Potential Health Effects of Water Reuse in Kansas
A Health Impact Assessment

April 13, 2018  •  Garden City, Kansas
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Garden City Water Conservation Field Day

ABOUT KHI

• Nonprofit, nonpartisan educational organization based in Topeka.
• Established in 1995 with a multi-year grant by the Kansas Health Foundation and located directly across from Kansas Statehouse in downtown Topeka.
• Committed to convening meaningful conversations around tough topics related to health.
ACKNOWLEDGEMENTS

Project team: Funding provided by:

“Evaluate the sources and potential uses of lower quality water.”
– The Kansas Water Vision
HEALTH FACTORS

The range of personal, social, economic and environmental factors which determine the health status of individuals or populations.

| Physical environment | – e.g., air quality, water quality |
| Built environment    | – e.g., buildings, roads, bike lanes |
| Livelihood           | – e.g., income, employment |
| Social and community | – e.g., social support, family structure |
| Lifestyle            | – e.g., diet, exercise, alcohol and tobacco use |

KEY HIA QUESTION

*How does the proposed project, plan, policy affect* Health outcomes?

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<th>Housing</th>
<th>Air quality</th>
<th>Noise</th>
<th>Safety</th>
<th>Social networks</th>
<th>Nutrition</th>
<th>Parks and natural space</th>
<th>Private goods and services</th>
<th>Public services</th>
<th>Transportation</th>
<th>Livelihood</th>
<th>Water quality</th>
<th>Education</th>
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WATER REUSE IN KANSAS

Water Reuse Purpose

FINDINGS AND RECOMMENDATIONS

- Community sustainability
- Community perception of water quality

- Water quality
- Cost and utility rates
- Guidance and regulations
COMMUNITY PERCEPTION: FINDING & IMPACT

• **Finding**: The community’s perception of water quality could decrease if they were not involved in the decision to reuse water

• **Health Impact**: Lead to an increase in the consumption of beverages other than municipal water

PERCEPTION OF WATER QUALITY

Two major components:

• "Yuck" factor
• Trust
  – In government to make decisions with the public’s best interests in mind
  – In technology to provide consistent quality product
FAVORABILITY OF WATER REUSE BY TYPE

- Irrigate landscaping & parks: 90% Hays, 85% Garden City
- Irrigate non-edible agricultural crops: 78% Hays, 80% Garden City
- Flush toilets in public buildings: 80% Hays, 80% Garden City
- Irrigate golf courses: 80% Hays, 80% Garden City
- Use in industrial processes: 78% Hays, 80% Garden City
- Supply fire hydrants around the city: 83% Hays, 84% Garden City
- Irrigate school grounds: 83% Hays, 77% Garden City
- Supply car wash businesses: 89% Hays, 87% Garden City
- Irrigate crops for human consumption: 87% Hays, 71% Garden City
- Treat & Reuse in the public supply: 43% Hays, 31% Garden City

Source: Community Surveys in Hays and Garden City, 2017.

WATER QUALITY:

- **Finding**: Water quality varies depending on intended end-use and funding
- **Health Impact**: As of December 2016, there have been no outbreaks of illness related to reuse
WATER QUALITY

- With current technology, effluent can be treated to a quality beyond potable water standards
- Some concern exists about disinfectant by-products and contaminants of emerging concern
- Potential risk of system failure

**COSTS: FINDING & IMPACT**

- **Finding**: Costs associated with reuse may or may not increase utility rates to the customer.
- **Health Impact**: If utility rates increase, this could negatively impact financially vulnerable individuals.

**COST AND UTILITY RATES**

- Cost varies greatly; each use has unique cost components.
- Alternative financing mechanisms.
- Impact on utility rates.
GUIDANCE & REGULATIONS: FINDING & IMPACT

• **Finding**: Guidance and regulations to govern the use and treatment of reused water may be needed

• **Health Impact**: Regulations will protect public health

RECOMMENDATIONS

• Guidance and Regulations
• Water quality
• Funding
FINAHL THOUGHTS

• How aware are we of the long term sustainability of our community’s water supply?
• Do we know our options for new water sources if our current supply is reduced or impaired?
• How are we communicating with our community about the value of water?
• What steps have we taken to listen to the community’s perspective about the water they receive?

THANK YOU

Any questions?
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