# Looking Far into the Future: *Minnesota Water Sustainability Framework*



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## Clean Water, Land & Legacy Amendment

In 2008, Minnesota voters passed the Clean Water, Land, and Legacy Amendment to the MN Constitution

- 0.38% sales tax increase, dedicated funds
- Created Clean Water Fund (1/3) and 3 others
- \$85M/yr for 25 yrs

## What is the Framework?

- Inspired by the Clean Water, Land, & Legacy Amendment
- A 25-year plan to protect, conserve, and enhance the quantity and quality of the state's groundwater and surface water
- An approach to manage the state's water resources that is
  - Sustainable
  - Comprehensive
  - Integrated



## **Sustainability**

Sustainable water use does not harm ecosystems, degrade water quality, or compromise the ability of future generations to meet their own needs. 2009 Minn. Laws. Ch. 172, Art. 2 § 30 at 45-46



## A Collaborative Approach

### UNIVERSITY OF MINNESOTA

- DNR
- MDA
- MDH
- MPCA
- EQB
- BWSR

- WDs
- WMOs
- SWCDs
- NGOs
- Counties & Cities
- Federal Agencies

# Approach



## **Technical Team White Papers**

- Water Use in Minnesota
- Water Supply in Minnesota
- Water Quality in Minnesota
- Policy
- Education
- Valuation
- Agriculture

- Ecosystem Services
- Domestic
- Energy/Manufacturing
- Rec/Cultural/Spiritual

All background info available at wrc.umn.edu

## Framework

Framed 90 specific needs

- Collected under 10 "Big" Issues
- Contained in 3 categories of sustainability

Correspond to National Issues



## Issues/needs

### Environmental

- Sustainable water supply
- Excess nutrients & conventional pollutants
- Contaminants of emerging concern
- Land-water connection
- Ecological & hydrologic integrity
- Water-energy "nexus"

### Economic

- Water pricing
- Infrastructure needs

## Social

- Citizen engagement
  & education
- •Governance & institutions



### Issue: Sustainable, Clean Water Supply

#### Strategy 1:

Determine state water balance

 Rec: accelerate county geologic atlases and aquifer characterization mapping From USGS Circular 1139

 Rec: hydrologic monitoring network determine flows, storage, recharge rates of major aquifers; and develop model of water balance

### Issue: Sustainable, Clean Water Supply

#### Strategy 1, cont:

Revise water withdrawal permit process that accounts for surface/groundwater interactions and ecological needs

 Rec: electronic permit screening tool; cumulative withdrawal effects; have permits with minimum base flow that is protective of ecological needs for given hydrologic regime





## Issue: Excess Nutrients & other Conventional Pollutants

### Strategy 1:

- Develop statewide guidance for nutrient enrichment management plans that are:
  - implemented at watershed level
  - adaptive
  - address all aspects of excess nutrients from all sources
  - includes sediments, pesticides, bacteria

## Issue: Excess Nutrients & other Conventional Pollutants

#### Rec:

- Require that all TMDL assessments also have Implementation Plans for pollutant reduction, and *require that these plans be implemented* for all sources
  - Accelerate assessments and implementation plans
  - Require compliance

## ssue: Excess Nutrients

& other Conventional Pollutants

### Strategy 2:

Accelerate improvements in water quality and provide equity in solutions to meeting water quality standards – *include agriculture* in solution

 Rec: Establish farmer-led, performance-based approach to meeting water quality standards in agricultural areas

### **Issue: Contaminants of Emerging Concern**

**Strategy 1:** Move upstream of hundreds of potentially harmful, trace level contaminants entering from different sources

Strategy 2: Manage the CECs already in water

## **Issue: Land-water connection**

#### Strategy 1:

Integrate water and land sustainability planning

- Rec: incorporate water sustainability in land use permitting processes
- **Rec:** Increase compliance capacity for current regulations
- **Rec:** monitor for effectiveness of land practices

## Issue: Ecological and Hydrologic Integrity



**Strategy 1:** Protect critical aquatic ecosystems

### Issue: Ecological and Hydrologic Integrity

**Strategy 2:** Prevent introductions and reduce impacts of aquatic invasive species

Strategy 3: Keep more water on the land where it falls, and slow it down

**Strategy 4:** maximize placement of marginal lands in conservation protection

## Issue: Water-Energy "Nexus"

**Problem:** It takes energy to clean water; it takes water to make energy

### Strategy 1:

Quantify all water - energy relationships and evaluate energy policy for water sustainability



## Issue: Public Water Infrastructure

#### Strategy 2:

Develop long-term strategy for funding new, expanded, and updated infrastructure

• Rec: Determine strategic options for funding; implement



## **Issue: Citizen Engagement & Education**

#### Strategy 1:

Citizens hold a water ethic and act on it

### Issue: Governance & Institutions

#### Strategy 1:

Align water, land use, energy policies to ensure water sustainability

## Summary: Essential Top 5

#### Protect and Restore Water Quantity and Quality

- Revise permitting, model water balance
- Require implementation of pollutant reductions and equity in solution
- Address future contaminants

#### Address Interconnected Nature of Water

- Integrate water and land use planning
- Align water, energy, land, transportation policies for sustainability

Minnesota Water Sustainability Framework



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