



**Kansas Water Resources Consulting**

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October 15, 2021

Connie Owen, Director  
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RE: Comments on the draft Kansas Water Plan update

Below and attached are my comments on the draft update. My comments are focused on one section of the draft plan: efforts to conserve and extend the High Plains Aquifer, as this was a focus of my career at KDA-DWR and remains a focus of my current work as a consultant.

In addition to my comments on specific language of the draft Plan in the attached, I would offer the following additional comments:

- Given the importance of LEMAs to conserving and extending the Ogallala, I suggest you expand its description in the main document, pulling from the good description of LEMAs from, e.g., the Upper Ark basin narrative on p. 237, second paragraph. I don't believe the term "program" is a particularly accurate term for LEMAs. See also my suggestions in the attached for an improved narrative to consider for page 24.
- As I have expressed in the past, the RAC recommendations provide several sound goals for addressing the declines of the Ogallala. See for example, the action steps recommended by the Cimarron Advisory Committee, under priority goals 1, 2, and 3. While some of these action steps have implementing strategies and entities to carry them forward, too many of them have none. For example, the document provides the policy recommendation, consistent with RAC input, to encourage LEMA development but provides no plan for what steps will be taken to implement this policy and by whom where the local GMD is uninterested in LEMAs. Many other actions steps have no clear implementing strategies, such as:
  - Providing water users with information on available tools and programs, including but not limited to; LEMAS, WCAs, etc.
  - Building a network of agencies, organizations, researchers, industry and producers to disseminate credible, accurate information on water use, conservation and technology, programs and tools to reduce water use.
  - Developing a baseline of water saving technologies in use and voluntary incentive-based conservation occurring and a method to track participation.
  - Developing funding to support water conservation programs and evaluation of technologies, crop varieties and water management to save water.

- Increasing adoption of water conservation through education by those who are currently using the technology and adaption of a Master Water Manager program.
  - Developing a format and program to allow water users to document current water savings, if not in an approved program.
- While I agree the promotion of greater water conservation in the declining Ogallala is in the interest of both individual waterusers and the overall public good, I believe the overall credibility of the document would be improved by at least briefly recognizing the significant steps taken by producers to upgrade irrigation systems and improve irrigation efficiency.
- As is noted and illustrated in my comments attached, KDA-DWR is doing some excellent work in developing wateruse-climate relationships which can be used to help inform the public on the variability of irrigation pumping from year-to-year. Such climate considerations are also needed to truly assess progress in reducing wateruse. While it is based on DWR's draft work, I have included a compilation of their results for the three western Kansas GMDs.
- In that regard, KDA-DWR's draft climate-wateruse work raises the question of whether irrigators may be reducing wateruse in recent years (see the departures in 2018-2020 between reported wateruse and DWR's predictions, with use being less than predicted). I suggest a study / survey of waterusers to determine what water-saving practices they have been adopting in recent years.
- To increase the usability of the lengthy document, I suggest the final version include more use of bolding and section headings to make its content more scannable.

Feel free to contact me if any of this is unclear.

Sincerely,

A handwritten signature in black ink that reads "David Barfield". The signature is written in a cursive, slightly slanted style.

David Barfield, P.E., M.S., Owner  
Kansas Water Resources Consulting

## Attachment – KWRC Comments on specific content of the draft KWP document

- P. 19 states the following: *“Given that corn may need up to two feet of water per acre per year, the HPA region may require up to 5.58 million acre-feet of water per year to grow corn and other crops. Although this total includes contribution from precipitation and some surface water, groundwater from the HPA has and will continue to be a very significant source of supply for crop production throughout the state.”* With irrigation system improvements, 2 feet is no longer generally not required for corn. In addition, the basis of the 5.58 MAF estimate is not clear; nor does it seem needed. The main point of the paragraph can be simply stated without these questionable numbers.
- P. 19, Why not update Figure 4 and the water level trends narratives to most current data?
- P. 20, The first paragraph on GMD 2/5 safe yield policies is duplicated. What is not stated here is that, esp. in GMD 5, allowing all or significant portions of recharge to be allocated has led to significant reductions in streamflows, creating conflicts in connected groundwater-surface water system, e.g. the Rattlesnake basin.
- P. 21, second paragraph, first sentence, “financial assistance program” should be replaced with a broader term.
- P. 21, second paragraph, The “first in time, first in right” emphasis of the narrative related to the KWAA implies this is the most significant aspect of the law with respect to the conservation of the HPA. This is not that case. Rather the KWAA’s regulation of new water development and existing water use should be emphasized, including its underpinning for LEMAs and WCAs.
- P. 21, under IGUCAs, you could note that none of the existing IGUCAs are in the Ogallala.
- P. 22, LEMAs are not programs; use the description from the Upper Ark section.
- P. 23, “Measuring Success” – you might consider a new title as I don’t see measurement milestones in the section.
- P. 23. While the index well program is worth mentioning, I do not believe you need all three graphs.
- P. 23, in regard to helping to build understand of the variability of groundwater pumping year to year, you might ask DWR for some of its work correlating wateruse and climate factors, which illustrate this well. I have attached a compilation I prepared from DWR’s draft work with results for GMD 1, 3 and 4. As is noted in my letter and the note preceding the graph, this work raises a question on whether waterusers have increased their water conservation in recent years.
- P. 23, I suggest you move the discussion of the well measurement program before the index well program.
- P. 23, Suggestions for the second paragraph: “Despite significant improvements to irrigation system efficiencies and reductions in total pumping over time as waterusers adapt to declining supplies, Although groundwater pumping continues to significantly exceed recharge. Thus the continued life of the Ogallala Aquifer and the livelihoods of those who rely on it ~~absolutely depends-requires on the significant additional~~ reductions in pumping; ~~too many producers still use the full authorized quantities under their water rights. As And because~~ the vast majority of Ogallala water use is irrigation, it is imperative that irrigation use continues to be reduced. This need not mean economic disaster, however. Recent studies have shown that similar the same amount of yields or more can be accomplished with less water if new farming practices are introduced.

- P. 24. Very few waterusers use their full authorized quantity every year as seems to be inferred. The dominant problem is not waterusers' wasteful practices but over-development of the resource.
- P. 24, Here is a suggested markup of your section on LEMAs on page .. "Sheridan County 6 (SD-6) was the first approved LEMA in Kansas. In the first 5-year period, waterusers almost doubled their ~~After initially meeting a water~~ conservation goal of 20%, they almost doubled it, reducing withdrawals by 39%. The LEMA participants was renewed the program for another 5-year cycle in 2018(15). GMD4 requested has since developed another LEMA which was approved in 2018, which regulates nearly their entire district (15), although to a lesser degree than the Sheridan LEMA. The success of GMD4's execution of LEMAs has motivated GMD 1 other GMDs to look towards implement its first LEMA, ing them within their regions as well, with GMD1 initiating a new one for in Wichita County, which was approved in 2021 (16). GMD 1 is currently exploring options for additional LEMAs"

D. Barfield compilation of draft work by KDA-DWR on climate-wateruse relationships for the western Kansas GMDs. Note that the good correlation of average GMD-wide reported wateruse (expressed as inches/acre) and DWR's predictions from their draft regressions of key climate factors (seasonal precipitation and ET) against wateruse from 2006 to 2017 versus the significant departures of the 2018-2020.

