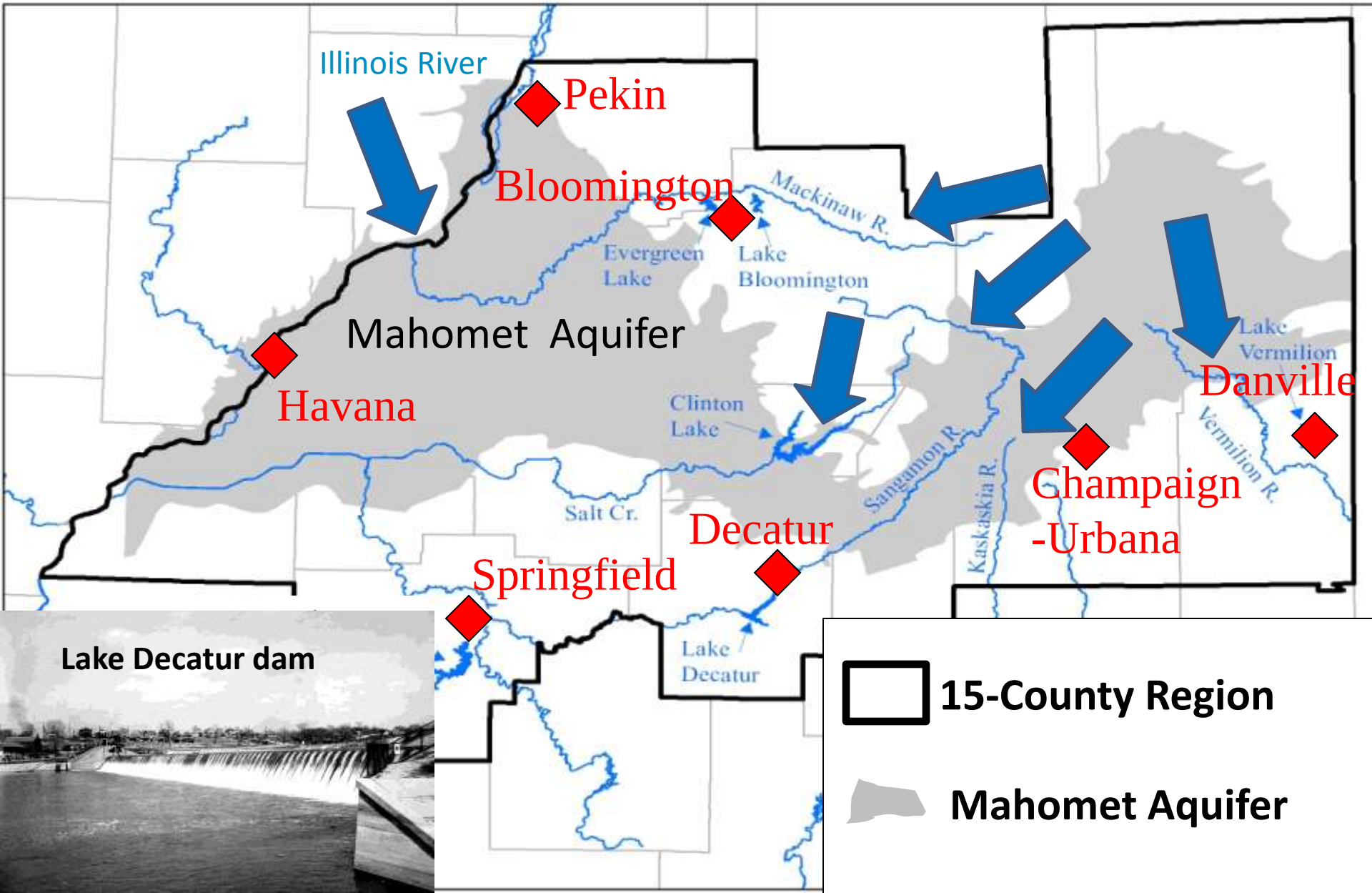
WATER SUPPLY SUSTAINABILITY:

EAST-CENTRAL ILLINOIS REGIONAL WATER SUPPLY PLAN PERSPECTIVE

Mahomet Aquifer Consortium

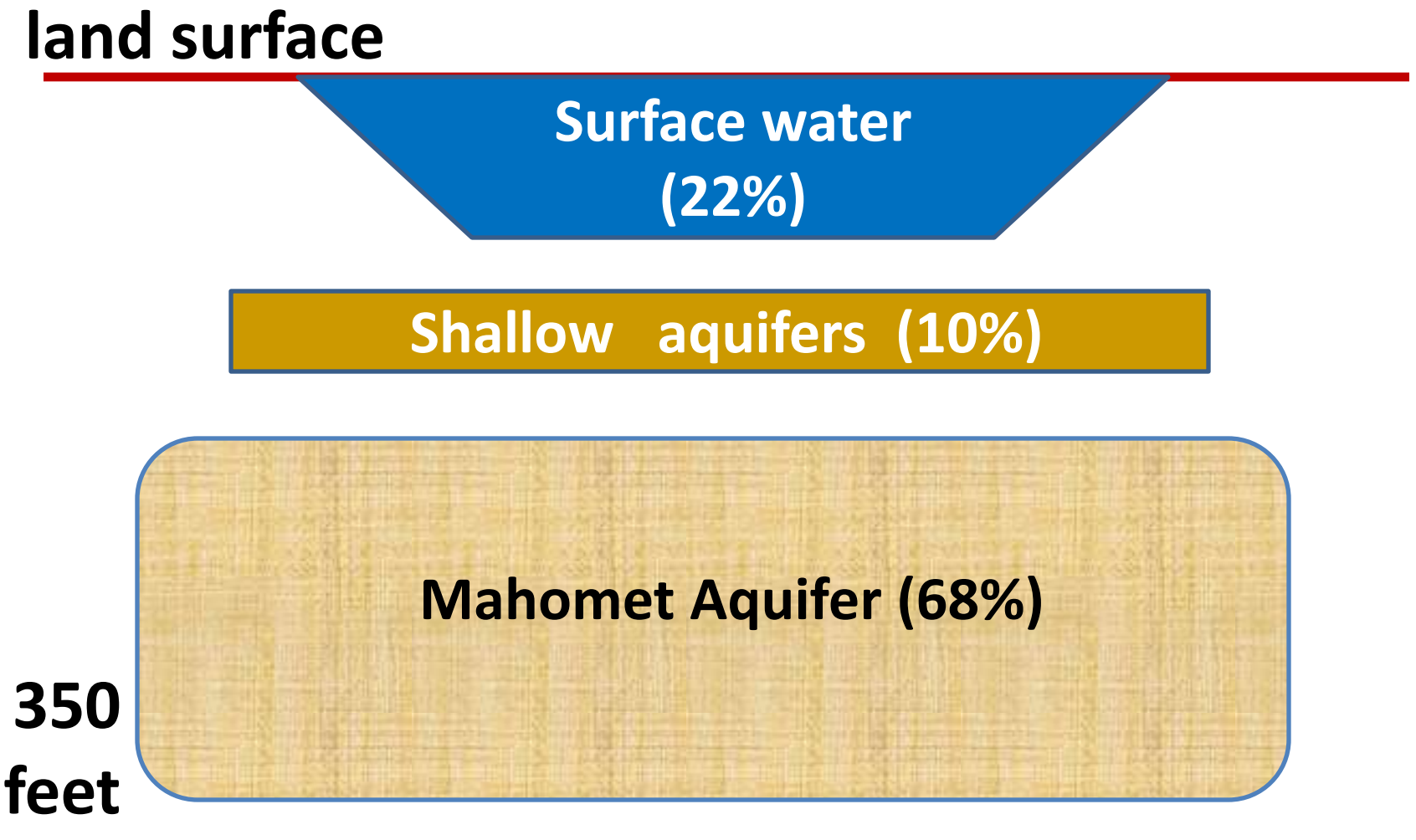
Derek Winstanley

EAST-CENTRAL ILLINOIS WATER PLANNING AREA



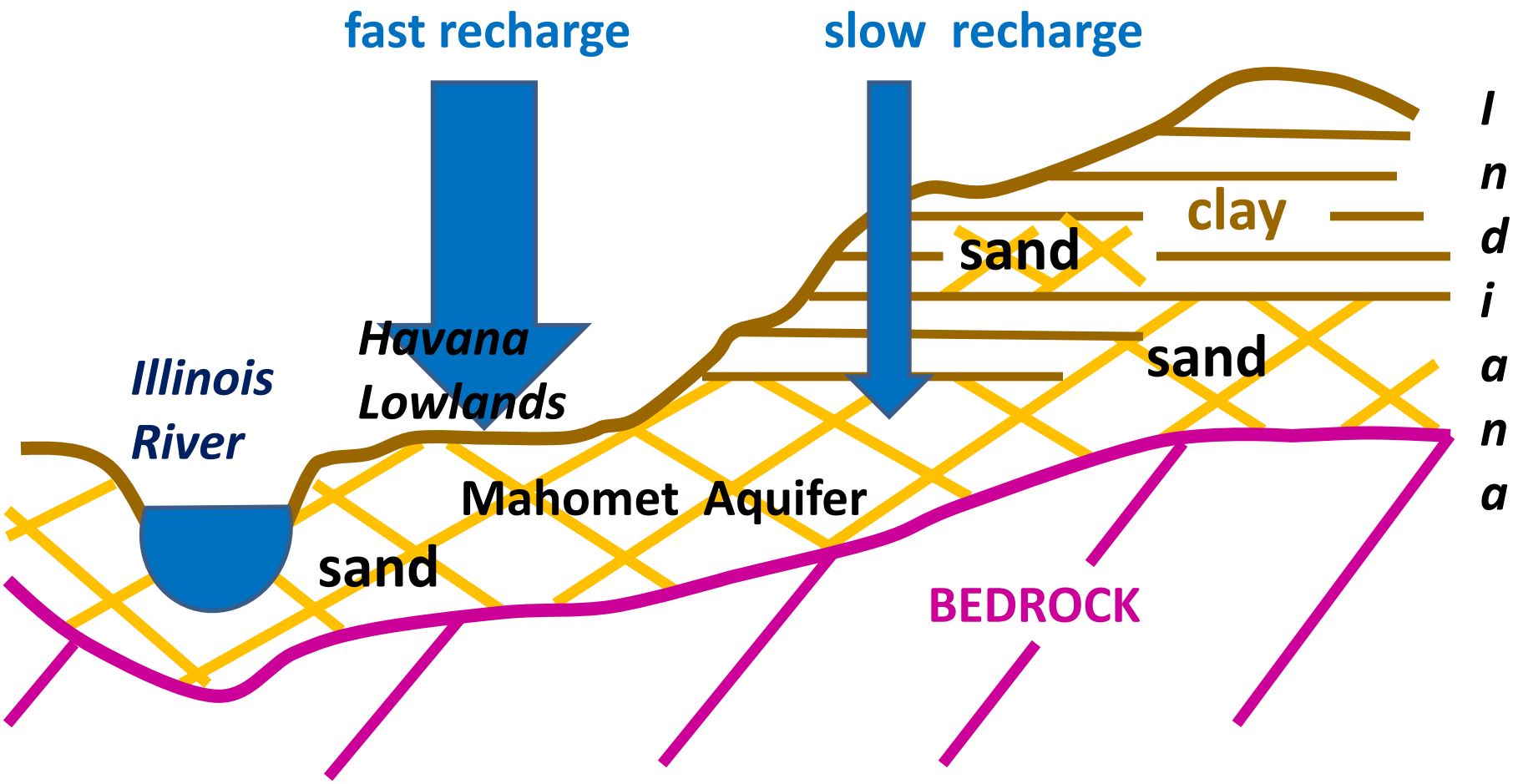
Public - Bradley Uken (Chair)
Water Authorities - Morris Bell
Environmental - Dwain Berggren
Counties - Evelyn Neavear
Agriculture - Jeff Smith
Small Business - Robert Betzelberger
Soil and Water - Shannon Allen
Rural Water Districts - Frank Dunmire
Industries - Mark Sheppard
Electric Generating - Jay Henry
Water Utilities - Steve Wegman
Municipalities - William Smith

WHERE DOES OUR WATER COME FROM?



EFFECTS OF GLACIERS

Slice through upper 300 feet of geology



HOW MUCH WATER DO WE USE?

- **Total water use is expressed in millions of gallons per day (mgd)**

- **On average, East-Central Illinois uses:**

  200 mgd for homes, factories, schools and offices;

  140 mgd for irrigation and agriculture

  1,315 mgd for electric power plants are mainly recycled

- **Each person uses about 70 – 90 gallons per day at home**

WATER USE BY COUNTY (mgd)
(excluding power generation)

COUNTY	2005	2050
Cass	13	20-24
Champaign	35	46-57
DeWitt	2	3
Ford	5	9-12
Iroquois	6	8-10
Logan	6	8-10
Macon	38	51-68
Mason	94	111-125

COUNTY	2005	2050
McLean	18	26-32
Menard	3	4
Piatt	3	4-5
Sangamon	30	38-47
Tazewell	71	112-149
Vermillion	13	18-20
Woodford	4	6
TOTAL	341	464-572
	+36	to 68%

Water use increases about 20% during droughts

VISION

- In the years ahead, others will view East-Central Illinois as a model for regional water supply planning and management. This is because future generations will inherit a legacy of responsible water supply planning and management that will allow them to continue to be good stewards and managers, rather than inheriting diminished resources and chronic problems.

SUSTAINABLE WATER SUPPLIES

FUTURE GENERATIONS

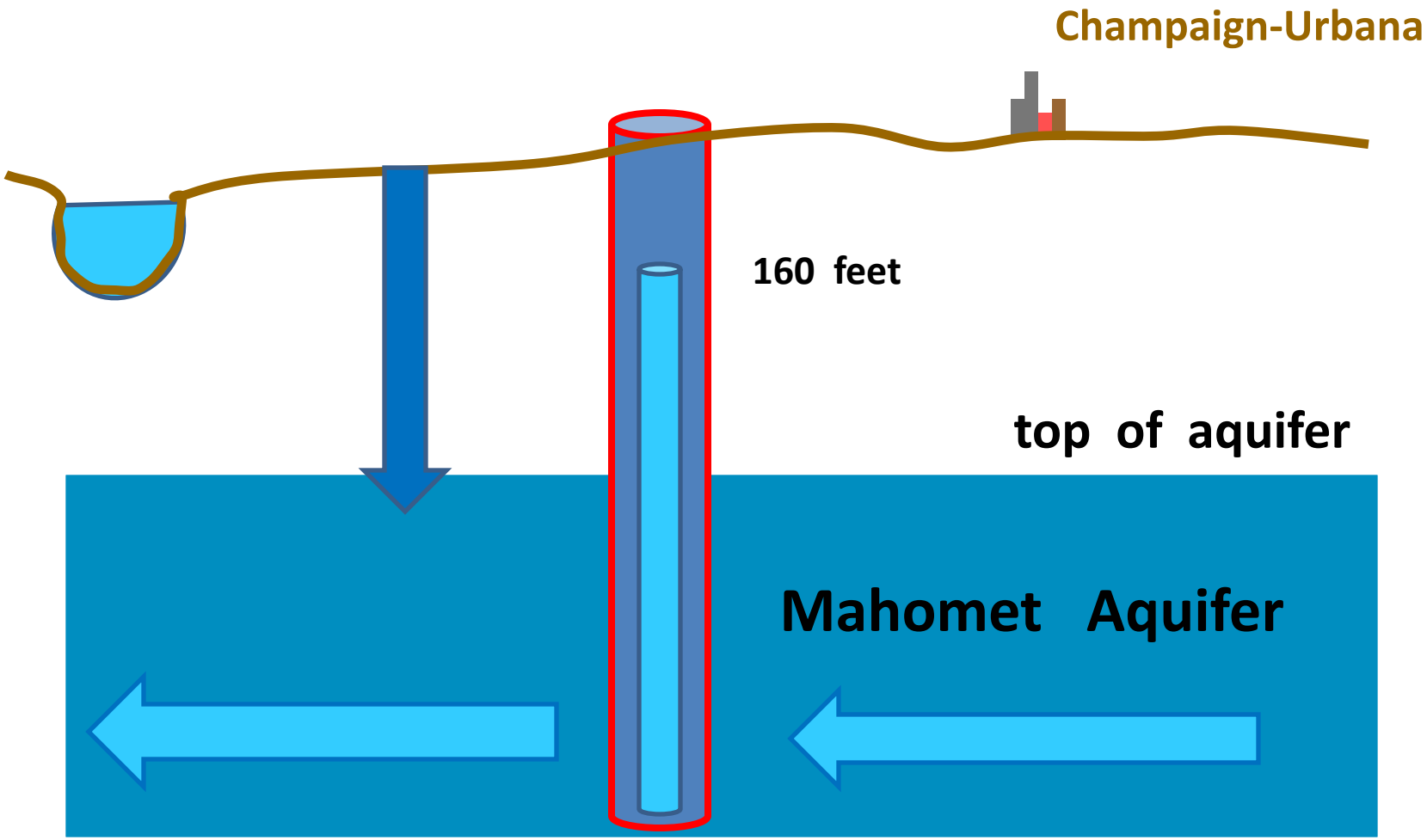
DEFINITION OF SUSTAINABLE WATER SUPPLIES

- **"the provision of dependable and adequate supplies of clean water to meet the demands of all users "in a manner that can be maintained for an indefinite time without causing unacceptable environmental, economic, or social costs""**
  (USGS, 1999)

- **"The amount of water that can be withdrawn in a sustainable manner is not a fixed amount; it is a function of local conditions and the value judgments of stakeholders."**

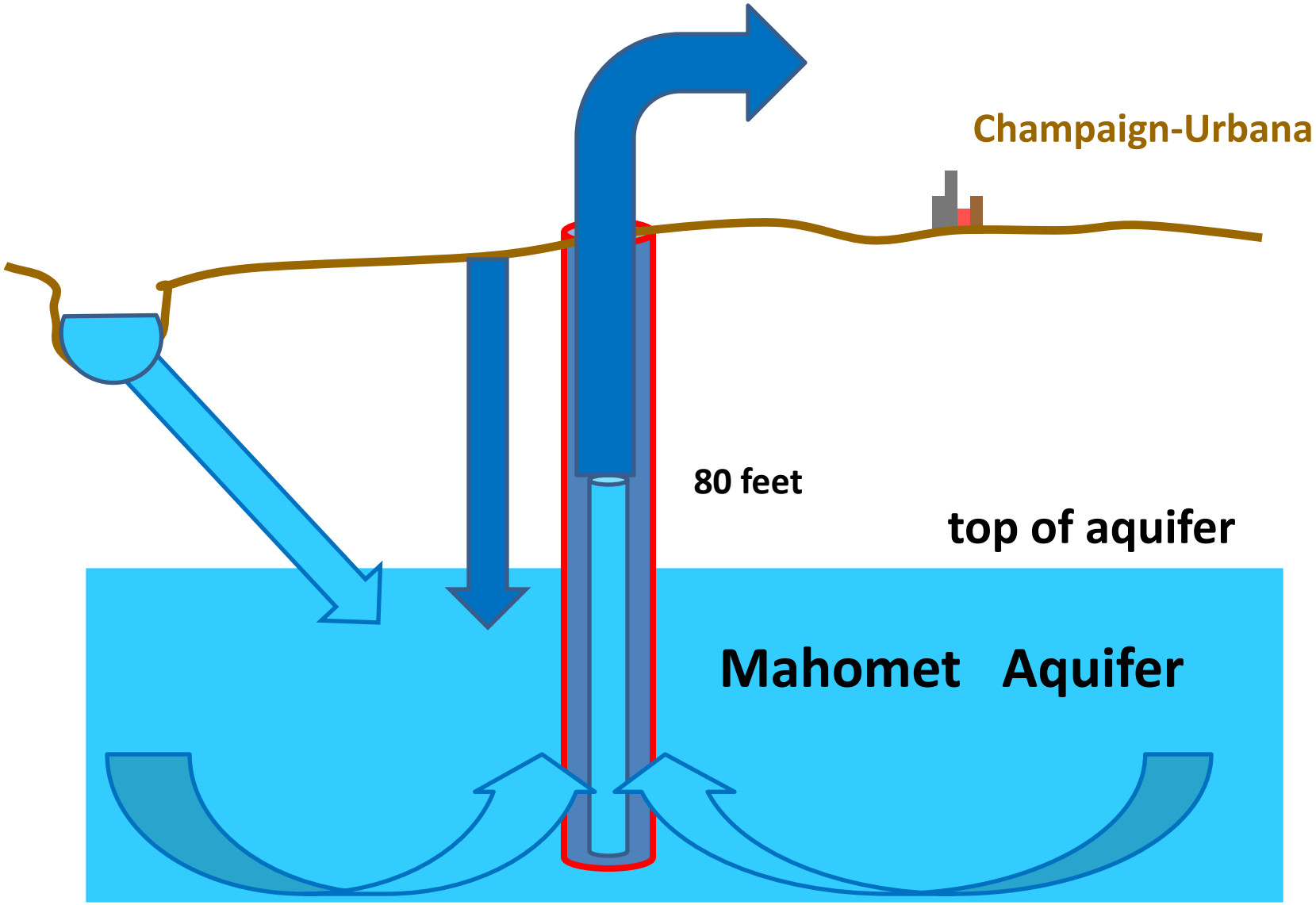
WATER LEVEL BEFORE PUMPING

160 feet above top of aquifer

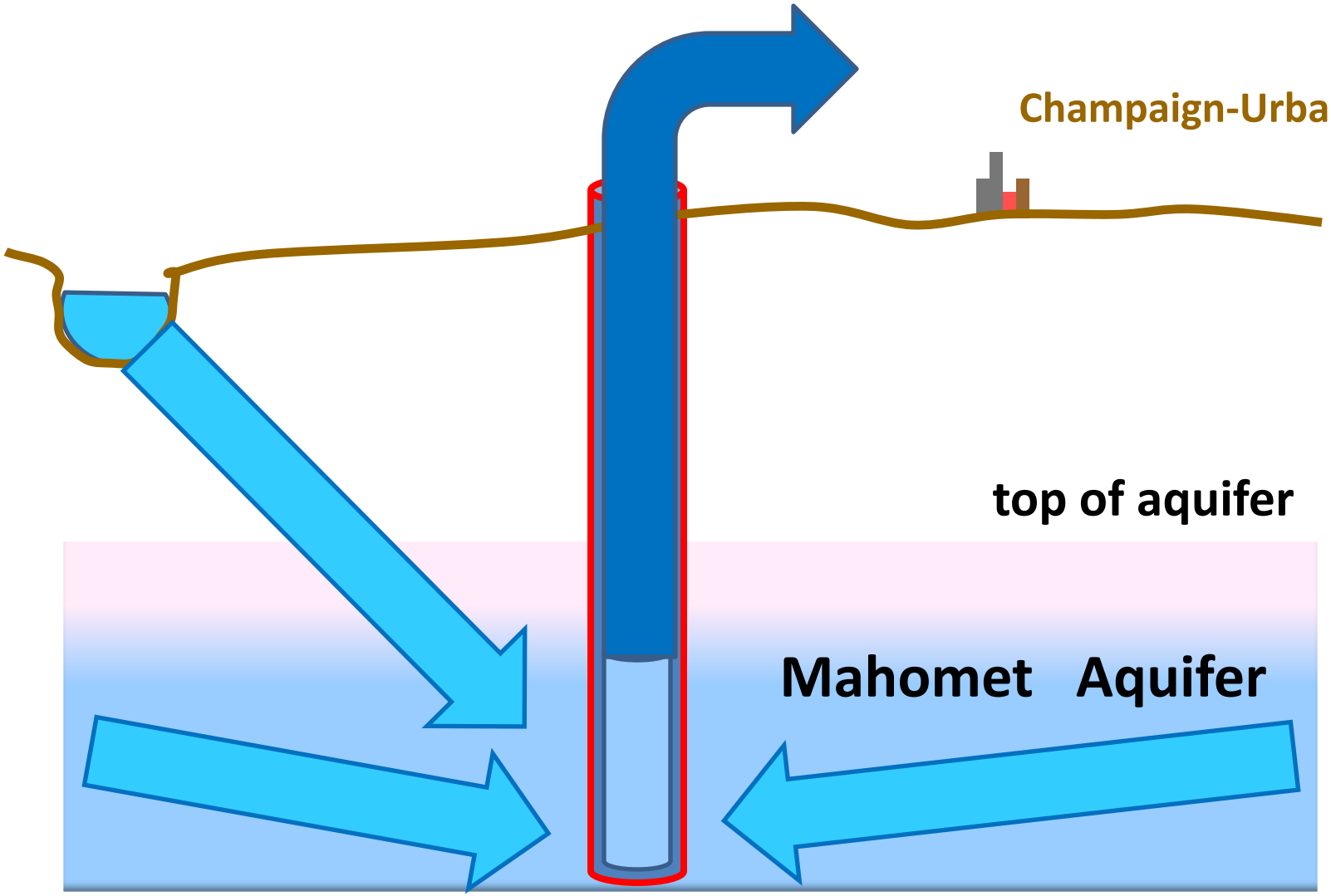


WATER LEVEL IN 2005

80 feet above top of aquifer



DON'T ALLOW WATER LEVEL TO DROP BELOW TOP OF AQUIFER



STEPS TO SUSTAINABILITY

- Install monitoring wells.
- Maintain water level in wells above top of aquifer and protect aquatic ecosystems.
- Space future wells further apart.

STEPS TO SUSTAINABILITY (2)

"efficiencies of water withdrawal, treatment, distribution and use, and use of water from alternative sources (such as reused water, detained stormwater, and conjunctive use of surface water and groundwater) be increased."

"Examine water pricing policies and practices."

WATER LEVEL IN 2005

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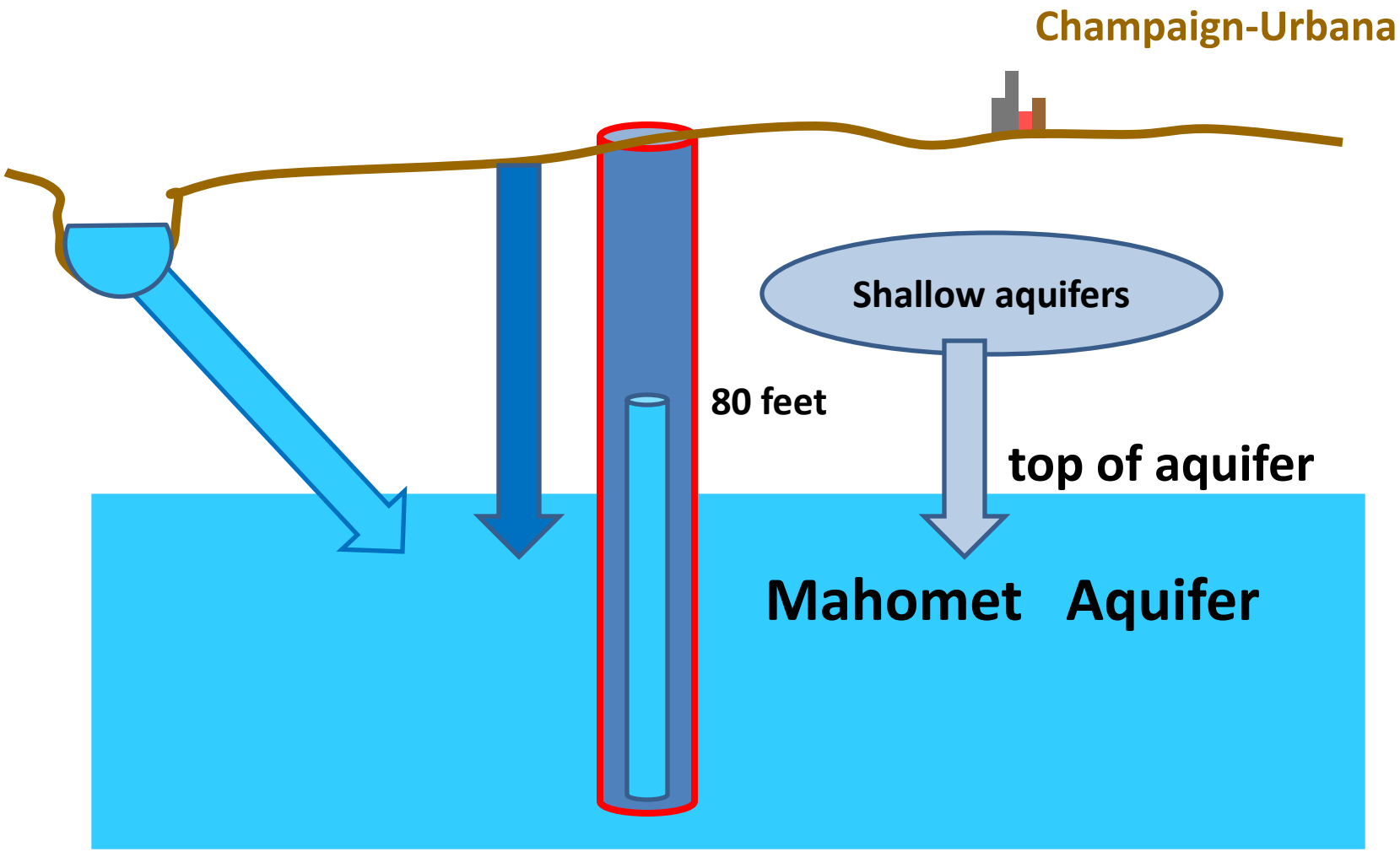

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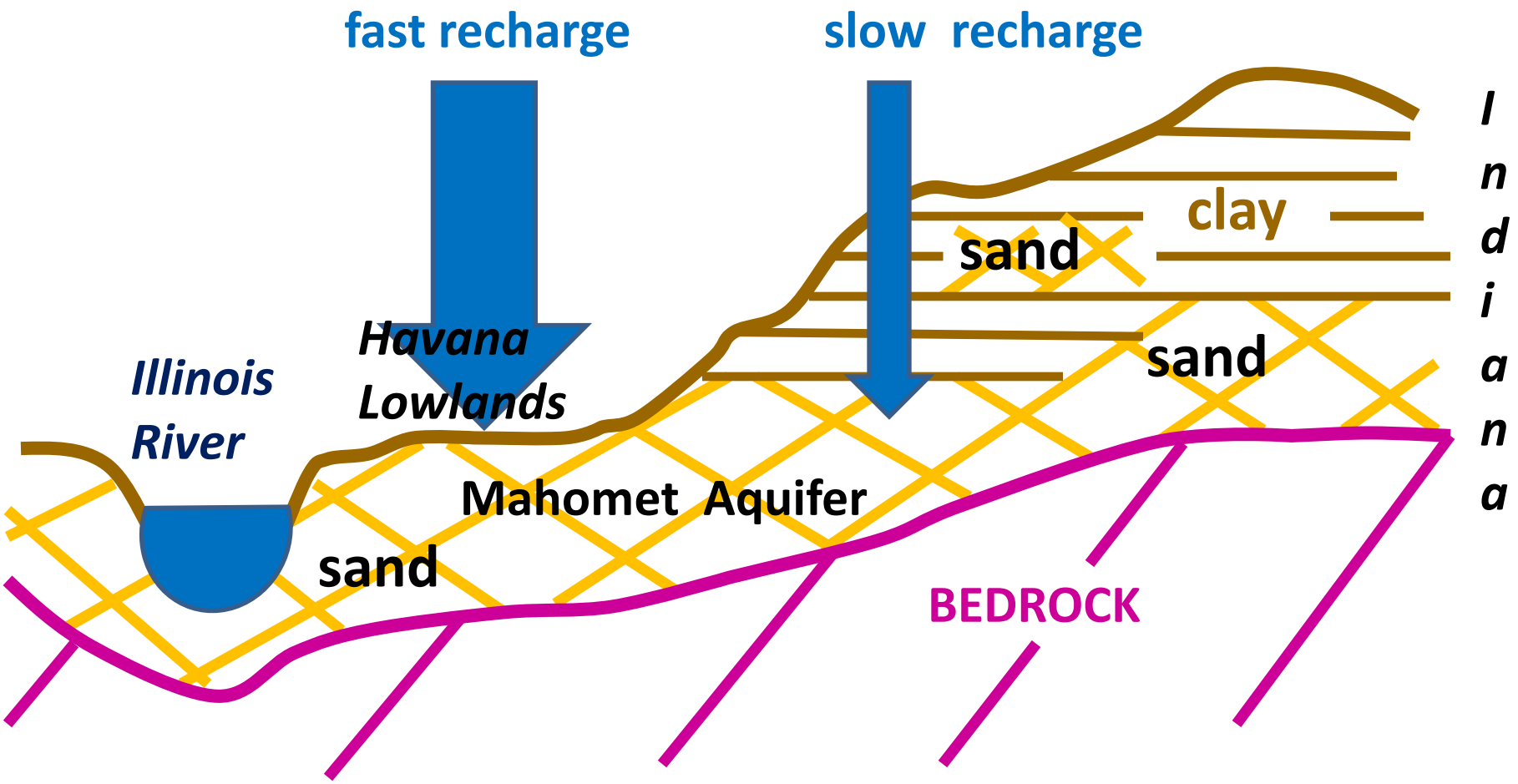
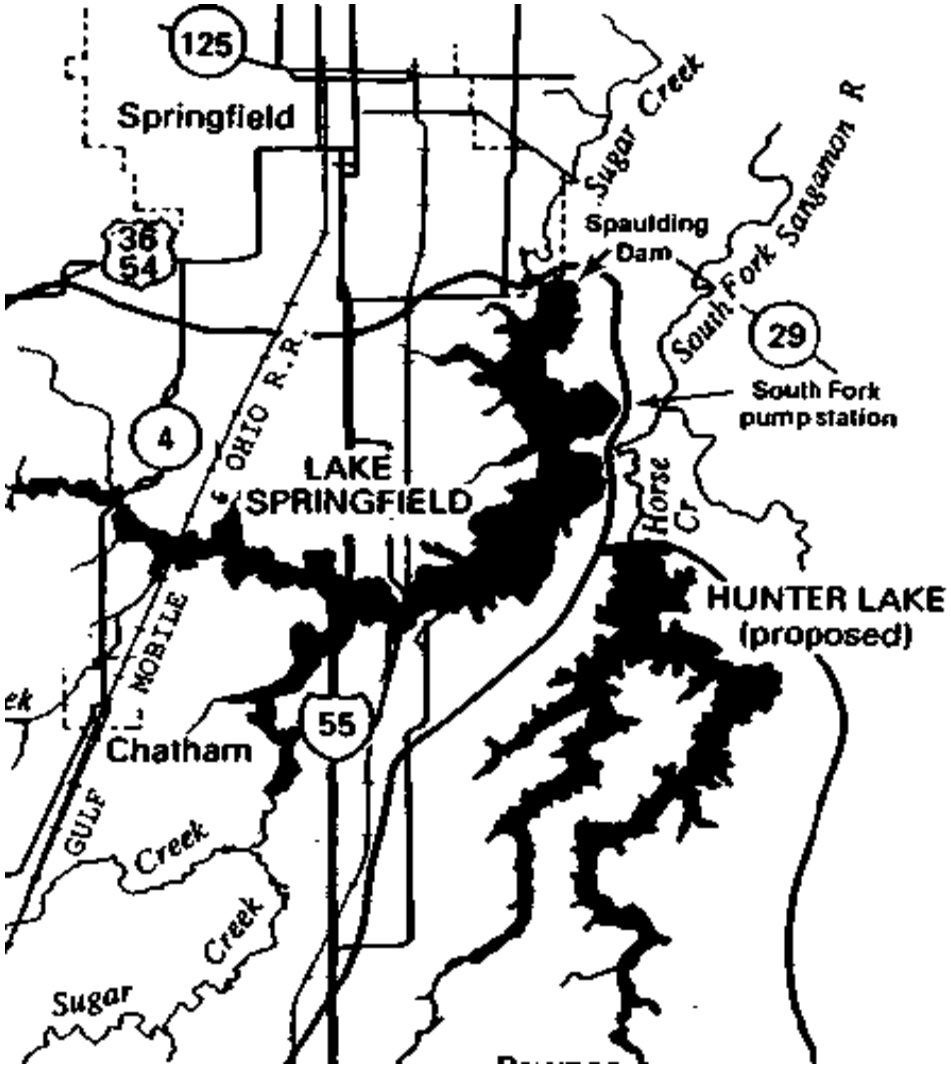
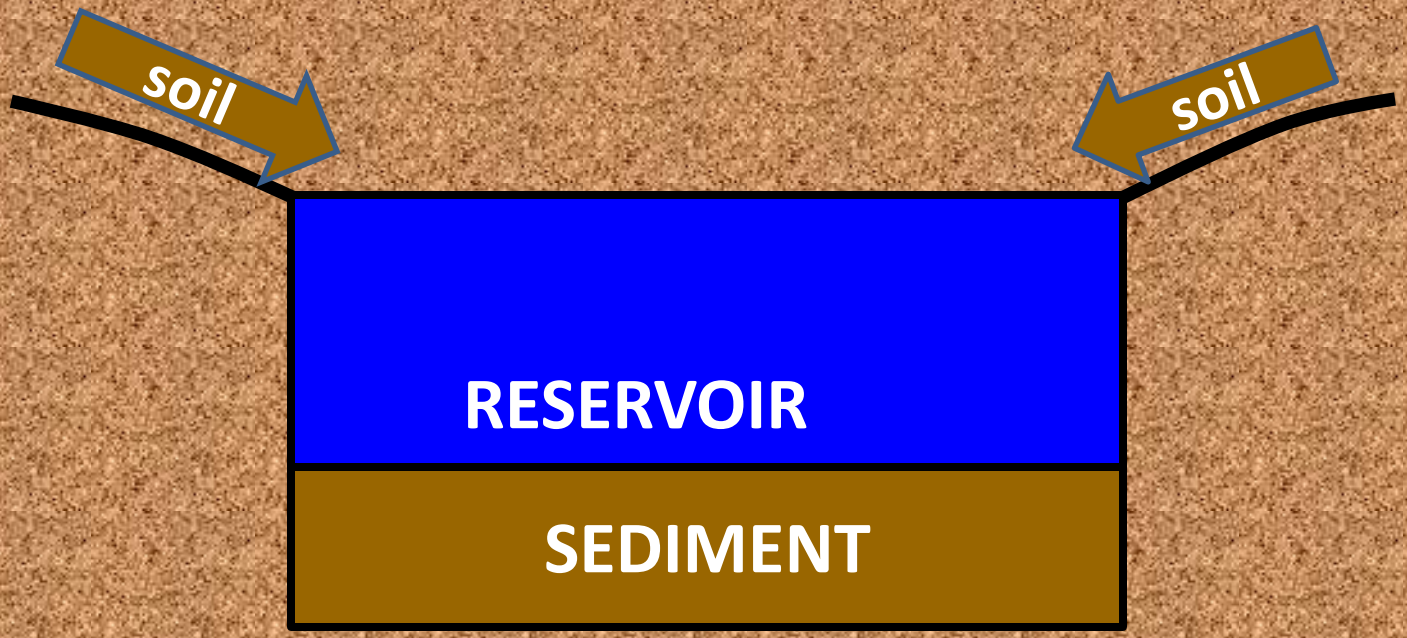


RESERVOIRS


125
Springfield
Sugar Creek
Spaulding Dam
South Fork Sangamon R
36
54
29
South Fork pump station
4
OHIO R.R.
LAKE SPRINGFIELD
Horse Cr
HUNTER LAKE (proposed)
MOBILE
55
Chatham
GULF
Creek
Creek
Sugar


Lake Decatur

SEDIMENTATION RESULTS IN REDUCED WATER STORAGE CAPACITY IN RESERVOIRS



DROUGHT PREPAREDNESS

Water supplies should be managed to provide dependable and adequate supplies of water during, at a minimum, recurrence of the multi-year droughts-of-record, similar to those that occurred in the 1930s and 1950s.

A 90 percent confidence level should be used for yields.

WEIGHING BENEFITS AND COSTS

BENEFITS:

- *Reliable supplies*
- *Adequate supplies*
- *Clean water*

COSTS:

- *$$$$ (Financial)*
- *Environmental*

SUSTAINABLE WATER SUPPLIES

maximize benefits

minimize costs

THANK YOU!

Mahomet Aquifer Consortium
Regional Water Supply Planning Committee
Illinois State Water Survey
Illinois State Geological Survey

http://www.rwspc.org/
http://www.mahometaquiferconsortium.org/
http://isws.illinois.edu/