

WATER SUPPLY PLANNING AND MANAGEMENT: SUSTAINABILITY

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IDNR/OWR

ISWS

ISGS

**GOAL OF WATER SUPPLY
PLANNING:**

**TO PROVIDE
ADEQUATE SUPPLIES
OF
CLEAN WATER
FOR ALL USERS
AT REASONABLE COST**

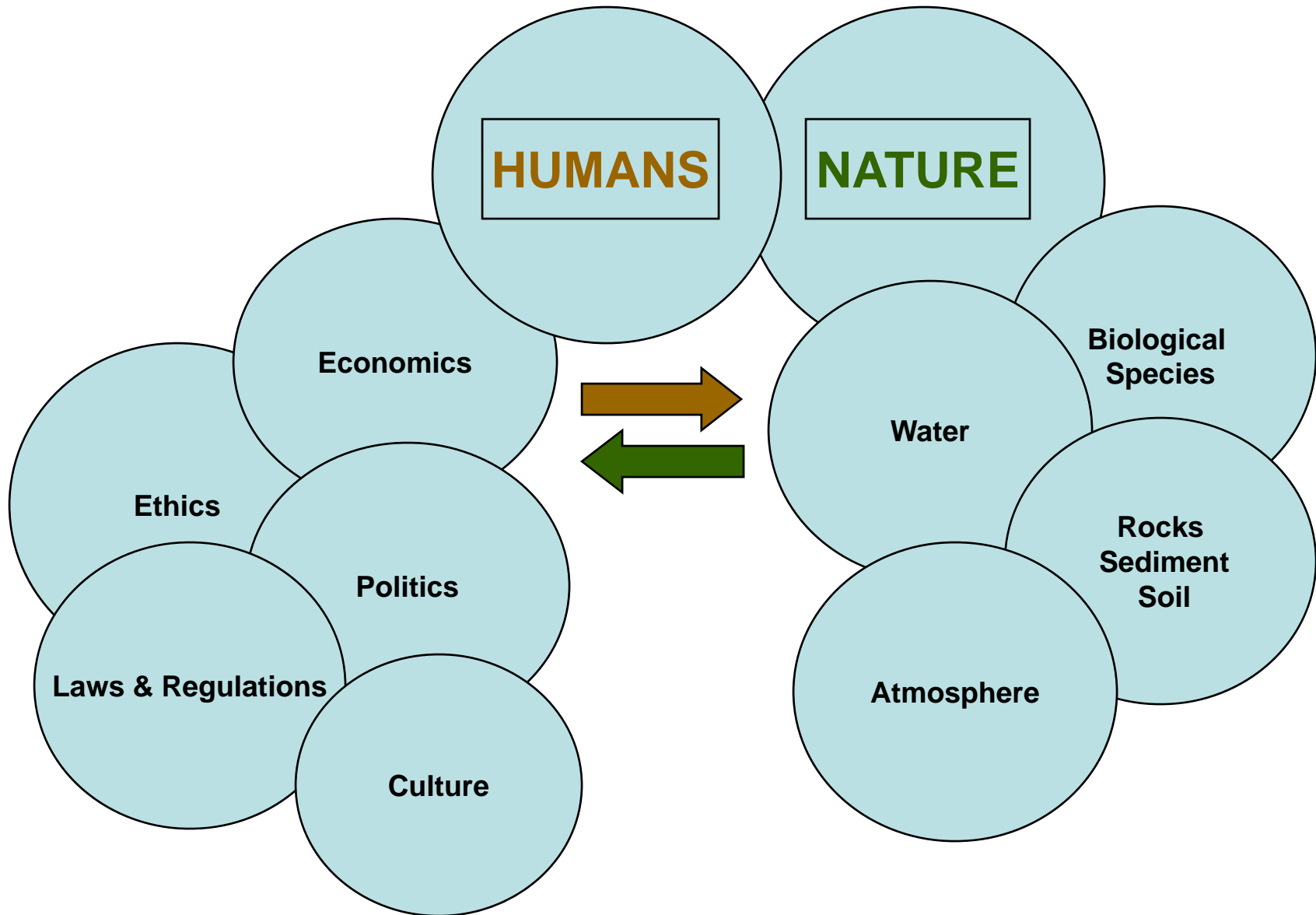
HOW TO MANAGE WATER SUPPLIES?

- **Business as usual?**
- **Change?**
- **Previously not had a process and structure for regional planning and management**
- **Governor established an administrative process and structure**
- **RWSPC needs develop a **structure/framework** for making management recommendations**

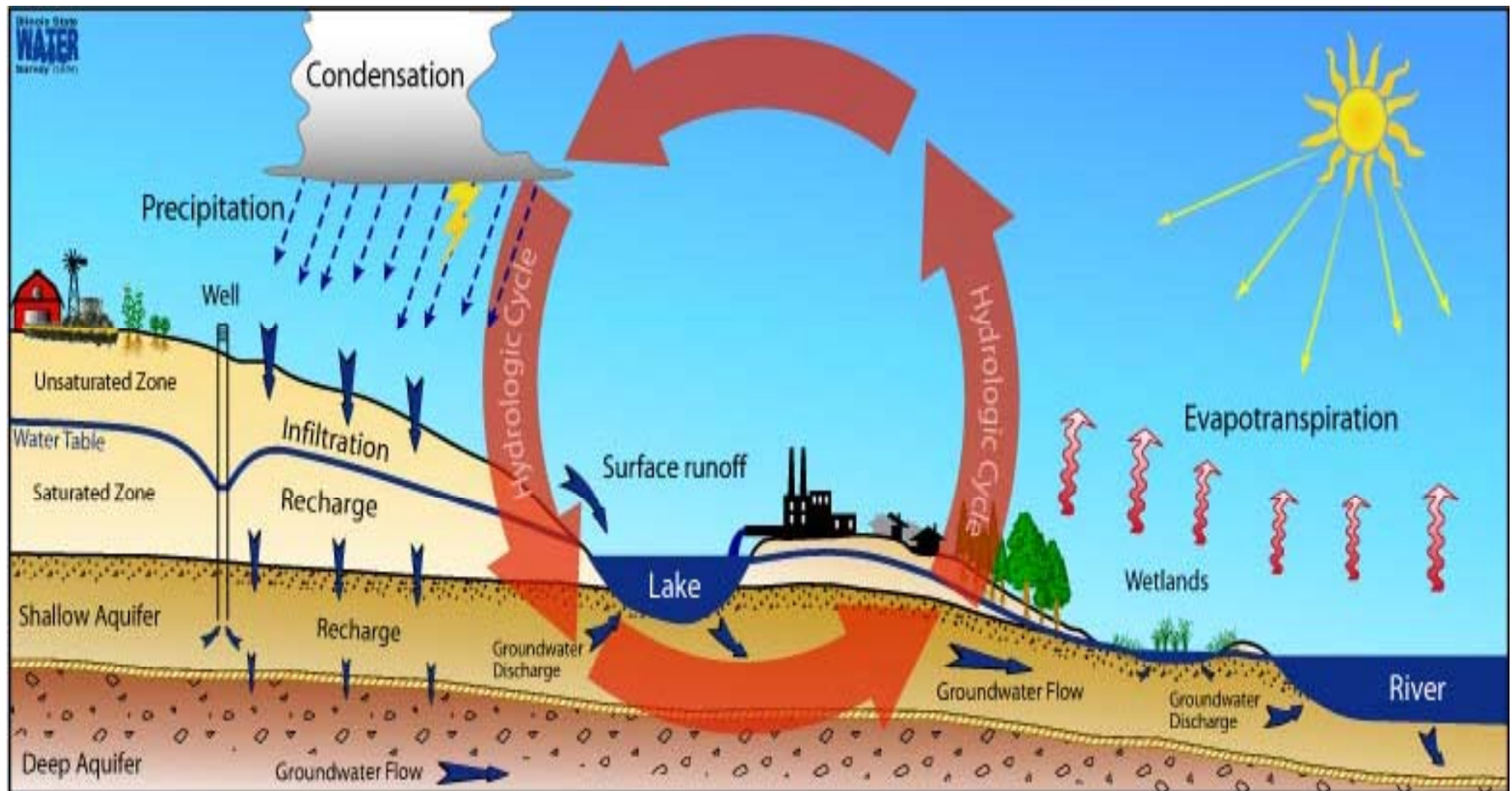
HOW TO MANAGE WATER SUPPLIES? (contd.)

- **Many pieces to the jigsaw puzzle (supply and demand data; diverse interests; management concepts)**
- **RWSPC identify all the pieces of the jigsaw puzzle and the big picture**

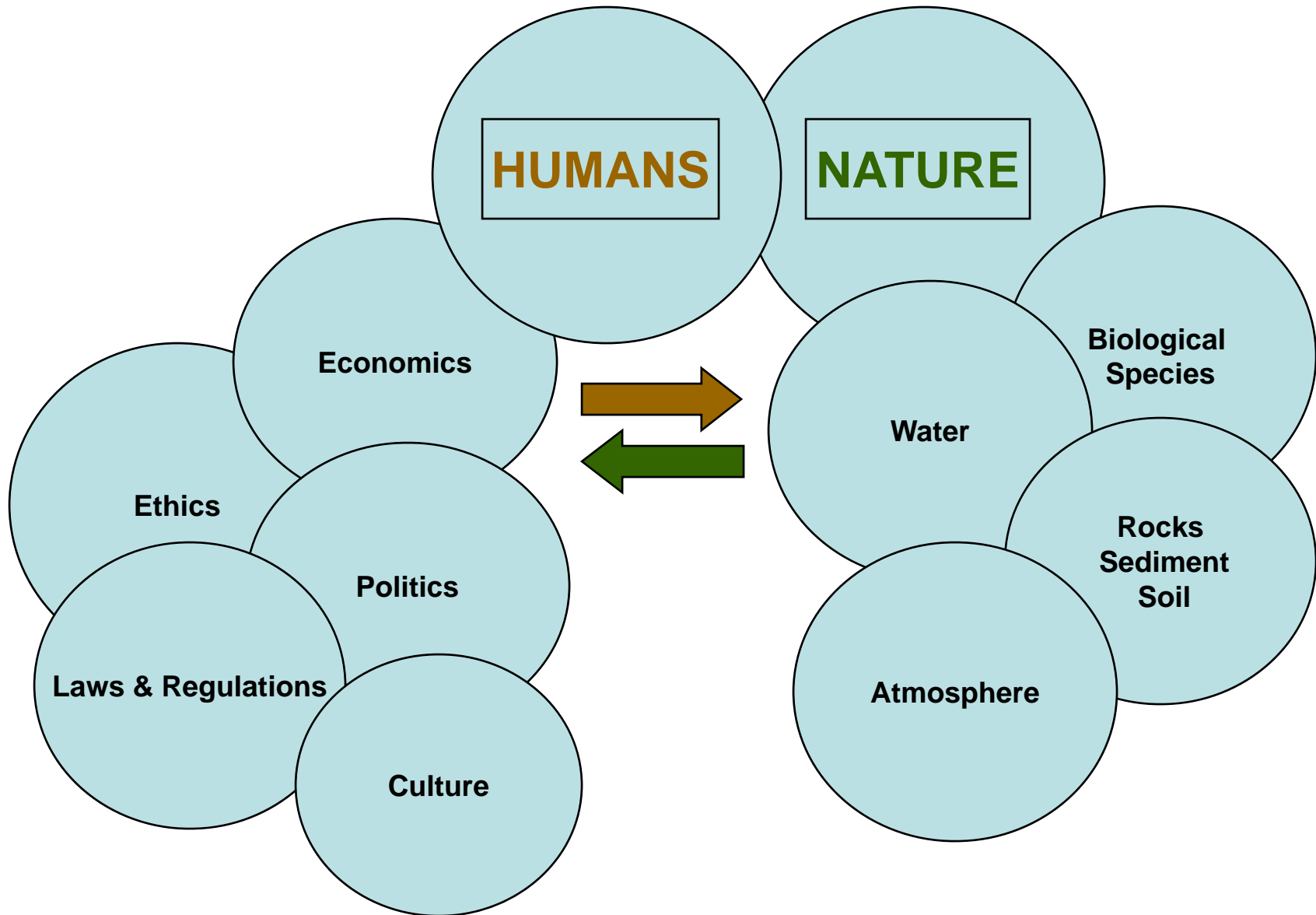
WATER SUPPLY PLANNING AND MANAGEMENT



THE WATER CYCLE: CLIMATE, SURFACE WATER, and GROUNDWATER ARE ALL LINKED



WATER SUPPLY PLANNING AND MANAGEMENT



SUSTAINABILITY

**“meeting current needs
without compromising the
opportunities of future
generations to meet their
needs”**

World Commission, 1987

SUSTAINABILITY RECOGNIZES:

- **Present and future generations**
- **The value of water supply**
- **Shared responsibilities**
- **Limits of water**
- **Stewardship**
- **Maintenance of integrity of societal and ecological systems**
- **Adaptability to deal with uncertainties and risks**
- **Similar to “reasonable use” and “no adverse impacts”?**

NON-SUSTAINABLE MANAGEMENT INCLUDES:

- **Inadequate consideration of future generations**
- **Undue recognition of the value and limits of water**
- **Singular decision making**
- **Unreasonable use, adverse impacts, and high costs**
- **Imbalance between meeting societal and ecosystem needs**
- **Inability to deal with droughts etc.**

Does A Reservoir In Illinois Offer A Sustainable Water Supply?



Does A Reservoir In Illinois Offer A Sustainable Water Supply?

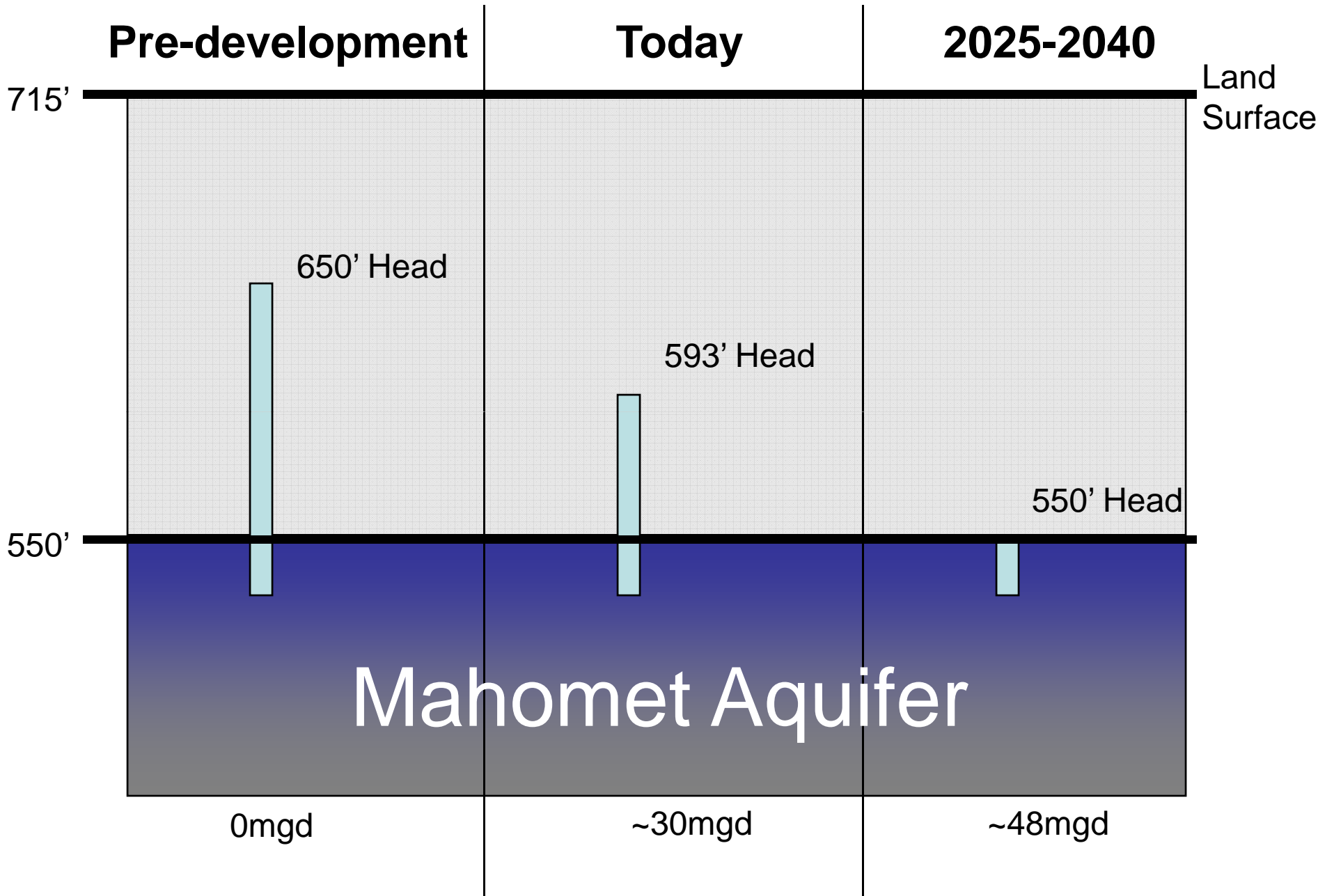
- **May be, may be not!**
- **Depends on definition of sustainability**
- **Critical considerations: time and costs**
- **Sustainable until water storage capacity is no longer adequate to meet needs – droughts or increasing demand**
- **Sustainable until costs of dredging, enlarging the reservoir, or preventing sedimentation become too high**

ARE LAKE MICHIGAN ALLOCATIONS SUSTAINABLE?

- **Yes, if a long-term increase in precipitation does not cause higher diverted runoff and leakage to eat into the allocations**
- **Yes, if a long-term decrease in precipitation and evaporation doesn't cause Lake Michigan water level to drop drastically**

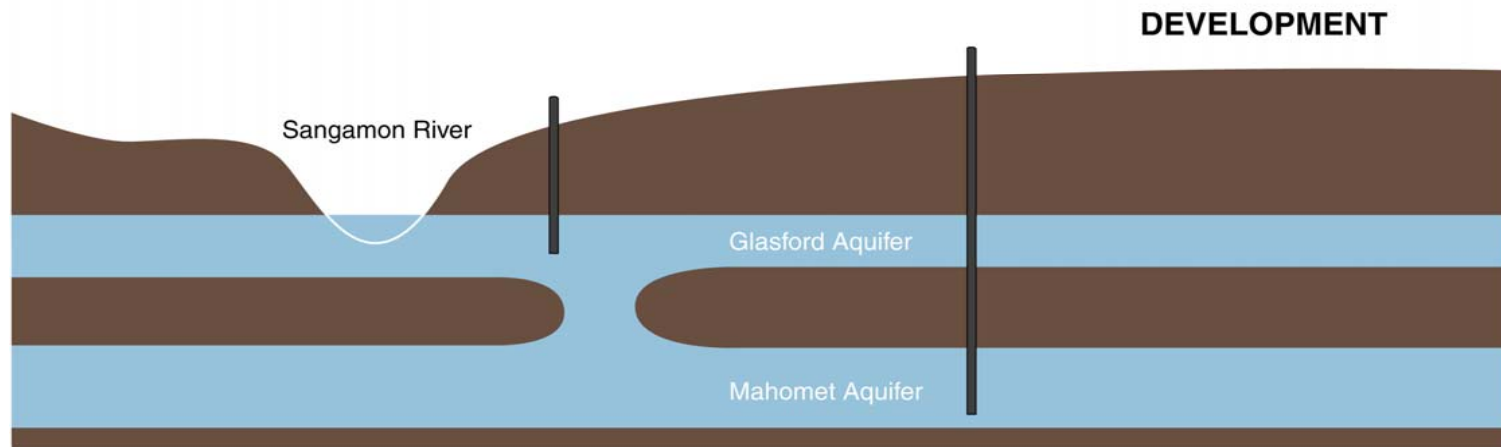
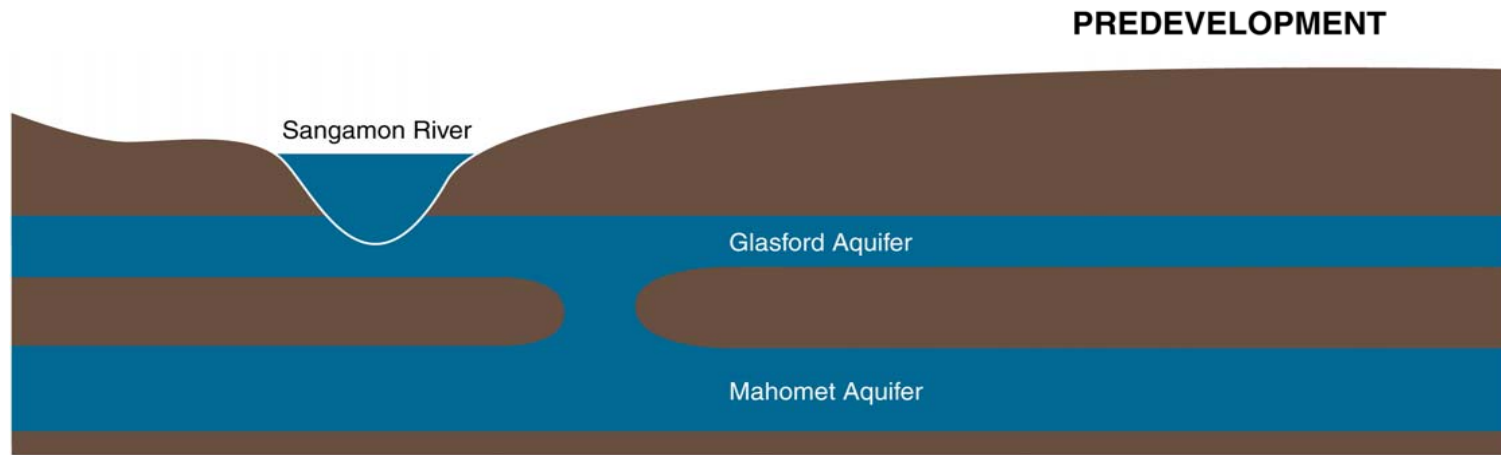
IS WITHDRAWING LARGE AMOUNTS OF WATER FROM AQUIFERS SUSTAINABLE?

- **Safe yield: withdrawals = recharge**
- **BUT withdrawals can increase to, e.g., reduce streamflow; dewater aquifers; cause existing wells to go dry; cause deterioration in water quality**
- **Safe yield is not necessary sustainable**
- **Critical considerations: acceptable impacts and costs**



Decline in artesian head west of Champaign

WHAT IMPACTS ARE ACCEPTABLE? WHAT CONSTITUTES REASONABLE USE? WHAT IS SUSTAINABLE?



SUSTAINABILITY THRESHOLDS?

- Critical levels for managing water supply operations, e.g, Q7/10
- Sustainable operations above thresholds
- Non-sustainable operations below thresholds
- Thresholds can be set by society based on acceptable/unacceptable impacts, costs, etc
- Strategies can be implemented to ensure compliance with thresholds
- Can you implement additional thresholds within existing laws, regulations and property rights?
- Can you achieve “sustainability” without changing laws, regulations and/or property rights?

Regional Water Supply Planning Committee

- **Identify a framework within which you can pull all the pieces together and set goals, strategies etc.**
- **Do you wish to use sustainability as a framework for making management recommendations?**
- **If yes, you probably need to clearly define sustainability.**
- **If not sustainability, will you adopt another framework?**
- **Identify the resources you wish to protect, preserve and enhance – society, economy, and ecosystems.**
- **Identify the impacts and costs that will be socially acceptable.**

THANK YOU!