Facing the Challenges: Developing Innovative Solutions to Water Resources Problems in Irrigation Districts

The Irrigation Sector: Current Status

• 260 million acres under irrigation
• Consumes 70% of all withdrawals
• Irrigation district objective to supply irrigation water only
• Inadequate provisions for drainage and environmental objectives

Urgent Challenges in Irrigation District Management

• Rapidly deteriorating irrigation infrastructure
• 24% of lands suffering yield reductions due to salinization
• Steady increase in Municipal and Industrial (M&I) water demand in irrigated areas

Innovative Solutions Needed to Meet New Water Resource Objectives:

1. System MODERNIZATION: Irrigation Districts as service providers delivering a quality service to all consumers
2. Maximize use of existing supplies
3. Provide Municipal and Industrial (M&I) supplies to adjacent communities
4. Meet suitable environmental standards including in-stream flows and quality of drainage flows.

Facing the Challenges – Developing Innovative Solutions

1. Database Management System integrated with GIS to Improve District Management

2. GIS - Integrated Conveyance System Hydraulic Model for Daily Operation and Irrigation Network Automation

3. Rapid Assessment Tool (RAT) for Diagnosing Problems and Developing Priorities in Irrigation Districts

The Rapid Assessment Tool (RAT) Development

• Combination of GIS, field surveys and limited field measurements to evaluate losses, importance and ease of upgrading

Some Results from the RAT

• RAT applied to irrigation districts in LGRV
• Combination of GIS, field surveys and limited field measurements to evaluate losses, importance and ease of upgrading

The Future

Improvement work continues on the DMS, Hydraulic Model and RAT products. When fully developed these products can be used to exploit the significant opportunities for improving water resource management in irrigation district throughout the world. As irrigation systems are spatially located, Geographic Information Systems (GIS) is highly suitable as an innovative tool in irrigation systems planning and management.