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FINAL CLOSEOUT REPORT TO 3 — Market Town Electrification

SUDAN INFRASTRUCTURE SERVICES PROGRAM (SISP)

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CLOSE OUT REPORT FOR TO 3 MARKET TOWN ELECTRIFICATION

I TASK ORDER OVERVIEW

1.1 Background and Summary of Scope of Work

The Sudan Infrastructure Services Project IQC was awarded to Louis Berger Group (LBG) in 2006. In October, 2007, Task Order 3 was awarded to LBG for design and implementation of the Market Town Electrification Project, pertaining to the expansion of access to electric service in Kapoeta, Maridi, and to continue training and technical assistance to the Yei Electric Cooperative (YECO) and the Ministry of Electricity and Dams. LBG subcontracted with NRECA International, a SISP program partner with expertise in electric power systems to manage all design, procurement, construction, and technical assistance activities associated with work performed under TO 3. LBG retained an oversight and quality assurance role throughout the project.

The original USAID-sponsored electrification project in South Sudan after signature of the Comprehensive Peace Agreement, entitled the Southern Sudan Rural Electrification Project (SSREP), was implemented by NRECA from 2005 through 2008. SSREP financed design and construction of YECO and provided training and policy assistance to the former Ministry of Housing, Lands and Public Utilities.

One of the principal goals of the Market Town Electrification task order was to establish new electric power generation/distribution systems in Kapoeta and Maridi to continue the expansion of access to commercial electric service in South Sudan. Developing electric power infrastructure projects, even for small urban population centers, requires a rigorous process of design, procurement, and construction supervision to ensure that the infrastructure is of adequate quality to achieve long-term sustainability.



Maridi line crew installing a distribution transformer

1.2 Task Order Objectives and Deliverables

The primary goals of the Market Town Electrification Project included the following:

1. To provide electric sector policy support to the Ministry of Electricity and Dams (MED), technical assistance to the MED, State Ministries of Physical Infrastructure, and to the South Sudan Electricity Corporation (SSEC)
2. To design, procure and construct power generation and distribution systems for each market town utility as well as structures that include power houses, warehouses, office buildings and other facilities required by the newly formed electric utilities in each market town.

3. To provide extensive training to the newly formed electric distribution companies in Maridi and Kapoeta.

Deliverables in the Task Order include the following:

- Implementation & Management Plan
- Subcontractor Evaluation Criteria
- Contractor’s Construction Manual
- Construction Risk Management Program
- Health and Safety Plan
- Environmental Management Plan
- HIV/AIDS/gender/vulnerable groups plan
- Community Participation Plan
- Security Plan
- QA/QC Plan
- Monthly/Quarterly Progress Reports
- 30% Design Submittal
- 70% Design Submittal
- Final Design Submittal
- Resource Loaded Project Schedule
- Completion of Construction Program
- Final Report

1.3 Milestones

The period of performance for this task order was from 4 September 2007 to 29 February 2012. Table 1 that follows provides a summary of the key accomplishments by thematic area of SISP TO3 activity. For purposes of this summary, the areas of activity are divided into institutional development and strengthening; training; and construction/establishment of electric utility institutions in Kapoeta and Maridi.

Table 1: SISP TO 3 Summary of Accomplishments

Institutional Development & Strengthening	Results Achieved
Electricity law enacted	Southern Sudan Electricity Corporation Provisional Order was signed on 7 January 2011 while Electricity law completed but pending enactment by the Assembly. Two companies (Maridi Electric Company Limited and Kapoeta Electric Company Limited) incorporated.
Sub-Directorate of Distribution established	Ministry of Energy and Mining decided to establish Directorate later after restructuring of the Ministry. Later Ministry split paving way to a new Ministry of Electricity and Dams. The structure of new Directorates for the new Ministry under preparation by end of project
The two utilities, established after GOSS/State government approvals, are registered and operational	Both Maridi and Kapoeta Electric Company Limited incorporated on 22 August and 19 July 2011, respectively, and the two utilities operational
Training	Results Achieved
Training courses conducted for SSEC (Juba Utility) and emerging distribution utilities of YECO, Kapoeta, Maridi, Yambio, Bor, Rumbek, Malakal and Wau	A total of 510 persons comprising 477 men and 33 women attended the programmed training covering board, management, technical and non-technical areas of utility operations.



utility personnel	
Sudanese utility staff trained by attachment to KPLC operational departments	6 utility staff attached for a period of 2 months to KPLC operational departments
Construction and establishing electric utility institutions	Results Achieved
1. Utility office, residential house and warehousing facilities operational	The construction of these facilities was completed in both project sites, Maridi and Kapoeta
2. Power plant and associated ancillary services, with a nominal design capacity of 800 kW, for each project, in operation	The two power plants in Maridi and Kapoeta with site capacity of 880 kW each in operation
3. The medium voltage primary and low voltage secondary distribution network constructed and in service	In total 24.16 km and 17.64 km constructed in Maridi and Kapoeta, respectively
4. At least 200 services installed at each project	423 and 257 services (customer connections) installed in Maridi and Kapoeta, respectively
5. Core Management and operating utility staff trained and operating the utility, with support of NRECA.	A core of 14 persons trained for utility management, operations covering line work, power plant, meter reading, billing, revenue collection and accounting in each Maridi and Kapoeta.
6. Operating accounting and billing systems and operating procedures in each utility	CIS accounting and billing systems operational in Maridi and Kapoeta
7. Enlightened community on project implementation status, utility operations, safety issues relating electricity equipment; rights and obligations of the customer, and electricity productive uses.	A total of 2,355 persons reached through meetings and workshops. Many more than those attending formal meetings reached through road shows, radio talk shows and churches.

1.4 Task Order Modification History

The table below summarizes these modifications. LBG anticipates one (1) final modification to reflect the final cost and work performed.

TO Modification Number	Date Issued	Reason
Original	31 August 2007	Issuance of Task Order to develop market town electrification facilities and related local and GOSS capacity to enhance commercial, social, and economic development of the region.
1	3 December 2008	The purpose of this modification is to provide incremental funding in the amount of \$4,000,000 increasing the total obligated amount from \$1,200,000 to \$5,200,000 and revising the budget to allocate the current obligation to cost categories.
2	23 November 2009	The purpose of this modification is to 1) provide incremental funding in the amount of \$4,500, thereby increasing the total obligated amount from \$5,200,000 to \$9,700,000; 2) Revise the budget to allocate the current obligation to cost categories.
3	18 November 2010	The purpose of this modification is to provide incremental funding in the amount of \$3,500,000, thereby increasing the total obligated amount from \$9,700,000 to \$13,200,000.
4	24 August 2011	The purpose of this modification is to extend the Task Order #3 end period from September 3, 2011 to February 29, 2012 at no additional cost. The Total estimated cost (TEC) ceiling remains unchanged at \$13,302,600.
5	30 September 2011	The purpose of this modification is to increase the Total Estimated Cost by \$285,104 and Fixed Fee by \$11,895, making the Total Estimated Cost \$13,056,00 and the Total Estimated Cost plus Fixed Fee \$13,600,000.
6	27 October 2011	The purpose of this modification is to incrementally fund Task Order 3 contract by \$306,000 bringing the total obligation from \$13,200,000 to \$13,506,000.



2 TASK ORDER EXECUTION

2.1 Task Order Organizational Structure and Management Details

2.1.1 Management

IQC Manager and Chief of Party responsibilities remained per other Task Orders. Primary management supervision for this Task Order was the responsibility of the Task Order Manager.

2.1.2 Task Order Manager

The SISP Market Town Electrification Task Order Manager was Laban Kariuki. Mr. Kariuki reported to Daniel Waddle, NRECA Senior Vice President and to LBG COP, who also participated in policy and training activities for TO 3 activities.

2.1.3 Site Construction Managers

The Site Construction Managers were the primary point-of-contact for the day-to-day execution of this task order at the site and had onsite supervisory responsibility to implement and enforce the technical requirements of subcontract(s) including adherence to the quality performance standards specified in the design, plans and specifications. Robert Dalton was responsible for electric distribution system design and construction supervision activities at both sites. Francis Mills was responsible for construction of the power generation plant in Kapoeta as well as organization of the commercial operations for Kapoeta and all training functions required to prepare the staff to manage business systems and operational duties of the power house and distribution system.

2.1.4 Project Office

The Contractor established a project office in Juba to provide project management, administration, and sustainability support for the site construction team.

2.1.5 Home Office Resources

The IQC Manager and contractual support staff was based in the Louis Berger Group Washington, DC Headquarters. The preparation of invoices and cost reporting functions for the Task Order was also performed by staff at the Louis Berger Group offices in Washington, DC and Morristown, NJ.

Other home office support included technical reviews and guidance, coordination of specialized technical expertise, engineering support and proposal/modification development.

2.2 Execution of Work

The Market Town Electrification Task Order included three principal activities. The first activity was focused on providing institutional support to the Yei Electric Cooperative (YECO) that was established under SSREP. The second principal activity financed under SISP was to provide capacity building and institutional strengthening to the MHLPU to assist the process of finalizing the Electricity Act and to assist in establishing the Sub-Directorate of Distribution and the Sub-Directorate of Regulation under the Directorate of Power Supply. The third activity that was undertaken was to identify and evaluate electric generation/distribution systems for candidate towns under the Market Town Electrification program.

The three specific objectives that guided project activities are summarized as follows:

- 1. Institutional Support and Training**



- Support to enact the newly drafted Electricity Law
- Establishment and training for Sub-Directorate of Distribution under the Directorate of Power Supply
- Establish and operationalize Kapoeta and Maridi Electric Utilities
- Ongoing training and mentoring to YECO senior management and board of directors



Lineman training to build safety awareness and construction/maintenance skills

2. Kapoeta and Maridi Electrification Projects

- Complete compound construction including power house structures, offices, and residential structures.
- Receive and install power houses and generation plant, substation, and ancillary services; commission the power generation systems.
- Construct and commission primary and secondary distribution systems, and install customer services
- Continue Community Information Program to include customer campaign, utility formation and registration
- Recruit utility management and administrative staff; conduct training and mentoring programs.



Yei was the site of several training programs, including accounting and commercial training

3. Utility Training

- Develop and conduct targeted utility training courses for SSEC, State Ministries responsible for electricity as well as the market town utilities in Yei, Kapoeta, and Maridi utility personnel
- Attachment training for Sudanese utility staff at selected KPLC operational departments



Maridi line crew supporting Maridi Electricity Company construction and operations



Construction crew for the Kapoeta distribution system, including NRECA and Kapoeta linemen

2.2.1 Project Location

Ongoing program activities supported the Yei Electric Cooperative (YECO), South Sudan's first electrical cooperative, which is successfully providing more than 870 available service connections to the residents of Yei town. Program success continued to the market town of Maridi, installing the town's first electric street lights, as well as the construction of two new power plants in Kapoeta and Maridi.

1.2.2 Electric Distribution System

The electric distribution systems are comprised of a medium voltage (primary) network, a low voltage (secondary) distribution network, and services that connect consumers to the secondary system. The design process included line alignments (routing the primary system along primary roads), electrical design to ensure that the conductor is dimensioned to carry expected load within voltage limits; and, mechanical design to ensure that the poles and pole-top structures are properly dimensioned to withstand mechanical forces from wind and other mechanical forces.

The NRECA design team conducted preliminary site assessments for electric power systems in Kapoeta, Maridi, and Kurmuk in August-September of 2008 to assess potential loads and to define preliminary line alignments. After project funding was allocated for the Market Town Electrification activities in early 2009, additional design activities were undertaken and completed in Kapoeta and Maridi. The final design studies were undertaken in an effort to identify the primary and secondary distribution system alignments (to identify and map line routing), as well as to estimate material quantities for procurement purposes. The final designs for each town had to be modified on multiple occasions due

to changes in urban plans introduced by the County Commission office, as new routes were established for roads, markets, and residential compounds.

Both Kapoeta and Maridi were designed to employ conventional three phase/single phase primary distribution systems (11 kV three-phase, 6.4 kV single-phase). The 2008 demand studies showed that total overall power demand would not likely exceed 400 kW in Kapoeta for five years, and 300 kW in Maridi. GOSS and local authorities were convinced that demand would grow quite dramatically once the power systems have been installed, but load growth in Yei, where the level of economic activity is higher than either Kapoeta or Maridi, has closely followed demand projections originally estimated in the project feasibility studies. For this reason, the power plants were designed to accommodate twin 2 x 400 kW generators in both Kapoeta and Maridi. Standardizing the generator size and type will allow the towns to share operating methodologies and practices, share parts (should the need arise), and to share lessons learned with the power generation units that are procured.

Following completion of final design and preparation of the distribution line materials list, a Request for Quotations was issued for distribution line and substation materials in January, 2009. Bids were received in late February, evaluated in March, and a contract was negotiated in May; the first lot of materials was shipped in August. The materials arrived in South Sudan in early 2010.

The construction process provided an ideal capacity building opportunity to prepare Sudanese technicians to learn how to build and repair distribution power lines. The process was managed in Yei entirely by locally trained linemen, supported by volunteer line crews that were dispatched intermittently to assist with segments of the construction process.

NRECA used a different approach to construct the power systems for Kapoeta and Maridi. Rather than relying on local labor exclusively to manage the construction process, the TO3 construction team contracted two construction firms with interest in learning the power system construction process to provide linemen-trainees in addition to local linemen hired through the two new utilities. The construction teams were managed by US linemen who worked through construction completion. This approach prepared a larger pool of construction laborers for future distribution construction projects at a very reasonable cost to the project.

1.2.3 Generation Plant & Powerhouse

The generation plants were designed to meet load expectations for each of the two market towns with adequate redundancy, allowing for scheduled and forced maintenance events. The generation plants were designed to serve load forecasts that were developed for both Kapoeta and Maridi after detailed surveys and projections were completed for each town.

As mentioned earlier, NRECA designed identical power generation stations for Kapoeta and Maridi. Standardizing the size of the generators will provide some flexibility in maintenance and repairs.

The power generation plants must be housed in compounds that provide shelter for the generators, spares, and fuel storage. Compounds were designed in each town to ensure security and safety for utility personnel and community members, and were also designed to comply with noise and air emission standards.



Maridi Powerhouse with substation in foreground

The generators that are procured will need to be housed in a structure that provides shelter from rain and excessive dust, with facilities to allow preventative and corrective maintenance. In the Yei project, a pre-engineered steel structure was erected on a concrete slab housing all three generation units. The powerhouse structures for Kapoeta and Maridi employ a similar design, albeit using a smaller footprint given the reduced generation capacity required for Kapoeta and Maridi than was installed at Yei.

1.2.4 Administrative/Residential Compounds

Given that the two market town systems were not only responsible for developing infrastructure, but also to establish electric utilities for each town, the construction activities included building/rehabilitating office buildings, warehouses, and residential quarters on integrated compounds.

The long-term objective of TO3 is to establish sustainable electric utilities in each of the two market towns. Electric utilities not only have to operate power plants and distribution systems, they must also manage customer records; read electric meters; bill and collect for energy services; account for sales and operating costs; buy fuel, power plant spares, and distribution materials; and manage personnel, among other duties. These multiple functions require office facilities, warehouse facilities, repair facilities, and other physical structures.

To address these needs, the TO3 designed and constructed administrative and residential compounds in both Kapoeta and Maridi. The Kapoeta office and residential structures were contracted to a Ugandan construction company (Terrain Services) in May, 2009. Terrain was responsible for site preparation, fencing, and construction of the office and residential buildings. Construction of the powerhouse and warehouse was managed by local artisans supervised by NRECA engineering and local technical staff.

The County in Maridi provided NRECA with a site on which three main buildings were still standing, albeit in various states of disrepair. The buildings were renovated and employed for the Maridi residential structure; the utility commercial office; the utility warehouse; and a small guesthouse. A new structure identical to that used in Kapoeta was erected as a powerhouse, together with a fuel storage/handling facility, and a pole yard. Construction for all buildings was completed by the end of the first quarter of CY 2011.



Kapoeta Inauguration – Feb 2011

2.2.5 Construction Accomplishments

At the respective sites the following was completed by the end of the project in February, 2012:

- Construction of compounds comprising powerhouse buildings, utility offices, warehouses, staff residences, water bore holes and ancillary works inclusive of fencing was completed in both Kapoeta and Maridi. The structures are of high quality and provide long-term offices, power generation, warehousing, and residential facilities for both utilities.
- Power plants, fuel storage facilities, substations and associated ancillary services, with a site capacity of 880 kW (at each utility) were constructed, tested, commissioned and are now operating at both utility locations.
- Medium voltage primary and low voltage secondary distribution networks were constructed, commissioned, energized and put into in service. In total 24.16 km and 17.64 km were constructed in Maridi and Kapoeta, respectively.



- A total of 423 and 257 services were installed in Maridi and Kapoeta, respectively, by 28 February 2012 commercial premises, government buildings, hospital/clinics, residential customers and NGOs. In addition 70 street lamps were installed.
- The utility offices were equipped with office equipment, furniture and modern computer systems including accounting and billing applications.

2.2.6 Electricity Utilities Formation

Yei Electric Cooperative, YECO, was registered on 30 October 2009 under cooperative Act 2003. The YECO Members elected its Board on 27 February 2010. To introduce the Board to utility governance and management issues NRECA conducted a high level 1 week customized Board Training from 29 March to 3rd April 2010. YECO management and staff also benefited from the training program conducted under the project. In order to improve financial management and controls, an audit of YECO accounts for the years 2008, 2009 and 2010 was undertaken in August 2011 by Juba based JY Auditors & Consultants.

Maridi Electric Company Limited (MECO) and Kapoeta Electric Company Limited (KAPECO) were incorporated in July and August 2011 under companies Act 2003 as consumer owned private companies limited by guarantee. This followed a prolonged awareness campaign for prospective consumers and other stakeholders in both market towns.

The documents relating to utility formation process are annexed to this report.

2.3 Subcontracts and Major Procurements

2.3.1 Subcontracts

The major subcontracted work elements for this Task Order were as follows:

- NRECA - Development of an institutional framework and institutional capacity needed to manage current and future electrical programs and to identify potential electrification projects for future phases.
 - Develop and implement training courses, training materials and certification procedures for line staff and utility management staff at the local level for Yei Electric Cooperative(YECO) as well as for other local electric utilities in Southern Sudan;
 - Assist GoSS MHLPU Power Directorate to develop standard engineering design and construction specifications;
 - Assist the GoSS MHLPU Power Directorate to develop and implement training programs for Sub-Directorate of Distribution staff for mentoring and oversight of local utility companies;
 - Establish a monitoring framework to review local utility performance indicators on a monthly basis;
 - Support the MHLPU Sub-Directorates of Regulation and Distribution to set up systems and processes to serve the needs of nascent local utility companies;
 - Provide technical assistance to the Directorate of Power Supply, and the Sub-Directorates to help frame policies and procedures of the agencies and to train state and local staff.
- Security Services was subcontracted to the South African based Burton Rands Security.
- Camp and life support (food services, laundry etc) were provided by Africa Expeditions (AFEX).



2.3.2 Major Procurements

The bulk of the procurement of goods and services required for the execution of this task order was through the subcontracts described above. Only minor support items were directly procured from commercial sources by LBG.

2.4 Task Order Budget and Expenditures

The Task Order budget, actual costs billed to USAID through Invoice number 38, and remaining budget amount are summarized in Table 2 below. The overall budget for Task Order 3 included funds to finance design, procurement, construction, training and technical assistance to GOSS/RSS power sector institutions, as well as management oversight and quality control provided by LBG.

Table 2:

Description	Ceiling Amount	Obligated Amount	Billed Thru Invoice #38*	Remaining Budget* based on Obligated
<u>Salary and Wages</u>	\$355,552	\$124,000	\$95,826.17	\$28,173.83
<u>OH & Fringes</u>	\$408,778	\$138,422	\$107,571.51	\$30,850.49
<u>Travel, Transportation, Per Diem</u>	\$133,826	\$110,523	\$106,245.93	\$4,277.07
<u>Allowances</u>	\$124,863	\$25,682	\$16,938.27	\$8,743.73
<u>Other Direct Costs</u>	\$356,995	\$65,000	\$66,225.47	(\$1,225.47)
<u>G&A</u>	\$231,890	\$230,287	\$211,670.22	\$18,616.78
<u>Subcontracts</u>	\$11,465,019	\$12,295,625	\$12,359,696.54	(\$64,071.54)
TOTAL PROGRAM COSTS	\$13,076,924	\$12,989,539	\$12,964,174.11	\$25,364.89
<u>Fixed Fee</u>	\$523,076	\$516,461	\$518,301.08	(\$1,840.08)
TOTAL COST-PLUS-FIXED-FEE	\$13,600,000	\$13,506,000	\$13,482,475.19	\$23,524.81

**The amount billed through invoice number 38 does not represent LBG's estimate at completion. LBG/B&V is in the process of submitting an estimate at completion to USAID. This budget above does not reflect the final cost of the task order to include adjustments for final indirect rates adjustment.*

The table below shows the total expenditures disaggregated into locations (Maridi, Kapoeta, Yei, Juba):

<u>Town</u>	<u>Totals</u>
Juba	\$989,658.81
Yei	\$1,531,135.49
Maridi	\$4,707,125.44
Kapoeta	\$5,067,703.85
Total	\$12,295,623.59

2.5 Government Property Summary

NRECA purchased and built equipment and property under the SISP program in addition to the power systems built for Kapoeta and Maridi, valued at \$1.87 million and \$1.61 million respectively. During the project, NRECA purchased vehicles, office equipment, appliances, and tools. The Kapoeta Compound was built for \$345,000, which included the purchase of a pre-fabricated building; and the Maridi Compound building was renovated and the compound was built for \$269,000.

The power systems built for Kapoeta and Maridi transferred to the Utilities at inauguration of the systems, though NRECA continued oversight until the end of the project. LBG and NRECA have recommended transferring ownership of the computers, vehicles and other tools used for operations to the Utilities. LBG/NRECA also recommended that the residential compounds at Kapoeta and Maridi, as well as one vehicle be retained for use on the proposed follow on project, the Electrification Sustainability Program.

3 SAFETY PROGRAMS/PLANS

SISP was operating under an infrastructure program-wide general safety program. A site-specific plan was developed for the construction phase of the work. The implementation of a field safety program at this site was the responsibility of the Subcontractor (NRECA) with oversight and guidance provided by qualified LBG professionals.



Pole Setting- Most distribution construction was performed by hand in Kapoeta and Maridi

4 QUALITY CONTROL PROGRAM/PLAN

LBG was operating under a SISP--wide general quality assurance/quality control program. A site-specific plan was developed for the construction phase of the work. The implementation of a QC program at this site was the responsibility of the construction subcontractor (NRECA) with oversight and guidance provided by qualified LBG professionals. LBG provided a QA program with on site personnel supported by our central office in Juba. In addition to the in-country design capabilities existing to support this and other task orders, the Task Order periodically engaged LBG's domestic home office to provide engineering and technical support for quality assurance reviews.

5 STATEMENT OF NO PATENTS, ROYALTIES OR CLASSIFIED MATERIALS

There were no patents, royalties or classified materials obtained or generated under the activities of this task order.

6 CHALLENGES AND LESSONS LEARNED

Formation of generation-distribution utilities in remote areas is a challenging endeavor under the best of circumstances. Doing so in post conflict environments with extremely limited well-educated community members, and during periods of rapidly increasing liquid fuel prices, is extremely challenging. Much time is needed to prepare utility employees, to educate community members regarding the cost and benefits of electric service, and to engage ancillary service providers and vendors that are needed to support expansion of electric service penetration in the community through installing house wiring systems, selling appliances, power tools, and electrical processing equipment, and providing third party services to the utility.



The greatest challenge faced by the market town utility projects was to build utility management and operating skills with a group of employees most of whom have very limited education. The employees were provided multiple training opportunities, and those who appeared to have acquired skills most readily were the line crews involved in construction activities. The reason for the higher rate of skill acquisition appears to be a function of repetitive learning opportunities; the construction process builds a relatively small set of construction skills that are used repeatedly over a six month construction period, then used again as services are extended from distribution transformers to houses, shops, restaurants and offices.

While training for basic business skills was provided on repeated occasions during the last year of TO3 implementation, the two utilities did not begin commercial operations until December 2010 in the case of Maridi, and January 2011 in the case of Kapoeta. In both cases, the number of customers has grown slowly but steadily since the date of commercial operations so the staff have not been overwhelmed by the meter reading, billing and collection processes. These fundamental business practices have been learned well by the commercial staff, but developing statistical data for management purposes, and moreover, understanding what the data mean has been a slow process that has yet to take hold even in the most senior employees. This points to the need for additional, ongoing training for the office staff. Additional training for the line crews and the power plant operators is also needed and should continue into the future.



Accounting Training

One of the more successful activities undertaken on this project was the approach employed for power generation plant and distribution system construction. That is, while the NRECA team decided to take the lead on building the energy systems that are now in use, the modality employed was to do so as a training exercise with the local line staff (in each respective community), as well as by employing South

Sudanese construction firms. While the South Sudanese construction firms selected for the construction process had little or no experience in distribution construction projects, they had some experience in electrical contracting for commercial buildings, and expressed an interest in acquiring the skills and experience to participate in future electric distribution construction projects.

The working hypothesis used for purposes of construction services for this project was that, while it is necessary to train local technicians to perform construction services, it is not sufficient to do so within the context of the two utilities alone. That is, there remains a need to build capacity within the business community to provide construction contracting services. The roots of this hypothesis arose from experience in building contractor capacities in Bangladesh, the Philippines, Bolivia, and other markets where there would be an ongoing need for construction services. Given GOSS/RSS plans to continue construction in state capitals, it seemed advantageous to begin establishing construction contractor capacity for the two small construction projects in Kapoeta and Maridi, even though the training activity placed an increased management burden on the construction team.

Unfortunately, the two construction contractors have to date been unable to engage in additional construction contracts with any of the state governments, nor with the GOSS/RSS. Given that it has been more than a year since the construction phase has been completed, the skills that were acquired by the contractor teams are certain to be fading.

Concerns regarding the sustainability of the two utilities were raised in an assessment performed by USAID in 2010 that highlighted the need to strengthen institutional capabilities in utility accounting, financial management, and overall utility management. While both utility teams in Kapoeta and Maridi acquired the basic skills required to manage revenue cycle functions and to operate the generation and distribution systems, organizational challenges in Maridi and higher reporting functions in both utilities need to be addressed to ensure that management and staff acquire the skills and discipline to evaluate and address challenges as they arise. SISP Task Order 3 activities began to address these training and capacity building needs, but the short time available to train management and staff on the fundamentals of utility management did not allow for the lessons to take hold as needed. These issues may be addressed in a future technical assistance and training effort.

7 CONCLUSION

In conclusion, the entire SISP and TO 3 staff would like to express its gratitude to the professionals who for four and a half years dedicated themselves to the completion of this challenging project, especially the South Sudanese Technicians who grew in capacity and professionalism throughout this project, and who now are available to fulfill the needs of South Sudan in many other programs. Also our gratitude goes out to USAID's OAA for their professional oversight and directions as our client, and a special thanks to the government and people of Kapoeta and Maridi, without whose support the the Market Town Electrification Project would not have been possible.



TO 3 sponsored training for two SSEC utility managers on secondment to Kenya Power and Lighting Company in 2011



Annexes

- 0 Electricity Law
 - a. South Sudan Electricity Corporation Provisional Order
- I. Construction
 - a. Maridi Plot allocation Letter
 - b. Kapoeta Plots allocation Letter
- II. Training and Capacity Building
 - a. Training and Awareness Program carried out 2009-2011
 - b. Kapoeta Awareness Campaign Presentation
- III. YECO Utility Formation under Cooperative Act
 - a. Cooperative Act 2003
 - b. YECO Byelaws
 - c. YECO Registration certificate
 - d. Cooperative Provisional Order 2010
- IV. MECO and KAPECO Utilities Formation under Companies Act
 - a. Companies Act 2003
 - b. MECO First Shareholders Meeting Minutes
 - c. MECO Memorandum and Articles of Association
 - d. MECO Incorporation Certificate
 - e. KAPECO First Shareholders Meeting Minutes
 - f. KAPECO Memorandum and Articles of Association
 - g. KAPECO Incorporation Certificate