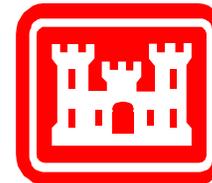


HH&C Community of Practice
Tri-Service Infrastructure Conference
2-5 August 2005 - St. Louis

Iraq Ministry of Water Resources Capacity Building

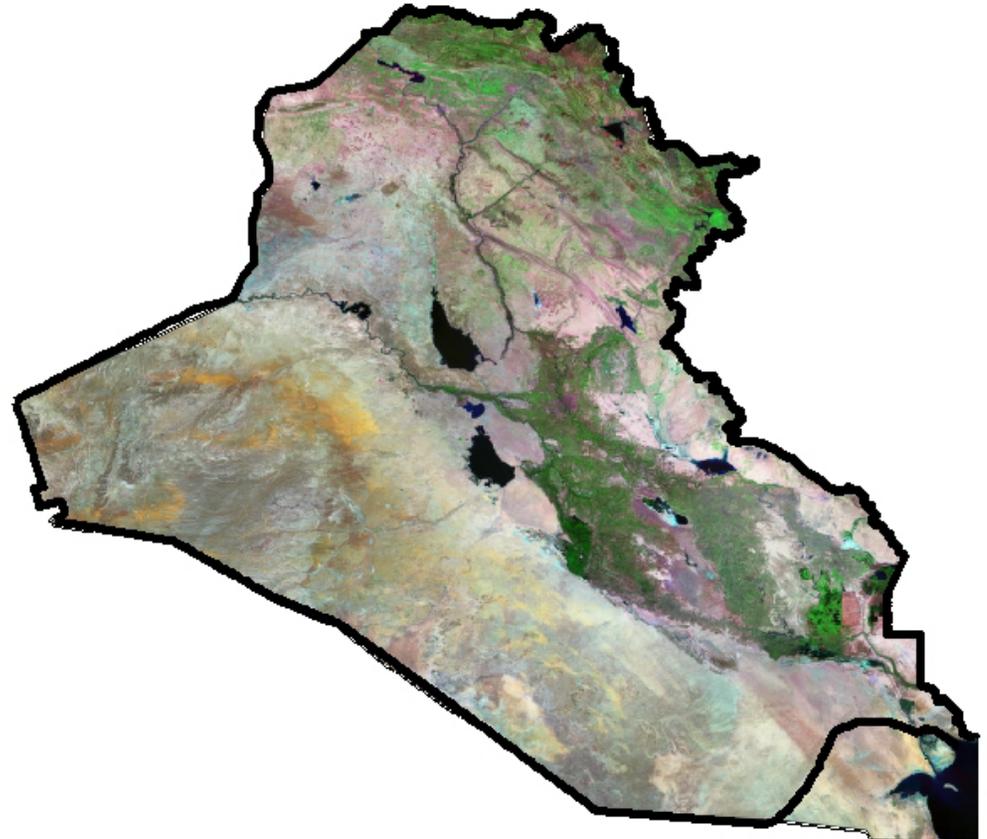


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Michael J. Bishop, John W. Hunter, Jeffrey D. Jorgeson, Matthew M. McPherson,
Edwin A. Theriot, Jerry W. Webb, Kathleen D. White, and Steven C. Wilhelms

Iraq MoWR Capacity Building

- Introduction
 - Background
 - Goals
- Needs Analysis
 - Data & Evaluation
 - Results
- Training Plan
- Progress to Date
- Way Ahead



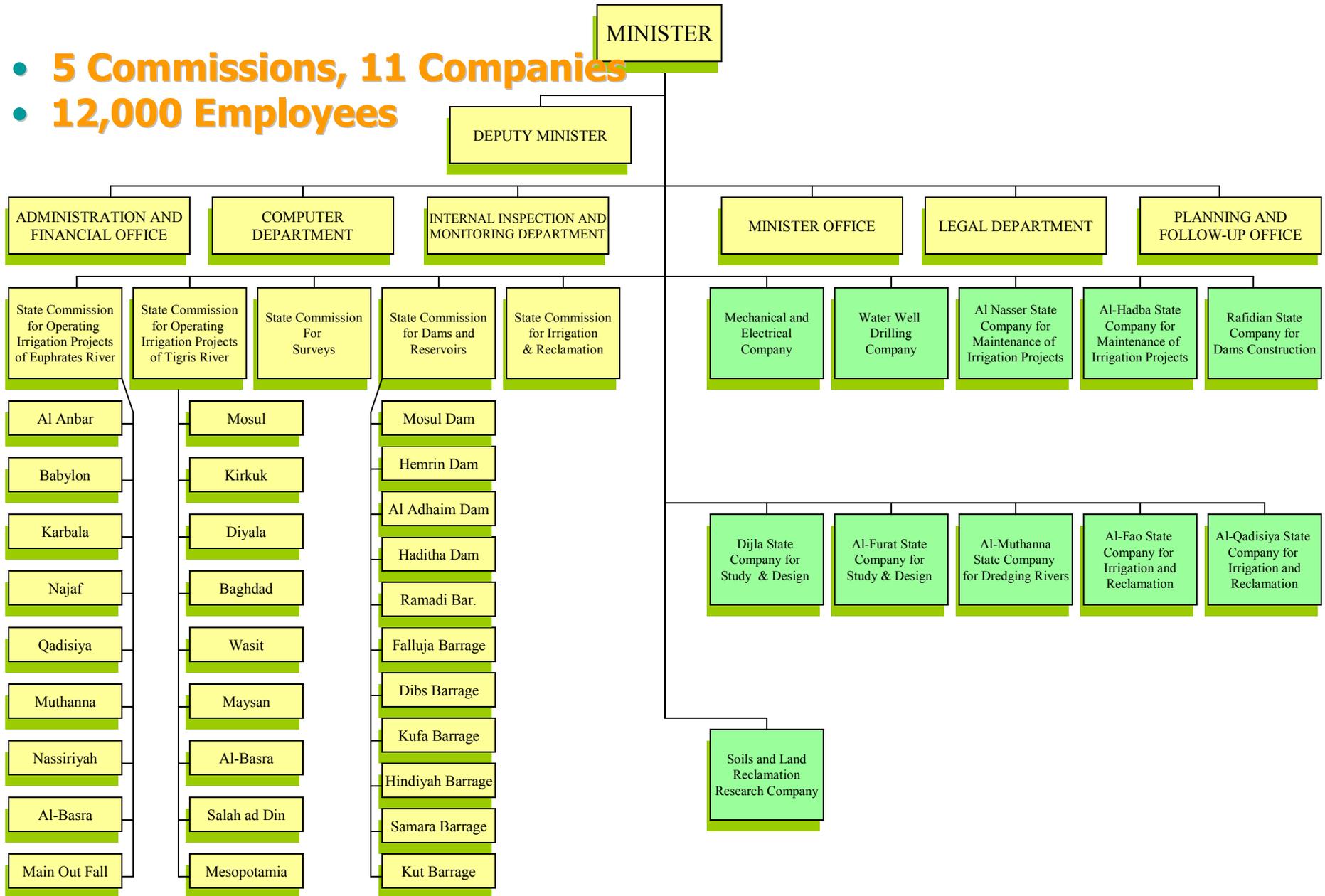
Background

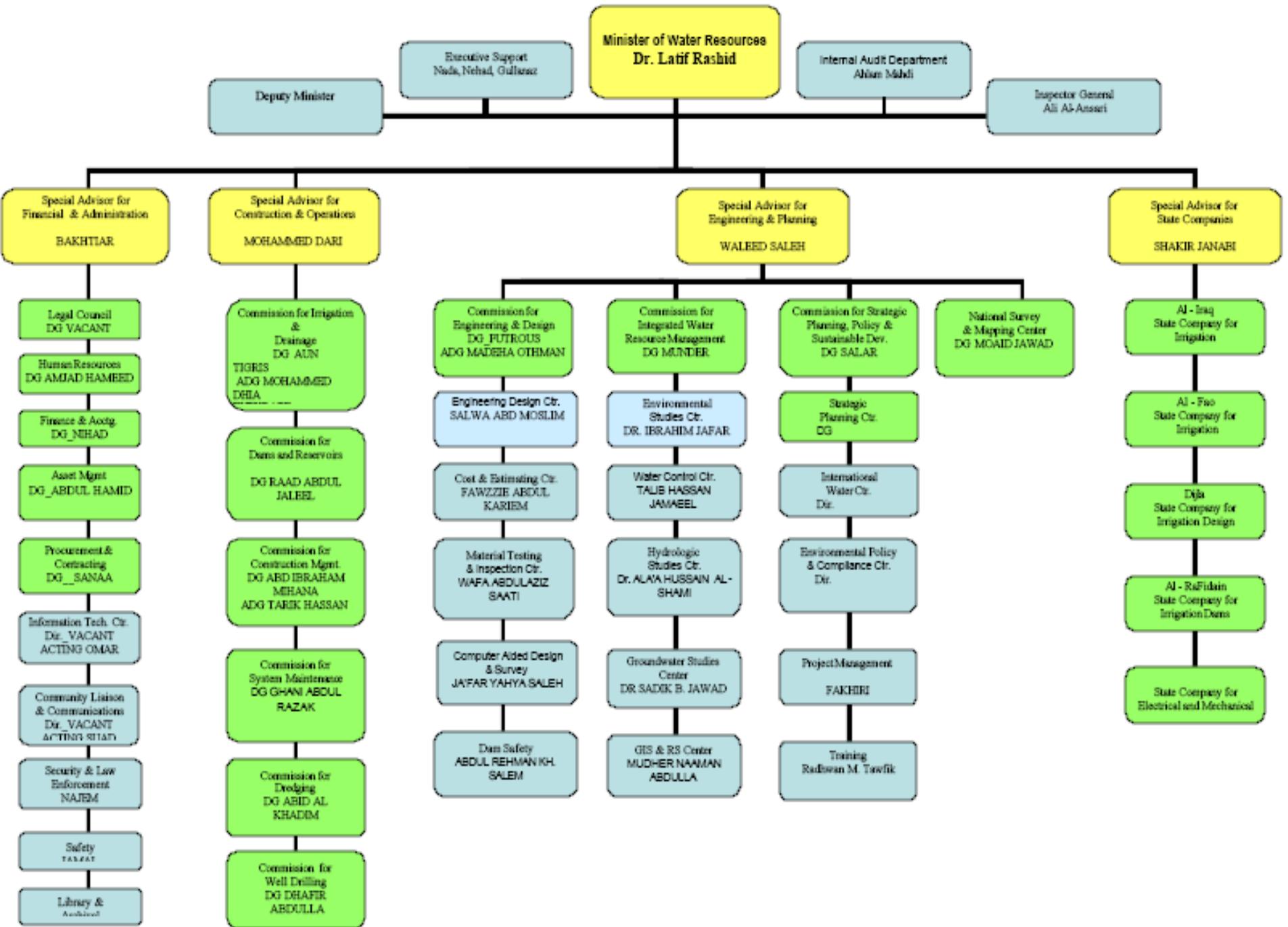
- The Iraq Ministry of Water Resources (MoWR) established in 2003
 - Goal: improve the planning, construction, operation, and management of water resources in Iraq
 - Primarily a restructuring of the Ministry of Irrigation with added functional elements
 - Changes to many of the existing roles and responsibilities within the MoWR
- USACE is supporting the MoWR through a training program designed to build capacity within the MoWR to meet its future demands



Previous Organization

- 5 Commissions, 11 Companies
- 12,000 Employees





What is Capacity Building?

- **Visible leadership in the form of meaningful commitment by senior staff**
- **A participatory process that is organization-wide**
- **An open and transparent process to achieve capacity building**
- **Effective communication of capacity building goals and objectives at all levels**
- **General buy-in and acceptance of the capacity building program**
- **Techniques, methods, and metrics adapted to the local situation and needs that encourage risk, failure, success**
- **Clear objectives and priorities phased according to resources and workload**
- **Management accountability through open decision-making and explicit responsibilities**
- **Sufficient time and resources**



United Nations Development Program (UNDEP) (1998) "Capacity Assessment and Development In a Systems and Strategic Management Context."
UN Development Program Bureau for Development Policy, Management Development and Governance Division, Technical Advisory Paper No. 3

Iraq MoWR Capacity Building



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Needs Analysis

- Verify **mission, vision, roles, and responsibilities** of the functional elements within the MoWR
- Conduct detailed discussions of desired competencies, roles, and responsibilities with **special attention to knowledge gaps** by MoWR functional element to identify training needs and priorities
- Assess MoWR **physical infrastructure** to identify office and laboratory facilities, equipment, and training capabilities necessary to construct and operate a state-of-the-art integrated MoWR
- Provide MoWR with an overview of typical water resources management agency **organizational structures and technological advances** in the field of water resources
- Summarize the findings of the **initial consultation** team with respect to MoWR capacity building needs and desires
- Recommend further actions to be carried out in a **detailed capacity building plan**



Initial Consultation Team

- John Hunter (CELRN), Michael Bishop (CEERD-EL), Matt McPherson (CEIWR-HEC)
- November-December 2004, Baghdad



Iraq MoWR Capacity Building



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Initial Consultation

- **Overviews**
 - Goals and objectives
 - Water resources agency management & organizational structures
 - Advances in water resources management technologies
- **MoWR Self-Assessments**
 - Functional element roles and responsibilities
- **Interviews**
 - Commission for Irrigation and Drainage
 - National Survey and Mapping Center
 - Commission for WRM: Environmental Studies Center
 - Commission for WRM: Groundwater Studies Center
 - Commission for WRM: GIS and Remote Sensing Center
 - Commission for WRM: Water Control Center
 - Commission for WRM: Hydrologic Studies Center
 - Commission for Engineering and Design



Iraq MoWR Capacity Building



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Physical Infrastructure: Headquarters



- Offices of the Minister, key department heads, administrative staff
- Meets the needs of the Ministry
- Present system of satellite and cell phones is unreliable
- No centralized computer system for payroll, human resources, email, networking, or multi-user access to database systems
- Firewalls, routers and other computer equipment needed for secure computer communication not evident

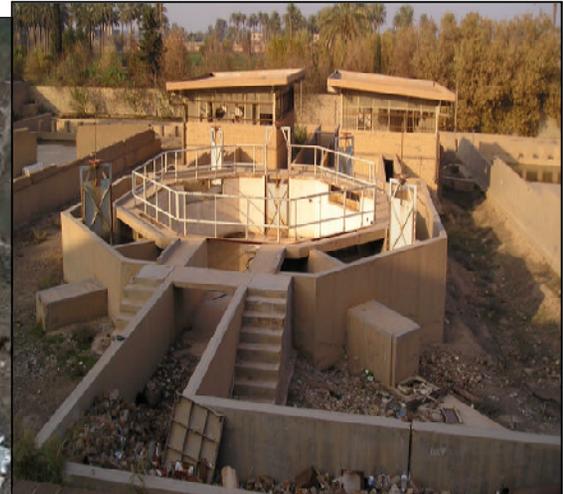


Iraq MoWR Capacity Building



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Physical Infrastructure: Headquarters



Needs Analysis Results

Iraq Ministry of Water Resources

Capacity Building Training Program

I. Needs Analysis



By Michael J. Bishop, John W. Hunter, Jeffrey D. Jorgeson, Matthew M. McPherson, Kathleen D. White, and Steven C. Wilhelms



US Army Corps of Engineers

- **Research and Development**
- **GIS and CADD**
- **Water Resources Management**
- **Operation of Environmental Analysis Center**
- **Establishment of a regulatory or compliance authority**
- **Development of program and project management capabilities**



Iraq MoWR Capacity Building



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Needs Analysis Results

- Training for personnel staffing a Water Control Center
- Demonstration and hands-on training of snow and water gaging systems
- Short- and intermediate-term training for GIS, surveying, mapping, and CADD
- Formal classes on H&H software tools for water resource management
- Specific training for personnel dealing with irrigation issues
- Training for dam safety and assessment
- Demonstration training for personnel developing regulatory functions
- Training in research and development for hydraulics, environmental, and soil salinity laboratory personnel
- Training for personnel establishing an Environmental Analysis Center
- Specific training for program management of water resource projects
- “Reach-back” training and technical support for MoWR staff elements regarding training opportunities, equipment, software, etc.
- Leadership training for managers and supervisors
- Training for administrative personnel in budgeting, accounting, and financial management
- Training for IT personnel integrated across all ministries that deal with water



Activities By Others

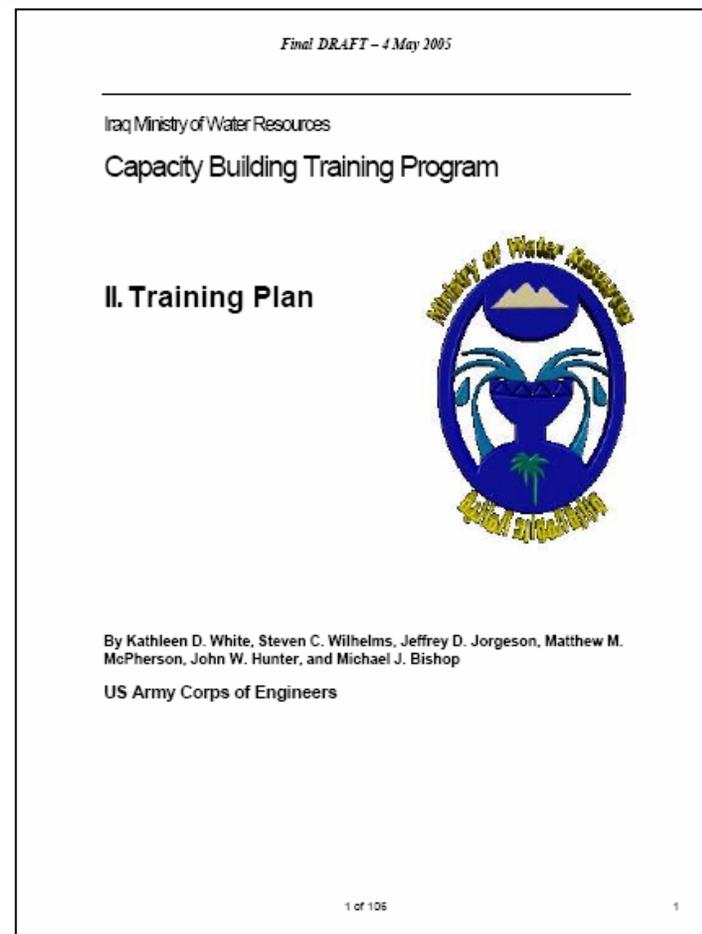
- Hydrologic and hydraulic modeling at USACE HEC (USAID)
- GPS, Remote Sensing, and GIS training provided by ESRI in Jordan
- CADD training in AutoCADD and AutoDesk in UAE/Jordan
- Hydrometeorological gaging training from USACE HEC and US Geological Survey (USGS) (leveraged by us)
- On-going University training for future MoWR staff
- Technical assistance in irrigation, drainage, data acquisition, from Agricultural Reconstruction and Development for Iraq (ARDI)
- UNESCO training in water resource management and water project monitoring
- UNESCO to perform Phase I of a National Water Master Plan (USACE HEC involved)

•



Training Plan

- **Objectives:**
 - Provide examples of water resources management to define organizational structure, operations, and policies
 - Strengthen staff in the technical skills and personal leadership skills necessary for managing organizational change and growth
 - Create internal and external training programs
 - Develop and support peer-to-peer information exchanges
 - Provide education, training, development, and career management guidance to support a sustainable Training Center
 - Demonstrate business and financial processes, program and project management, and management of human resources



Training Plan

- **4 Components:**
 - Focused Technical Training (FT)
 - Core Cadre Training (CC)
 - Water Resources Management Training (WRM)
 - Technical Support (TS)
- **Recognize all sources of training**
 - Public sector
 - Private sector
 - Universities



Type of Training	Method	Selection Process	Venue	Time	Performance Metrics
Focused Technical (FT) Training	Face-to-face	Selection	Iraq/ME	Refresher (1 week)	FT trainees implement technology
		Selection	Iraq/ME	In-depth (3-4 weeks)	FT trainees implement technology and provide support to others
		Nomination and Competitive Selection	U.S.	In-depth (1-2 months)	FT trainees implement technology
	Virtual	Selection	Iraq/ME	Intermittent	Successful completion of technical training module
Core Cadre (CC) Training	Face-to-face	Nomination and Competitive Selection	U.S.	In-depth (1-2 months)	CC trainees develop implementation plans for FT classes
		Selection	Iraq/ME	Refresher (1-4 weeks)	CC trainees perform successfully as trainers in FT classes
Water Resources Management (WRM) Training	Face-to-face	Selection	Iraq/ME	Refresher (1 week)	WRM trainees implement technology into functional element
		Selection	Iraq/ME	In-depth (2-4 weeks)	
		Nomination and Competitive Selection	U.S.	In-depth (1-2 months)	
	Virtual	Selection	Iraq	Intermittent	WRM trainees implement technology into functional element
Technical Support (TS)	Virtual (unless in-country resource is available)	N/A	Iraq	Less than a week	FY06: Joint PDT-MoWR TS program FY07: MoWR-run TS program
Business Practices	Consultant	N/A	Iraq	To be determined	WRM trainees implement technology into functional element

Training Plan

- **77 training opportunities identified (\$2.5M unfunded)**
 - GIS, Surveying, Mapping, CADD
 - Hydraulic and Hydrology
 - Water Resources Management
 - Research and Development
 - Information Technology
 - Sediment Management / River Training
 - Environmental
 - Strategic Planning / Project Management
 - Engineering and Design
 - Project / Construction Management
 - Business Practices, Budgeting, Accounting, and Financial Management
-



Training Courses (next few months)

- **Support to USAID Streamgaging (USGS and USACE, May 2005)**
- **GIS Core Cadre (June-July 2005)**
- **Dam Safety (USBR and USACE, August 2005)**
- **Water Resources Management for Senior Managers (August-September 2005)**
- **H&H Core Cadre (August-September 2005)**
- **Water Resources Management Core Cadre (September-October 2005)**
- **Instructional Training for Core Cadres**



Progress to date

- **Streamgaging training**
 - Supported with equipment and logistics
 - by James Hathorn, CESAM and Steve Lipscomb, USGS
 - Very favorably received by MoWR

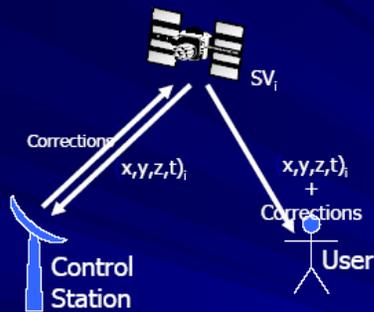


Progress...

- **GIS Core Cadre training outcomes**
 - Mission, vision, goals
 - Strategic plan for GIS development
 - Preliminary database structure
 - Database development plan
 - RS, GIS, H&H training
 - Web site & poster
 - Training materials
 - Educational materials



المحطة الارضية

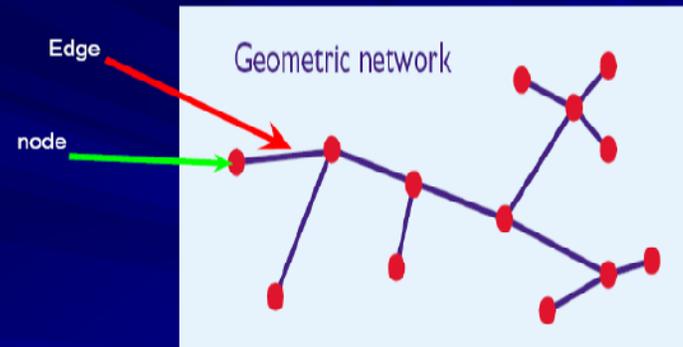


حيات الوقت والموقع ترسل باستمرار الى الاقمار الصناعية

حيات الوقت والموقع يعاد بثها من القمر الصناعي الى اجهزة الاستقبال

محطة الرئيسية تقع في قاعدة النسر الجوية في وادي كلورادو

Geometric Network topology



Way Ahead

- **Continue planned training**
- **Search for additional funding**
 - Interim training center at Dokan
 - Unfunded training needs
 - Hydromet gaging critical
- **Bright future for MoWR**
 - New technology
 - Capability to manage water resources for competing needs
 - Build relationships with technical people in the US

