



OFFICE OF INSPECTOR GENERAL

AUDIT OF USAID/SUDAN'S ROAD INFRASTRUCTURE ACTIVITIES

AUDIT REPORT NO. 4-650-09-009-P
September 28, 2009

PRETORIA, SOUTH AFRICA



September 28, 2009

MEMORANDUM

TO: USAID/Sudan Mission Director, William Hammink

FROM: Regional Inspector General/Pretoria, Nathan Lokos /s/

SUBJECT: Audit of USAID/Sudan's Road Infrastructure Activities (Report No. 4-650-09-009-P)

This memorandum transmits our final report on the subject audit. The report includes four recommendations to strengthen USAID/Sudan's road infrastructure activities. We have considered management's comments on the draft report and have incorporated them into the final report, as appropriate. Those comments have been included in their entirety in appendix II.

Based on management's comments, we consider that a management decision has been reached on recommendation nos. 1, 2, and 3. Please provide the Audit, Performance, and Compliance Division in the USAID Office of the Chief Financial Officer (M/CFO/APC) with the necessary documentation to achieve final action.

In light of management's comments, we consider that a management decision has not been reached on recommendation no. 4. We ask that you provide us with written notice within 30 days regarding any additional information related to actions planned or taken to implement recommendation no. 4.

I want to express my sincere appreciation for the cooperation and courtesy extended to my staff during the audit.

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SUMMARY OF RESULTS

USAID/Sudan's major road infrastructure activity is upgrading the 192 kilometer Juba-Nimule road from a gravel road to a paved road. The main goals of the Juba-Nimule road project are to foster economic growth by increasing capacity for trade, facilitating refugee resettlement and the transportation of humanitarian aid, and strengthening southern Sudanese capabilities in road maintenance and construction. This activity is one initiative under the Sudan Infrastructure Services Project, a 5-year, \$700 million indefinite quantity contract¹ through September 2011 with the Louis Berger Group, Inc. As of June 2009, \$66.2 million had been obligated and \$36.1 million disbursed pursuant to the Juba-Nimule road task order. Currently, the road has a projected total cost of \$163.8 million and is scheduled to be completed in November 2010 (see pages 2–4).

While USAID/Sudan's activities thus far have been mainly preparatory in nature, the Juba-Nimule road project is likely to achieve its main goals. Preliminary actions, such as road grading and bridge repairs, accomplished by local firms, have already reduced travel times and transport costs, leading to increased traffic volumes and business activity. Newly established villages attest to the road's use in refugee resettlement. Moreover, there was widespread confidence that paving the road would yield even more benefits (see pages 5–6).

Nevertheless, the implementation of the project has suffered a number of setbacks. The project is currently 8 months behind schedule, primarily because policy questions arose during procurement of the main road construction subcontracts (pages 7–8). Moreover, the total cost has risen from an estimated \$87 million in the road's feasibility study to the current estimate of \$163.8 million. This increase was due to a number of factors, including erroneous assumptions and a lack of technical data in the feasibility study (see pages 8–13). Problems in bridge construction also contributed to higher costs (pages 13–17). Finally, the audit determined that (1) none of the people interviewed along the Juba-Nimule road were aware that this road was being financed by the United States and (2) several contracts between the Louis Berger Group, Inc., and its subcontractors omitted required antiterrorism language (pages 17–19).

To address these problems, the audit recommends that USAID/Sudan develop policies and procedures to provide adequate funding, scheduling, and instructions for future feasibility studies (page 12); retain an engineering consultant through the completion of the Juba-Nimule road (page 17); revise its branding strategy to focus more on direct communication with project beneficiaries (page 18); and ensure that subcontracts are modified to include required antiterrorism language (page 19).

USAID/Sudan agreed with all recommendations and proposed completion of planned remedial actions by February 28, 2010. However, management decisions were reached on only three of the four recommendations (page 20).

Management comments have been included in their entirety in appendix II.

¹ An indefinite quantity contract provides for an indefinite quantity, within stated limits, of supplies or services during a fixed period. The specific supplies or services are procured through task orders issued under the indefinite quantity contract.

BACKGROUND

Sudan is the highest priority country in sub-Saharan Africa for U.S. foreign assistance, and one of the U.S. Government's highest foreign policy imperatives overall. Sudan's 2005 Comprehensive Peace Agreement attempts to address historic regional disparities between underdeveloped regions and the capital, Khartoum. USAID/Sudan's primary goal is to nurture peace through the successful implementation of the peace agreement.

Among other things, the Comprehensive Peace Agreement provides for a 6-year interim period during which southern Sudan is to be governed by an autonomous entity called the Government of Southern Sudan, while central authority is to be divided between the Sudanese government and Government of Southern Sudan. After the interim period, the southern Sudanese are to decide through a referendum whether to become independent or continue as a self-governing component of a unified Sudan. Thus, U.S. assistance is intended to help southern Sudan become a prosperous and viable entity in whatever political arrangement its citizens choose in 2011.

Nature and Purpose of Road Infrastructure Activities

One of southern Sudan's most acute challenges is the lack of adequate roads. Even though it is slightly larger than the countries of France and Belgium combined, southern Sudan has less than 50 kilometers of paved roads. As a result, one of USAID/Sudan's many efforts is its road infrastructure activities. According to the mission, these activities are intended to foster economic growth by increasing trade. Moreover, these activities are also designed to contribute to national stability by facilitating the transport of humanitarian aid as well as the resettlement of refugees and displaced persons. In conjunction with these efforts, the mission also aims to increase the capacity of the southern Sudanese public and private sectors in different facets of road maintenance and management.

Specifically, the mission's main road infrastructure activities consist of the following:

- Rehabilitation of the 185 kilometer road from Yambio-Tambura in Western Equatoria
- Emergency repairs to the 75 kilometer road from Dabio-Ezo, also in Western Equatoria
- Construction of the existing 192 kilometer gravel road from Juba-Nimule in Central and Eastern Equatoria to a paved standard

The road repairs in Western Equatoria were being conducted through a cooperative agreement with the United Nations Office of Project Services. Prior to implementing this agreement, the Yambio-Tambura road had deteriorated significantly due to lack of maintenance and could not provide safe transport during the 6-month rainy season. The goal of both the Government of Southern Sudan and USAID was to upgrade this road to all-weather accessibility using a gravel surface. Meanwhile, emergency repairs on the road from Dabio to Ezo, a town on the border with the Central African Republic, were intended to provide a minimum level of all-weather accessibility for 1 to 2 years. According to mission records, as of June 2009, \$37.9 million had been obligated and

\$14.3 million disbursed for these activities. The total life of project cost for the United Nations Office of Project Services roads is estimated at \$37.9 million.

The Juba-Nimule Road

The Juba-Nimule road was USAID/Sudan's major road infrastructure activity in scope, cost, and the priority accorded to it by Government of Southern Sudan. Originally built from 1928 to 1932, the road was upgraded to gravel standards in the early 1970s but was neglected for more than 22 years of civil war. The road connects Juba, the seat of the southern Sudanese government, with Uganda. From there, the road provides access to Kenya and the port of Mombasa.

Reflecting its importance to southern Sudan, the Juba-Nimule road, in contrast to USAID's road projects in Western Equatoria, is to be reconstructed as a paved road. In addition, the route currently contains seven Bailey bridges, which are scheduled to be replaced by new composite structures.²

The road is one facet of USAID/Sudan's Sudan Infrastructure Services Project, a 5-year, \$700 million project that encompasses reconstruction and rehabilitation activities in transport, urban development, water, sanitation, energy, and public buildings. The overall project is implemented through an indefinite quantity contract with the Louis Berger Group, Inc. Specific activities are undertaken via task orders, which are issued on either a cost-plus-fixed-fee or firm-fixed-price basis.³ The task order authorizing construction of the Juba-Nimule road, Task Order 2, is a cost-plus-fixed-fee task order. According to mission records, as of June 2009, \$66.2 million had been obligated and \$36.2 million disbursed pursuant to the task order. The road currently has a projected cost of \$163.8 million and an estimated completion date of November 2010.



The photograph on the left is of an existing, repaired Bailey bridge; the photograph on the right shows one of the new bridges. Both photographs taken on the Juba-Nimule road. (Regional Inspector General/Pretoria, April 28, 2009.)

² These composite structures are composed of structural steel with a steel reinforced concrete deck travelway.

³ In a firm-fixed-price task order, the firm fixed price represents the total amount of the task order and the maximum price the contractor may be paid to perform the services, reports, or other deliverables in the task order. In a cost-plus-fixed-fee task order, the total estimated cost plus a fixed fee represents the total amount of the task order and the maximum amount the contractor may be paid without advance approval of the U.S. Government.

USAID/Sudan's major activities on the Juba-Nimule road thus far include repairing the existing Bailey bridges and grading the entire length of the road. In addition, construction of the replacement bridges is in progress. The subcontracts to actually build and pave the road were signed in April 2009. This audit focuses primarily on construction of the Juba-Nimule road.

AUDIT OBJECTIVE

As part of its fiscal year 2009 audit plan, the Regional Inspector General/Pretoria performed this audit to answer the following question:

- Are USAID/Sudan's road infrastructure activities achieving their main goals?

Appendix I contains a discussion of the audit's scope and methodology.



Photograph of a Bailey bridge on the right with abutment for the replacement bridge being constructed on the left. Photograph taken on the Juba-Nimule road. (Regional Inspector General/Pretoria, April 28, 2009.)

AUDIT FINDINGS

Are USAID/Sudan's road infrastructure activities achieving their main goals?

In general, USAID/Sudan's road infrastructure activities were laying the foundation for future economic growth, facilitating humanitarian aid and refugee resettlement, and increasing southern Sudanese capabilities in road maintenance and construction. However, the mission's primary road infrastructure activity—construction of the 192 kilometer road from Juba to Nimule—was behind schedule and estimated to cost significantly more than originally anticipated. This section addresses the impact of the mission's activities thus far, while cost, scheduling, and other issues are detailed in later sections of this report.

Impact of Activities

USAID/Sudan's activities on the Juba-Nimule road to date, while mainly preparatory in nature, were nonetheless creating an environment conducive for future economic growth by reducing travel time and transport costs. For example, in Nimule the audit team interviewed four truckers and a taxi driver, who reported that their travel times on the road decreased an average of nearly 40 percent since the grading and bridge repairs. This report corroborated information from mission and Louis Berger Group, Inc. (Berger) officials. Likewise, officials with the Government of Southern Sudan's Ministry for Transport and Roads stated that travel times had decreased in the wake of improvements to the Juba-Nimule road, resulting in increased commercial traffic. Respondents also indicated that it was generally cheaper to operate their vehicles after the road improvements. In addition, one interviewee stated that taxi fares had decreased from 60 Sudanese pounds to 50 for the Juba-Nimule trip (\$30 to \$25).

Interviews with storekeepers, peddlers, and other Sudanese provided additional anecdotal evidence of increased economic activity. These respondents overwhelmingly indicated that they had witnessed greater traffic volume and more shops being opened, and personally experienced increased sales since the road improvements. Moreover, most of these people also expected that paving the road would lead to even greater economic benefits.

Furthermore, observations along the entire route gave credence to these reports. For example, the audit team saw numerous trucks lined up to cross the Nile River in Juba, as well as significant truck and bus traffic along the road to Nimule, including three United Nations vehicles. The trip also showed evidence of new villages established by returning refugees and internally displaced persons, confirming information received from Berger and Government of Southern Sudan officials as well as from United Nations press releases regarding resettlement and the use of the Juba-Nimule road.

In addition, the audit team observed the bridge repairs that had been made. According to both mission and Berger officials, the existing bridges had become increasingly unserviceable and would not allow loaded trucks to pass safely. Moreover, one of the bridges was closed for fear of collapse. The bridges were repaired using steel plates

that were salvaged from a collapsed span of the Nile River bridge in Juba. According to Berger officials, not only did these repairs allow trucks to carry increased loads of up to 120 tons, but they also permitted the road to remain open while the replacement bridges were being built. In addition, both the bridge repairs and road maintenance were accomplished by Sudanese firms, generating both income and experience for local workers and companies.



Photographs of Bridge #5 (Kit Bridge) before repair (left) and after repair (right). (The Louis Berger Group, Inc., January 2008.)

Moreover, expectations of greater economic growth upon completion of the paved road were widespread. In addition to interviews with users of the road, officials from freight companies interviewed by the contractor for a baseline survey reported that the paved Juba-Nimule road will have a significant impact on transport costs as well as the economy of southern Sudan. The audit team also interviewed officials from the Government of Southern Sudan, who seconded this outlook as well.

Just as important, the construction of the Juba-Nimule road is taking place within the context of increased regional infrastructure investments. For example, Uganda, with World Bank assistance, is constructing a 123 kilometer paved road from Soroti to Lira in northern Uganda. According to a newspaper interview with the Ugandan Minister of Transport and Works, this road, which lies on the route from Mombasa, Kenya,⁴ to Nimule, is the shortest route to Sudan. The minister expects that completion of this road will significantly increase traffic volume headed to Nimule from Mombasa.

USAID and its partners operate within the context of an intrinsically difficult environment in southern Sudan, characterized by frequent and unique security and logistical obstacles. While the Juba-Nimule road project is well conceived and is likely to eventually bring significant benefits to the people of the region, the implementation of the project has been challenging. Some of these challenges are discussed in the following sections.

⁴ The Port of Mombasa is Kenya's main seaport.

Juba-Nimule Road Is 8 Months Behind Schedule

Summary: The completion of the Juba-Nimule road was initially planned for March 2010. However, current estimates place the completion date in November 2010. This delay was caused principally by policy questions that arose during the procurement of the road construction subcontract. As a result of this delay, the overall estimated cost of the Juba-Nimule road increased by more than \$7 million.

The fiscal year (FY) 2007–2008 work plan for Task Order 2 of the Sudan Infrastructure Services Project called for the Juba-Nimule road to be completed in March 2010. However, officials from both the mission and the Louis Berger Group, Inc. (Berger), now estimate that the road will not be completed until November 2010. Thus, the Juba-Nimule road is 8 months behind schedule.

The FY 2007–2008 work plan envisioned that construction would be subcontracted using a “design-build” contract in order to complete the road in the most expeditious manner. A design-build contract is one in which design and construction activities are combined in a single contract with one contractor. According to a USAID consultant, this type of contract requires firms with significant engineering resources and expertise in order to adequately support both functions.

Despite this plan, a delay of approximately 5 months resulted from policy questions that arose during the procurement of the design-build subcontract.⁵ These questions included uncertainty regarding the application of USAID rules concerning the eligibility of potential contractors, as well as whether certain companies were parastatal enterprises. These uncertainties arose after a prequalification exercise was held to identify firms that were technically and financially qualified to act as a Berger subcontractor on this project.

The mission then engaged USAID legal advisers in both Sudan and Washington, DC, to determine if any legal or policy impediments existed in regard to any of the seven prequalified companies. Other than the parastatal exclusion,⁶ which, according to a Berger official, affected one applicant, no other grounds for disqualification of any of the other firms were found.

To diminish the possibility that a questionable award could still be made, the decision was subsequently made to change the contract modality from design-build to design-bid-build.⁷ This modality permitted smaller firms to compete for the contract because the engineering resources required for the design portion were no longer needed, since the design was now being performed by Berger officials. More important, the

⁵ Notably, this delay, which lasted from October 2008 through February 2009, occurred during the dry season, which is the most favorable time for construction activities.

⁶ 22 CFR 228.33 states in its entirety: “Firms operated as commercial companies or other organizations (including nonprofit organizations other than public educational institutions) which are wholly or partially owned by a foreign government or agency thereof are not eligible for financing by USAID as contractors or subcontractors, except if their eligibility has been established by a waiver approved by USAID in accordance with §228.54. This does not apply to foreign government ministries or agencies.”

⁷ “Design-bid-build” refers to the traditional delivery method in which design and construction are sequential and contracted for separately with two contracts and two contractors.

prequalification criteria for the design-bid-build modality was revised to include a provision specifying that there should be minimum threshold requirements for use of southern Sudanese labor as well as subcontracting with southern Sudanese companies.

While the time required for legal research, road design, and a second prequalification exercise caused the road construction subcontracts to be delayed by 5 months, an additional delay of about 2 months was created by cash flow concerns at the mission. According to a mission official, approximately \$85 million in FY 2009 funds was available for the project, which was deemed to be insufficient to cover the costs projected by Berger. Consequently, the award was delayed by 2 months in order to conserve funds until FY 2010 funding became available.

The effect of these delays increased the overall estimated cost of the project to USAID by about \$7.1 million. Since Berger staff had already been deployed and were engaged in preliminary bridge repairs and other preparatory work prior to the delays described above, this figure was composed of Berger's projected salaries, overhead, security charges, and other direct costs, plus the associated fee on those incremental amounts, which would otherwise not be incurred if the project was completed on schedule. Audit team inquiries of Government of Southern Sudan officials indicated that they were unconcerned about the delay and, apart from not having the road completed sooner, they did not cite any other adverse effects.

Since all policy questions have been resolved and the road construction subcontracts have been issued, this audit is not making any recommendations on this matter.

Estimated Cost of Juba-Nimule Road Has Increased Significantly

Summary: Federal law requires reasonable cost estimates before USAID initiates certain projects. Despite this requirement, the projected cost of the Juba-Nimule road increased 88 percent over the estimate in the road's feasibility study. A major portion of this increase arose from the absence of sufficient technical data, which resulted in an underestimate of the material required. Moreover, erroneous initial assumptions also contributed to the increased projected costs. As a result, the road is costing millions of dollars more than originally estimated, and USAID operational planning was hindered.

Section 611 of the Foreign Assistance Act of 1961, as amended, requires a "reasonably firm estimate" of a project's cost to the U.S. Government prior to any agreement or grant incurring an obligation of \$500,000 or greater. USAID engineers in Washington, DC, interpreted this to mean that such an estimate should be within 10 percent of the actual costs in a normal operating environment, or within 15 percent in a difficult one, such as Sudan. The May 2007 feasibility study for the Juba-Nimule road, which was prepared by the Louis Berger Group, Inc. (Berger), and was completed prior to the initial obligation of funds under Task Order 2, estimated a maximum total cost of \$87 million for upgrading the road to a double bituminous surface treatment standard.⁸ However, as of April 6,

⁸ Double bituminous surface treatment is a common type of pavement surfacing construction that involves two applications of asphalt binder material and mineral aggregate over a prepared surface. The treatment resists traffic abrasion and provides a water-resistant wearing cover over the underlying pavement structure.

2009, the road had an estimated budget of \$163.8 million, or an increase of 88 percent over the amount in the feasibility study.

Erroneous Assumptions – This increase was partly attributable to erroneous initial assumptions. For example, two key assumptions were that security and demining services would be provided by the Government of Southern Sudan. Even though the 2005 Comprehensive Peace Agreement ended the North-South civil war, criminal activities of the Lord's Resistance Army⁹ kept the south in a precarious security situation, which was further complicated by the nearly two million landmines remaining from the war. According to a mission official, soldiers from the Sudan People's Liberation Army were expected to provide security along the Juba-Nimule route. These soldiers, however, proved highly ineffective, causing the prime contractor to hire a security firm, while the road subcontractors had to incorporate security costs into their bids. Meanwhile, Government of Southern Sudan funding of an existing demining subcontractor was insufficient, forcing USAID to fund these efforts. As a result, the life of project budget increased by \$11.9 million for security costs and \$3.5 million for demining costs.¹⁰

Adding to the increased costs was the omission of the cost of bridge repairs and initial road maintenance from the feasibility study. These activities cost \$3.0 million. Moreover, the actual cost of the replacement bridges is estimated to exceed the cost used in the feasibility study by \$10.0 million.

Overall, the 7-month delay in the construction schedule described on page 8 is estimated to increase the overall project cost by \$7.1 million, inclusive of security and the contractor's fee.¹¹ In addition, another \$12.0 million in cost increases was due to various other costs plus the contractor's fee related to those increased estimated costs.

Finally, a significant portion of the increase in estimated cost from the feasibility study is also due to a combination of higher unit material costs and larger material requirements than originally estimated. Table 1 shows how this combination increased overall costs by \$30.8 million for three selected components of the Juba-Nimule road.

⁹ The Lord's Resistance Army (LRA) is a Ugandan insurgent militia led by Joseph Kony and originating in the Acholiland region of northern Uganda. To escape Ugandan government forces, Kony and some of his LRA units fled to southern Sudan during the Sudanese civil war, where their depredations and banditry afflicted numerous villages. While the Sudan People's Liberation Army has weakened the LRA in recent years, the LRA still poses a security risk. For example, a recent United Nations article reported that LRA rebels had allegedly killed more than 100 residents of Western Equatoria since December 2008.

¹⁰ Construction of the Juba-Nimule road is dependent on the United Nations Mine Action Office (UNMAO) certifying the demining of the road corridor. On April 21, 2009, a UNMAO official suffered serious injuries when he stepped on an antipersonnel mine during a demining quality assurance assessment. As of June 30, 2009, a UNMAO board of inquiry has yet to release its findings on the incident. If the UNMAO requires more extensive demining as a result, then additional costs will be incurred, as well as possible schedule delays.

¹¹ Excluding the cost of security and the fee results in a net increased cost due to the delay of \$5.6 million.

Table 1. Comparison of Actual Costs with Feasibility Study for Selected Items

<u>Cement Stabilizer</u>			
	Qty (tons)	Unit Rate	Total
Actual costs	50,030.24	\$ 425.78	\$ 21,301,842
Feasibility study	31,633.90	\$ 285.00	\$ 9,015,662
Difference			\$ 12,286,180
<u>Road Rock Excavation</u>			
	Qty (m ³)	Unit Rate	Total
Actual costs	93,773.00	\$ 60.26	\$ 5,651,043
Feasibility study	40,000.00	\$ 75.00	\$ 3,000,000
Difference			\$ 2,651,043
<u>Embankment Construction</u>			
	Qty (m ³)	Unit Rate	Total
Actual costs	2,376,647.00	\$ 6.73	\$ 15,997,480
Feasibility study	15,000.00	\$ 6.50	\$ 97,500
Difference			\$ 15,899,980
Total differences, actual costs vs. feasibility study			\$ 30,837,203

According to Berger officials, the advent of inflationary pressures in fall 2007—after the feasibility study but before the tendering of the road construction subcontracts—led to higher input costs for certain materials. These pressures were most acute in the costs of cement, aggregates, and fuel, as shown in the unit rate for cement stabilizer in table 1 (which increased 49 percent over the feasibility study estimate). USAID officials countered that inflationary pressures had only a minor effect on cost overruns.

Lack of Adequate Technical Data — More significant, Berger officials explained that the lack of adequate technical data and certain design information at the time of the feasibility study resulted in the significant underestimating of some material quantities. For example, once geotechnical surveys were ultimately conducted they revealed that the subgrade was much weaker than originally anticipated, requiring more material to build over it.¹² According to Berger officials, this situation contributed to the larger quantities required for both the cement stabilizer and the embankment construction. Furthermore, the lack of topographical data meant that the necessary improvements in the road's vertical alignment were not adequately forecast, which also contributed to the much higher material quantities needed for embankment construction. Notwithstanding the lack of topographical data, USAID officials felt that an appropriate rough estimate for embankment construction could have been made given drainage and road formation prerequisites. Finally, the addition of a climbing lane near Nimule in the final design required additional rock excavation, which was not incorporated in the feasibility study estimate.¹³

USAID engineers in Washington, DC, also criticized the lack of adequate technical data in the feasibility study. According to these officials, this occurred because Berger did not

¹² The reasons for the delay of these geotechnical surveys are discussed in the next section.

¹³ A climbing lane is a separate lane that allows slower travel by large vehicles up a steep grade.

properly implement USAID's instructions for the feasibility study, including topographical and geotechnical surveys and related detailed unit cost analysis based on estimated material quantities. The engineers added that it is often impossible to develop a "reasonably firm" cost estimate in the absence of such surveys, and noted that they are usually included in feasibility studies for USAID-funded projects.

In response, Berger officials stated that USAID allowed 8 weeks for completion of the study, which they asserted was insufficient time to include the desired surveys. To accomplish the study within the desired time frame, Berger proposed performing the technical surveys during the detailed design phase. USAID responded by clarifying that the draft road design guidelines (which addressed geotechnical analysis, among other things) "were included for reference only at this stage, and not to be fully complied with during the feasibility study."¹⁴ Nonetheless, USAID expressed concern that Berger would not meet the 15 percent targeted precision of actual construction quantities, and recommended that Berger perform a "minimum amount of surveys" to achieve this precision, even if it required a "little extra time and resources."

This basic conflict between the amount of survey work and the precision of estimated quantities was also reflected in correspondence surrounding review of the feasibility study. In its initial review, USAID stated that the targeted precision of 15 percent was not achieved and made several ameliorative recommendations, while Berger believed that its annexed cost calculations met the required standard. Berger officials reiterated their proposal to pursue additional design efforts during the detailed design phase, but offered to perform this additional work during the feasibility study if USAID requested a time and cost estimate for this extra work. These officials indicated that no such request was made. USAID officials stated that a cost estimate for the additional work was not requested because of questions regarding the use of Task Order 1 funds for the feasibility study and the belief that these funds needed to be conserved through September 2008.¹⁵ In its final review, USAID noted that it could not endorse Berger's conclusion that the targeted precision was met because the study did not involve "sufficient in-situ testing and engineering surveys." USAID ended by suggesting that Berger re-examine its unit cost analysis during the final design and implementation periods of the project.

The language in Section 3.1 of the Request for Task Order Proposal, which states that Berger should "consider" the draft road design guidelines in preparing its estimate of construction quantities, was ambiguous. Berger officials confirmed that they interpreted the language to be discretionary. Moreover, these officials contended that the available funding under Task Order 1 was insufficient to obtain the various technical surveys. This task order was initially funded in September 2006 with \$3 million and not increased until

¹⁴ Section 3.1 of the Request for Task Order Proposal states in its entirety: "Consider the guidelines for road designs given in Section 4 of the annexed draft road design guidelines (geometric, geotechnical, soils and pavement materials, structures and drainage facilities, utilities, road safety elements, social/environmental, bridge construction works, land acquisition, etc.) and prepare preliminary engineering designs and social environmental impacts needed to estimate the quantity of construction works with a targeted precision of 5% of actual construction quantities."

¹⁵ Task Order 1 was established to provide management and administrative services for other task orders issued pursuant to the Sudan Infrastructure Project. To qualify under Task Order 1, USAID officials characterized the feasibility study as an "assessment" rather than a "detailed engineering study."

December 2008, well after the completion of the feasibility study. According to Berger officials, the \$3 million, however, included only \$348,715 for subcontractors, which would have been necessary for the topographical and geotechnical surveys that Berger could not conduct with its own resources. The fact that the actual amounts spent for these surveys during the detailed design phase totaled \$1.6 million clearly demonstrates that the initial \$348,715 was inadequate. Moreover, a significant factor that limited the overall funding initially provided to Berger was that the mission had previously awarded the vast majority of the initial year's funds to the United Nations Office of Project Services. When asked why USAID went forward with an inadequate cost estimate, one USAID official noted that there was "lots of pressure to move the funds after so much delay" (further background regarding the project and the events that led to these delays is presented in appendix III).

Cost Updates – Berger officials have provided USAID with a number of cost updates over the life of the project. In April 2008, Berger projected that the cumulative expenditures under Task Order 2 would total \$89 million, or less than 3 percent over the \$87 million maximum total cost originally estimated. The magnitude of the actual cost increase (a \$76.8 million—or 88 percent—increase) was not apparent to USAID officials until August 2008, when Berger officials updated various unit costs based on subcontracts executed after the feasibility study. However, several of the unit costs that exhibited the most variation, such as excavation rates, were derived from subcontract bids that were known in April 2008 but were not included in that update. Furthermore, the inflationary pressures affecting certain commodities that started in fall 2007 were omitted from the April 2008 update as well. Berger officials stated that the April 2008 analysis could have been improved if such information was taken into account. It is notable that these omissions occurred during a period of unsettled leadership in Berger's Juba operations (see page 16).

These omissions also affected USAID's operational planning. USAID officials indicated that if they had known the significant nature of the cost increases in April 2008, rather than in August, they would have made a more cogent case for greater funding for the Juba-Nimule road. Instead, based on the April 2008 projection of \$89 million, infrastructure funds were diverted toward investments in the "Three Areas" south of Khartoum, which was a priority for the U.S. Government mission in Sudan.

Conclusion – The requirement for a "reasonably firm" cost estimate prior to project initiation is a prudent, commonsense management practice that is necessary for sound planning and stewardship of U.S. Government funds. This is reflected in the emphasis given to the role of the feasibility study by USAID engineers in Washington, DC. As a result, this audit makes the following recommendation:

Recommendation No. 1: We recommend that USAID/Sudan develop policies and procedures to help ensure that future feasibility studies of USAID-funded projects are provided with (a) adequate funding and scheduling, and (b) unambiguous instructions regarding the nature and extent of technical analyses to be performed.

Problems in Bridge Construction Have Contributed to Higher Costs

Summary: The planned completion dates for the erection of seven new bridges along the Juba-Nimule road were not met because of delays in foundation construction, which was exacerbated by poor initial designs. A significant cause of these problems was the lack of timely geotechnical data. As a result, overall project costs have increased, and USAID could ultimately bear the cost of potential claims for losses.

One of the major improvements to the Juba-Nimule road will be the erection of seven durable composite bridges. However, delays in bridge construction and poorly designed foundations contributed to the higher projected costs of the Juba-Nimule road. These problems are discussed below.

Delays – The Louis Berger Group, Inc. (Berger), in instructions to its subcontractor for the construction of the bridge abutments, Civicon, Ltd., stated that it was essential for the first set of abutments to be ready for the initial bridge positioning (referred to as “launching”) by September 30, 2008, with the remaining abutments to be completed over the following 6 weeks. Following this timeline, the bridges were scheduled to be finished by January 2009.

Despite these initial plans, bridge construction was significantly behind schedule. According to a Berger official, the bridge launching (conducted by another subcontractor, Terrain Services) is currently estimated to be finished in July 2009. However, the bridges are not considered complete by USAID until they pass final inspection and are formally transferred to the Government of Southern Sudan. During fieldwork, USAID’s consulting engineer estimated that this would probably occur in late 2009. However, owing in part to the border delays discussed below, USAID officials now estimate that this will not occur until early 2010.

The causes for the bridge construction delays were varied and often sequentially related. For example, geotechnical surveys are critical for the designs upon which excavation and construction of the abutments are based. USAID provided its consent to Berger to subcontract for this survey work in February 2008, after Berger awarded the job to a joint venture. Yet according to a Berger official, the joint venture, which was embarking on its first significant project with a U.S.-based firm, chose not to form a separate entity such as a limited liability company to perform the work. Consequently, preliminary administrative matters such as obtaining insurance, performance bonds, and letters of credit had to be pursued separately for each member of the joint venture, delaying execution of the survey subcontract. The USAID contracting officer’s technical representative was aware of the delay and wrote to Berger officials requesting an update as well as an assessment of the effects of the delay on dependent activities. The survey subcontract was executed shortly after this correspondence, in April 2008, and Berger remained confident that the bridge program could still be completed on schedule.

The delay in conducting geotechnical surveys, however, did delay necessary design work, which in turn postponed excavation and construction of the abutments. Exacerbating this situation was Civicon’s 2-month delay in mobilizing personnel and equipment; moreover, once the mobilization was completed the staffing and equipment deployed were inadequate. For example, according to an inspection report prepared by

USAID's consulting engineer, Civicon was working on only one bridge at a time in December 2008, even though by this point the project was 4 months behind schedule. In addition, Civicon's onsite manager was inexperienced, which contributed to the slow progress. This situation was substantially improved when the audit team toured the Juba-Nimule road in April 2009 with USAID's consulting engineer, and observed evidence of activity at all sites as well as additional equipment and personnel.

Effects of Delays

Despite this accelerated progress, the delays in constructing the bridge abutments led to corresponding delays by Terrain Services ("Terrain") in launching the bridge structures. According to correspondence from Terrain to Berger, Terrain had been underutilizing its resources during fall 2008 and not achieving billable progress, yet still incurring costs. Consequently, USAID's consulting engineer expects that Terrain will ultimately file a claim against Berger for damages. This claim, according to a Berger official, is likely to be upheld. The audit team asked Berger officials if the company, in turn, would seek liquidated damages against Civicon to offset the Terrain claim. While these officials indicated that Berger would probably do so, USAID officials countered that under a cost-plus-fixed-fee contract there was no incentive for Berger to refrain from passing the Terrain costs to USAID. As a result, USAID could ultimately bear the costs of the potential Terrain claim.

Berger officials indicated that they considered negotiating change orders to eliminate potential claims at different points in the life of the subcontracts. Ultimately, Berger felt that it would be best to await Civicon's completion before embarking on formal negotiations, since security and border clearance uncertainties could still affect progress. USAID officials disagreed with this decision. As of the completion of audit fieldwork, the magnitude of any potential claims was not known.

The border clearance uncertainties referred to above—namely, delays in receiving customs approval from the Government of Sudan—contributed to the bridge construction delay. For example, at one point Terrain had six truckloads of material and equipment detained at the Ugandan border, with one truck there for 6 weeks, after refusing to pay customs duties.¹⁶ A Berger official estimated that this issue caused a 5-week delay in the bridge construction schedule. In addition, this official indicated that the two subcontractors would be entitled to time extensions with costs, which he estimated at \$5,000 to \$10,000 daily per subcontractor. Since the audit team's return from Juba, the border delay issue has been resolved; however, the subcontractors have not yet submitted a formal claim to Berger officials.

Foundation Designs – Civicon's original contract with Berger for the construction of seven bridge foundations on the Juba-Nimule road, worth \$3.1 million, was signed in May 2008. However, in February 2009, Berger modified the contract, increasing the amount by more than 52 percent to \$4.7 million. According to Berger's request for

¹⁶ According to USAID and Berger officials, these items were supposed to pass through Sudanese customs duty-free. None of the officials to whom we spoke knew the reason for the border delays. Some believed that the delays were further retaliation against nongovernmental organizations in the wake of the March 2009 International Criminal Court indictment of Sudanese president Omar al-Bashir. Others discounted the theory, speculating that the recent sharp decline in oil prices forced the government to look for additional revenue elsewhere.

USAID consent to both the original and modified agreements, the contract between Civicon and Berger was characterized as a firm-fixed-price subcontract. In its justification for modification, Berger noted that the award was made utilizing fixed unit rates in accordance with Federal Acquisition Regulation (FAR) §36.207(a).¹⁷

The original contract price was based on “notional” or estimated quantities of construction materials (referred to as a bill of quantities). According to a Berger official, when the notional bill of quantities was developed there was limited geotechnical or hydrological information available, requiring various assumptions concerning construction conditions and their effect on material quantities. Ultimately, Berger engineers considered the new bridges to be similar to the existing ones in terms of length, height, and foundation dimensions, and used these assumptions as the basis for formulating the notional bill of quantities. The quantities in the notional bill of quantities would be finalized once the foundation designs were completed.

The delay in conducting geotechnical surveys not only delayed the completion of the foundation designs but also affected their quality. According to a Berger official, the corresponding lack of geotechnical information caused the foundation designer to adopt a “conservative” approach in order to ensure safety. As a result, the designs required far more excavation and materials than necessary, and, if implemented for all seven bridges, would have resulted in a contract price of \$6.0 million. This prompted Berger staff to prepare new designs for five of the seven bridges, after the original design was already used in constructing two foundations. These new, optimized designs resulted in an overall contract price for all seven bridges of \$4.7 million. While the unit rates remained the same as those used in pricing the original award, the quantities associated with the optimized designs were significantly greater than used in the notional bill of quantities, resulting in a 52 percent increase in cost.¹⁸

Quality Assurance of Bridge Designs

The design inefficiencies resulting in these cost overruns could have been detected sooner by both Berger and USAID. The drawings for Bridge Nos. 4 and 5 were dated August 1, 2008, and August 8, 2008, respectively, and were received by Berger shortly thereafter. Most significant, these drawings indicated that the concrete quantities for those two bridges alone were 2,210 cubic meters (m³), whereas the notional bill of quantities only specified 1,850 m³ for all seven bridges. Even though a Berger official stated that plan reviews were underway during the fall with design quality assurance reviews completed in October and November 2008, he said that USAID was not informed of the looming overruns until late December 2008 or early January 2009.¹⁹

¹⁷ FAR §36.207(a), Pricing Fixed-Price Construction Contracts, reads in its entirety: “Generally, firm-fixed-price contracts shall be used to acquire construction. They may be priced—(1) On a lump-sum basis (when a lump sum is paid for the total work or defined parts of the work), (2) On a unit-price basis (when a unit price is paid for a specified quantity of work units) or (3) Using a combination of the two methods.”

¹⁸ A former USAID/Sudan contracting officer we contacted was not aware of any provision in the FAR limiting the magnitude of changes in material quantities for contracts priced using fixed unit rates.

¹⁹ According to a Berger official, quality assurance reviews were desk reviews where calculations and assumptions were checked to ensure that the design met minimum safety standards. USAID officials were disappointed by the extent of these reviews, and had expected that the quality assurance process would also address cost and efficiency issues.

Furthermore, this official expected Berger field staff in Sudan to apprise USAID of the increase in quantities as the information became available; however, he found no evidence that this was done. Similarly, even though USAID officials also received the drawings for Bridge Nos. 4 and 5 between late August and early September, they also did not identify the large increase in concrete quantities from those included in the notional bill of quantities.

For Berger officials, these events occurred within a context of staffing and workload issues that contributed to their failure to detect the inefficient designs in a timely manner. Berger, for example, suffered from excessive turnover and lack of continuity in the crucial chief of party position. Following the resignation of the original chief of party in June 2007, the position was filled by a Berger official from Washington, DC, until a replacement was eventually hired and brought to Juba in April 2008. Because of unforeseen health reasons, this chief of party was evacuated the following month and did not return. In May 2008, the chief engineer assumed chief of party duties; according to USAID officials, however, this official was removed in November 2008 for alleged personal improprieties. These departures created other staffing problems, as subordinate officials were elevated to higher-level vacancies. Moreover, these changes occurred not only during a critical phase of bridge construction, but also when the contract modality changed from design-build to design-bid-build. As described on pages 7–8, during this period additional duties and responsibilities were given to Berger officials in Sudan, ranging from a second prequalification exercise to designing the Juba-Nimule road itself.²⁰

USAID also experienced staffing difficulties during this time. The USAID contracting officer's technical representative who received the preliminary bridge drawings stated that his collateral duties—which included contracting officer's technical representative responsibilities for school and clinic projects conducted by the United Nations Office of Project Services—did not allow sufficient time to perform detailed reviews of such submissions. Furthermore, bridge design is a very specialized activity and USAID/Sudan technical personnel were admittedly not experts in this field. According to the contracting officer's technical representative, his collateral duties also precluded him from conducting site visits at the frequency desired by other USAID personnel involved in the project. Exacerbating this constraint was the stationing of technical staff in Nairobi, Kenya, while USAID facilities were being constructed in Juba. For example, the contracting officer's technical representative for the Juba-Nimule road activity did not permanently reside in Juba until March 2008. Although one USAID official attributed the bridge cost overruns and delays to insufficient monitoring by the contracting officer's technical representative, USAID engineers in Washington, DC, associated with the Juba-Nimule road project praised the work of the representative and indicated that he was properly monitoring the activity.

Senior USAID officials in Juba, however, felt that the level of technical oversight afforded the mission's road infrastructure activities was inadequate. To rectify this situation, the mission recruited for a consulting engineer in April 2008 after failing, according to a USAID official, to recruit a full-time consultant to work in Sudan. The mission eventually retained the services of a part-time consulting engineer, who started in late 2008 after

²⁰ An additional consideration is that the Berger chief of party had responsibilities not only for the Juba-Nimule road, but also for other initiatives under the Sudan Infrastructure Services Project, such as water, sanitation, and energy activities.

completing a similar assignment in Afghanistan. This action has made a significant positive contribution to the mission's road infrastructure activities by providing additional oversight and technical assistance. However, as of the end of audit fieldwork, the contract for this consultant did not extend through the estimated completion date of the Juba-Nimule road. Consequently, this audit makes the following recommendation:

Recommendation No. 2: We recommend that USAID/Sudan retain a consulting engineer at least through the estimated completion date of the Juba-Nimule road.

Current Branding Strategy Is Ineffective

Summary: Effective branding of USAID projects is an important Agency objective. However, none of the people interviewed along the Juba-Nimule road were aware that the project is being funded by the United States. This occurred because community leaders were not disseminating this information to the grassroots level. Consequently, opportunities for effective public diplomacy in an area of vital foreign policy interest to the United States were diminished.

The importance of ensuring that the American people are appropriately recognized for their generosity in funding U.S. foreign assistance has been a longstanding U.S. Government objective. For example, section 641 of USAID's framework legislation, the Foreign Assistance Act of 1961, as amended, specifies that all programs under the Act be identified as "American Aid." More recently, the importance of development in the United States' post-September 11 national security strategy increased the need for U.S. foreign assistance activities to be more fully identified in host countries as being provided by the United States.

Despite the importance of identifying USAID activities as being provided by the United States, none of the 22 people interviewed at various places along the Juba-Nimule road knew that the road was funded by the American people. Moreover, these interviews typically attracted a number of onlookers, and our questions regarding funding were addressed to these small gatherings. Even when audit team members asked respondents if they knew which foreign country was funding the Juba-Nimule road, none mentioned the United States.

The mission's current branding strategy for its road infrastructure activities relies on two main approaches: signage placed prior to bridges and at other points along the road and direct communication through the contractor's "community development teams." However, both of these approaches were ineffective. None of the respondents gave any indication that they paid attention to the branding signs; moreover, mission officials noted that literacy rates in southern Sudan are less than 15 percent.²¹ While the signs did contain the USAID logo and brand name, these would only have been effective in a highly illiterate environment if viewers were previously aware of the logo's meaning.

²¹ According to the CIA World Factbook, literacy in Sudan as a whole is only 61.1 percent. It is reasonable to expect that literacy would be even lower in the south given the length of the civil wars and the disruption of normal education. Furthermore, the ongoing return of refugees to southern Sudan exacerbates the difficulties inherent in effectively branding USAID projects in the area, as recently resettled areas may have been bypassed during earlier community development team briefings.

In addition, the community development teams utilized a top-down approach in which they informed local government officials and tribal elders of numerous issues associated with the road project, such as the location of the road and any burrow pits, as well as information regarding project funding. According to a team official, these community leaders were then supposed to relay this information to the community at large. However, when the audit team asked this official if he specifically asked those leaders to pass this information to the community, the official merely responded that he “mentioned” USAID. It was apparent that without explicit instructions this branding information was not being disseminated to the community.

The ineffectiveness of the current branding strategy means that people in southern Sudan are generally not aware that the Juba-Nimule road is being funded by the American people. Consequently, opportunities to create positive impressions of the United States are forfeited, hindering public diplomacy efforts in Sudan, an area of immense foreign policy interest to the United States. As a result, this audit makes the following recommendation:

Recommendation No. 3: We recommend that USAID/Sudan revise its branding strategy for the Juba-Nimule road project to focus more on direct communication with project beneficiaries.

Provision for Executive Order on Terrorism Financing Omitted from Subcontracts

Summary: USAID regulations mandate that recipients of USAID assistance include in all subawards a provision based on Executive Order 13224 designed to prevent the financing of terrorist activities. Nevertheless, 6 of 15 subcontracts for the Juba-Nimule road did not contain this provision. This likely occurred because contractor officials mistakenly relied on other terrorism-related clauses and used templates that omitted the required language. Consequently, USAID funds could be at increased risk of being used to finance terrorist activities.

ADS 302.3.6.13 states that U.S. law prohibits transactions with individuals and organizations associated with terrorism. Consequently, USAID/Sudan’s contract with the Louis Berger Group, Inc. (Berger) contains the following section, titled “Executive Order on Terrorism Financing”:

The Contractor is reminded that U.S. Executive Orders and U.S. law prohibits transactions with, and the provision of resources and support to, individuals and organizations associated with terrorism. It is the responsibility of the contractor/recipient to ensure compliance with these Executive Orders and laws. This provision must be included in all subcontracts/subawards issued under this contract.

Notwithstanding this explicit requirement, 6 of 15 contracts between Berger and its subcontractors that the audit team reviewed did not contain the required provision. While Berger officials could not definitively state the exact cause, one official believed

that the omission was based on a presumption that incorporation of other terrorism-related clauses would satisfy the above requirement. Neither of these clauses, however, was as broad as the required language. One clause pertained only to services or supplies originating in Cuba, Iran, Libya, North Korea, or Syria, while the other referred only to firms that are owned or controlled by a terrorist country.

Another Berger official stated that the omission could have been due to the use of different subcontract templates by its Sudan and Washington, DC, offices. According to this official, subcontracts issued using the field template omitted the required provision, whereas those issued by Washington, DC, did not. The use of different templates occurred because contract administrators were previously responsible for ensuring that all applicable prime contract provisions were incorporated into the subcontracts they prepared. Furthermore, a checklist was not utilized to assist contract administrators in this task. Since the beginning of 2009, contractor officials stated that they have discontinued the practice of using different templates, and now use standardized subcontract templates that are developed, updated, and reviewed by the contractor's legal department.

Contract provisions such as Executive Order 13224 heighten public awareness of individuals and entities linked to terrorism, and promote due diligence by private sector entities to avoid associations with terrorists. These benefits are lost at the subrecipient level if the required provision is omitted from subcontracts. Consequently, these omissions may increase the risk that USAID funds are used to finance terrorism. As a result of audit inquiries, Berger officials remarked that they initiated a review of all current subcontracts to ensure that the required language is included and, where omitted, to modify those subcontracts accordingly. In addition, this audit makes the following recommendation, applicable to all of the mission's programs:

Recommendation No. 4: We recommend that USAID/Sudan determine whether its recipients' subawards contain the required provision concerning the implementation of Executive Order 13224 and require that the recipients incorporate the required provision into any subawards from which it was omitted.

EVALUATION OF MANAGEMENT COMMENTS

In its response to the draft report, USAID/Sudan concurred with all four recommendations and proposed to complete remedial actions by February 28, 2010. Management decisions were reached on three of these recommendations. An evaluation of the management comments for each recommendation is shown below.

Regarding recommendation no. 1, USAID/Sudan stated that it will develop internal guidelines for improving future feasibility studies, including the consideration of options to separate engineering studies from detailed designs. Consequently, a management decision has been reached on recommendation no. 1.

In response to recommendation no. 2, the mission reiterated the importance of engineering consultancy services to the success of the Juba-Nimule road project and stated that USAID/Sudan will continue its retention efforts. As a result, a management decision has been reached on recommendation no.2.

In response to recommendation no. 3, USAID/Sudan stated that it will review and revise the current branding strategy to disseminate more information about the Juba-Nimule road at the local level. As a result, a management decision has been reached on recommendation no. 3.

In response to recommendation no. 4, USAID/Sudan indicated that the mission will verify that the Louis Berger Group has included Executive Order 13224 in all subawards. Moreover, the mission will remind its other implementing partners of this requirement as well. While these actions are beneficial, they do not fully address the intent of the recommendation to determine that all subawards throughout USAID/Sudan's portfolio contain the required language on terrorist financing. Given the importance of denying USAID funds to terrorist individuals and organizations, the applicability of this recommendation to all of the mission's programs is appropriate. Consequently, a management decision has not been reached on recommendation no. 4.

SCOPE AND METHODOLOGY

Scope

The Office of Inspector General 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 based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective, which was to determine whether USAID/Sudan's road infrastructure activities were achieving their main goals. Audit fieldwork was conducted at USAID/Sudan from April 22 to May 8, 2009, with additional analysis and inquiries performed at our office in Pretoria, South Africa, until June 30, 2009. The audit covered USAID/Sudan's road infrastructure activities from the inception of the Sudan Infrastructure Services Project in 2006 through the conclusion of fieldwork. However, because of a scope limitation, the scope was limited to activities pertaining to the construction of the Juba-Nimule road.

In planning and performing the audit, the audit team made inquiries relating to the respondents' knowledge of actual or suspected fraud in the mission's road infrastructure activities. In conjunction, we also assessed the risk of illegal acts. Furthermore, we assessed management controls for ensuring compliance with applicable laws, regulations, and policies regarding those activities. Specifically, we reviewed the following:

- Reports required under the Federal Managers' Financial Integrity Act of 1982
- Implementing partner contracts and agreements
- Performance measures and results
- Contracting officer's technical representative certifications
- Trip reports prepared by mission officials and consultants
- Correspondence between officials from USAID and the Louis Berger Group, Inc.
- Quarterly progress reports prepared by the Louis Berger Group, Inc.
- Cost estimates and projections
- The Juba-Nimule Road Feasibility Study

We also conducted interviews with key current and former officials of USAID/Sudan, the Louis Berger Group, Inc., the Government of Southern Sudan's Ministry for Transport and Roads, and the USAID Bureau of Economic Growth and Trade, both in Sudan and via e-mail. We also contacted the United Nations Mine Action Office (UNMAO) for information regarding the board of inquiry into the April 21, 2009, mine incident involving a UNMAO official. The audit was conducted at the offices in Juba, Sudan of USAID/Sudan, the Louis Berger Group, Inc., and the Ministry for Transport and Roads. Audit fieldwork was also accomplished during our tour of the Juba-Nimule road and at stops along the way. Additional analysis and interviews (via e-mail) were conducted at the offices of RIG/Pretoria upon our return from Juba.

Scope Limitation

A scope limitation existed in this audit. As stated in the Background section, several of USAID/Sudan's road infrastructure activities were implemented via agreements with the United Nations Office of Project Services. ADS 308.3.4 codifies the general principle that public international organizations, such as the United Nations, are not expected to subject their books and records to inspection by officials of participating nations. Consequently, USAID generally relies on the international organization's management and internal auditing to account for the use of U.S. Government funds. This arrangement is present in USAID/Sudan's agreement with United Nations Office of Project Services.

Given this limitation, our audit procedures regarding these projects consisted of inquiries of USAID personnel. We asked selected mission personnel if they:

- Had any knowledge or suspicion of fraud in USAID projects conducted by United Nations Office of Project Services;
- Were able to conduct site visits of these projects;
- Received progress reports; and
- Were satisfied with United Nations Office of Project Services' quality assurance program and the quality of the road projects thus far.

Respondents reported that they had no knowledge or suspicion of fraud, conducted site visits, received progress reports, and were satisfied with the quality of the work to date. As a result, audit risk was assessed as low and no further procedures were considered necessary.

Methodology

To answer the audit objective, we first interviewed mission officials to determine the composition and main goals of USAID/Sudan's road infrastructure activities. In addition, we also reviewed pertinent documentation, such as the contractor's performance management plan and the USAID/Sudan strategy statement. Next, we determined the best method to assess whether those main goals were being achieved. Since the road had not been finished, the performance indicators designed to measure the impact of improvements to the Juba-Nimule road were of little utility for the current audit. As a result, we concluded that interviews with project beneficiaries, in conjunction with observations of road use as well as construction progress, would provide the most competent evidence for answering the audit objective. Therefore, we traveled the entire length of the Juba-Nimule road in order to conduct interviews and make observations. We likewise interviewed officials from the Government of Southern Sudan, Ministry for Transport and Roads, to assist in answering the audit objective. Finally, we examined quarterly reports prepared by the Louis Berger Group, Inc. (Berger), trip reports completed by mission officials, and maps and articles published by organs of the United Nations.

Given the unfinished status of the Juba-Nimule road, we also determined that assessments of the project's schedule and projected cost would be of central importance to users of this report. To this end, we reviewed work plans and cost estimates. We also interviewed various mission and Berger officials, both in person during our fieldwork

in Sudan and via e-mail after our return to Pretoria. Regarding the delay due to the change in contract modality, we reviewed correspondence between mission officials in Sudan and legal advisers on Washington, DC. In addition, we reviewed the prequalification reports, dated August 5, 2008, and December 6, 2008, which were prepared after the respective prequalification exercises. We also consulted with OIG legal counsel regarding the proper interpretation of applicable sections of the Foreign Assistance Act of 1961, as amended.

Regarding the road's projected cost, we analyzed cost estimates prepared by Berger officials at various points in the life of the project. These included the feasibility study prepared in May 2007, and updates prepared in April 2008, August 2008, and April 2009. To complement these analyses, we also examined the bid evaluation summaries for the main road construction subcontracts and unit cost worksheets prepared by Berger engineers. Furthermore, we developed inquiries for Berger and mission officials based on these analyses. We also interviewed via e-mail USAID/Washington engineers who were familiar with the Juba-Nimule road project for their perspective on the feasibility study, in addition to various other items of audit interest. Finally, we reviewed correspondence between Berger and USAID officials regarding the feasibility study, plus the Request for Task Order Proposal No. 1A, which contained instructions for the study.

In addition to the documents named above, the following sources were used to develop criteria or provide additional information contained in the report:

- Federal Acquisition Regulations §36.207, §36.102, and §16.504
- The indefinite quantity contract between USAID and the Louis Berger Group, Inc., and Task Orders 1 and 2 issued pursuant to that contract
- USAID/Sudan's cooperative agreement with the United Nations Office of Project Services
- Executive Order 13224
- Automated Directives System (ADS) 308, *Grants and Cooperative Agreements with Public International Organizations*
- ADS 302, *Direct Contracting*
- ADS 310, *Source, Origin, and Nationality*

Because of the nature of the audit objective, we did not establish a materiality threshold.

MANAGEMENT COMMENTS



USAID | SUDAN
FROM THE AMERICAN PEOPLE

Date: September 17, 2009

To: Regional Inspector General/Pretoria, Nathan Lokos

From: USAID/Sudan Acting Mission Director, Brooke Isham /s/

Subject: Audit of USAID/Sudan's Road Infrastructure Activities
(Report No. 4-650-09-00X-P)

We would like to thank the RIG/Pretoria team for preparing an audit report that is thorough and will strengthen USAID/Sudan's road infrastructure activities. USAID/Sudan is pleased to provide comments on the report including the position of USAID/Sudan on the recommendations as stated below:

Recommendation No. 1: We recommend that USAID/Sudan develop policies and procedures to help ensure that future feasibility studies of USAID-funded projects are provided with (a) adequate funding and scheduling, and (b) unambiguous instructions regarding the nature and extent of technical analyses to be performed.

USAID/Sudan accepts this recommendation and will develop policies and procedures to be used as Economic Growth internal guidelines for future feasibility studies. The policies will benefit future projects to be funded by USAID/Sudan in southern Sudan. During the development of these policies and procedures, options shall be considered for the use of independent professional services such as the IQC for A/E services provided by USAID's EGAT infrastructure team in order to separate engineering studies from detailed designs. The development of the policies and procedures is expected to complete by February 28, 2010.

Recommendation No. 2: We recommend that USAID/Sudan retain a consulting engineer at least through the estimated completion date of the Juba-Nimule road.

USAID/Sudan accepts this recommendation and will continue to try and retain needed consulting engineering services. Since 2007, USAID/Sudan made three unsuccessful attempts to recruit a qualified US PSC engineer to be based in Juba. Before the current consultant was recruited, USAID/Sudan had also made two unsuccessful attempts to get an engineering consultant on a short-term basis. The unsuccessful attempts to recruit a qualified engineer to be based in Juba underscore the need to retain consultancy services

of an engineer who can provide continuity and expertise to the project. The consultancy services are particularly important in the areas of quality assurance and financial management.

Recommendation No. 3: We recommend that USAID/Sudan revise its branding strategy for the Juba-Nimule road project to focus more on direct communication with project beneficiaries.

USAID/Sudan accepts this recommendation and will review and revise the existing branding strategy for Juba-Nimule Road to include dissemination of information about road construction to the grassroots level. The revised strategy will be done by seeking synergies with other existing USAID programs and possibly by modifying the LBG Task Order to increase the level of effort for this activity. The revised branding strategy is expected to complete by February 28, 2010.

Recommendation No. 4: We recommend that USAID/Sudan determine whether its recipients' subawards contain the required provision concerning the implementation of Executive Order 13224 and require that the recipients incorporate the required provision into any subawards from which it was omitted.

USAID/Sudan accepts this recommendation within the scope of this audit, namely with regard to the Louis Berger Group contract, and has already begun implementation; Louis Berger Group has started including Executive Order 13224 clause in all new subawards. USAID/Sudan will verify that all such subawards include this clause by February 28, 2010. In addition, all USAID/Sudan COTRs will remind implementing partners of the requirements of this clause to be included in subawards; this will be accomplished by February 28, 2010.

Additional Background - Sudan Infrastructure Services Project

Further background on the origin of the Sudan Infrastructure Services Project places the time and funding constraints on the feasibility study in context. According to a mission official, the project was conceived on the premise that there could be no economic growth without an adequate infrastructure, and southern Sudan had few existing satisfactory roads. As a result, USAID started in 2004 by engaging the World Food Program to do some basic road rehabilitation work. However, because of delays in USAID/Washington, the award of a comprehensive program was not approved for 2 years. Meanwhile, USAID engaged the United Nations Office of Project Services (UNOPS) for road and other infrastructure initiatives. Ultimately, in September 2006, a contract was awarded to Berger for the Sudan Infrastructure Services Project. By this time, according to the mission official, most of the initial year's funding was allocated to UNOPS activities, leaving only \$3 million for Berger and the Sudan Infrastructure Services Project. This was the funding designated for general management and administrative functions under Task Order 1. Task Order 2 did not receive its initial funding, \$17.85 million, until August 2007.

As reported in the March 2007 Sudan Infrastructure Services Project quarterly report, preliminary meetings between Berger and USAID established that funding for the project would be very limited in its initial stages. The report stated that based on this limitation, Task Order 1 funding would be used to set up Berger's core team and initiate limited operations in Juba, in addition to performing the feasibility study. In this context, our opinion is that production of the feasibility study became an important barometer of the mission's activity on the Juba-Nimule road project at a time when funding was dormant. Moreover, the slow start due to limited funding contributed to a need to show some concrete progress to external stakeholders; Berger officials shared this view. Finally, it was reflected in the comments of one USAID official who, in response to a query as to why USAID went forward if the cost estimate was not in compliance with Section 611, noted that there was "lots of pressure to move the funds after so much delay."

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