Sustainable Water Planning

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Sustainability, What Is It and Why Does It Matter?

• “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”
  -UN Commission on Environment and Development

• “The integration of environmental health, social equity and economic vitality in order to create thriving, healthy, diverse and resilient communities for this generation and generations to come. The practice of sustainability recognizes how these issues are interconnected and requires a systems approach and an acknowledgement of complexity.”
  -UCLA Sustainability Committee

• “The balance of preservation and utilization of natural resources for the long-term benefit of the economy, environment, and the Choctaw culture that allows for equitable multi-generational access to those resources, and their benefits.”
  -Choctaw Nation of Oklahoma
Sustainability, A Cultural Value

- Replacement Rate
  - Whole System Recognition/Thinking
Sustainability, A Cultural Value

- Whole System Recognition/Thinking

- Three-Legged Stool (Three E’s)
  - Acknowledgement of Connection
The Nations’ Essential Water Planning Principles

At the foundation are Unity and Sustainability, which reflect both the values and unique cultural and environmental spirit of the Chickasaw and Choctaw Nations.

**UNITY**

**SUSTAINABILITY**

**URBAN NEEDS**
Protection of Urban and Town and Rural water needs is crucial to maintaining communities and increasing economic development.

**TOWN & RURAL NEEDS**

**DROUGHT DEFENSE**
The region’s variable and unpredictable climate threatens every water use sector without strong Drought Defense plans.

**AGRICULTURE**
Water for Agriculture will not only be protected but expanded through optimal use of previously untapped land, water and human resources.

**TOURISM**
Water for Tourism is the cornerstone of economies in the homeland and must be duly acknowledged in relation to other water needs and priorities.
Water Supply Studies

- Lake Durant & Blue River
  - Bureau of Reclamation Grant Recipient
  - Focus on Firm Yield, Infrastructural Yield, and General Availability/Reliability

- McAlester Water Supply Study
  - Sediment Survey
  - Firm Yield Analysis

- Lake Wister Capacity Assessment
  - Sediment Survey
  - Firm Yield Analysis

- Lake Talawanda Watershed Management
  - Sediment Survey
  - Watershed Management Plan
Disinfection By-Products

- **What are Disinfection By-Products (DBPs)?**
  - By-product of treating raw water to drinkable standards using chlorine
  - Low Alkalinity and High TOC
  - Trihalomethanes (THMs), Haloacetic Acids (HAA), Bromates, and Chlorites are the most common

- **Why are DBPs an issue?**
  - Carcinogenic
  - EPA’s Stage 2 DBPR put strict MCLs on DBPs
Disinfection By-Products Studies

• Assisted the City of Antlers, Talihina, Wilburton, PVIA, and SLWA
  ▪ Preliminary engineering reports with recommendation and operational changes to assist with addressing the issue.

• Currently assisting Atoka RWD#4, Pushmataha RWD #3, and City of Idabel with preliminary engineering and recommendations.
Drought Contingency Planning

- Infrastructural Vulnerability Assessment of Broken Bow Water Treatment Plant
  - Development of an implementable plan to address drought vulnerabilities
  - Development of a strategy for Broken Bow and Consecutive Connections
  - Starting December 2021
Regionalization Projects

- Sardis Lake Regionalization
  - Worked with seven (7) communities
    - PVIA, Talihina, Wilburton, SLWA, Spiro, McCurtain RWD #6 & #8

- Findings
  - Centralized Plant
  - Interconnections
  - Autonomy
  - Drought and Supply Resiliency
Water Economics Studies

- Blue River Economics Study
  - Evaluation of Usages
  - Economic Impacts
  - Overall framework for future work

- Kiamichi River Study
  - Slated for late 2022
  - Evaluation of Usages
  - Economic Impacts
  - Refinement of evaluation framework
Instream Flows/Sustainable Flows

- “The quantity, quality, and timing of flows required to sustain freshwater ecosystems and those that depend on them”

- Instream flows are meant to limit potential environmental disruptions, not to enhance the flow
Instreams/Sustainable Flow Determinations

- Setting Goals
- Technical Evaluation Requirements
  - Hydrology & Hydraulics
  - Biology
  - Geomorphology/Physical Processes
  - Water Quality
  - Economic Impacts
- Stakeholder Involvement
- Scientific Models
- Adaptive Management
• Sustainable water management encourages economic growth, preserves ecological integrity, and increases social equity

• Sustainable water planning initiatives can vary

• Choctaw Nation is committed to promoting sustainable water management practices
How

- Continued tribal, state, and local partnering
- Legislative support to fund additional economic and technical studies
- Continued community and stakeholder support
Now

• Legislative action to support the implementation of sustainable practices

• Accurate water balance determinations to make informed decisions

• Education on sustainability, what it is and what it means
“Progress is impossible without change, and those who cannot change their minds cannot change anything.” - George Bernard Shaw