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

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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:

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Kansas
Department of Health and Environment

Kansas Water Office

Kansas Health Foundation

Kansas Municipal Utilities

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“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

- Housing
- Air quality
- Noise
- Safety
- Social networks
- Nutrition
- Parks and natural space
- Private goods and services
- Public services
- Transportation
- Livelihood
- Water quality
- Education
- Inequities

and lead to health outcomes?
FINDINGS AND RECOMMENDATIONS

- Community sustainability
- Community perception of water quality
- Water quality
- Cost and utility rates
- Guidance and regulations
• **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

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

- Treat & Reuse in the public supply: Hays 31%, Garden City 0%
- Irrigate crops for human consumption: Hays 43%, Garden City 49%
- Supply car wash businesses: Hays 59%, Garden City 71%
- Supply fire hydrants around the city: Hays 77%, Garden City 83%
- Use in industrial processes: Hays 78%, Garden City 79%
- Irrigate school grounds: Hays 75%, Garden City 84%
- Irrigate landscaping & parks: Hays 78%, Garden City 80%
- Irrigate non-edible agricultural crops: Hays 80%, Garden City 85%
- Flush toilets in public buildings: Hays 80%, Garden City 87%
- Irrigate golf courses: Hays 80%, Garden City 89%

Garden City: N = 154
Hays: N = 248
WATER QUALITY: FINDING & IMPACT

• **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
WATER QUALITY

Figure 1-3
Treatment technologies are available to achieve any desired level of water quality

• 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
• 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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