

Quantitative Approaches to Reducing Legal Conflicts over Groundwater

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WITW All-Hands Lunch, Stanford

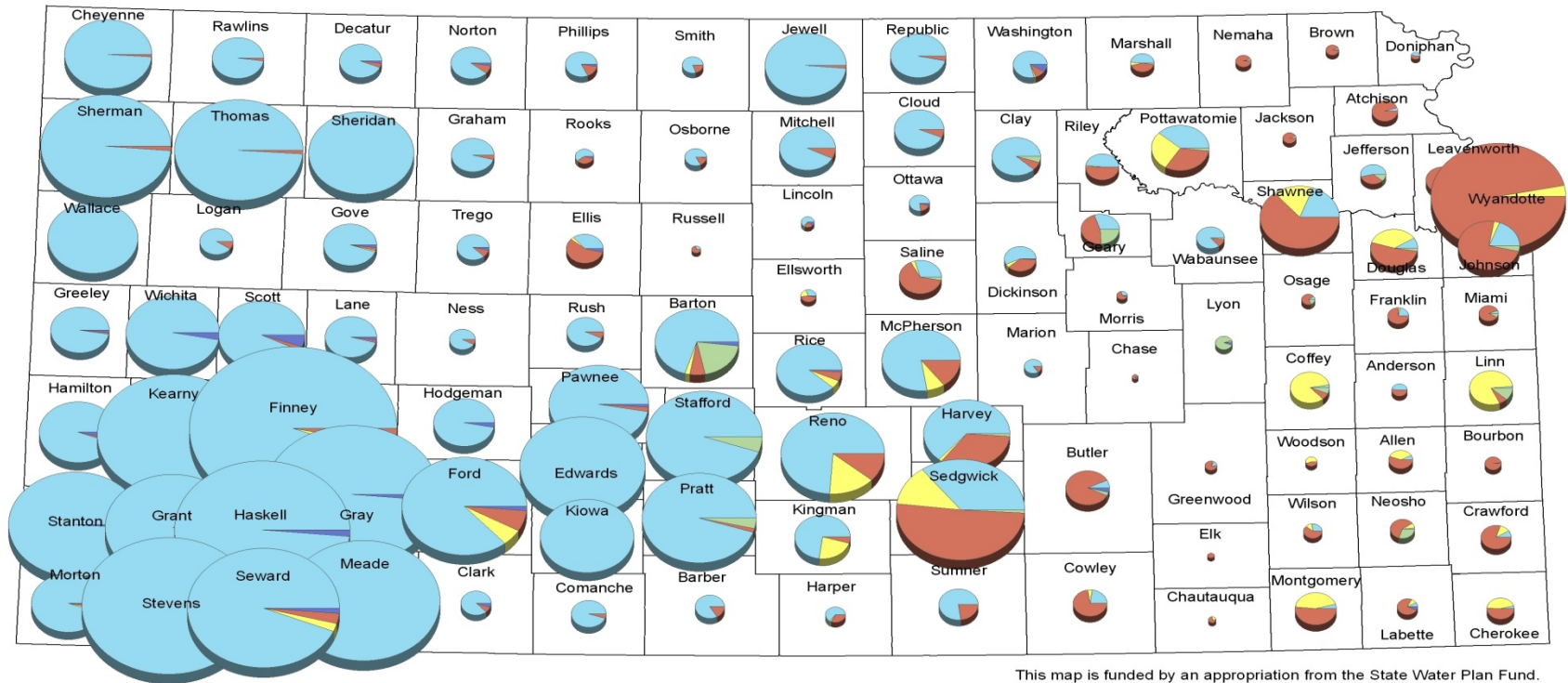
2014.04.02

Interstate Litigation and “Battles of the Experts”

- *Kansas v. Colorado*, No. 126 Orig. (1985-2009)
 - 270 days of trial: H-I Groundwater Model
- *Kansas v. Nebraska & Colorado*, No. 105 Orig.
 - (1998-2003): Cooperative Groundwater Model and “Final Settlement Stipulation”
 - (2008-2014): Noncompliance and Breakdown of Technical Consensus; causal connection?
 - “Augmentation” as a technical band-aid

Kansas Water Use is 95% Groundwater

2006 Reported Water Use, by Type of Use for Kansas Counties



This map is funded by an appropriation from the State Water Plan Fund.

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.

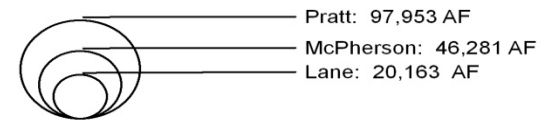
Percentages of 1.5% or less do not show up in the pie charts.

This map is intended for planning purposes only.



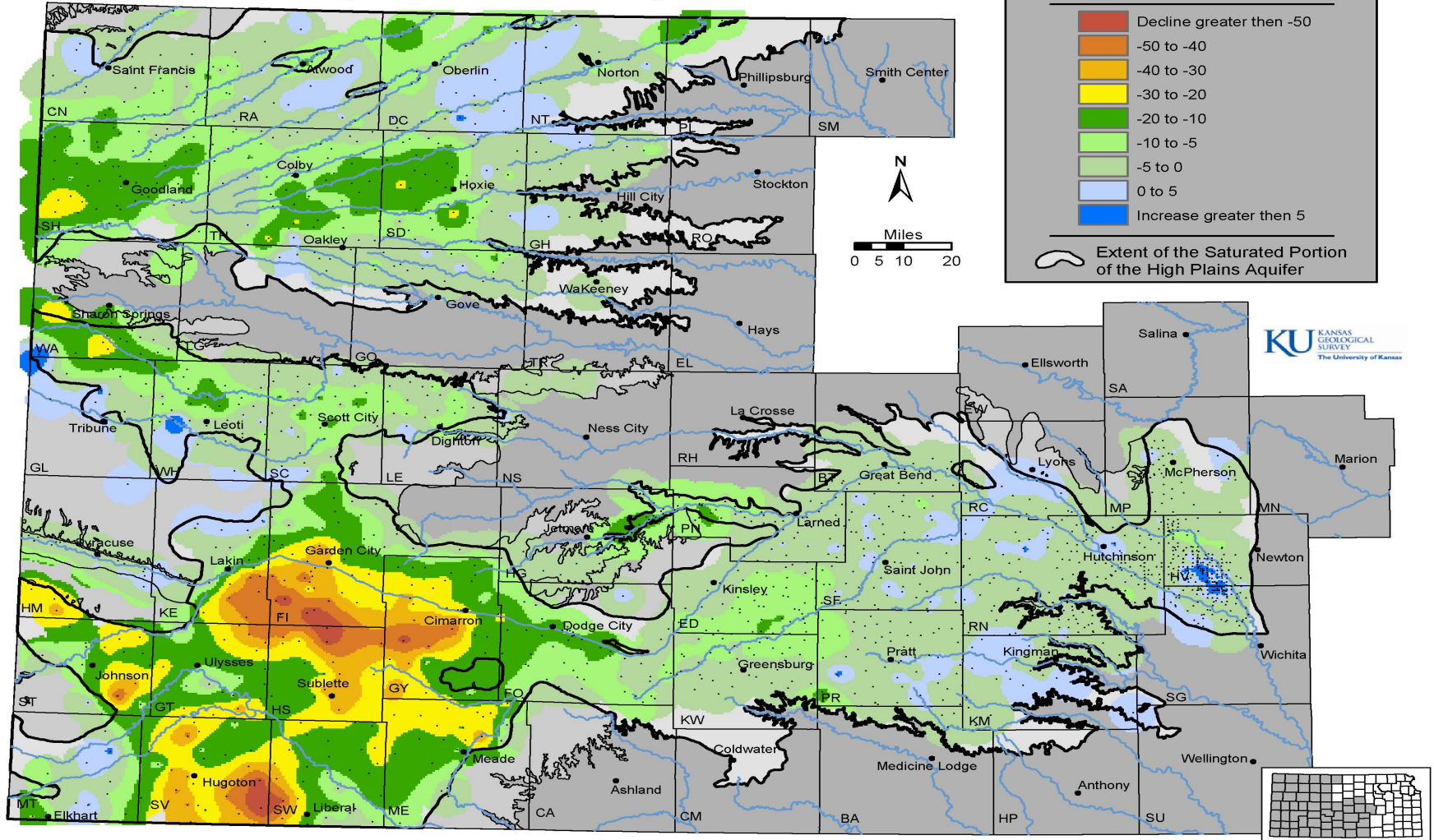
Kansas Department of Agriculture
Division of Water Resources
Water Use Unit
December 7, 2007

Use Made of Water



The Groundwater Problem

**Interpolated Water Level Change in the High Plains Aquifer
from Average 1997-1999 to Average 2007-2009**



Kansas Water Law

- Product of Expert Review in 1944-45, assisted by Wells Hutchins of CA
- Applies to all water, both surface and groundwater.
- Centralized administrative authority, led by Chief Engineer, Division of Water Resources (similar to WY, NM, OR)
- Prior Appropriation Doctrine and its corollaries
- Meters and Annual Water Use Reports for all irrigation rights
- 1972: 5 Groundwater Management Districts, or GMD's:
 - Contribute to water planning and policy
 - Draft rules and regulations, approved by Chief Engineer
 - Originally reformers: better policy through more local control
 - Now, resistant to reform from DWR
 - The most powerful force in Kansas water (other than drought and pumping)

Intensive Groundwater Use Control Areas (“IGUCA’s”)

- Areas where there are serious groundwater overdraft problems.
- Procedure:
 - GMD, OR 5% of its members, OR the Chief Engineer,
 - Initiate proceedings for an IGUCA.
 - Public Hearings on IGUCA.
 - First stage: Are the conditions bad enough to merit an IGUCA?
 - Second Stage: Are the Corrective Control Provisions Adequate?
- Product: Order of Chief Engineer, usually reducing groundwater rights, *roughly* according to prior appropriation
 - Subject to Administrative and Legal Challenge
- 8 IGUCA’s in Kansas (mostly to protect surface systems)
 - But none over the Ogallala.

If Kansas has such great water law . . .

- Why the problem with depletions?
 - Math + Geology = Over-appropriation
- Why hasn't the Chief Engineer stepped in?
 - Water Rights owners are not breaking the law
 - The legal risk: takings
 - The political risk (see Nebraska; Idaho; Montana; Colorado)

If Kansas has such great water law. . .

- Why haven't irrigators protected their rights?
 - The tools are powerful and unpredictable:
 - Impairment Complaint/Administration of rights
 - IGUCA
 - Adjudication (the nuclear option)

The Legal Problem

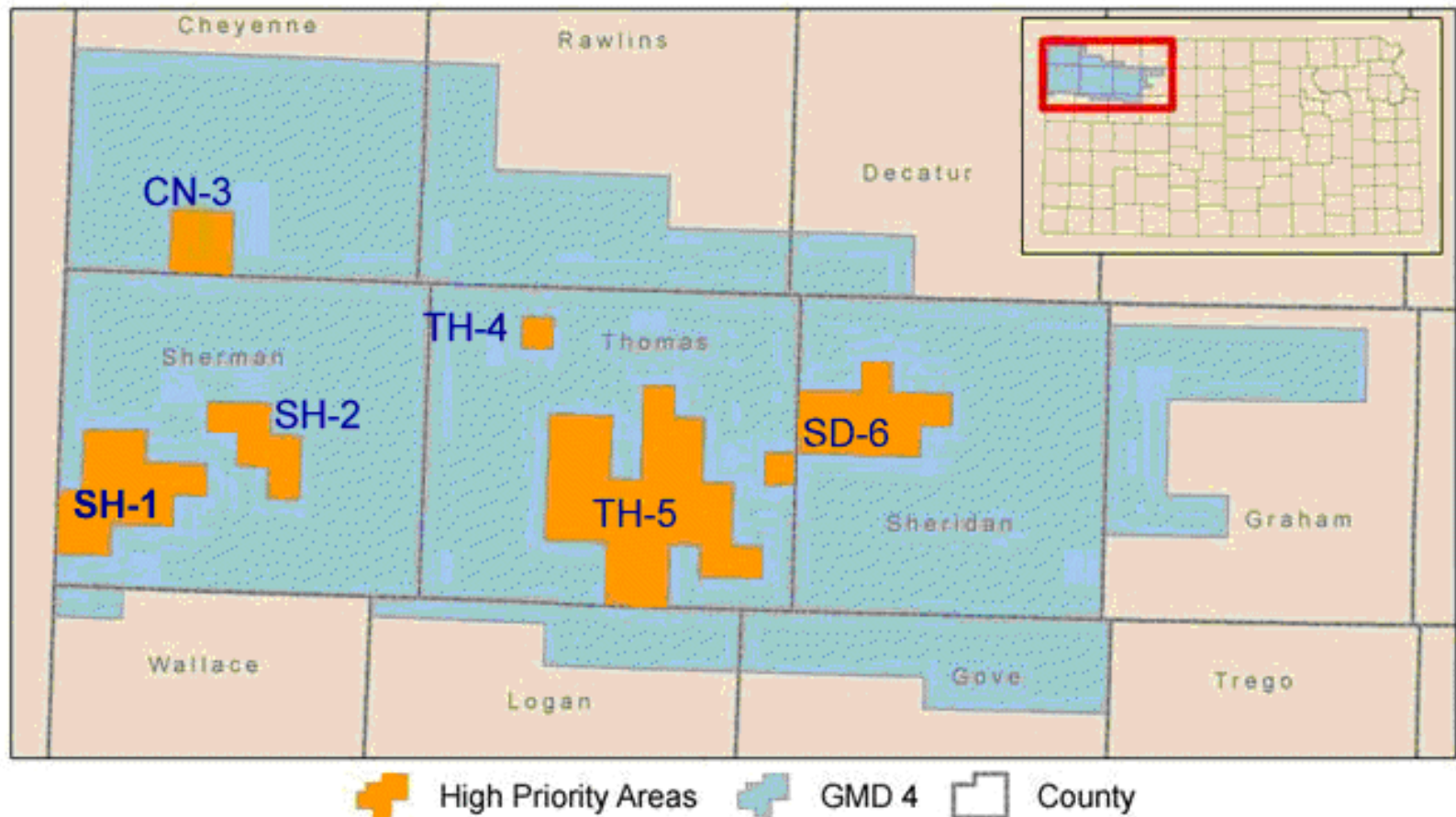
- People are not using the law to protect their rights: the law and the culture do not mesh together well.
- Solution: build a bridge between two indispensable things:
 - The need for local water users to be co-authors of plans to reduce groundwater use; and
 - The need for those plans to be sound and enforceable.

The Genesis of the Plan

- Use of an established groundwater model (NW KS Model, adapted from RRCA Model)
- With assistance of KGS, identification of “High Priority Areas”
- Iterative pumping reduction scenarios
- Assistance by KSU Ag Economists to evaluate those scenarios
- Assistance by DWR re: logistical aspects

Local GMD worked with KGS to develop HPA's

Northwest Kansas Groundwater Management District No. 4 High Priority Areas



Problem: How to Implement a Good Plan?

- GMD4 and DWR met regularly to discuss an IGUCA for SD-6
- Ultimately, GMD4 would not take the IGUCA risk:
 - Outside Litigants?
 - Intervention by the Chief Engineer?
- GMD4 and DWR could not bridge the gap between local plan and central enforcement

The Bridge: Local Enhanced Management Areas ("LEMA's")

- GMD submits plan to Chief Engineer.
- Chief Engineer reviews plan; if it passes muster,
- Proceedings begin for a LEMA.
- Scope of hearings on LEMA is limited to the Plan.
- If approved, plan is enforced by the Chief Engineer. This is what the GMD's wanted.
- Became Law in Spring 2012 (K.S.A. 82a-1041).

Details of SD-6 LEMA

- 20% Reduction in Groundwater Pumping, regardless of priority*
- Flexible use of water allocation* (55 inches over five years)
- Preferential treatment of higher value uses* (municipal, domestic, industrial, recreational)
- Enhanced penalties* (some irrigators wanted over-pumping to be a felony**)
- Temporary (but with expectation of renewal)

Sheridan 6 LEMA, April 2013

- GMD 4 Submitted Plan, Autumn 2012
- Hearing, November 2012:
 - Testimony of KGS
 - Testimony of Agricultural Economists
 - Not significantly challenged at hearing
- Chief Engineer approved the plan by Order
- Plan not challenged under Kansas administrative law. Binding.

Example 2: Time and Takings

- The Takings Problem: perception vs. reality vs. reality of perception; political polarization that builds on reality of perception.
- Takings in non-renewable groundwater
- Politics does not require evidence; law and science do.
- Science to the Rescue?

Kansas High Plains Aquifer Atlas

http://www.kgs.ku.edu/HighPlains/HPA_Atlas/index.html


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Kansas High Plains Aquifer Atlas

This atlas has been created to serve as the primary gateway to the most recent graphical data available for the High Plains aquifer in Kansas. As newer/updated data become available, this atlas will be updated.



Introduction and Navigation

Click here to view instructions for navigating this atlas.

3 images



Aquifer Basics

Basic information about the geology and hydrology of the High Plains aquifer.


18 images



Water Levels

View water levels from predevelopment to current.

9 images



Water Rights and Water Use

12 images



Climate and Climate Trends

18 images



Land Cover and Irrigation

5 images



Index Well Program

The Kansas Geological Survey has installed index wells, one in each of the three western Kansas Groundwater Management Districts, to continuously monitor water levels in the Ogallala-High Plains aquifer.

4 images



Interactive Atlas

Use our interactive atlas to view water levels, saturated thickness, and more.