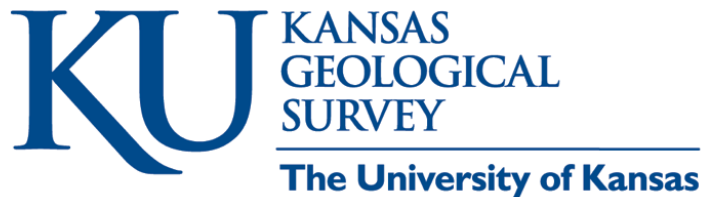


Water & Negotiations in the West: Engaging Stakeholders

**AGI Critical Issue Forum
October 28, 2016**



Susan Stover, P.G.

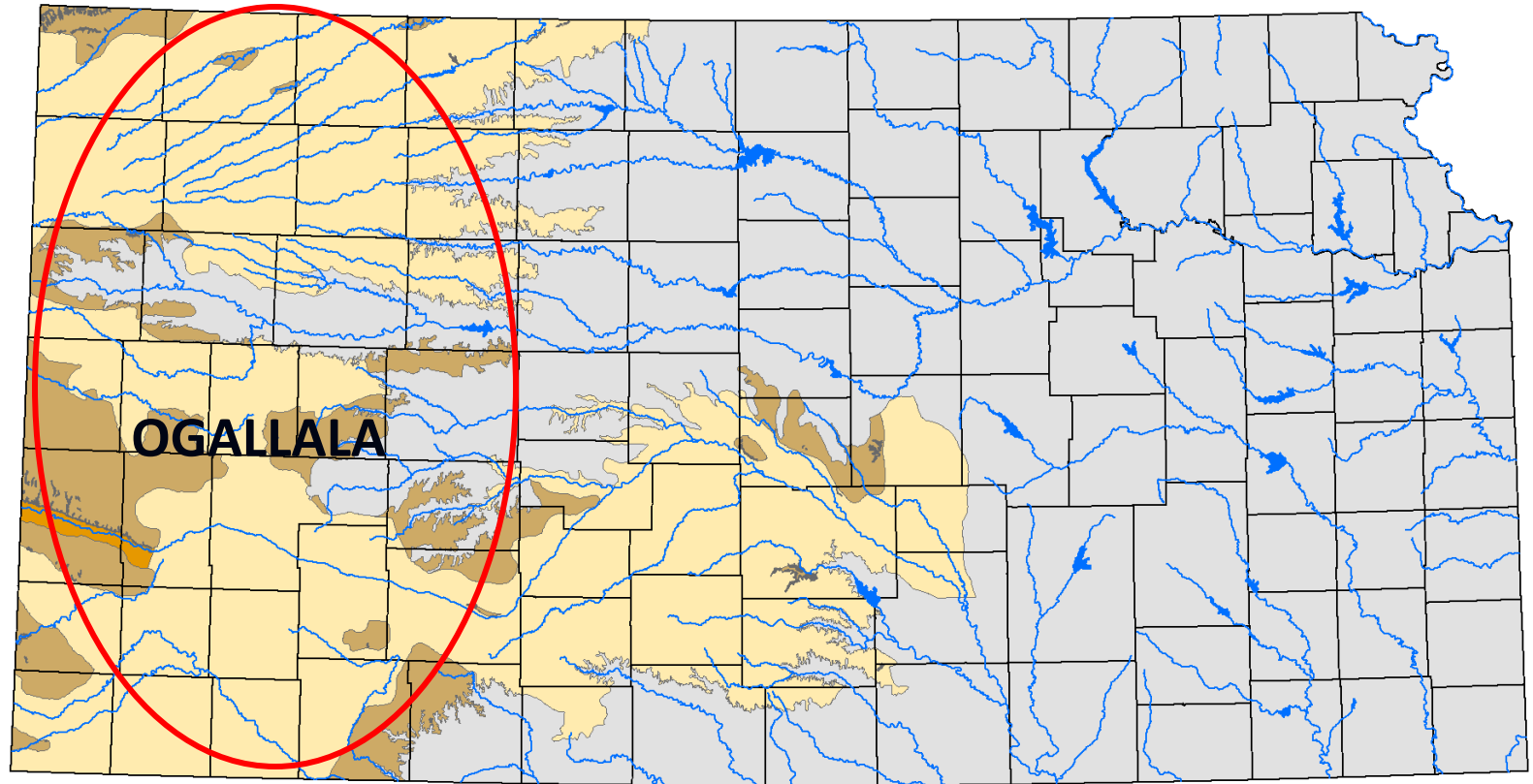
Outline

Negotiation on Groundwater Conservation
- a state position

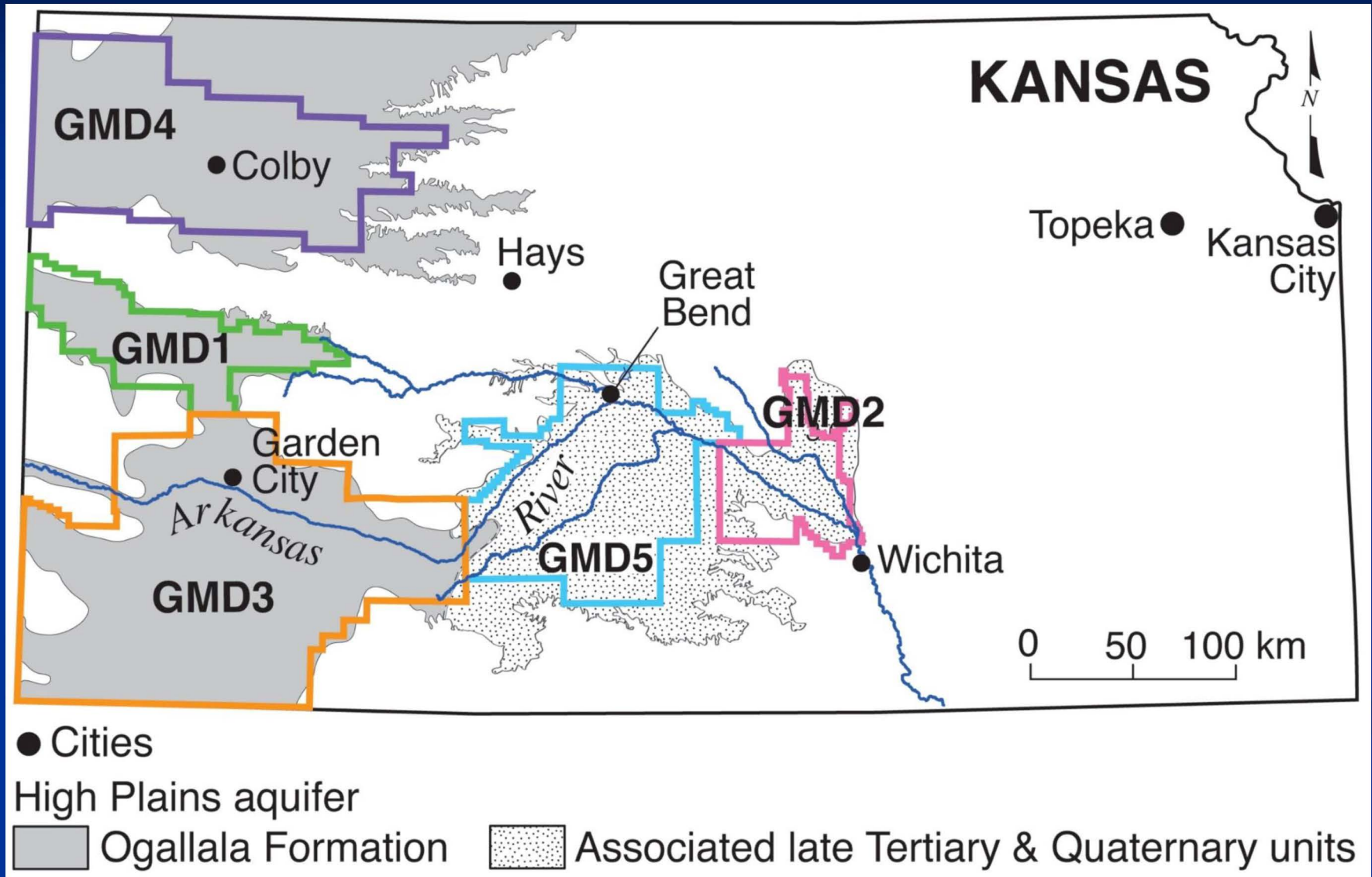
Stakeholder engagement and management
development

Challenges Ahead

Ogallala - High Plains Aquifer



Groundwater Management Districts



Negotiation Position

■ State Water Law

Kansas Prior Appropriation

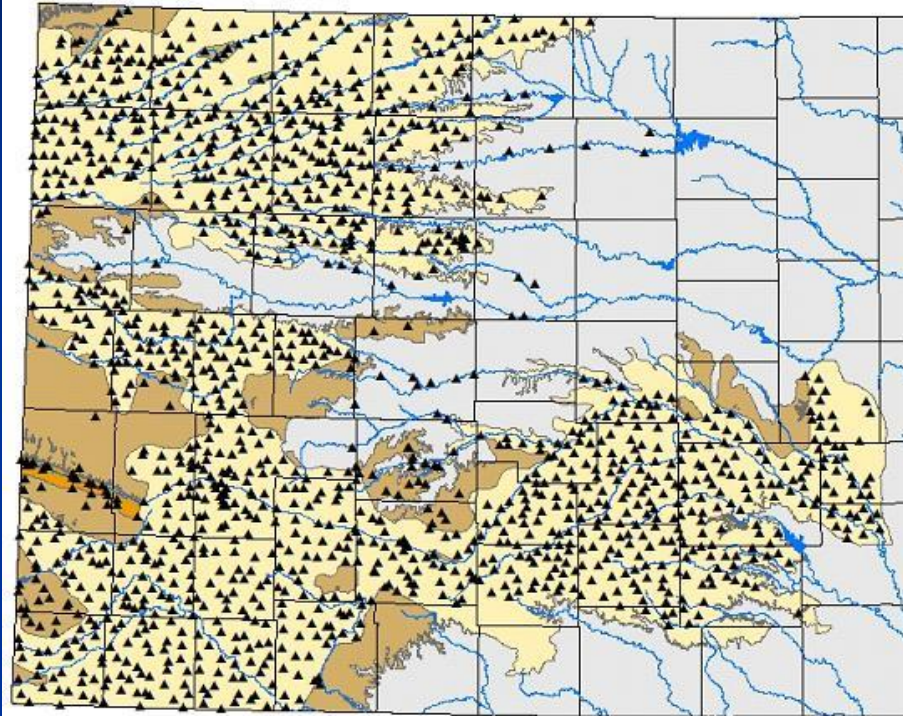
Colorado Modified Prior Appropriation

Texas Rule of Capture

Top Down Change is a Challenge

Engage Stakeholders and Develop Solutions

#1. Data on aquifer



Kansas Ground
Water online
information

Point of Diversion
PD: 30-255-32W 1 2 Water Right(s): 18166 - 00 1 Type(s) of Use: IRR [Google Location Map](#)
WWC5 Links: None WIZARD Link: 375106100520201

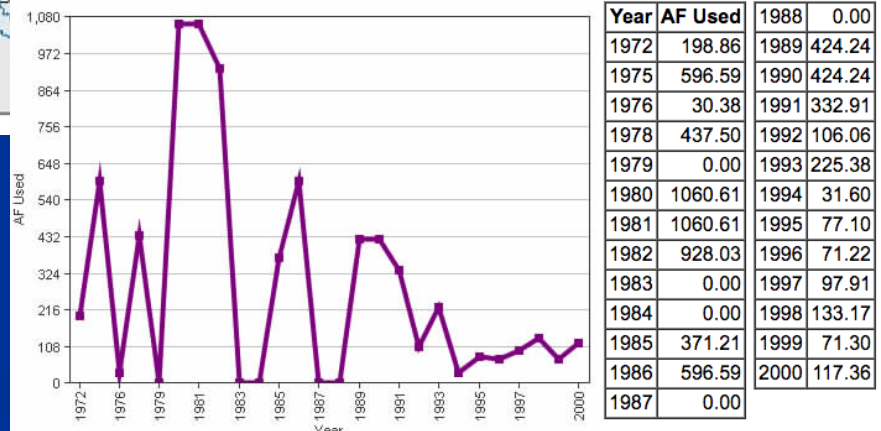
Water Right Details
Source: G Right Type: A Total Acres Authorized: 370 Net Acres Authorized: 370 Use of Water Active: Y
Water Right Status: NK Place(s) of Use: 30-255-32W SE SE (active) Total Acres: 40, Net Acres: 40
Priority Date: 05/13/1971 Action Trail: 05/13/1971 - PENDING INITIAL REVIEW

Point of Diversion Details
PD Active: N Feet North: 2800 Feet West: 660 Qualifiers: S2 S2 SE NE County: FINNEY
GMD Num: 3 Number of Wells: 1 Subbasin: ARKANSAS RIVER Stream Number:
Special Use Area(s): Comment: Created at migration for old water use S2 S2 SE NE

Authorized Quantity & Rate
Quantity Stored By: Authorized Quantity (AF): Net Quantity (AF):
Rate Stored By: Authorized Rate (GPM): Net Rate (GPM):

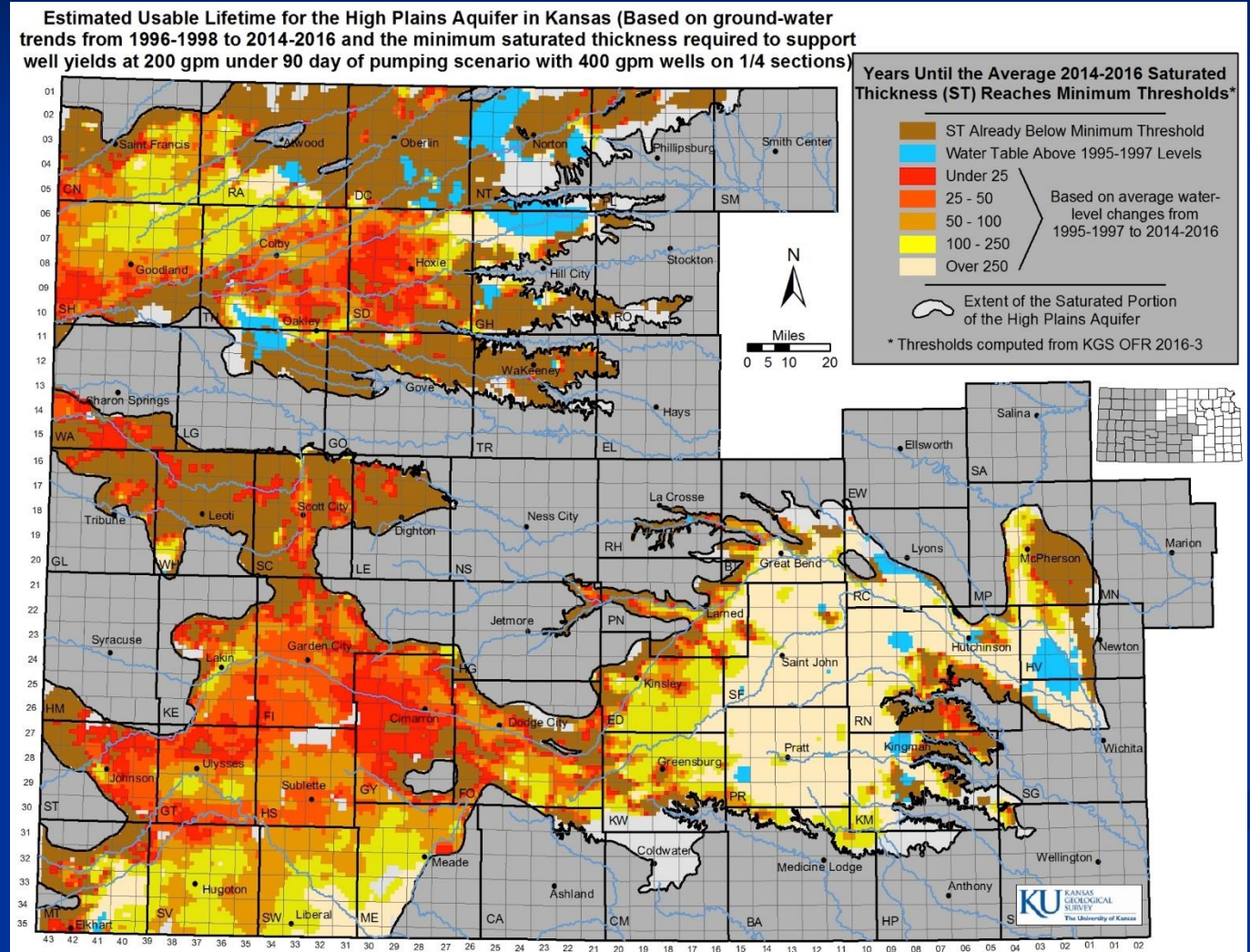
Reported Water Use [Graph Water Use History](#)
Water Use Year(s): 2000 Total Water Used (AF): 117.36 Acres Irrigated: 150
Water Use Reported on Right Num: Reel Number: 5 Blip Number: 1348
Metered Quantity: 38242000 Meter Unit: 1 Depth to Water: 145 Depth of Well: 245
Beginning Meter Reading: 181374000 Ending Meter Reading: 219616000
System Type: 4 Hours Pumped: Pump Rate: Date of Measurement: 01/01/1999
Date Report Received: 01/22/2001 Chemigation Indicator: Water Use Code: M Crop Code: 15
Current Water Use Correspondent(s):
[Print ASCII Report](#)

Reported Water Use History for Water Right 18166 - 00, Pd 30-255-32W 1 and Use IRR

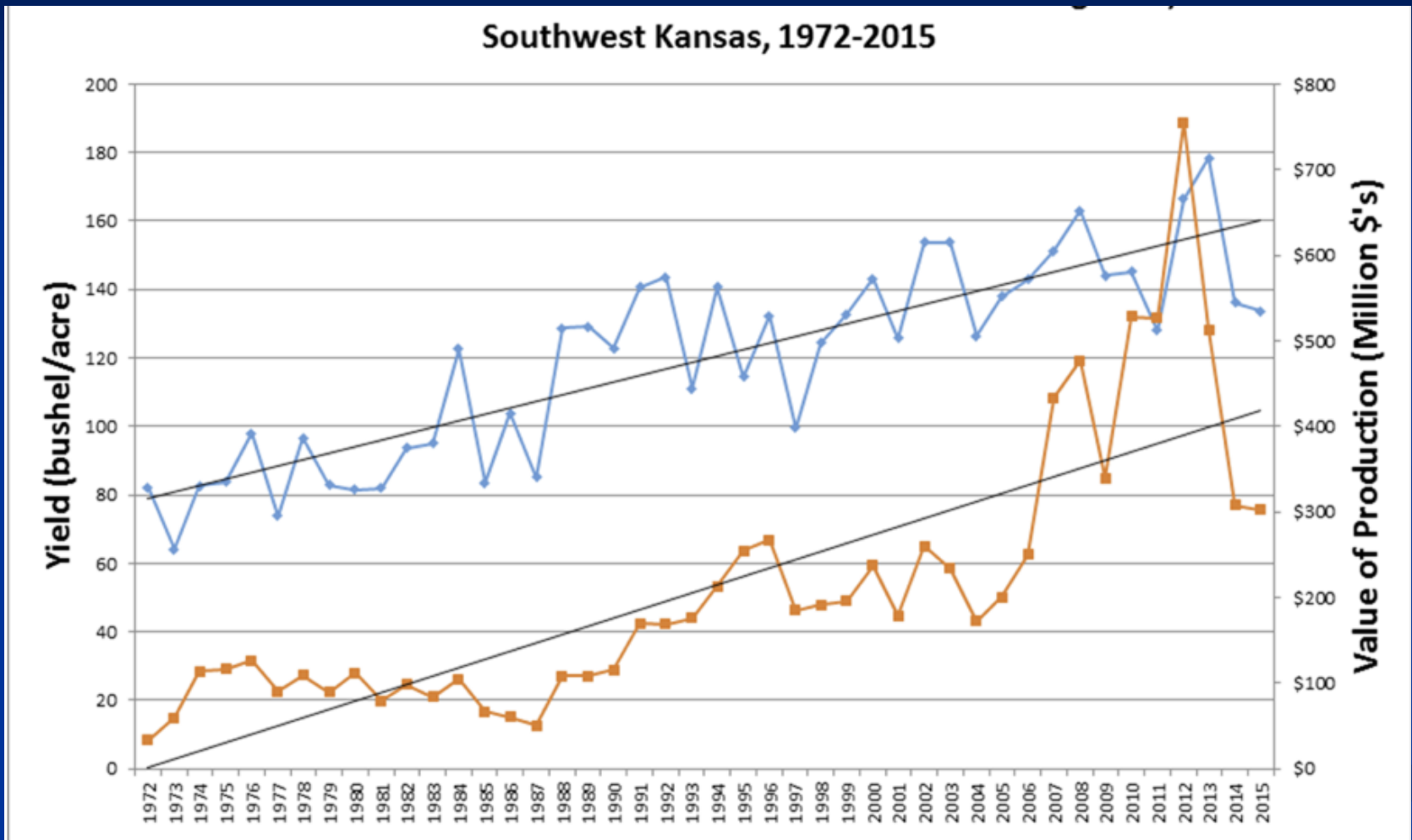


Communicate Aquifer Conditions in Common Terms

Estimated Usable Lifetime Map



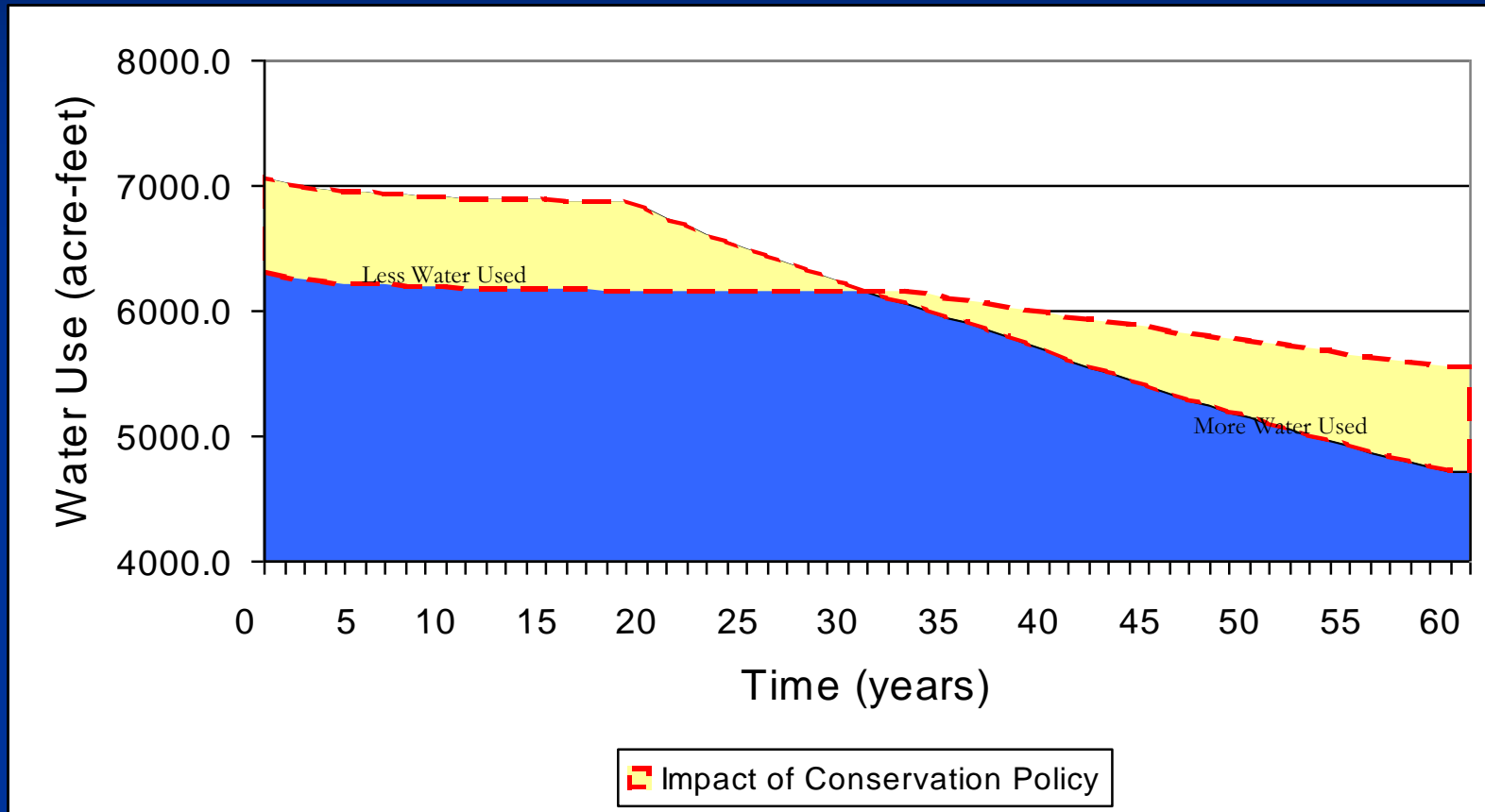
Data on Economics of Water Use



Irrigated over Dryland Corn in
Southwest Kansas

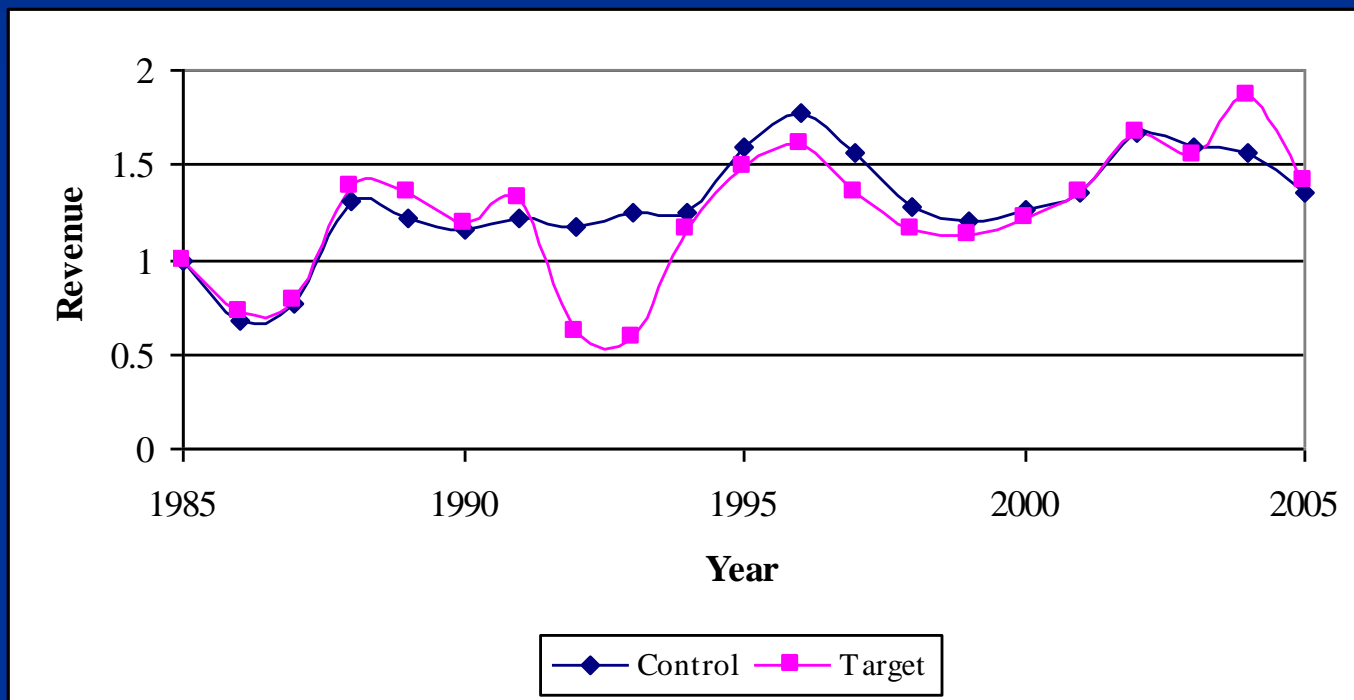
J. Roe, Ks Dept of Ag, 2016

Conserve and Extend



Economic Impact Studies

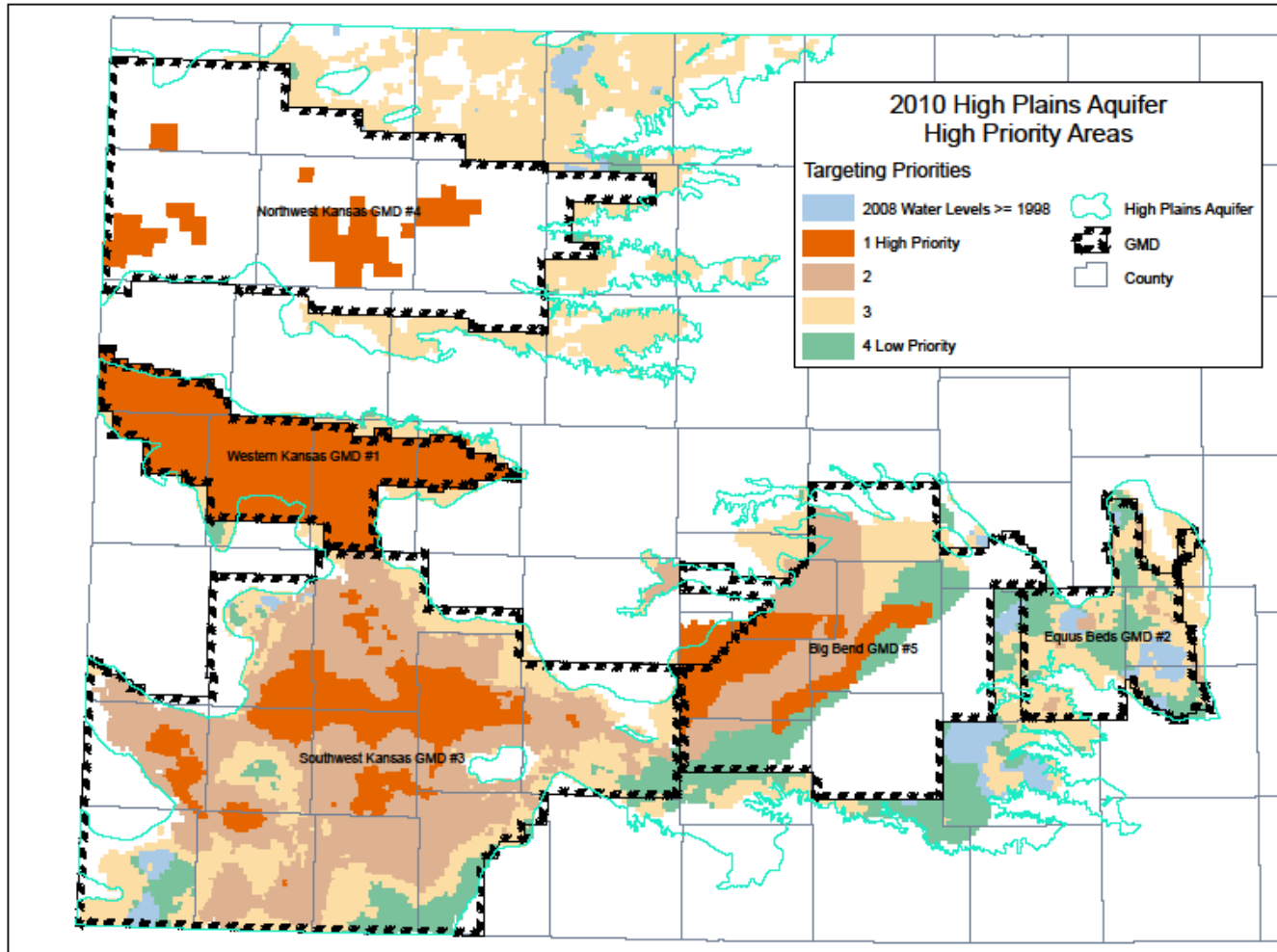
Walnut Creek Mandatory Water Use Reduction Irrigated Crop Revenue



B. Golden, 2013, KSU

#2. Identify Stakeholders – and build trust

Priority areas in Kansas Water Plan



#3. Leadership

Top Leadership Defines its
Importance

Governor Brownback



Garden City, KS



Local Leadership Improves Success

Build Local Leadership



Local Leaders –
Often Family Farmers



Industry Leaders



Public meeting in Leoti, KS

Meetings... and Outreach beyond Meetings

Meetings:

- Outcomes
- Tie in with other meetings
- Clear messages
- Locals may meet w/o agencies

Field demonstrations



Outreach beyond Meetings

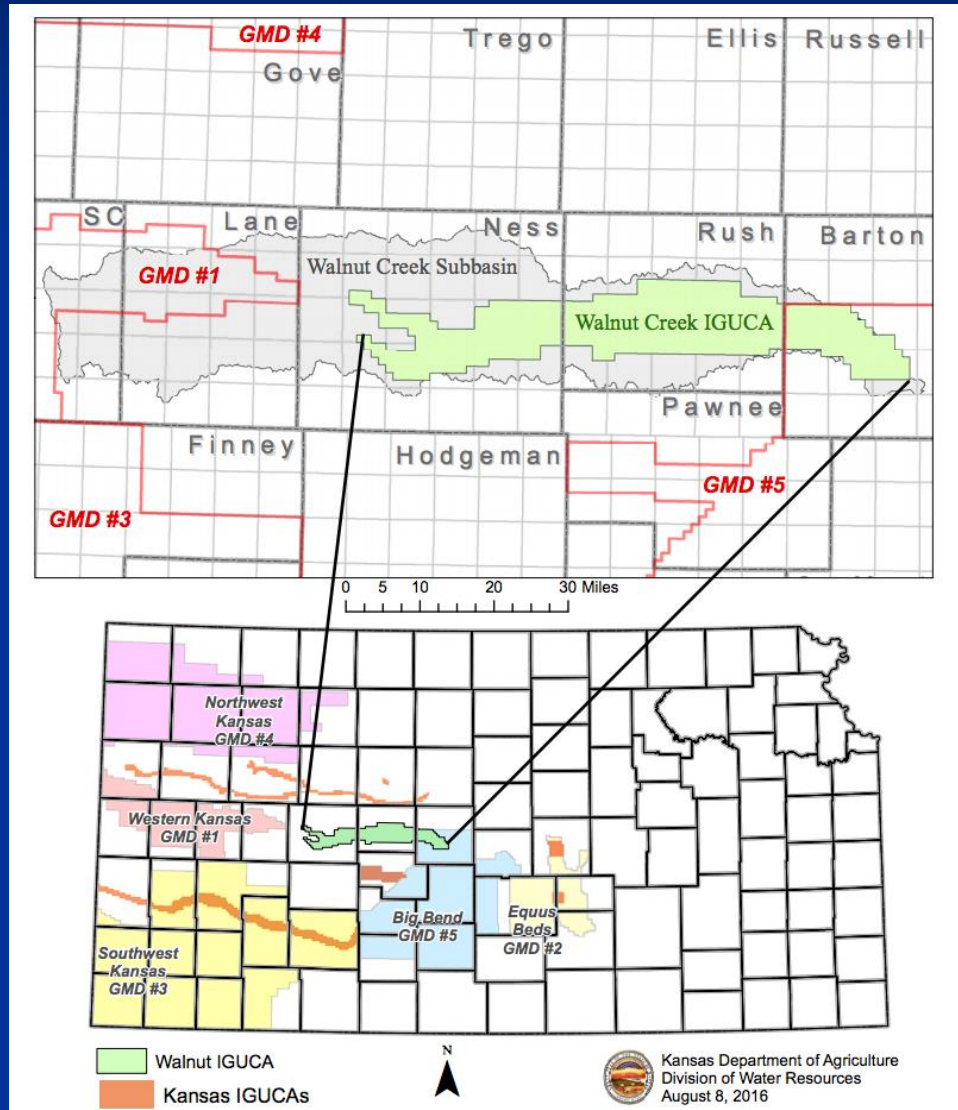


Meet with State Legislators
and other policy leaders

Kansas Field Conference
Western Central Kansas,
August 2016



#4. Aquifer Conservation Programs, Boundaries and Rules

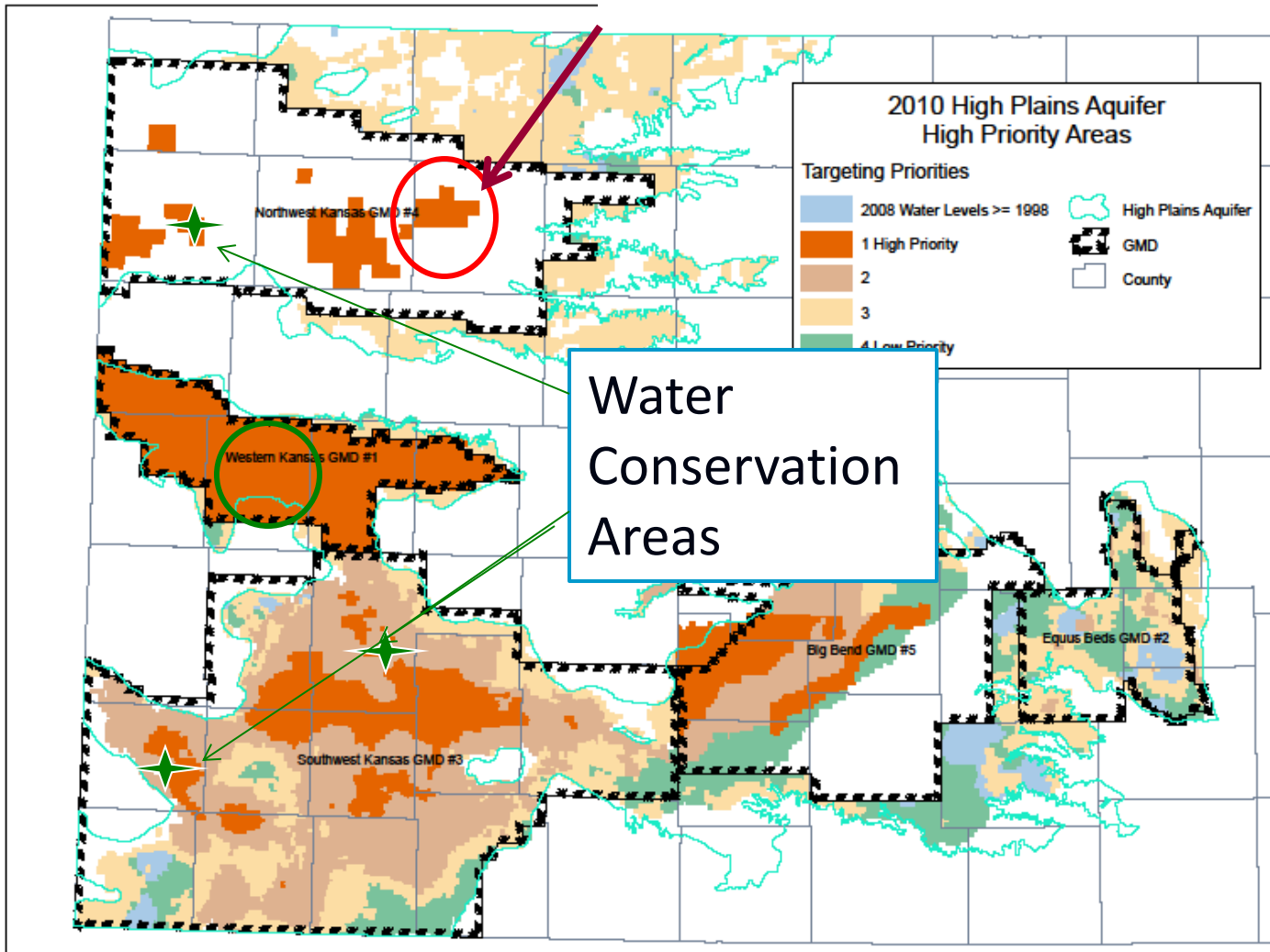


Intensive
Groundwater Use
Control Area
(IGUCA)

Tools beyond just
Prior Appropriation

Program Development

Local Enhanced Management Area (LEMA)



#5 Nested Institutional Support

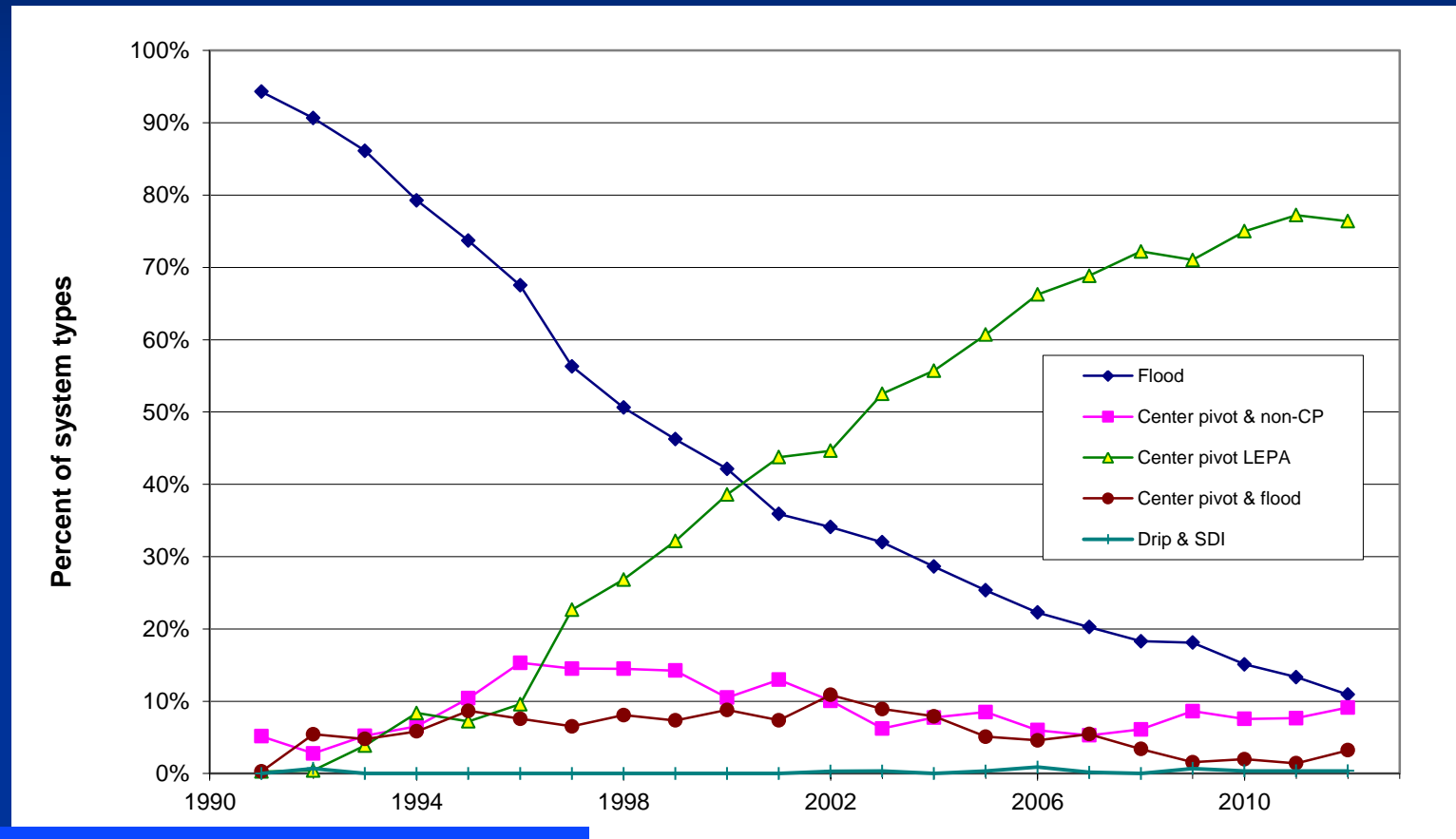
- * Stakeholders
- * Groundwater Management/Conservation Districts
- * State Agencies: administer, enforce, monitor
- * Federal Agencies
 - USDA cost share programs, crop insurance
 - USGS aquifer conditions

Challenges Ahead

- Desire to Change depends on
 - Individual Situations
 - Well Conditions, Aquifer Conditions
- Technology – maybe help conserve, maybe not

Efficiency gains may not result in Water Conservation

Trend in Irrigation Systems – western central Kansas



Irrigation produces more crop, but historically hasn't reduced total water consumed.

Kearny & Wichita Counties, Wilson et al, KGS 2015

Highly Efficient Technologies



Photo: Kansas Historical Museum

Will irrigation efficiency gains be used to conserve “wet” water?



Mobile Drip Irrigation, Finney County,

Stakeholder Supported Groundwater Management Programs

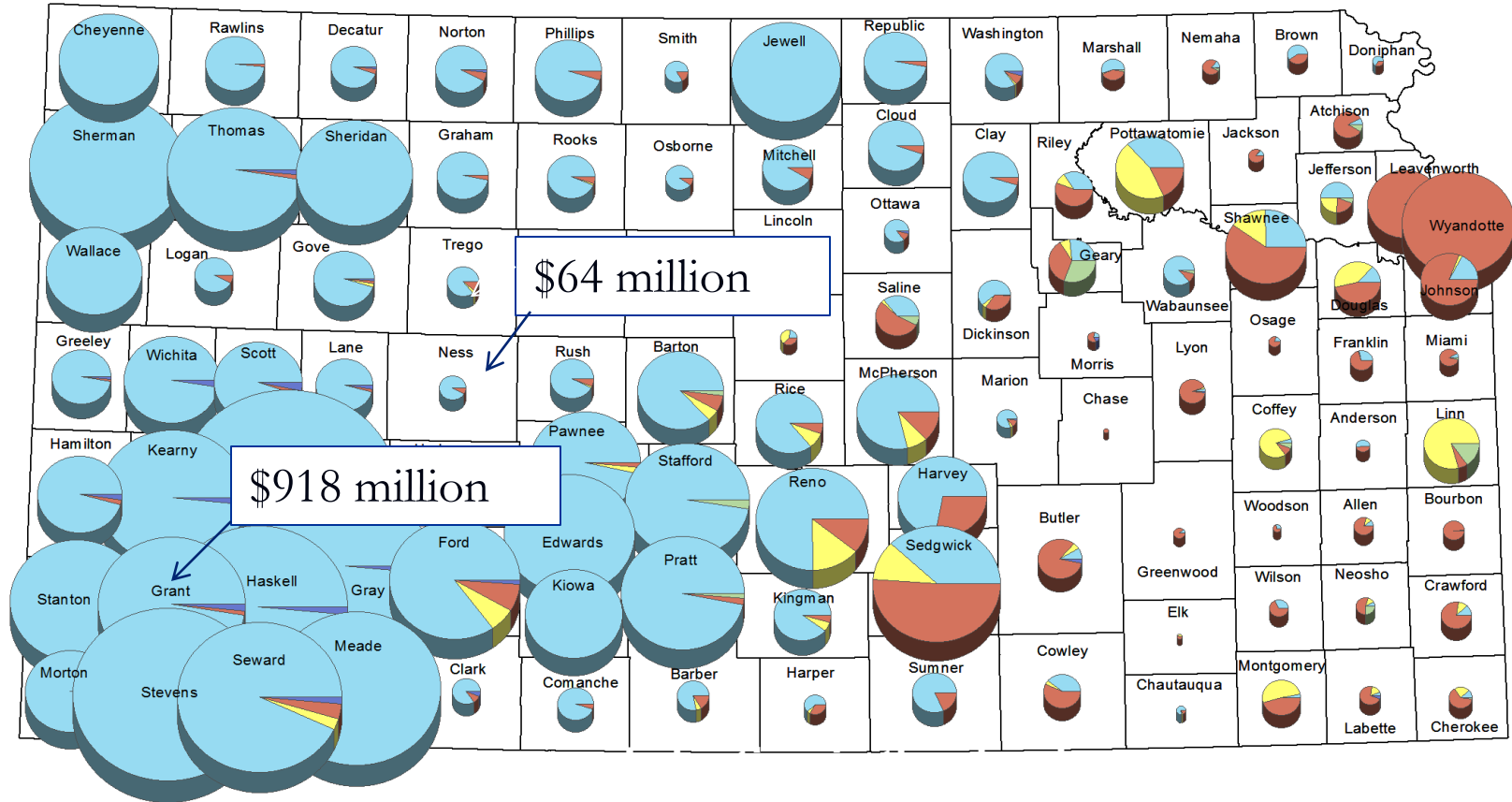
- **Aquifer and Economic Data**
 - Reliable, accessible, and communicated
 - **Vision** of farming profitably that also extends aquifer use
- **Stakeholders** – identify, build trust
- **Leadership** – High Level for importance, Local Leaders for specific program solutions
- **Programs, Boundaries and Clear Rules**
 - Allow adjustments to programs or create new ones
 - Enforce rules
- **Nested Institutional Support**

Thank You



Data on Economics of Water Use

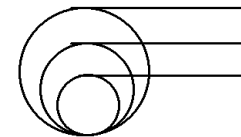
2012 Reported Water Use for Kansas Counties



Disclaimer: Features on this map represent conditions as of the date of the map and are subject to change. The user is referred to specific policies, regulations and/or orders of the Chief Engineer.

Percentages of 1.5% or less do not show up in the pie charts.

This map is intended for planning purposes only.



Pratt: 113,915 AF
Harvey: 58,183 AF
Lane: 24,071 AF

Kansas Department of Agriculture
Division of Water Resources
Water Use Unit
October 7, 2013

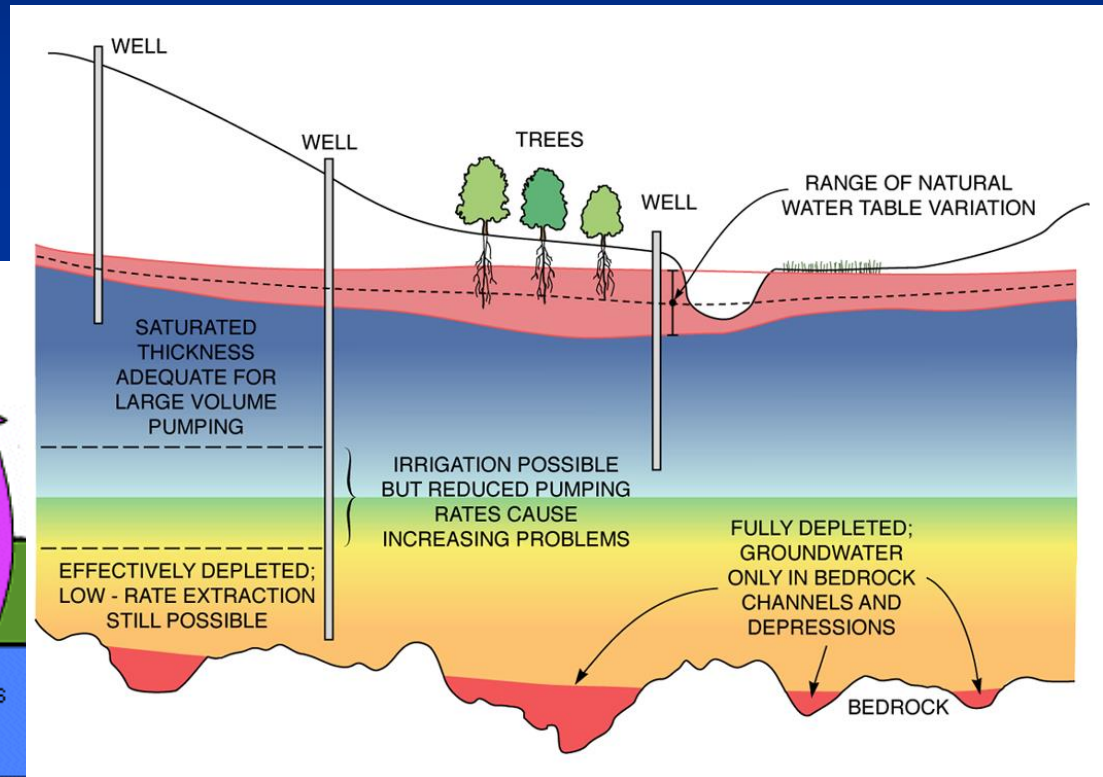
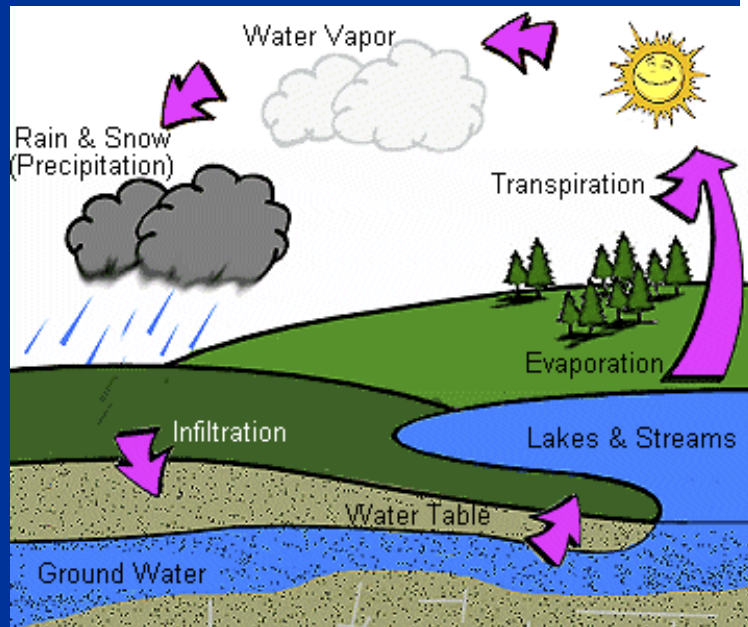
Use Made of Water

■ Irrigation	■ Municipal	■ Stockwater
■ Industrial	■ Recreation	

0 25 50 100 Miles

Communicate an accurate mental model of aquifer

Not an underground river or lake.



Major concern: will my conserving only benefit other users?