant construction fields. Bechtel also held five conferences in Washington, D.C.; London; Kuwait City; Baghdad; and Basrah to inform potential suppliers and contractors about work opportunities and federal rules and regulations. Bechtel registered more than 9,200 contractors from 96 countries in less than four months.

With USAID's full endorsement, Bechtel focused on identifying and supporting qualified Iraqi subcontractors whenever possible. Their experience and local knowledge was invaluable in getting the job done. Just as important, recruiting them to perform the work would advance the U.S. government's larger goal of hastening Iraq's economic recovery through increased employment.

Over 1,300 Iraqis attended Bechtel's supplier and contractor conferences in Baghdad and Basrah the first summer. Over the life of the project, Iraqi subcontractors performed about 75 percent of the work. At peak, Bechtel's projects employed 40,000 Iraqi workers. Bechtel also trained and employed more than 600 Iraqi nationals on its professional staff over the course of the program. Bechtel typically maintained a 4:1 ratio of Iraqis to Bechtel expatriates on its Iraq project staff.

[5] Bechtel National Inc., *Iraq Infrastructure Reconstruction Program: Assessment Report*, June 2003, p. 1.15.

Port of Umm Qasr



Removing Wreck From The Port Of Umm Qasr

Grain Facility At Umm Qasr

Less than three weeks after the contract was awarded, even while the nationwide assessment was continuing, Bechtel began emergency dredging of Iraq's only deepwater port, at Umm Qasr. With bridges and railroads damaged or dilapidated, reopening the port was critical to importing food and other emergency supplies. The first shipment of rice from the United States arrived on May 2, after a Bechtel survey ensured the berth could handle the ship and its 14,000-ton cargo. By June 16, with more than a million cubic meters of silt and debris dredged, the port began accepting commercial traffic. Bechtel also restored support services (power, water, sewage, administration) and oversaw the renovation of the port's facilities to handle more than 600 metric tons of grain imports per hour.

The dredger 'Carolina' In The Port Of Umm Qasr

Railroads

To ship food and other vital supplies from Umm Qasr, Bechtel worked with Iraqi Republic Railways repair or selected fixed and mobile railroad infrastructure, including critical track bed sections, rail bridges, stations, locomotives, and rolling stock. Bechtel built 57 kilometers of roadbed and 29 concrete culverts between Umm Qasr Port and Al Shuiaba Junction in Basrah.

Typical Rail Station Before

Typical Rail Station After

Damaged Track

Laying New Track

Bridges

By mid-July 2003, Bechtel had completed its first construction project: a bypass around the damaged Al Mat Bridge, 185 miles west of Baghdad. The war-damaged bridge was an important link in east-west transportation; 3,000 trucks traveled daily on Highway 10, bringing food and other goods from Jordan to Baghdad. Bechtel's Iraqi subcontractors later rebuilt the bridge and two others at Tikrit and Khazir, at USAID's direction.

Tikrit Bridge Early in Construction

Tikrit Bridge Complete – Banner Reads "Bridge For Future Progress"

Airports

USAID placed high priority on the rehabilitation of the Baghdad and Basrah airports due to their importance as gateways for relief and reconstruction supplies and personnel. Bechtel was assigned task orders to restore them as needed to permit limited civil air traffic services.

The work scope included installing perimeter and airfield fencing; providing water and sewage treatment plants; applying runway and taxiway striping; purchasing and installing communication systems; rehabilitating emergency power and HVAC systems; and repairing support facilities (terminals, control towers, etc). Thanks in part to this work:

- Baghdad International Airport reopened for commercial service in July 2003 and passenger service on August 25, 2004.
- Basrah International Airport reopened for passenger service on February 13, 2006.

Baghdad International Airport passenger terminal completed

Baghdad International Airport roof damage

Before *During* *After*

Baghdad International Airport Runway Striping

Buildings: schools, clinics, fire stations

USAID (and the Coalition Provisional Administration) assigned great significance to reopening schools and tasked Bechtel with repairing them as fast as possible over the summer of 2003. The schools were generally sound and required little structural rehabilitation to make them fully functional. However, decades of neglect, looting, and vandalism resulted in long backlog of architectural, electrical, and plumbing repairs. Also included in Bechtel's scope was the task of detecting and removing unexploded ordnance from schools, which in had often been used to store munitions. Although the work at individual school sites was otherwise mundane, the major organizational challenge was to find qualified Iraqi contractors to complete work on a large number of schools within a few months.

In all, Bechtel restored 1,239 schools by October 2, 2003, in time for the start of the new school year. Bechtel also restored 52 medical clinics, 10 fire stations, repaired the University of Basrah's Materials Testing Laboratory and made significant progress on a new children's hospital in Basrah (see appendix).

Typical Classroom Before Restoration

Typical Classroom After Restoration

Completed Repair Work At Al Basrah University

Al Bujassim Clinic – Before

Al Bujassim Clinic – After

Telecommunications

In late July 2003, USAID assigned directed Bechtel to restore 13 telephone exchanges in Baghdad; install an international satellite gateway; and restore Iraq's 2,000 km fiber backbone, which connected key Iraqi cities into a national network. Later, Bechtel was awarded a job order to install another 600 km of fiber optic cable and make further repairs in support of the Iraqi Telephone and Postal Company and the Ministry of Electricity.

Consolidated Fiber Network Construction Equipment Delivered

Bechtel's work in the telecommunications sector:

- restored subscriber services to over 200,000 telephone users in Baghdad;
- restored country-wide telephone service;
- restored the emergency services network prior to the national elections;
- and provided more than 25,000 hours of training to subcontractors and Ministry staff.

Cable Laying Along Baqubah - Khalis ITPC Backbone

Consolidated Fiber Network ITPC OTDR Training

Power

USAID assigned Bechtel 26 power sector job orders valued at nearly $1.5 billion, or 63 percent of the combined value of Bechtel's Phase I and Phase II contracts. USAID's priority was to get existing generation plants, transmission lines and distribution systems back on line quickly in order to reestablish a sense of order among ordinary Iraqis and re-power the industrial sector, which in turn would stimulate the economy.

Hartha Heat Exchanger Replacement In Process

Hartha Heat Exchanger Installation Complete

To this end, Bechtel

- built 4 new power units and rehabilitated 14 existing power units;
- brought on line 540 MW of new generating capacity, 740 MW of rehabilitated capacity; and improved the reliability of 450 MW of existing capacity;
- constructed 160km of high voltage (400kV) transmission lines;
- constructed 25 substations in the Baghdad area and provided equipment for another 12;
- and provided 93,000 hours of operations and maintenance and safety training to Ministry staff.

Completed Kirkuk v94 Power Plant

Baghdad South Units 1A and 1B

Water

The USAID RFP recognized that water was a critical commodity for the people of Iraq. The primary purpose of the water sector program was to provide safe drinking water and improve sanitation conditions in order to reduce the risk to public health. The original proposal, endorsed by USAID and CPA, was to repair the dilapidated water treatment plants in the south and the wastewater treatment plants in the north and the central part of the country. This would address the upstream root cause of water quality problems and maximize the impact of the restoration effort.

Later, USAID's emphasis shifted to addressing long-term sustainability of the plants, including the provision of consumables, spare parts, and training. Bechtel's 34 water sector job orders had a total value of about $520 million, or 22 percent of the combined value of Bechtel's contracts.

Pursuant to these job orders, Bechtel:

- restored eight and built one new sewage systems (1.2 million m^3/day nameplate capacity);
- restored eight and built one new water treatment plants (2.1 million m^3/day nameplate capacity);
- restored the Sweet Water Canal, tripling its capacity (to 2.1 million m^3/day);
- installed 99 km of new potable water lines and 15,684 household connections in Sadr City; and
- provided more than 325,000 hours of training in operations and maintenance, safety, and business management to Ministry staff.

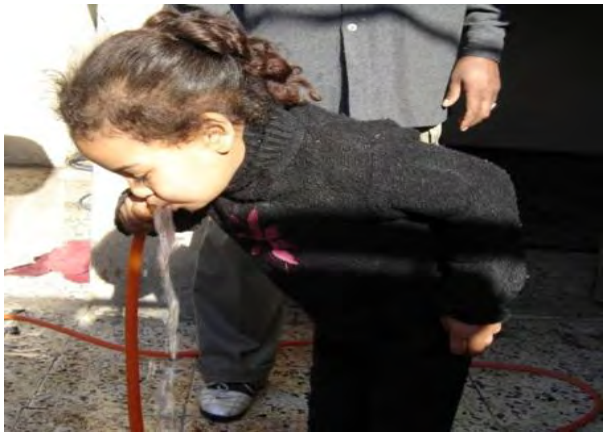
Additionally, Bechtel completed 70 rural water treatment sites with over 500 distribution points to supply water to over 500,000 rural villagers across Iraq.

Ruins of the Safwan water plant, since restored by Bechtel

Sweet Water Canal Before

Cleaning The Sweet Water Canal

Sweet Water Canal After



Clean Water In Al Sadr City

Villagers At Diyallah Rural Water Site

Job safety

Bechtel counts safety as one of our core values, wherever we work. We work diligently to maintain one of the best safety records in the industry. In Iraq, we took great pains to insist on world-class safety standards, achieved through the use of proper equipment, training, and safety leadership.

The results speak for themselves. Bechtel's extraordinary effort resulted in historically low lost-time incident rates. The incident rate for Phase II of the Iraq Infrastructure Reconstruction Project (0.04 per 200,000 job hours) was only 1/60 of the U.S. average for heavy construction, an outstanding record by U.S. standards and unheard for Iraq.

Institutional Strengthening

At USAID's direction, Bechtel aimed to leave behind a human legacy in addition to such physical infrastructure as power plants, water treatment facilities, and schools. Through a program dubbed Institutional Strengthening, Bechtel trained staff in Iraq's ministries, agencies, and private subcontractors on modern health, safety, and environmental practices; construction management; plant maintenance and operations; information technology; and ethics. Over the course of Bechtel's two contracts, we performed 636,248 hours of training that will help Iraqis sustain the development and use of their infrastructure.

Working in a conflict zone

Many Bechtel employees worked more than two years in Iraq under extraordinary conditions, demonstrating their commitment to completing the mission. One reason was their confidence in the company to keep them safe and to do what was right. An overarching theme echoed all the way to the top was to "get everyone home safely."

Tragically, that did not prove possible for everyone working with us in Iraq. 52 people associated with our projects were killed, 47 Iraqis and 5 non-Iraqi subcontractor staff. Forty-nine people were wounded.

Ensuring the safety of our teams was a major preoccupation of senior project staff the entire time we worked in Iraq. It wasn't supposed to be that way. As a civilian contractor, our core competence is building infrastructure, not managing security in a conflict zone. Indeed, our contract specified that we were to work in a "permissive environment"—that is, one without significant life-threatening risks.

From the contract award date until mid-July 2003, Bechtel's assessment teams were able to travel in Iraq either by themselves or with military or private security escorts. Although there were signs of civil unrest, including occasional firefights between Iraqi citizens in the vicinity of the assessment location, employees felt secure enough to continue their work.

In late July 2003, the security situation began to deteriorate. The frequency of attacks against non–military vehicles increased. These attacks consisted primarily of small arms fire and roadside bombs (improvised explosive devices), but included grenades and other weapons dropped from bridges and buildings. On August 10, 2003, USAID issued its first "stop work order" in the Basrah area due to security concerns. The bombings of the Jordanian embassy and United Nations headquarters in Baghdad the same month were devastating indicators of the power of the newly emboldened insurgency. By September, "all international organizations and

contractors, as well as Iraqis cooperating with the CPA, were potential targets of deliberate, direct, and hostile attacks."[6]

By November 2003, the number of attacks against the coalition and its partners was more than double the number in July.[7] In response, Bechtel evacuated more than 50 project employees from Baghdad to Amman, Jordan. Bechtel decided to permanently move non-essential services to the office in Amman in order to reduce overall security risks in Iraq.

Across Iraq, attacks against the coalition and its partners, including contractors, increased another 23 percent from 2004 to 2005.[8] As threats to personal and site security mounted, Bechtel hired more security personnel, upgraded their arms, and purchased more armored vehicles. As travel by road became more dangerous, forward camps were placed on power plant sites and secured with barriers and other means. In late 2005, as security conditions continued to deteriorate, expatriate travel to sites was restricted. Our trained Iraqi professional staff took on an increasing share of on-site supervision.

One fundamental effect of all such measures over this three-year period was to greatly drive up the cost of performing work while making project management much more challenging. This outcome, fully intended by insurgent forces, was not limited to Bechtel. As the U.S. General Accountability Office has noted:

> . . . security costs have diverted a considerable amount of reconstruction resources and have led to canceling or reducing the scope of some reconstruction projects. In January 2006, State reported that direct and indirect security costs represent 16 to 22 percent of the overall cost of major infrastructure projects. In addition, the security environment in Iraq has led to severe restrictions on the movement of civilian staff around the country and reductions of a U.S. presence at reconstruction sites, accounting to U.S. agency officials and civilian contractors.[9]

Despite working under such challenging conditions, Bechtel managed to complete all but two of its 99 task orders from USAID. One of the two remaining projects is a water treatment plant in Al Sadr City, a Baghdad neighborhood notorious for its violent opposition to coalition forces, frequent car bombings, and death-squad killings. Work on the water treatment plant is 88% complete. The project was suspended when the subcontractor and top project supervisors were forced to flee the site to avoid assassination.

The other unfinished project is the Basrah Children's Hospital. As background, it should be remembered that a U.S. embassy assessment noted that Basrah province suffers "routine [insurgent] activity, assassinations and extremism"— hardly a permissive work environment.[10]

---

[6] Report of the Secretary-General pursuant to paragraph 24 of resolution 1483 (2003) and paragraph 12 of resolution 1511 (2003), UN Security Council S/2003/1149, December 5, 2003; quote from General Accountability Office, *Rebuilding Iraq: Resource, Security, Governance, Essential Services, and Oversight Issues*, June 2004 (GAO-04-902R), p. 44.

[7] General Accountability Office, *Rebuilding Iraq: Governance, Security, Reconstruction, and Financing Challenges*, Statement of David M. Walker, Comptroller General of the United States, before the Subcommittee on National Security, Emerging Threats, and International Relations; Committee on Government Reform, House of Representatives, April 25, 2006, p. 15. (Hereafter cited as GAO-06-697T.)

[8] *Ibid.*

[9] *Ibid.*, p. 22.

[10] *Ibid.*, p. 11.

After suffering deliberate attacks against its offices and staff, the International Committee of the Red Cross closed its public offices in Southern Iraq.[11] Three-quarters of the Iraqi staff at a United Nations office in Basrah reportedly submitted their resignations following threats by an insurgent group.[12] Fearing death, Iraqi workers stopped picking up trash or pumping sewers at the American consulate in Basrah.[13] Citing the rampant violence and alleged corruption of police and rival Shiite militias, the British commander in Basrah said, "It's mafia-type politics down here." In one month (May 2006), 85 people were murdered in the city, including nine British soldiers, and Iraq's prime minister declared a state of emergency that remains in effect.[14]

To Bechtel, these reports are more than grim statistics and newspaper headlines. At the pediatric hospital site, our site security manager was murdered; the site manager resigned due to death threats; our senior Bechtel Iraqi engineer resigned after his daughter was kidnapped; 12 employees of the Mechanical-Electrical-Plumbing subcontractor were assassinated in their offices, and 11 employees of the concrete supplier were also murdered. In the face of all this, our team still managed to essentially complete the structural concrete placement. Our hope is that the hospital may someday be finished when security permits.

The reality on the ground

Not all of Bechtel's hard-won accomplishments working with USAID have had the impact we would have hoped.

The first reason, noted above and obvious to any serious observer of the reconstruction program, is that Bechtel's scope of work was never great in proportion to the country's tremendous needs. Iraq had fought three wars in two decades, was squeezed for years by tough economic sanctions, and suffered terrible mismanagement by a capricious dictatorship.

Second, Iraq lacked functioning government bureaucracies during significant periods of our work. In the first months after the fall of Saddam, Iraq operated without any functioning ministries. As they struggled to reemerge under the new government, the new ministries vied for authority with other government directorates, parastatal organizations, local authorities, NGOs, and the CPA, hampering coordination and progress on infrastructure projects.

Once projects were complete, the plant operating crews we trained often lacked the leadership, resources, or motivation needed to run and maintain their facilities. Local ministry staff either did not exist or did not attend training sessions to support such facilities, nor did they budget for or purchase essential supplies and spare parts to run them. As the General Accountability Office noted recently, "In the water, sanitation, and electricity sectors, in particular, some projects have been completed but have sustained damage or become inoperable due to Iraq's problems in maintaining or properly operating them."[15]

The single most devastating impediment to Iraq's enjoyment of improved infrastructure, however, has been relentless sabotage by armed insurgents and black marketers. Tribal chiefs

[11] *Al-Hayat*, July 17, 2005.

[12] *New York Times*, June 4, 2006.

[13] *New York Times*, June 1, 2006.

[14] *New York Times*, June 1 and 13, 2006.

[15] GAO-06-697T, p. 23.

reportedly pull down transmission lines, sell materials from the downed lines, and then charge authorities for the right to repair them.[16] In turn, power generation stations are stranded when transmission lines are cut or fuel pipelines are blown up. Water treatment plants have been shut down by the accumulation of dead bodies in canals. Key Iraqi operating staff are often forced to abandon their posts or face death.

As the Department of Defense reported to Congress in May 2006, the infrastructure attacks have had

> a disproportionate impact in part because infrastructure repair is hampered by insurgent and criminal intimidation of repair contractors and maintenance workers. In the electrical sector, this has caused significant delays in repair of high-voltage lines. The resultant instability of the high-voltage transmission system has degraded the transmission and generation reliability of the national grid, causing frequent interruptions and blackouts.[17]

Conclusion

Serious people can debate the aims, strategies, and implementation of U.S. policy in Iraq, including the widespread use of private contractors. We are engineers and builders, not politicians or soldiers. As one of the largest contractors in the United States with worldwide experience, we responded to an urgent request from USAID and won two contracts by competitive bid, with the highest technical scores and lowest price.

We have more than met our obligations to our customer and the American people. As USAID stated in its 2004 publication, *A Year in Iraq*, "Bechtel ended up performing exceptionally well under extremely difficult circumstances." The record will show that we continued to perform exceptionally well under even more difficult circumstances to the end of our contract. We successfully completed all but two of the 99 job orders given us by USAID, despite the immense challenge of operating in an often chaotic and extremely dangerous environment. We have provided the people of Iraq with new power capacity, clean water and sanitation, transportation and communications infrastructure, and refurbished schools. We employed more than 40,000 Iraqis on our projects. We provided training to thousands of Iraqi professionals and craft workers. And we accomplished all this with a safety record that would be the envy of any firm operating in the United States. We are proud of our record in Iraq.

---

[16] U.S. General Accountability Office, *Rebuilding Iraq: More Comprehensive National Strategy Needed to Help Achieve U.S. Goals and Overcome Challenges*. Statement of David M. Walker, Comptroller General of the United States, before the Subcommittee on National Security, Emerging Threats, and International Relations, Committee on Government Reform, House of Representatives, July 11, 2006, p. 20. (GAO-06-953T)

[17] Department of Defense, *Measuring Stability and Security in Iraq,* May 2006, p. 37. Report to Congress in accordance with the Department of Defense Appropriations Act 2006 (Section 9010).

Appendix

Al Basrah Children's Hospital
Historical Record

September 15, 2006

Executive Summary

Bechtel National, Inc.'s (BNI's) Phase II Iraq Reconstruction team has been working on the Al Basrah Children's Hospital (BCH) in Iraq since 2004.

Originally envisioned as a state-of-the-art pediatric and teaching hospital, the BCH was to be a joint initiative of the U.S. Agency for International Development (USAID) and Project HOPE, a non-governmental organization that assumed responsibility for supplying medical equipment and training the hospital staff.

BCH's scope underwent several major changes based on discussions between USAID and Iraq's Ministry of Health, and USAID eventually settled on a 16,200 square meter, 94-bed facility supporting oncology and pediatrics.

The project faced major challenges, including severe security conditions, region-wide cost increases in labor and local materials, undisclosed soil conditions, protracted disputes among contractors, and an extraordinarily ambitious project timeline.

Congress had budgeted $50 million for the hospital, and BNI informed USAID in May 2005 that the total projected costs for the hospital would exceed that amount. USAID directed that only direct costs should be applied to the $50 million cap. Based on this direction from USAID, the BCH was sized, scoped and a design-build subcontract awarded by BNI. The Iraq Reconstruction Management Office in May 2006 overruled USAID, insisting that the $50 million cap applied to all costs, direct or indirect. Under that interpretation, it was already clear that the cap would be exceeded. USAID therefore instructed BNI to issue a Partial Notice of Suspension to our contractor, MidCon, on June 10, pending consultation with Congress about the funding cap. MidCon and its subcontractors continued to work on authorized activities, then halted all construction on August 31 per BNI's instruction.

As Bechtel's contract in Iraq drew to a close, USAID evaluated several alternatives to complete the BCH as a stand alone project. USAID ultimately decided to transfer management of BCH and one other BNI project (Sadr City Water Treatment Plant) to the U.S. Army Corps of Engineers (USACE).

Historical Record

Introduction

BNI was selected from a field of six competitors by USAID on April 17, 2003, to support infrastructure reconstruction in Iraq, including work related to power, water, transportation, communications, and buildings. The initial contract (Phase I) had a value of $680 million, which evolved into a final value of $1.03 billion at completion on December 31, 2005. Subsequently, a second contract (Phase II) was awarded January 5, 2004, with a value that evolved from an initial $1.8 billion to a currently estimated $1.28 billion. Both contracts were competitively bid as standard cost-plus fixed fee contracts.

The BCH was not included in either contract initially but became part of the Phase II effort. It was envisioned as a state-of-the-art pediatric and teaching hospital, with a focus on acute care and oncology services.

Defining Scope

The BCH first surfaced as a potential project on February 12, 2004, when USAID requested a "fast cost estimate" for a new 200-bed pediatric hospital. Initially designated "The Iraq National Children's Hospital" (and sometimes also described as the "Laura Bush Children's Hospital"), BCH was to be a joint initiative of USAID and Project HOPE, a non-governmental organization that assumed responsibility for supplying medical equipment and training the hospital staff.

Planning and design of a hospital can take years as the needs and suggestions of many interested groups are addressed. To accelerate the process, BNI began outlining the basic steps for launching the project as soon as USAID expressed interest:

- Negotiate a firm scope for the project (size, number of beds, specialization, and budget)
- Prepare the site as quickly as possible using Iraqi subcontractors
- In parallel, advertise, bid, award and mobilize an international contractor for the design and construction of the hospital building(s).

Over the course of several months the project repeatedly underwent fundamental changes based on discussions between USAID and Iraq's Ministry of Health (MOH):

- Originally estimated at $250 million to support a 200 bed, 45,000 square meter pediatric hospital[18]
- Reduced to a 15,000 square meter, $50 million, 35-50 bed pediatric and teaching hospital
- Enlarged to a 27,000 square meter, 100+ bed facility focusing on oncology
- Reduced to a 16,200 square meter, 94-bed facility supporting oncology and pediatrics

USAID and the MOH settled on the last alternative after BNI presented an in-depth cost analysis in February 2005. The requirement for design of a hospital that could be expanded to the original vision of 200 beds was included in the job order. After final negotiations with the winning design-build contractor, BNI requested a Job Order Amendment (JOA) to incorporate the changes in scope, cost and schedule. USAID approved the request on July 7, 2005. This marked the official scope definition of the project.

[18] The $250 million included medical equipment, certification, and other costs. Estimate for design and construction was $93.8 million for comparison purposes.

Site Selection and Preparation

Iraq's Ministry of Health provided a 13-acre parcel of land located in the southern perimeter of Al Basrah to USAID for the future hospital. As the property was prone to flooding during the rainy season, significant excavation, backfill, grade elevation and compaction were required to properly prepare the site.

The MOH characterized the site as capable of supporting a three-story hospital building without the need for a pile-supported foundation. When bore samples raised questions about the load-bearing capacity of the site, however, BNI passed the soils analysis to an independent laboratory in Saudi Arabia. On November 3, 2004, the Saudi lab confirmed that the soil would not support the weight of the BCH building. BNI decided to use a pile foundation and immediately advised USAID. This requirement added approximately 90 days to the schedule and $2.5 million to the cost.

Design-Build Contracting

In August 2004, BNI contracted with Summa Engineering, Inc. headquartered in Farmington Hills Michigan, for consulting services in hospital planning, scope development and refinement. As Summa was a registered minority firm, BNI was able to fast-track the subcontract by mid-August, 2004. Summa's principal was a native Iraqi. Other contributing factors to Summa's selection included:

- Substantial hospital planning and development experience
- Experience with pediatric hospitals in the Middle East
- Arabic language fluency, required to interface with Iraq Ministries.
- Ability to develop lists of architectural and engineering firms suitable for the design/build competition, assist in the tender preparation, and help evaluate the submittals.

To select the design-build contractor, an international competition was held in Amman, Jordan, in order to facilitate communications with the international participants. 33 firms expressed interest and BNI solicited detailed information submittals from each candidate firm. Ten teams responded on September 14, 2004. After presentations and interviews, a consortium of Mid Contracting, Universal Hospital Services, and Hospital Design and Planning was selected as the winning team in October. The team members had excellent credentials:

- Mid Contracting, Inc. (MidCon) is one the largest construction companies in Jordan. Headquartered in Amman, MidCon specializes in fast track construction throughout the Middle East and has built some of the largest luxury hotels in Jordan as well as a number of hospitals. MidCon had approximately $50 million in projects underway in Iraq when selected for the BCH project.
- Universal Hospital Services (UHS), also headquartered in Amman, is a large hospital planning and consulting company performing services throughout the Middle East. UHS has expertise in planning, interior design, medical and administrative staff recruiting and training, medical and administrative operations analysis, medical equipment planning, and program management.
- Hospital Design and Planning (Overseas) Ltd. (HDP) is a hospital planning and design firm. Headquartered in the United Kingdom (Jersey), HDP focuses on the Middle East, with major offices in Amman and Abu Dhabi. HDP has a long record of successful hospital projects.

The project timeline required an engineering, procurement, and construction approach outside of the standard design-build or design-bid-build process. An immediate Limited Notice to Proceed agreement using hourly rates was awarded to the MidCon team for development of a conceptual design. Design review was conducted by a steering committee including BNI, USAID, Project HOPE, and the MOH. The conceptual design package was then used by BNI for negotiation of a Lump Sum Turn Key agreement with the MidCon team for detailed design and construction. Detailed design began in October 2004. Schedule demand required construction to start six months later, before the detailed design was complete.

As construction activities began on April 14, 2005, it soon became evident that MidCon was not able to staff the job with the management and supervision necessary for successful project execution. MidCon was unable to place a sufficient number of qualified construction supervisors willing to work on the jobsite due to the security situation. They also struggled to source an adequate number of experienced construction management personnel capable of functioning in the chaotic Iraqi environment. BNI adjusted the staffing plan to provide additional Iraqi and expatriate staff to the construction organization across all disciplines.

Security Issues

The BCH project presented extraordinary security challenges. It was located immediately adjacent to a very poor, densely populated, politically turbulent residential area. The project would involve a significant number of expatriates over a relatively long construction period. It would also involve a large number of local sub-contractors, craft workers, and laborers who could be subject to intimidation and violence for association with a foreign-sponsored project.

When the project was first conceived, Basrah was one of the most peaceful locales in Iraq. As the BCH project took shape, the security situation throughout Iraq grew progressively more difficult. Kidnappings and beheadings of Iraqis and foreign expatriates became frequent occurrences. In Basrah, highly sophisticated roadside bombs appeared throughout the area, including on all routes approaching BCH. Local police became unreliable and sectarian militias effectively ruled the streets. The Iraqi central government's progressive loss of authority in Basrah made it impossible for the Ministry of Health to support the hospital project normally.

By August 2005, Bechtel expatriate personnel were permitted to travel to the work site only for "project critical" purposes, even under protection of armed guards. BNI's Iraqi engineering staff helped to drive construction, supported by digital photos, email, daily telephone calls and web cameras, but the increasing levels of intimidation, kidnappings and murders had a pronounced impact on MidCon's staff and subcontractors. Among the most significant security incidents were:

- The murder of the site security manager
- Threats and intimidation resulting in the resignation of the site manager
- The resignation of our senior Bechtel Iraqi engineer due to the kidnapping of his daughter
- The murder of 12 employees of the subcontractor's Mechanical-Electrical-Plumbing (MEP) sub tier contractor
- The murder of 11 employees of the subcontractor's concrete supplier.

Productivity at the site suffered from public disturbances that caused late starts or early finishes, as well as from prolonged absences or resignations of targeted individuals. This

exceptional security environment was a major factor in deteriorating relations between MidCon and their subcontractors.

Cost Escalation

A basic challenge facing the BNI team was to develop realistic cost estimates and a project budget without metrics based on recent construction experience in Iraq. Labor and local materials in Iraq had been very inexpensive in mid-2003, but began escalating rapidly as reconstruction activity increased. Indeed, construction costs across the entire Middle East grew 30 percent in 2004.

In January 2005, when the design was 20 percent complete, BNI asked a specialist subcontractor, Omrania, to perform a full cost estimate based upon the drawings. The first estimate came in at $1436/square meter, versus $1000/square meter in the original estimate. A primary factor was the nationwide escalation in construction costs of 30 percent to 40 percent per year, with Iraqi sub-contractors demanding increased profits due to commercial and security risks. This trend was particularly severe in Al Basrah, where U.S. agencies had funded many new construction projects. Several other key drivers of rising costs included:

- Increased site and personnel security ($4.5 million).
- Additional security escorting trucks ($300 – $500 per truck trip).
- Requirement for piles in the foundation ($2.5 million).
- Requirement for 100 percent backup electrical power ($1 million).
- Requirement to purchase primary electric power transformers normally provided by the municipality ($400,000).
- Foreign exchange rate fluctuations (USD to Iraqi Dinar).

BNI informed USAID of the rising cost projections on February 16, 2005 and proposed that USAID either reduce hospital's footprint to 10,000 square meters or increase the available funding. USAID declined the option of a smaller hospital and asked BNI to scrutinize the design for possible savings. Later that month, BNI presented a range of options for reducing costs as much as $3.7 million. Over the next four weeks, USAID evaluated the options and directed scope modifications that decreased costs by $2.3 million. These modifications were reflected in Job Order Amendment 1 approved on July 7, 2005. At this point, the forecast was $41.1 million in direct costs (costs directly attributable to building the hospital such as subcontracts and materials).

Costs continued to rise due to the impact of worsening violence on worker productivity (lost hours and days) and transportation (armed escorts required for materiel and personnel). The project also suffered a general loss of productivity due to MidCon's ongoing disputes (exacerbated by security issues) with their sub-tier contractors, which resulted in numerous work slowdowns and shutdowns. By early May of 2006, the forecast had risen to $48.9 million in direct costs.

Cost Allocation

The budget for the project was $50 million per the direction of Congress. Early on BNI informed USAID that the total cost for the hospital, including both direct costs (construction) and indirect

costs (camp operations, security, etc.) would exceed the $50 million cap. USAID consistently interpreted the $50 million as including only direct costs.[19]

Also in the May 2006 timeframe, the Iraq Reconstruction Management Office (IRMO) instructed USAID to account for costs according to sub-sectors rather than just for major sectors (power, water, etc.). This changed the basis for calculating overall costs of individual projects. USAID asked BNI to develop methodologies that they could use for this type of accounting. Using these methodologies, projected indirect costs ranged from $27 million to $49 million, and when added to the direct costs of $48 million, brought the total projected project costs to between $75 million and $97 million. IRMO informed USAID that all costs (not just direct costs) be within the $50 million cap.

Based on USAID's direction not to exceed $50M under the revised methodology, Bechtel:

- Informed USAID that sufficient funds were not available and advised that work on BCH be suspended
- Determined the reduced scope of work that could be completed within the $50M limit
- Issued a Notice of Suspension to MidCon in line with USAID's direction.

At this point, Bechtel's contract was drawing to a conclusion and the full burden of fixed indirect costs was being borne by the two remaining Job Orders. Bechtel discussed options to complete the BCH with USAID and they decided to transition the remaining work on the hospital to the USACE. A termination notice was issued to MidCon to stop construction on August 31 and terminate all activities by September 30. MidCon and its subcontractors continued to work on authorized activities, then halted all construction activities per BNI's instruction on August 31. Site security and caretaking will continue until September 30, at which time the USACE will assume control of the project.

Schedule Interpretation

BNI performed an assessment of schedule and cost in early 2006 that yielded a completion date of July 2007 if security conditions did not worsen. The USACE performed a schedule assessment around the same time and reached similar conclusions. These assessments took into consideration progress to-date, historical trends in procurement, delivery and construction, security, and other related factors.

USAID Disclosure and Concurrence

Throughout the project, BNI has maintained complete transparency vis-à-vis USAID. Since the inception of the reconstruction program, BNI met with USAID three times each week to review schedule and cost on the various projects throughout Iraq, including the Al Basrah Children's Hospital. Additionally, BNI provided schedule and cost information concerning the hospital to the Iraq Reconstruction Management Organization in March of 2006 and cooperated fully with the Assessment Team commissioned by USAID.

Conclusion:

As of September 15, 2006, Mid-Con has brought an orderly closure to the construction and procurement activities within their scope. Design engineering is complete. The acquisition of major equipment for the project is nearly complete. Structural concrete placement has reached

[19] USAID formally confirmed this interpretation in a letter (CO-BNI II-05-048) to BNI on November 16, 2005.

approximately 89 per cent of the total required. Block work construction is 25 per cent complete. Additionally, significant amounts of finishing material (electrical cable, appliances, fixtures, etc) are in storage awaiting installation. Outside of Bechtel's scope, Project HOPE has reported significant progress on the acquisition of major medical equipment and training of hospital staff.

The final inspection of the physical work completed was accomplished with USAID on August 31 and BNI plans to transition the Job Order to the US Army Corps of Engineers on September 30. The Bechtel Basrah Camp will be turned over to USACE on October 1.