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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:

Kansas Water Office

Kansas Department of Health and Environment

KANSAS MUNICIPAL UTILITIES

Funding provided by:

Kansas Health Foundation

"

"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

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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?

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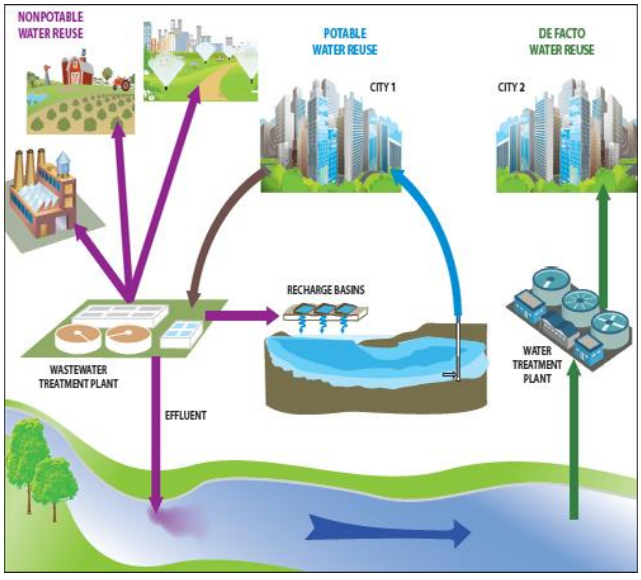
WATER REUSE IN KANSAS

Water Reuse Purpose

Agriculture/Grass · Industrial · Golf Courses · Wetlands · Parks/Public Land · Multiple Use · Other

WATER REUSE



Source: National Academies Press, 2012.

FINDINGS AND RECOMMENDATIONS

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

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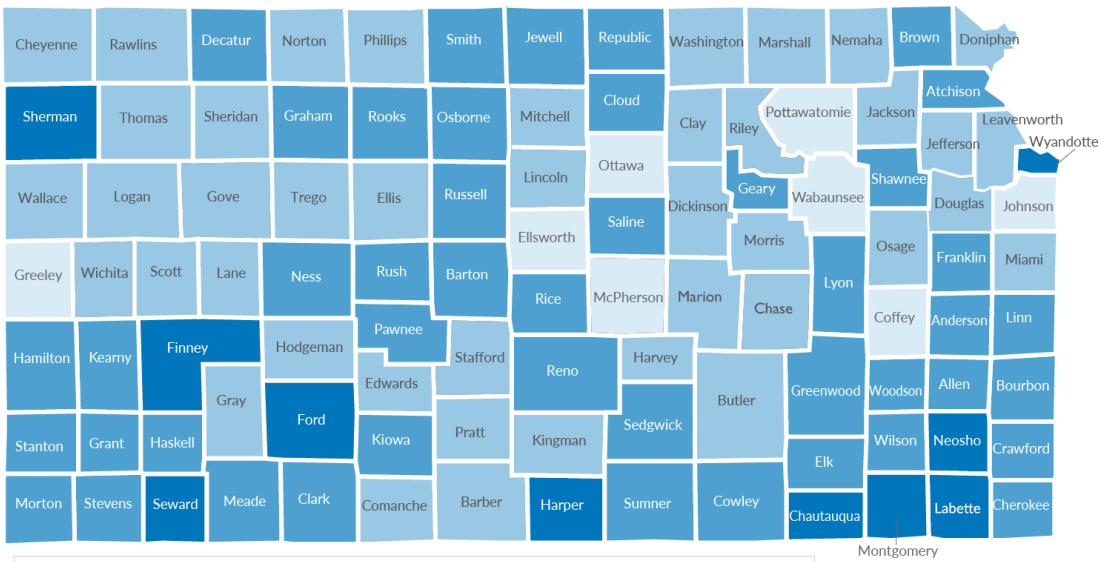
Community Sustainability Index in Kansas



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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

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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

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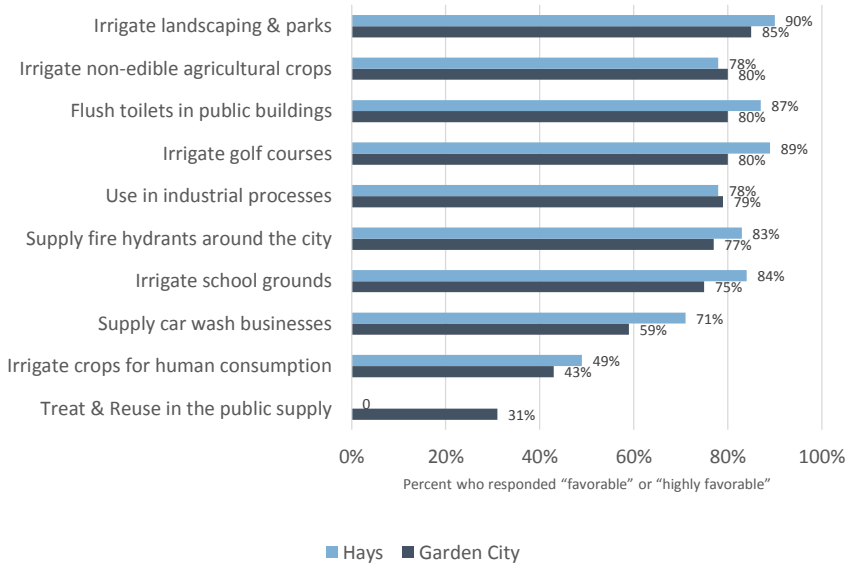
FAVORABILITY OF WATER REUSE BY TYPE



Garden City: N = 154
Hays: N = 248

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

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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

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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

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WATER QUALITY

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

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Source: EPA, 2012 Guidelines for Water Reuse.

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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

FINAL 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?

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THANK YOU

Any questions?

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