



SUCCESS STORY

Reconnecting Iraq: Telecommunications

Completion of the nationwide Consolidated Fiber Network project

On June 13th, a new fiber optic communications link became fully operational, connecting a major southern power station to the Southern Regional Control Center and to the National Dispatch Control Center in Baghdad. This success marks the completion of the Consolidated Fiber Network (CFN), a nationwide effort that **will support** the reliability of telephone and electricity service in Iraq.

Since **January 2005**, USAID has worked to **complete** the **\$70 million** CFN project by connecting the Ministry of Electricity (ME) to the Iraqi Telephone and Postal Company's (ITPC - a government agency under the Ministry of Communications) fiber optic network. The CFN allows ME officials to monitor and control their electrical grid from a central location helping to reduce blackouts and uncontrolled disruptions.

In addition to installing new fiber optic connections, USAID's CFN program provided the ME with voice communications and data transmission equipment. Based on the latest technology, this equipment will allow the ME to communicate easily between their remote sites and control centers, as well as utilize their own Supervisory, Control and Data Acquisition (SCADA) equipment. SCADA, a system for process control, gathers real time data from remote locations in order to control the power line equipment and power line grid. The new CFN fiber optic network will be owned and controlled by the ITPC while the voice and data transmission equipment is owned and controlled by the ME. Both Ministries are beneficiaries of this new network and both have a stake in keeping the network operational. To ensure a sustainable system, the CFN effort included extensive training for both ministries' staff in the operation and maintenance of the new equipment.

The CFN project also reinforced other parts of USAID's work in telecommunications, improving existing ITPC fiber optic national communications

"backbone" by repairing breaks and replacing damaged parts. Additionally, USAID provided construction and testing equipment—with the appropriate training—to support operations and maintenance.

RESTORING COMMUNICATIONS

Prior to the conflict, 1.2 million Iraqis subscribed to landline telephone service and much of the tele-



Since early 2003, telephone subscriptions in Iraq have increased almost eight-fold, rising from 1.2 million land lines and virtually no cell phones to 8.2 million land and cell phone subscribers. USAID has worked extensively to restore and expand Iraq's vital telecommunications network, connecting government agencies, businesses, and Iraqi citizens to each other throughout the country and to the outside world. In 2004, emergency repairs to the wired network reconnected 20 major cities and 70 percent of Iraqi subscribers. Key equipment was replaced and expanded. Iraqi engineers also received the training necessary to operate and maintain the equipment.

ABOVE: Iraqi workers help rewire a transmission tower and the local telecommunications network equipment.



USAID'S CONSOLIDATED FIBER NETWORK (CFN)

- Assessments began in February 2005 and physical construction began in October 2005.
- Installed 380km of fiber optic cable to connect 37 ME remote sites with two Regional Control Centers and the National Dispatch Center in Baghdad.
- Replaced 300km of fiber for 11 ITPC backbone routes.
- Repaired 1,280 fiber optic cable splices along 1100km of existing ITPC fiber optic backbone.
- Provided the ITPC with replacement DWDM cards to reactivate the southern Euphrates fiber optic backbone link. The cards were critical to the redundant operation of the ITPC southern network.
- Installed data transport systems at 37 remote ME sites and three control centers. Connected the sites to the newly installed fiber optic cable.
- Provided data transport equipment to support expansion efforts to an additional 20 remote sites.
- Provided the ME with 183km fiber optic cable, 10 microwave radios, and 10 satellite transceivers to support efforts to connect the 20 remote sites.
- Installed telephone PABX switches at 33 remote sites. Provided the ME with telephone PABX switches to install at 11 remote sites.
- Provided the ME with fiber optic test equipment, microwave test equipment, and hand tools.
- Provided the ITPC with fiber optic test and repair equipment and large quantities of construction equipment needed to install fiber optic cables. This included several sophisticated construction trenchers, backhoes, and cable splicing trailers.
- 4,317 hours of training were provided for both the ME and ITPC including: classroom training for the new fiber optic test and repair equipment; classroom and field training on the operation and maintenance of the construction equipment; and classroom and hands on training of the data and PABX equipment.
- Provided one year spare parts for all equipment.
- Costs for the spare parts and test equipment, ITPC construction equipment, ITPC DWDM cards and rolling stock was over \$3.9M.



communication network was centralized in Baghdad. However, many of the network's switches were damaged during the conflict and service was disrupted. In Baghdad, 12 telephone exchange switches (out of 38 total) serving 240,000 out of 540,000 telephone lines were out of service. These switches connect main telephone trunk lines to individual consumer lines.

As part of USAID's effort to restore critical infrastructure and services, USAID's partner worked primarily with the ITPC to restore the national fiber optic telecommunications network, repair the telephone switching system in Baghdad, and restore international telecommunications capability. USAID relied on ITPC personnel to perform much of the reconstruction activities and handed over operations and maintenance of all switch sites to the Government of Iraq in mid-March 2004.

In restoring country-wide communications infrastructure, USAID and implementing partners:

- **Audited more than 1,200 km of fiber optic cable** that formed the national backbone communications network.
- Performed emergency repairs to the national fiber optic network from Mosul to Umm Qasr, **connecting 20 cities to Baghdad and the 70 percent of Iraqis** that have landline telephone accounts.
- Purchased tools, equipment, and parts and provided management oversight to assist ITPC in the restoration of the fiber optic network.
- Replaced obsolete transmission equipment between Baghdad and Basrah in collaboration with the ITPC.
- **Installed a satellite gateway system** restoring international calling service in December 2003.
- **Created a client and revenue stream for the ITPC by connecting the ME CFN network to the ITPC fiber optic network. This will allow both the ITPC and ME to work in parallel as customer and client and to rely on each other for the benefits each provide.**

Additionally, USAID trained Iraqi ITPC engineers and technicians to operate and maintain the satellite gateway system and the new telephone switches, helping ensure long-term sustainability and future growth as Iraq reconnects to the world.