

ESSAYONS

Forward

U.S. Army Corps of Engineers

Gulf Region Division (Provisional), Iraq - Volume I, Issue 3

May 17, 2004

**Corps Execution:
Turning money into projects**





*Commander's
Column*

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Think about it—the US Army Corps of Engineers has never failed the nation – and that is precisely the reason why we are called when there is a tough mission. Today, the Gulf Region Division is undertaking the largest mission in Corps history- a \$12.6 Billion construction management program in the country of Iraq; this does not include an almost \$400 million MILCON Program. Needless to say, this is truly the “Super Bowl” of the construction management “game”. In order to win, it will take dedicated, talented, selfless-serving, risk-taking, and amazing people just like you. Without the right team, we are bound to not bring our best tackling, running, kicking, punting, blocking, passing, or receiving performance to bear when it is needed most. In a way, we’re still in the playoffs and we are winning; it will take sustaining of all of the above in order to make it to the Super Bowl and win.



Just as in the Super Bowl, there are some critical failure points in executing a program of this size and we need the right people in the right depth (number) to succeed. If we are to win, we need to be manned at a level to sustain doing the job right or we suffer the chance that the key “players” become injured and then we lose the game. Just like our mission here, we need to have the right team or not even show up for the task at hand. This is strong language from me, and necessarily so. It is necessary because we cannot fail at this mission. The Nation and the people of Iraq are relying on us.

So here is where I need your help. We need to get more people to serve here in Iraq. I have asked the Chief of Engineers, Lt. Gen. Flowers, to continue to encourage the executive leadership of this command to personally ask and encourage their best people to serve. I know that it will hurt for these commanders and directors to send their best people, but I know they will agree with Johnson’s rule: If it doesn’t hurt to lose them at home, then I have picked the wrong person.

We will also ask the people who have served here to serve again. They know the real story and I believe they will be willing to come back. Like us, they understand the meaning of selfless service. I ask you to email or call someone you know in the Corps, that are good at what they do, and ask them to come and serve on a world-class team.

Our job here isn’t easy or routine by any stretch of the imagination. It’s a dangerous place, to be sure, but all combat zones are dangerous and people make sacrifices each and every day for the good of our Nation simply to do their jobs. No, you can’t expect to come here and work nine to five and we often ask you to step outside your comfort zone, oftentimes asking you to take on responsibility above your grade. You have all risen to those challenges and many of you have seen that the sky is the limit. I know that when you leave here, you leave knowing you have given your very best and have grown far more than you ever thought you would have. After a few weeks or few months when you think about your service here and how it was a step beyond what you dreamed you could accomplish, then many of you will want to come on back. I ask you to share those thoughts and emotions with your coworkers back home so that they can have a chance to feel what it feels like to fly.

We, the US Army Corps of Engineers, will be here for the duration. When we leave Iraq, it must be because we have made a positive difference in the lives of the people of Iraq. It cannot be because we lack the ability to get the job done or because we didn’t have the team to do it.

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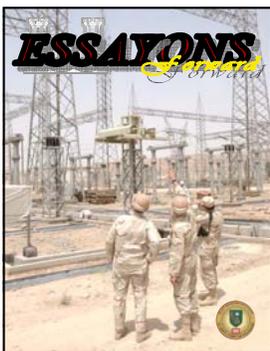
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Photo: (top) Castle in Kirkuk (Photo by Maria Or). (Inset) Commander photo illustration by Tom Hudson, CENWO-IM.



Cover: (left to right) Marvin VanMeer, Anthony Weisbender and Cmd. Sgt. Maj. Michael Balch inspect switching project at the Baiji Power Plant Project in Baiji, Iraq.

(Photo by Thomas O'Hara)

Customer focus: Corps coaches Iraqi firms to get work

A special contracting outreach seminar with the Iraqi engineering community was conducted May 5th and 6th at the Iraqi Business Center, located in the convention center inside the Green Zone in Baghdad. Attending the seminars were more than 40 actively participating individuals representing several local engineering entities.

Through these seminars, primarily led by Mack Ross, outgoing director of contracting for the Gulf Region Division, the objective and focus was to inform and educate professional engineers, architects and consultants from throughout the country of Iraq, on the streamlined Brooks A-E process to be used by GRD in the selection and award of several upcoming Architect-Engineer contracts.

“These specific contracts are aimed at providing for varying types of required engineering services of an electrical nature, including quality assurance and construction oversight in support of the GRD Restore Iraqi Electricity (RIE) program,” said Leo Hickman, the new director of contracting for GRD.

At present, nearly \$125 million in

infrastructure projects and oversight programs under the Accelerated Iraqi Reconstruction Program (AIRP) are on the table for local firms to compete, with an additional \$375 million to follow. As Iraqi firms increase their proficiency in bid preparation as well as capability, they will serve an ever increasing role in the estimated multi-billion

dollar reconstruction program in Iraq.

Assisting with the seminar was Eugene Morisani, project manager for RIE, Willie Ann Mayes and Sharon Howard, contracting specialists for GRD, and Vernard Cleveland, project manager for the Central District.

“This seminar was probably the most rewarding thing that I did while I was here,” said Mack Ross, departing director of contracting for GRD. “These are very capable and intelligent people in Iraq. Some of their techniques may be out-of-



date but it is amazing what they can accomplish.”

“I believe that if we can teach the Iraqi people how to compete for U.S. contracts, letting them know what we look for in a proposal, then we have given them something that will benefit the individuals as well as the country of Iraq,” said Ross.

These special seminars were part of an on-going dialogue that occurs each week. The Corps meets with local firms in a partnership that promotes mutual understanding and fosters the communication necessary to move the Iraqi reconstruction forward.

On May 5th, at the completion of the weekly seminar, a contractor sitting up front, with tears in his eyes, handed a small note to Leo Hickman, director of contracting for GRD. He wanted to thank the Americans for all that we are trying to do.

“All the thanks are for any American. You let all the Ba’aths become Tilyan,” he wrote in a message. The message explained that *tilyan* is the Iraqi word for sheep. After that, the Iraqi contractor wasn’t the only one with tears in their eyes.

—Thomas O’Hara

Top: GRD Chief of Contracting Leo Hickman addresses the concern of an Iraqi contractor at the contracting outreach seminar. Left: A local contractor shakes hands in appreciation with Gene ‘Junior’ Morisani, project manager for Restore Iraqi Electricity.

(Photos by Thomas O’Hara)

“All the thanks are for any American. You let all the Ba’aths become Tilyan,”
— Message from contractor



Execute! Sense of urgency drives Corps to produce results fast

Turning money into projects is what the Corps does. As the world's premier engineering organization, working in peace and war, the 35,000 members of the U.S. Army Corps of Engineers are used to setting the bar high when it comes to project execution. Regularly achieving high execution levels in civil work and military programs year after year, the Corps has brought that record of excellence to Iraq.

Since the early days following the liberation of Iraq, the U.S. Army Corps of Engineers has been overseeing a \$12.6 billion reconstruction mission.

"It's a project of magnitude not seen since the days following World War II," said Maj. Gen. Ronald Johnson, Gulf Region Division commander, referring to the Marshall Plan to reconstruct Europe following the devastation from the liberation of Nazi domination from 1948-1951.

At first using billions of U.S. dollars of seized money from the 70 Saddam palaces and other locations, Corps representatives serving as advisors to various Iraqi ministries, began a rebuilding process that a year later would still be operating at an accelerated pace.

To restore the vital oil infrastructure, a special Restore Iraqi Oil team was generated. \$768 million in FY03 appropriations was committed to restore the capability for oil production, oil refining and gas processing to pre-war conditions. The goal

was to restore the oil production resources of Iraq as quickly as possible for the benefit of the Iraqi people. Under the humanitarian assistance

portion of the mission, more than 4 billion liters of emergency supplies of kerosene, gasoline and other petroleum products have been provided to distribution points operated by the Iraqi Oil Company. This assistance to the Iraqi Ministry of Oil has resulted in oil export revenues in excess of \$7.5 billion for the benefit of Iraq.

To provide necessary electricity through a region the size of California, a separate Corps Restore Iraqi Electricity team augmented the effort by the Ministry of Electricity and complementary contracts under USAID, and turned \$1.056 billion in DFI (Development Funds for Iraq) funds into 26 projects and approximately 1,800 megawatts of new and rehabilitated generation for Iraq. An additional \$341 million from the 2003 supplementary funding package approved by Congress is also being executed with approximately 90 percent nearing completion this summer. New and rehabilitated generation, restored

"It's a project of magnitude not seen since the days following World War II"
 — Maj. Gen. Ronald Johnson

and new transmission and switching systems, as well as state-of-the-art control and reporting systems have been added to the Iraqi power system. The partnership is well on its way to delivering a level of capacity not seen in Iraq for over a decade.

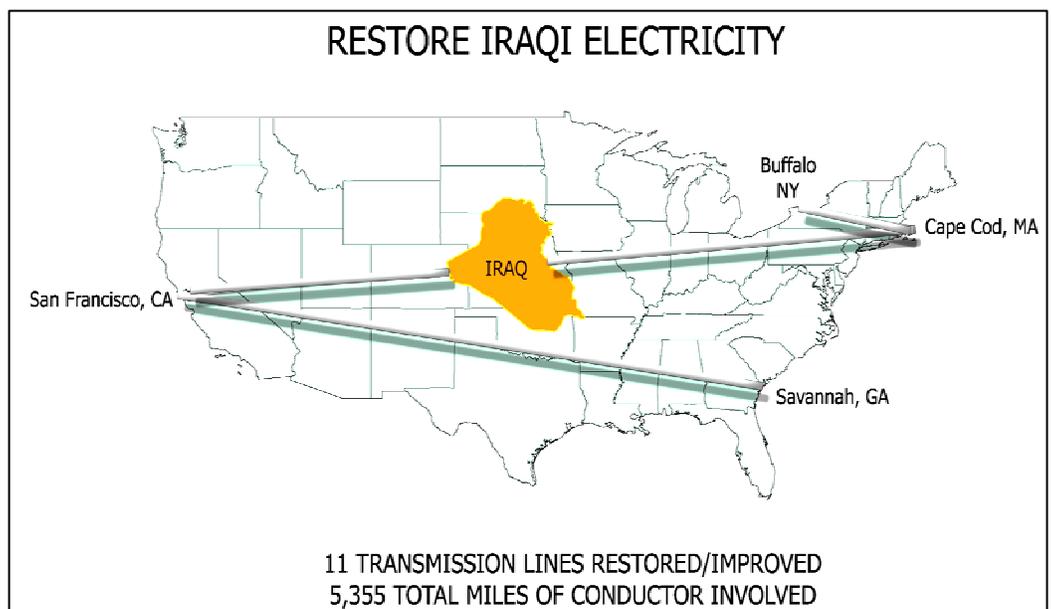
A limited commander-directed discretionary funded program (Commander Emergency Response Program) has produced nearly half a billion dollars in on-the-spot engineering efforts to quickly restore schools, medical facilities and other municipality facilities in small villages and cities throughout the country.

Oversight on a \$9.3 billion construction program, involving a variety of projects in Iraq, continued through May 2004 with nearly \$4.1 billion already awarded and in the near-final or completed construction stage.

Nearly \$46.3 million in water and sewage infrastructure projects will be awarded by the end of May to clean-up Iraq's city streets of raw waste and to restore treatment facilities. Work on these projects is anticipated to begin mid-June, contracting with Iraqi firms and employing

The Restore Iraqi Electricity directorate of the Gulf Region Division has restored, or improved, more than 5,300 miles of transmission line in Iraq. Equating to enough conductor to stretch across the US twice.

(Graphic provided by Glenn Coffee, RIE, and Fran Woodward, GRD)



hundreds of thousands of local workers throughout the country.

In addition to directly providing contracts to serve the Iraqi people, Corps project managers also have implemented \$80 million in temporary military construction to protect, house, feed and otherwise assist coalition forces serving in theater. Projects such as medical facilities, housing, water and waste-water treatment throughout Iraq have helped facilitate coalition operations in theater as well as improve quality-of-life for service personnel. An additional \$200 million in projects is in the planning or construction stage.

Operating under the newly realigned Project Management Office, Corps personnel continue the rapid engineering pace in order to provide Iraq the infrastructure stability and economic viability to maintain this momentum while the permanent government of Iraq takes form.

“Full execution is an important part of our culture,” said MG Ronald Johnson, commander of GRD. “What we bring with us to the battlefield is the ability to fully execute the mission under extremely difficult conditions by leveraging the private sector to accomplish the foreign policy objectives of the United States.”

In 1947, Gen. Dwight Eisenhower, Chief of Staff, spoke before the Armed Services Committee of the House of Representatives. “I am firmly convinced that but for the Corps of Engineers’ peacetime organization and its resources of men, methods, and supply, and its close association with the military through the years, the history of the Pacific area in World War II would have been written more in blood than in achievement.” he said.

As the coalition prepared to handle transfer of authority to the interim government of Iraq, Maj. Gen. Peter W. Chiarelli, commander of the 1st CAV Division identified the Corps as his best chance to protect his Soldiers and serve the host nation, “You are the only thing I can throw at the enemy that will save the lives of our soldiers,” he said.

Time will tell how this generation of Iraq will remember those who came to build.

—Thomas O’Hara

U.S. Army Corps of Engineers in Iraq

Average crude oil production up to 2.4 millions barrels per day – 1.8 mbd pre-war

Now producing 50% of the refined fuel requirement in country – 0% pre-war

Potential to deliver to most Iraqi citizens 16-18 hours of electricity per day

Producing 40% more additional power for the national electricity grid

Emplaced 600 kilometers of transmission lines for the national grid

Significantly improved the stability of the electrical distribution system – very few blackouts

Secured 350,000 tons of captured ammunition. By September 2004, will have secured an estimated 600,000 tons of captured ammunition and will have demobilized it or secured it for future use of the Iraqi Defense Forces

Responsible for \$12.6 billion dollars (supplemental dollars) worth of construction to the Iraqi infrastructure

Valuable investment to at least four different Iraqi ministries through education and training programs at every level from executive to mid-manager to worker.

600 USACE personnel currently deployed (450 civilians, 150 military) – cumulatively over 1,700 USACE personnel have deployed – some on second tours



An Iraqi construction worker pours concrete at the future Army 1st CAV Division Headquarters building at Victory Area Office. In addition to the financial and technical assistance by the coalition, advancements in worker safety programs have developed to protect the Iraqi employee. Hard hat, safety boots and other items -- once unseen on most local projects -- are slowly becoming common place as the country rebuilds its infrastructure. (Photo by Michael Henry, GRC).

Building a Better Bayji

Reconstructing the dilapidated electricity infrastructure in Iraq involves a spectrum of projects throughout the country in new generation, rehabilitated generation, transmission, distribution and control systems. One of these projects is accomplished by a skeleton team of Army engineers working in residence at the Bayji electrical Power Plant in Bayji, Iraq.

When the Corps of Engineers' Task Force Restore Iraqi Electricity was formed in September of 2003, the only power produced out of the Bayji site was from three generators at the Thermal plant producing approximately 210 megawatts (MW). RIE's mission was to provide 184 MW of new power generation and place four existing gas turbines on the electrical power grid.

This project for both the mobile units and the gas turbine projects, projected at \$250 to \$300 million, will ultimately provide to the Iraqi people 584 MW of derated power -- 10% of the total required to meet the power needs within Iraq.

This was a daunting task. The logistics of getting 184 MW of new generation meant the identification of large component items from various parts of the world and delivery of same in a war zone. That was the challenge.

Washington International, Incorporated (WII) was selected to perform this task. Their proposal was to provide eight 23 MW mobile generation units to the Bayji plant. USACE and WII selected a site near the existing thermal plant for the new location of the eight mobile units. While the horizontal work was being completed, a worldwide search for the mobile units took place. Six General Electric TM 2500s were located in Guadalajara, Mexico, and one more in Guyana, Africa. Finally a Vulcan AMPS unit was located in Florida, USA, to complete the search.

In order to meet the timeframes required by the Coalition Provisional Authority, Russian Antonov (An-225 Mriya) air freighter was rented for numerous flights to Turkey to deliver the eight mobile units and the other construction materials required. The major materials were delivered to the Bayji site between October 18 and December 17, 2003. Construction started immediately. On February 25, 2004, the first mobile unit was activated and the 23 MW of new power was added on the Iraqi Electrical Grid. While these units will be running on sour (sulphur not removed) gas when the project is complete, all are currently using the more expensive and precious diesel fuel oil to run the units. A concurrent project to improve the sour gas line is ongoing and should be completed this summer.

Nearly 100 km of various types of electrical wiring and control cables, as well as five kilometers of piping for the various fuels used in the units, were installed. Approximately four hundred local Iraqis were employed for the construction of the mobile units.

The Corps has had two personnel onsite at all times living in metal living containers in a small camp next to the thermal plant and the new mobile units. Original project personnel included: Joseph A. Swiniarski, electrical engineer, from Omaha District; Marvin R. VanMeer, con. rep/QA, from Seattle District; Jim B



Watermark and inset: Iraqi workers assemble generator and switching facilities in Bayji. (Photos by Thomas O'Hara)

Duffus, con. rep/QA, from Portland District, Anthony J. Weisbender, con. rep/QA, and David E. Carté, resident engineer, both from Kansas City District.

Lt. Col. Victoria Mouras from Transatlantic Programs Center, original project manager, was instrumental in the early stages of the planning efforts to make many of the logistical support capabilities happen while working with various contractors on the electrical transmission projects, according to Carté. As personnel changed, Eunice Ford (Project Manager) from Jacksonville District took over those duties. In addition to his duties to have the electrical transmission towers and 400 KV conductors restored on two important lines — Bayji to Baghdad and Al Hadiah to Baghdad.

Bayji Electrical Power Plant has four gas turbine units capable of producing an ISO rated 628 MW, which is 'derated' to 400 MW because summer heat conditions and type of fuel used. Two units are currently operating using residual fuel oil from the northern refinery. These units use approximately 1,440 cubic meters per day of fuel. The other two units are under contract to Odebrecht-Austin Joint Venture to work with the local Iraqi workforce to complete the construction and commissioning of those units.

Difficulties included receiving the residual fuel oil from a common fuel header, which distributes various fuels to many places within Iraq, and the treatment of the fuel. The Corps team had help in those areas. Rotring (a German Firm) and Siemens-Westinghouse worked hand-in-hand with WII, USACE and Ministry of Electricity personnel to accomplish the job. "This was a team effort of many players, many long hours and days," said Carté.

Located northeast of the town of Bayji, the plant now consists of three separate means of electrical power generation, a six generator thermal plant, four gas turbines, and eight mobile generation units. The ISO rated generation capacity for all the combined electrical generation is approximately 2,132 MW, with a derated capacity during the summer months of approximately 1,640 MW.

Before USACE and its contractor leave this site, they will train the Ministry of Electricity personnel in the operation and maintenance of these units and the various aspects of plant operations to make this a successful joint venture of USACE, contractors and local Iraqis.

--David Carté, GRN



Sense of Duty: Hank Maser

Hank Maser actively recruited his co-workers in the Pittsburgh District to serve their country and the Corps in Operation Iraqi Freedom. Maser used these four key reasons for serving:

- It is an opportunity to make a positive difference for 25 million people who have been oppressed for generations.
- Serving in Iraq will indirectly improve the worldwide quality of life, including future generations of Americans.
- Fixing Iraq's infrastructure will bring our service men and women home sooner.
- This mission will give those who serve will gain experience and skills that would take years to obtain in the United States. It will give people career opportunities that are beyond what they even know exist.

Maser's leadership style is to walk the talk. He came to Iraq on Jan. 4 and is scheduled to return in late June. Maser's message today is to a new audience. He wants to encourage the Corps senior civilian leaders to step up to the plate.

"I believe that those who have been hired for a senior level position at the GS-14, GS-15 or Senior Executive Service have a commitment to

serve the Corps and should go where the Corps goes," Maser said. "Right now the Corps is in Iraq and we are undertaking the largest work program in Corps history and senior level Corps leaders are noticeably absent."

The upcoming construction management program for the Gulf Region Division headquartered in Baghdad is \$12.6 billion and military construction adds another \$400 million.

"We've had a great response from grades GS-5 all the way through GS-13. These people are coming over and working outside their comfort zones and doing great work," Maser said. "Our work here gives people opportunity to take on new responsibilities and develop themselves beyond what they imagined they would ever do. It is a real opportunity to build on a career."

Maser's theme is a simple one, "Corps leadership needs to lead," Maser said. "Our military leadership knows what it's all about. They live their lives for this type of assignment. Our civilian leaders need to make that same kind of commitment. This is one of those times that we need to answer our country's call," Maser said.

Maser said that during his time in Iraq he helped set up a new Corps District and it was

rewarding to be part of the team that did this. He also thinks that those who follow him will have a good job.

"The guys coming after me will be able to do the fun work. They will have an unbelievable construction management job. There will be all the work they ever could have imagined," Maser said. "We now need GS-14s and 15s to support the production level workforce and the District Commanders. We can place people in a temporary change of station status (TCS) and they can take on the most challenging high-grade assignment of their lives."

"The people that come here will be the Corps leaders of the future. The job will develop them and make them well rounded. This is no different than what we should be doing at home, taking on new roles and challenging ourselves," Maser said.

As for supervisors that might discourage their people from coming to Iraq Maser doesn't get why they don't get it.

"Any supervisor that can't give up good people just doesn't get it. Part of doing the right and responsible thing is to give up your good people for development and to contribute and answer the needs of the Corps," he said.

"The people coming after me will be able to do the fun work. They will have an unbelievable construction management job. There will be all the work they ever could have imagined," Maser said. "We are now taking excellent people at the GS-12 and 13 levels and putting them in high-grade positions. They are taking on the most challenging assignments of their lives.

What we have been lacking to-date are adequate numbers of GS-14 and 15 volunteers to lead and mentor them. We need our civilian leadership to support this mission as enthusiastically as our production level workforce has been over the past year. This mission is what selfless service is all about for our Senior Leadership."

As for supervisors that might discourage their people from coming to Iraq Maser doesn't understand why they don't get it.

"Any supervisor that resists giving up good people just doesn't get it. Part of doing the right and responsible thing is to encourage and endorse your good people to develop themselves and to contribute and answer the needs of the Corps," he said. That cycle of developing people and giving them opportunities is what keeps the Corps strong.

And then there is the final thought by this senior Corps leader for a younger generation of Corps employees and it is that those who come to Iraq will be the Corps leaders of the future.

--Steven Wright

(Editor's note Maser is the Chief of Engineering and Construction for the Pittsburgh District, serving as the Chief of Construction for the Gulf Region South District. Also serving in Iraq is Maser's son Army Sgt. Rob Maser.)

Photo: Hank Maser , right, gives GRD Commander Maj. Gen. Ronald Johnson, left, and Col. Thomas Koning, South District commander, a tour of the An Numaniyah facility in southern Iraq.

(Photo by Steven Wright)

This is the third of a multi-part series highlighting the achievements and advancements made by the U.S. Army Corps of Engineers in support of Operation Iraqi Freedom. This series will continue up to June 30, 2004, the scheduled date for the transfer of authority from the Coalition Provisional Authority to the new interim government of Iraq.

One Year Later: Improved Water Management in Iraq

The Iraqis feared the Tigris River was going to top its banks. Southern Iraqi farmers wondered if there would be any water for the crops in the summer. Hydropower dams were spilling needed water through their gates. Ancient Mesopotamian marshlands in the south had been destroyed killing or displacing nearly 300,000 residents under the brutal thumb of Saddam.

Match environmental needs with agricultural demand and hydropower for a country the size of California with 25 million people in record time? Sounds like a job for the US Army Corps of Engineers.

Early Days

In the immediate days following the liberation of Iraq, teams from the initial Task Force Fajr of the Corps sought out and located key Iraqi advisors who had formerly served as members of the Ministry of Irrigation. Maj. Regan McDonald, deputy district engineer of Detroit District, met with two representatives of the Ministry of Irrigation April 19, 2003 to begin standing up the Ministry as part of the overall coalition effort under the Office of Reconstruction and Humanitarian Assistance led by Gen. Jay Garner (later reorganized into the Coalition Provisional Authority under Ambassador Paul Bremer).

"When we got here, the Tigris River in Baghdad was six feet higher than normal," said McDonald. "We had immediate questions to answer -- What's going on? Why is the river so high? Is anybody in charge? Where is all of this water coming from? Are the dams being emptied?"

"A lot of the citizens thought the situation was completely out of control and all of this year's water, and next year's water, was pouring out to the Persian Gulf," said McDonald. "That question came to us."

Literally sitting down and sketching out the rough framework of the nation's waterway system, the seeds to a new partnership were planted in the rubble of Saddam's former regime. At first, the Corps people worked in the burned-out hulk of what was once the Ministry of Irrigation.

The existing MoI office had been looted and destroyed following the liberation of Iraq. "The looting began after intelligence officials within the ministry burned their records starting on the fourth floor and up. There was a prison in the basement, and a block of houses in back with bars on their windows. Prisoners were detained and tortured in those buildings," said Dr. Eugene Stakhiv, the Senior Advisor from the Corps's Institute for Water Resources during the early part of the effort in the summer of 2003.

"It was difficult for all the ministries," Stakhiv continued. "The looting was astronomical. We estimated that the Ministry of Irrigation alone lost more than \$100 million of assets. No communications, no maps, reports, files, records. We were literally starting from ground zero, while trying to ensure that the Mosul Dam did not fail, that the electric power grid was repaired, that



water for the irrigation season flowed through the proper gates and channels, and the 275 pumping stations lifted water onto the fields, farms, and municipal water intakes. The Baghdad Zoo and Park had no pumps and no water. Everything was stripped, and we pitched in to fix it."

Rebuilding begins

The MoWR had 12,000 regular government employees and maintained about 6,000 contract employees, all divided into five separate commissions and 11 state-owned companies.

As with other utility systems under the regime, the MoWR was very stove-piped. Little lateral communication existed among regional directors. Therefore, developing cooperation and simple communication within the ministry was one hurdle the Corps team faced.

"You've got so many incredibly talented Iraqi engineers, very well educated, that have spent 20, 30 years completely stifled in their scientific and technical input," said McDonald. "Practically every decision made in this country was a political decision - whether it was to build a project or not, or how to operate these systems. So there's never been a comprehensive, global look at economics, or the environment, or that kind of approach."

Although capable engineers, the Iraqis have been deprived of the technology used worldwide for the past 20 years. Geospatial information systems were limited to military use, and access to the Internet to just obtain meteorological data was monitored.

"There's so much potential, so many resources, both human and natural," said McDonald.

Corps teams, working with the CPA, had to re-establish the MoWR and its communication with the outlying areas.

"For 20 days following the invasion there was no communication," said McDonald. Engineers didn't know who was releasing water upstream; they didn't know what damage had been done to the water system due to war, sabotage, or looting."

McDonald and his team issued



satellite phones to seven key locations the first day. In addition, CPA teams hit the road to see firsthand the condition of the water systems.

The Corps Dam Safety Assessment Team arrived in May 2003 and visited 20 separate sites throughout northern Iraq providing assessments. "They provided the Ministry of Irrigation a valuable report that was needed for the budget justification for immediate dam safety repairs," said Stakhiv.

It turned out that most regions kept operating using their best judgment. In some cases, Iraqis lived at the water control facilities to prevent looting and damage. With minimal communications in

place, the Corps/Iraqi team began to piece together a database on the country's waterways.

"For the first few weeks, the daily reports were 'back of envelope' stuff," said McDonald. "Every couple of days we'd get handwritten reports saying, 'This is what's going on along the Euphrates,' and adjust accordingly."

In June a Marsh Assessment Team from the U.S. Agency for International Development (USAID) traveled all over southern Iraq. "That effort gave the ministry the impetus to get started with its Environmental Analysis Center and begin studying potential restoration sites," said Stakhiv.

Left page: The former Ministry of Agriculture building was looted and burned following liberation (left). The restored facility (right) currently houses the Ministry of Water Resources and will bring many outlying offices under one roof. This page: (top) Dr. Abdul Latif Jamal Rashid speaks at the ceremony granting full sovereignty of the MoWR to Iraq. (bottom) Iraqi workers remove aquatic weeds as part of a canal cleaning effort in southern Iraq. (All photos provided by the Ministry of Water Resources)



What a difference a year makes...

In July, McDonald and Staff Sgt. Todd Finley of the 489th Engineer Battalion trained 350 new guards for the Ministry of Irrigation security force. They were part of the ministry rejuvenation that was moving forward rapidly, spurred by the success of a \$20 million, 100,000-person jobs program to manually clean 17,000 kilometers (about 10,563 miles) of irrigation and drainage ditches in southern Iraq.

Four marsh restoration projects were initiated as part of the fiscal year 2003 budget, which included \$5 million for dam safety repairs, and \$13 million for completion of 13 ongoing construction projects. There was nearly \$20 million in additional assistance from two key organizations, The U.N. Food and Agricultural Organization, and USAID for training, modeling, repairs of pumping stations, and equipment for a hydro-meteorological network.

Capacity building

Using reach-back technology, the Baghdad-based team gathered weather reports from Mobile District and provided that information to the Iraqi teams. In addition, the team coordinated with the Hydrologic Engineering Center, part of the Institute for Water Resources in Davis, Calif., to develop a computer model for the Iraqi system.

McDonald sent Iraqi engineers to California in September to learn to operate computer-modeling technology, then to train their colleagues in the technology.

On Aug. 11, the Interim Minister, Mohammad Dhari Al-Shibli, changed the ministry's name to the Ministry of Water Resources as a reflection of its larger role in water management. Of all of Iraq's ministries, the MoWR is most like a U.S. Army Corps



of Engineers civil district. For this reason, Stakhiv, McDonald and the rest of the Corps team are applying years of Corps expertise and showing the MoWR how to expand their operations for a more comprehensive program.

With Corps assistance, the MoWR has moved beyond simple irrigation into a comprehensive water management role. The expanded role includes an environmental analysis center, a hydrologic analysis center, and a modern water control operations center.

Present state

On May 10, 2004, less than 13 months after Corps teams first met with the representatives from the damaged Ministry of Irrigation, Ambassador Bremer transferred sovereignty of the MoWR to Iraq. "We accept the responsibility of this institution with pride and respect because we believe in the new Iraq, a democratic Iraq, a free Iraq, an Iraq against terrorism, an Iraq active as a member of the international community which can contribute to the benefit of mankind," said Dr. Abdul Latif Jamal Rashid, Minister of Water Resources.

To date the Ministry has overseen clearing 17,000 km of waterways with an additional 20,000 km planned that will employ approximately 100,000 of Iraq's unskilled workforce.

Under the relationship with USAID, thirty to forty percent of the marshlands have been restored. Thousands of internally and externally displaced Marsh Arabs have returned to resume





their indigenous way of life. Economic activities such as fishing, mat weaving herding and agriculture are redeveloping in the region. Environmental improvements have led to the return of migratory birds, moderated temperatures and improved air quality.

Iraqi reservoirs are being operated more efficiently, providing the balance between agricultural needs and a hydro-power supply that contributes 20 percent of the nation's electrical needs.

Additional investment in modernization of the water management system, real time reporting, and computer modeling and information technology to coordinate the various parts of the ministry will greatly improve upon the leaps of efficiency exhibited this past year.

The ministry, that once operated under a limiting \$1million (USD) budget prior to liberation, is now fueled with an annual budget of \$150 million. An additional \$100 million is committed towards the water resources sector under the donated money from the World Bank and the UN development group and \$775 million under the Program Management Office in water resource sector as part of the supplemental request by President George W. Bush. In all, close to \$1 billion in financial support.

"One of the big challenges will be absorbing that much help," said McDonald. For an organization accustomed to \$1 million in projects a year, "they have essentially 1000 years worth of work they are going to accomplish in the next four or five years. This is an enormous undertaking.

New construction in waterworks control structure and rehabilitation of large dams are part of \$100 million dedi-

cated to solve critical projects. In addition, through PMO, the ministry will procure a \$30 million generator purchase for pump stations throughout country. Reclamation projects to return less than desirable land to cultivatable areas will occur. Hundreds of small dams, barrages and waddis in the west will be used to collect spring rains to benefit nomadic herdsman.

Partnership continues

While some wondered if the civil works mission belonged under the Army guidon, its importance has shined no brighter than the immediate impact that expertise has had in restoring the water infrastructure in Iraq.

The Ministry has already expressed a desire to continue its relationship with the Corps after full sovereignty is transferred to Iraq June 30. Discussions of a memorandum of agreement between the two nations may need to be developed, but nonetheless, the impact of the Corps capabilities has been a welcome addition to the Iraq Ministry of Water Resources.

"It's a significant impact," said McDonald, referring to the Corps' ability to provide this expertise. "I don't know how else we could accomplished what we have. To have people in uniform who can bring this expertise in an emergency role, and then immediately have deployable DA civilians who can show up with years of

expertise, is something few organizations can do."

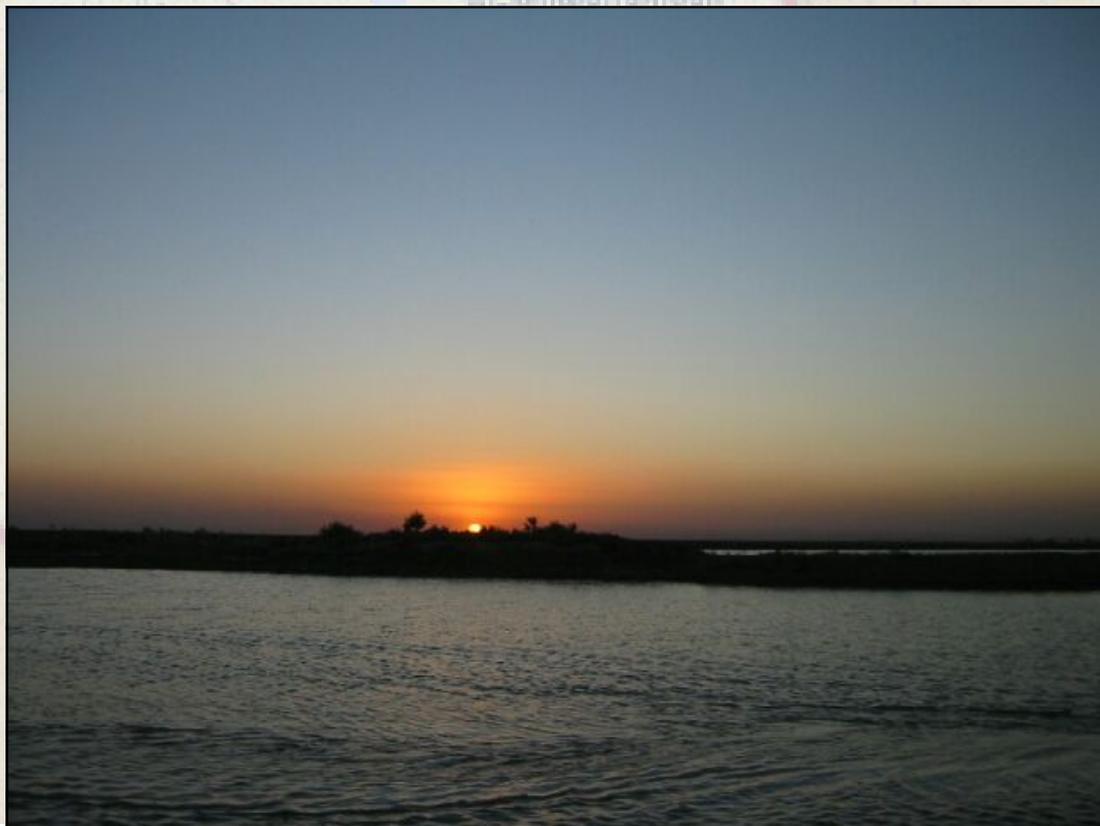
Funded directly through Congress, the Corps' civil works program provides a no cost resource multiplier for the expertise needed by the Department of Defense in its effort to rebuild Iraq's water management system.

A little over a year after the initial efforts began, the MoWR is now sovereign and operating towards a better Iraq. Senior Advisor Edwin Theriot, and Deputy Advisor Ed Andrews, maintain the Corps significant role in guiding the MoWR through its next stage of evolution.

-- Thomas O'Hara

(Note: Portions of an article, "Iraqi Ministry of Water Resources is similar to Corps," Engineering Update on-line, November 2003 by Thomas O'Hara and Gene Stakhiv, and CPA news releases were used for this feature.)

Left page: (top) Rehabilitation of water control structures like this one at Mosul Dam will be part of the focus for the MoWR in the coming year. (bottom) Fisherman have returned in the restored Al-Hawizeh Marsh in southern Iraq. This page: (top) Marsh Arab life is returning to southern Iraq. (bottom) The newly restored Hammar Marsh in southern Iraq. (All photos provided by the Ministry of Water Resources)





Hail and Farewell (May 4 — May 17, 2004)



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