

Managing a Global Resource: UIC Campus Water Management Practices

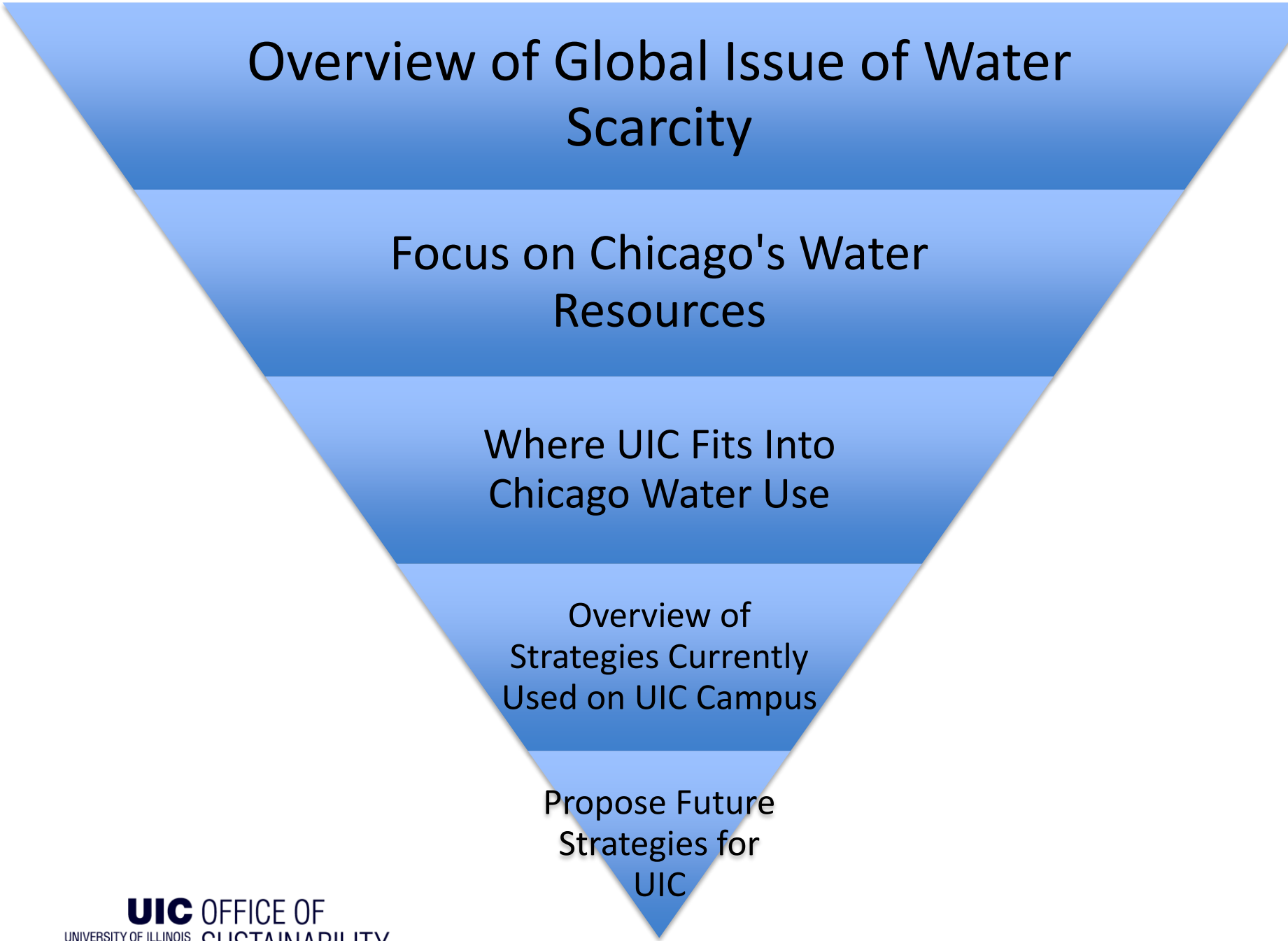
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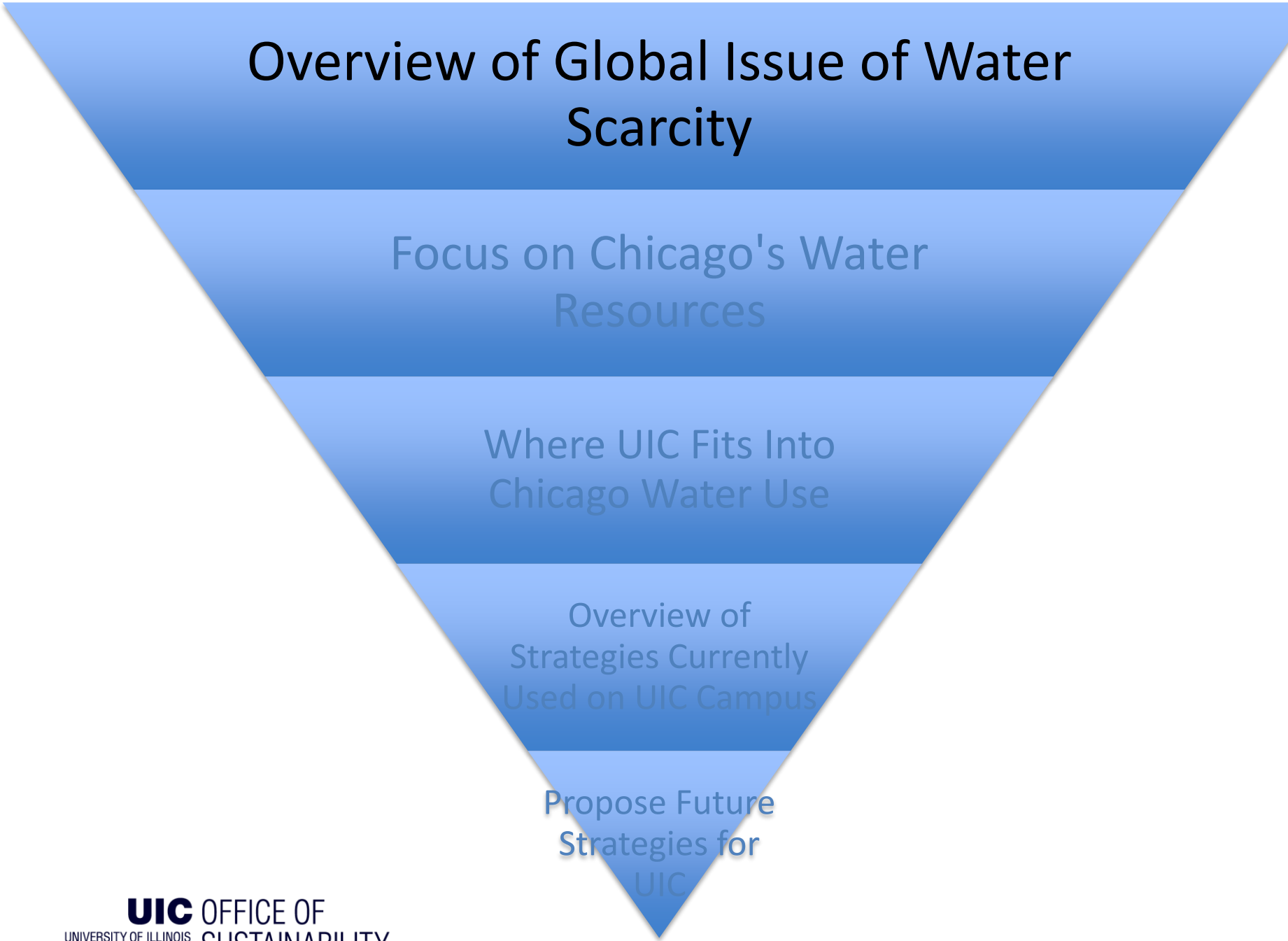
Overview of Global Issue of Water
Scarcity

Focus on Chicago's Water
Resources

Where UIC Fits Into
Chicago Water Use

Overview of
Strategies Currently
Used on UIC Campus

Propose Future
Strategies for
UIC



Overview of Global Issue of Water Scarcity

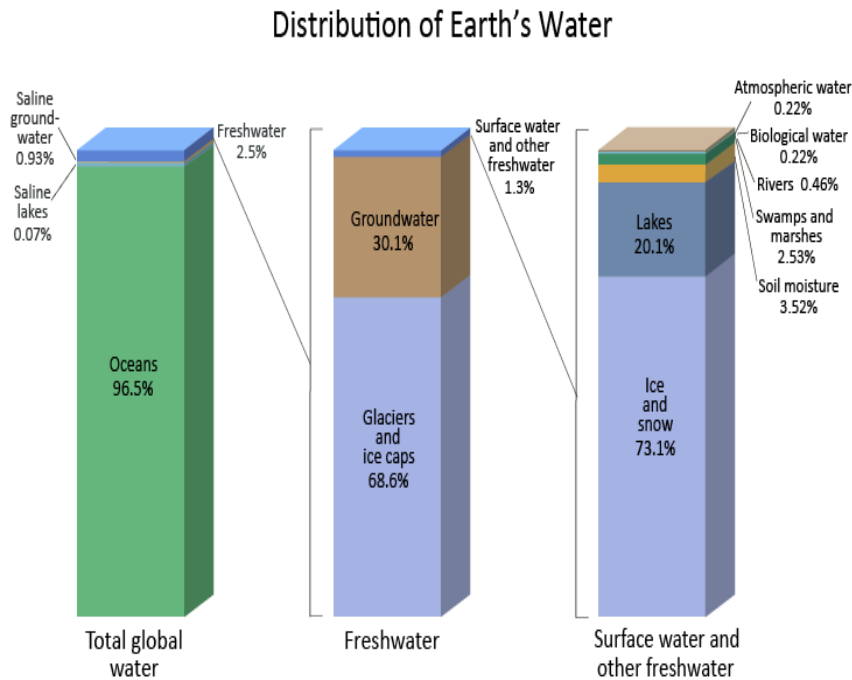
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Global Issue of Water Scarcity

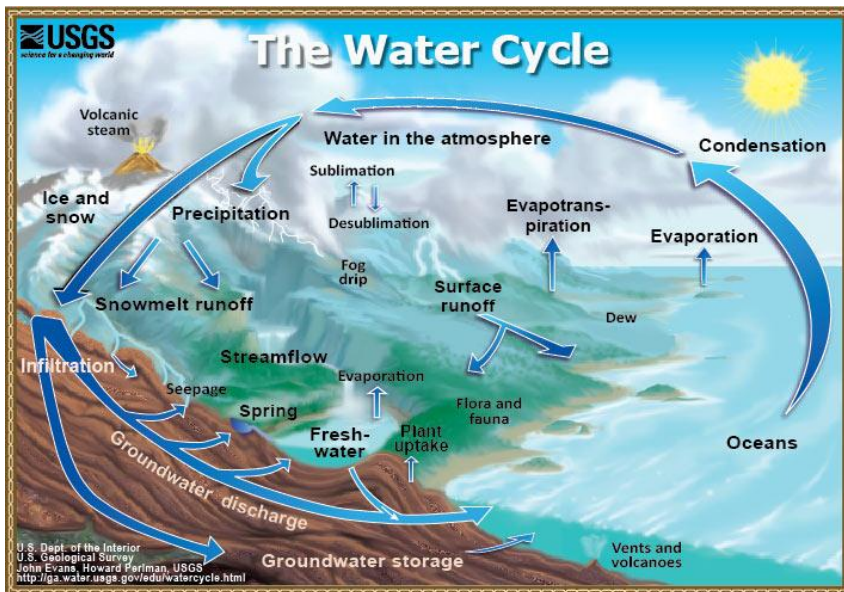


Source: Igor Shiklomanov's chapter "World fresh water resources" in Peter H. Gleick (editor), 1993, *Water in Crisis: A Guide to the World's Fresh Water Resources*.

- World's total water supply of about 332.5 million cubic miles of water
- Saline
 - Over 96 %.
- Freshwater
 - Over 68 % locked up in ice and glaciers.
 - 30 % is in the ground
 - Rivers and lakes, only constitute about 22,300 cubic miles, which is <.01% of total water
 - Yet, rivers and lakes are the sources of most of the potable water.

Global Issue of Water Scarcity

The Water Cycle

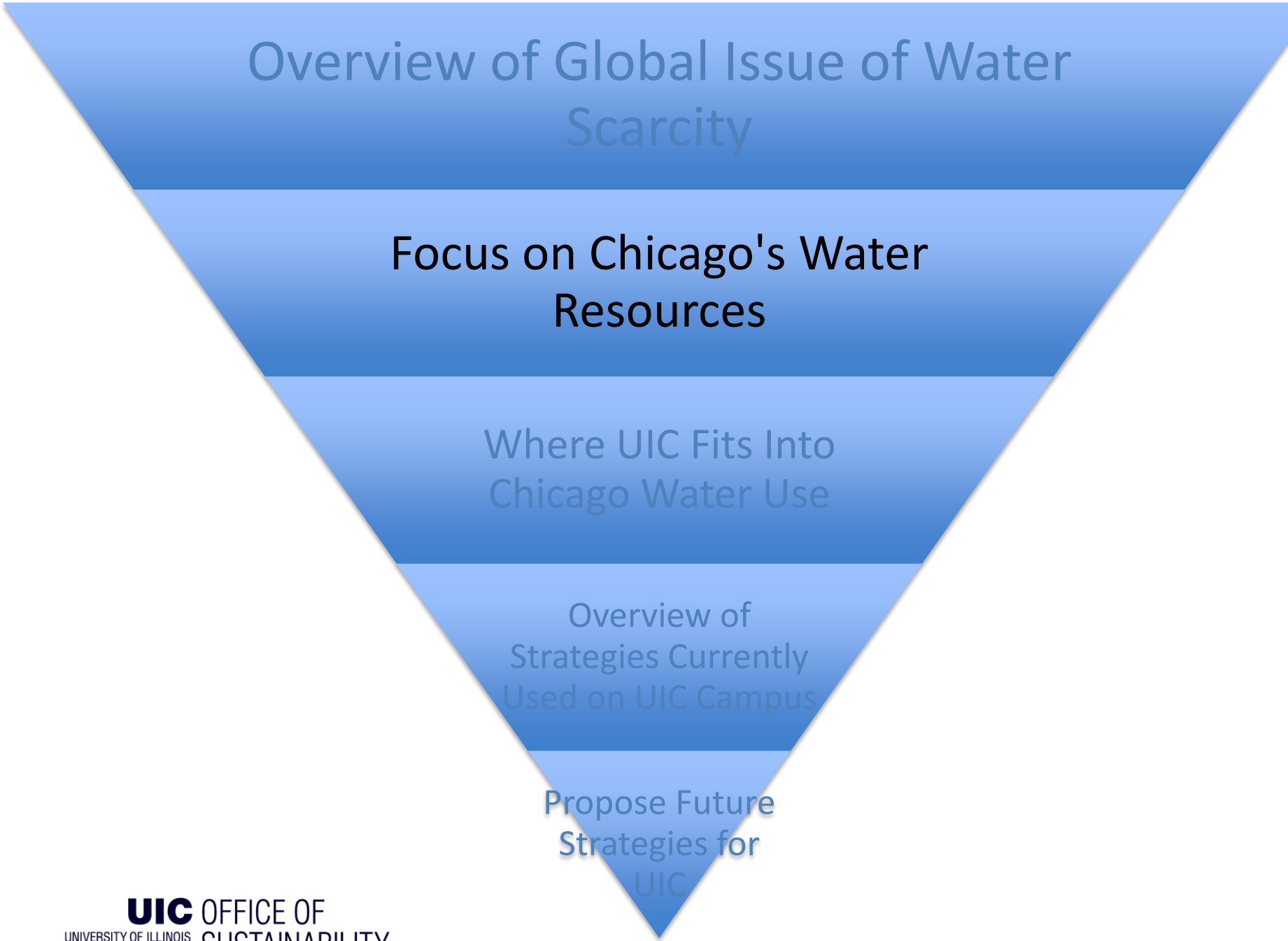


- Water is always in movement as part of the natural water cycle
- Preserve water use through water conservation and water reuse planning
- Set a reasonable goal for water preservation

Global Issue of Water Scarcity



- Global annual water usage is set to increase to 6.9 trillion cubic meters by 2030 which is **40% more than available water supplies on Earth** (Gilbert).
- Water is a finite and vulnerable resource, essential to life, development and the environment.
- 12% of the population uses 85% of all water and most live in developed countries (Barlow).



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Chicago's Water Resources

Where Chicago Gets its Water

Great Lakes

- Largest surface freshwater system in the world
- Contain 84% of North America's surface fresh water and about 21% of the world's supply (EPA).
- Seemingly limitless supply of freshwater from Lakes
- Great Lakes Water Compact sets goals and limitations

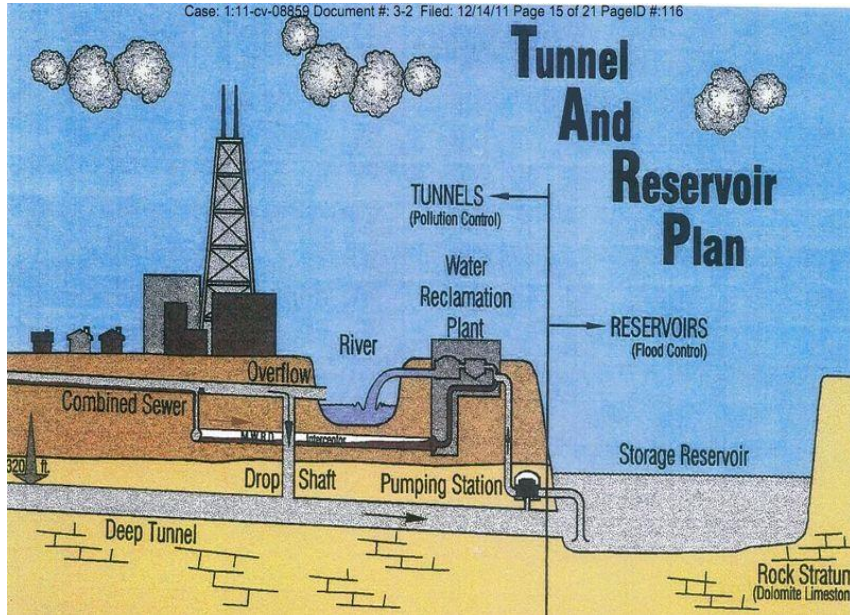
Chicago

- 1 billion gallons of water/ day are processed for drinking, bathing, laundry, industry and so much more.



Chicago's Water Resources

Wastewater Treatment



Deep Tunnel System Goals

- Protect Lake Michigan from raw sewage and pollution
- Improve quality of area rivers and streams
- Provide an outlet for floodwaters to reduce street and basement sewage backup flooding.

Metropolitan Water Reclamation District

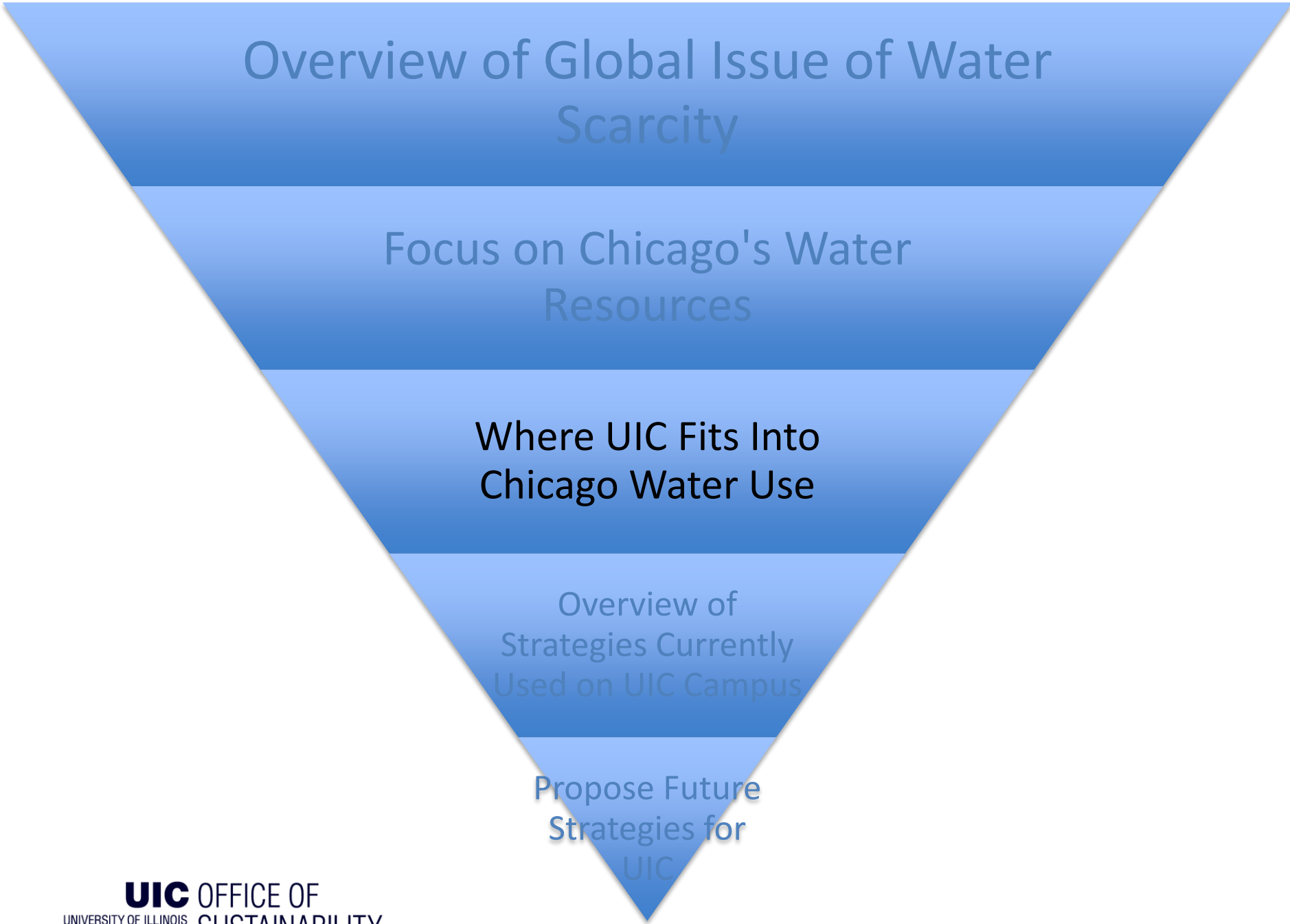
- 5 million residents of Cook County
- Generates 1.4 billion gallons of wastewater and stormwater each day
- The world's largest treatment plant, Stickney which treats 1.2 billion gallons per day.

Chicago's Water Resources

River Reversal



- Due to city's 1900 reversal of the Chicago River, Lake Michigan water used by the city is not returned to the lake (Potter).
- Made Chicago a livable city
- However, rain water doesn't replenish regional aquifers or the lake, as nature intended
- Instead precipitation flows into the Chicago sewer system which gets treated and eventually ends up in the Mississippi River



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Where UIC Fits Into Chicago Water Use

- The University of Illinois at Chicago (UIC) is located approximately 2 miles from Lake Michigan
- UIC comprises 118 buildings (including a medical center), on 240 acres, and serves a population of approximately 40,000 plus patients



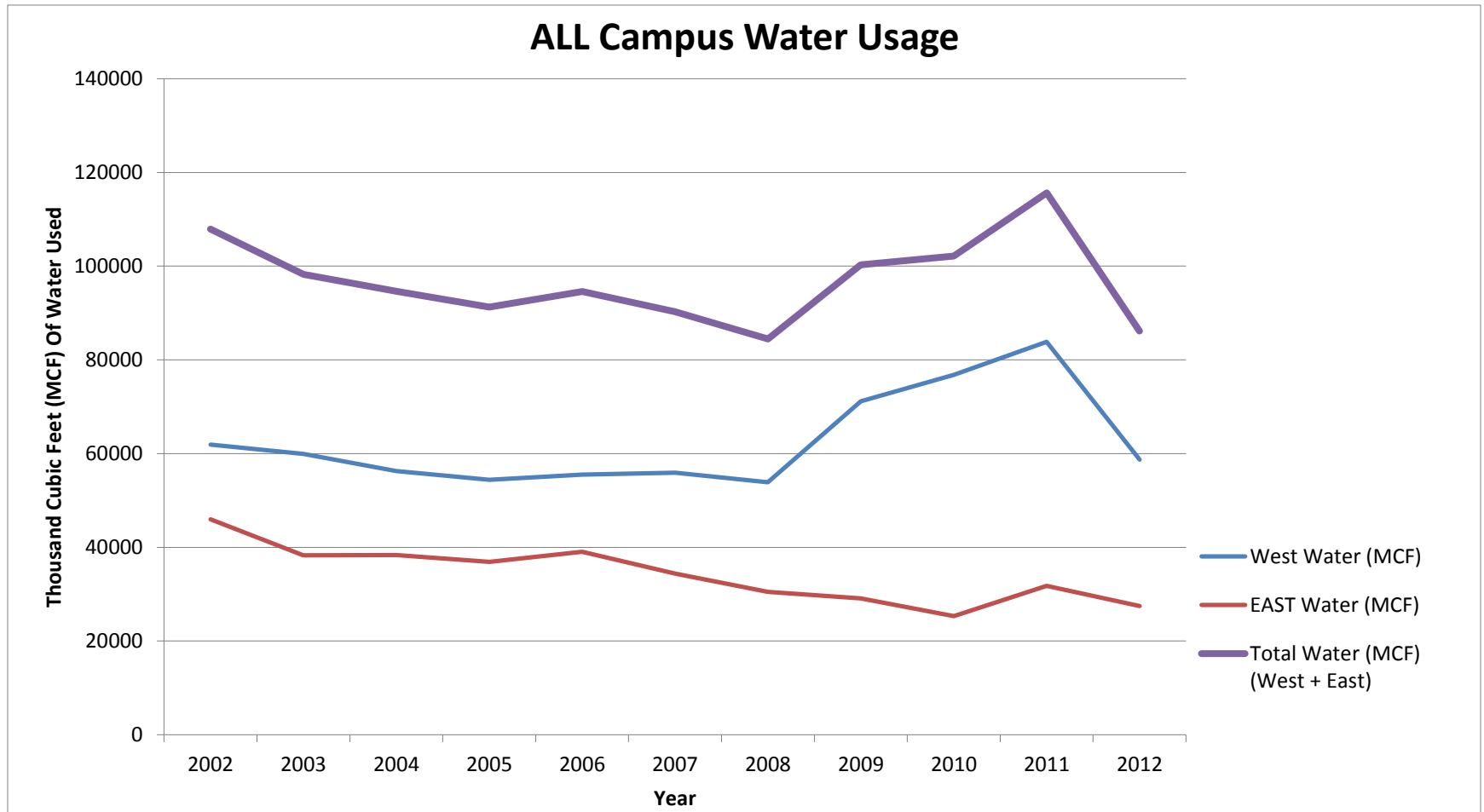
UIC Campus

UIC is a composition of three parts of campus

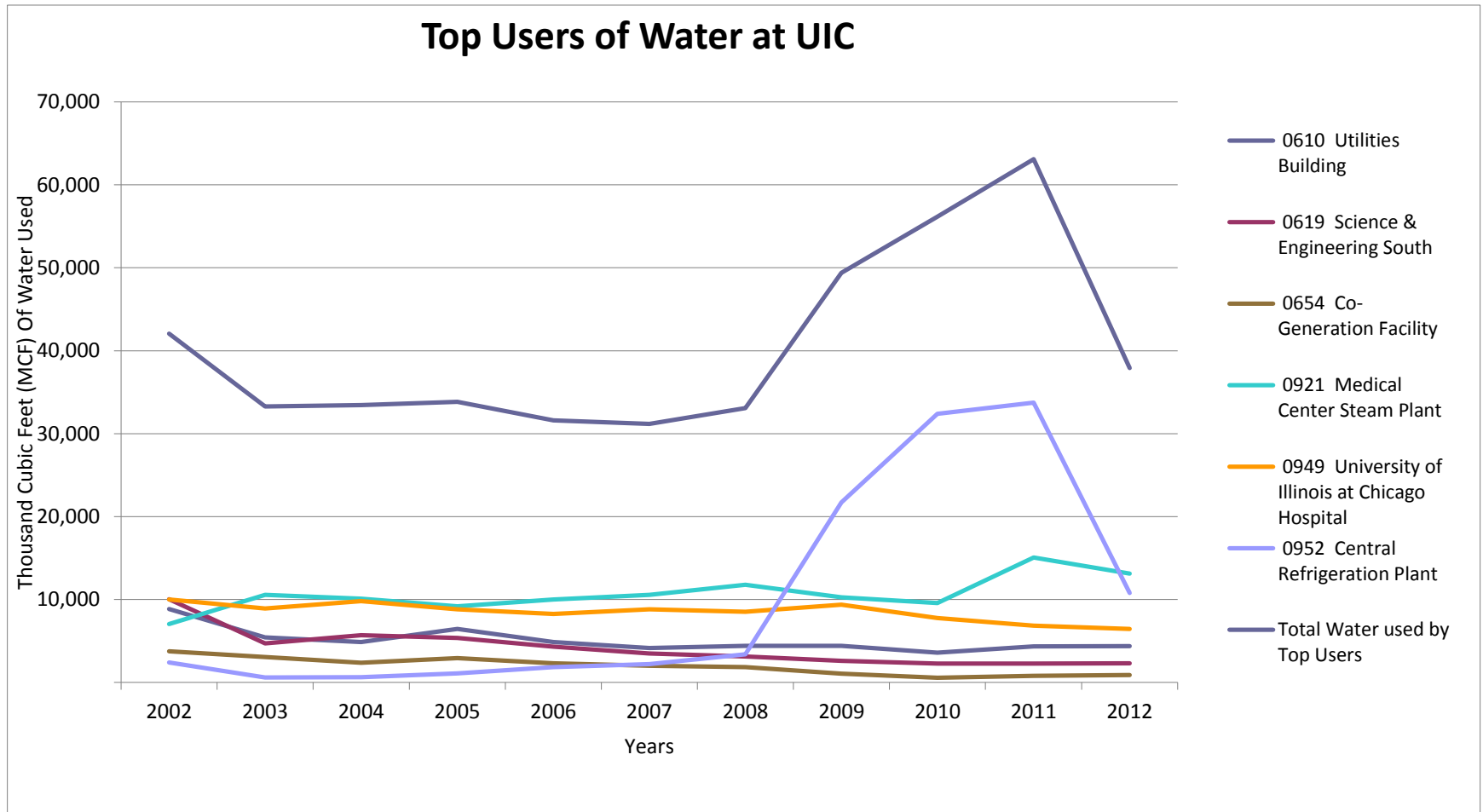
- East
- West
- South



Where UIC fits into Chicago Water Use

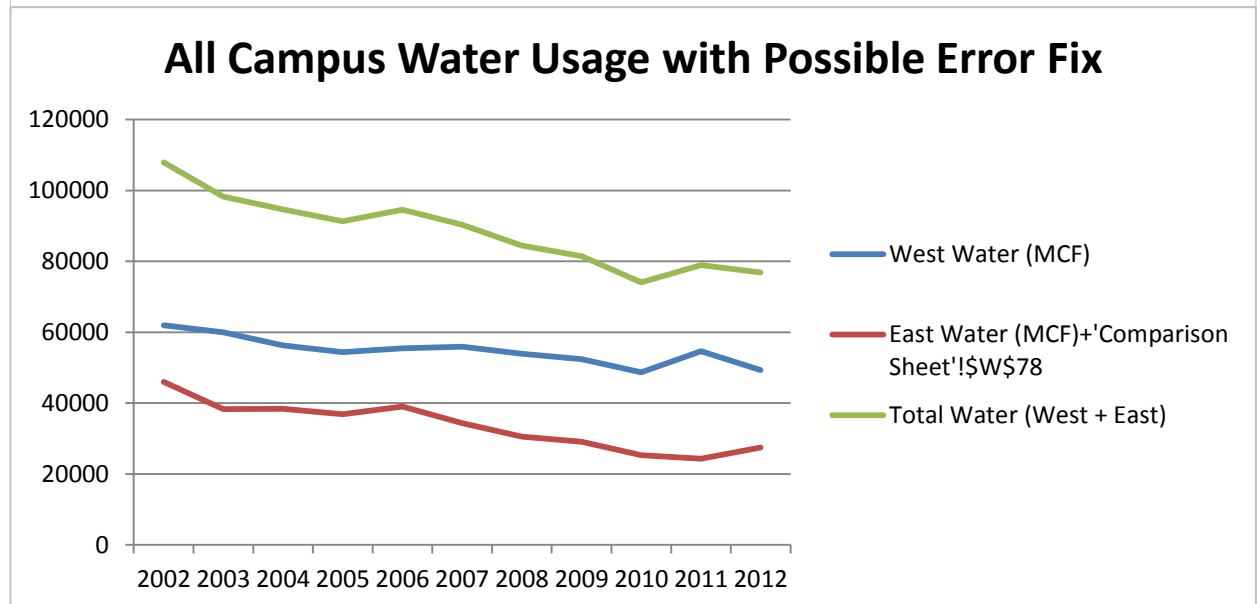
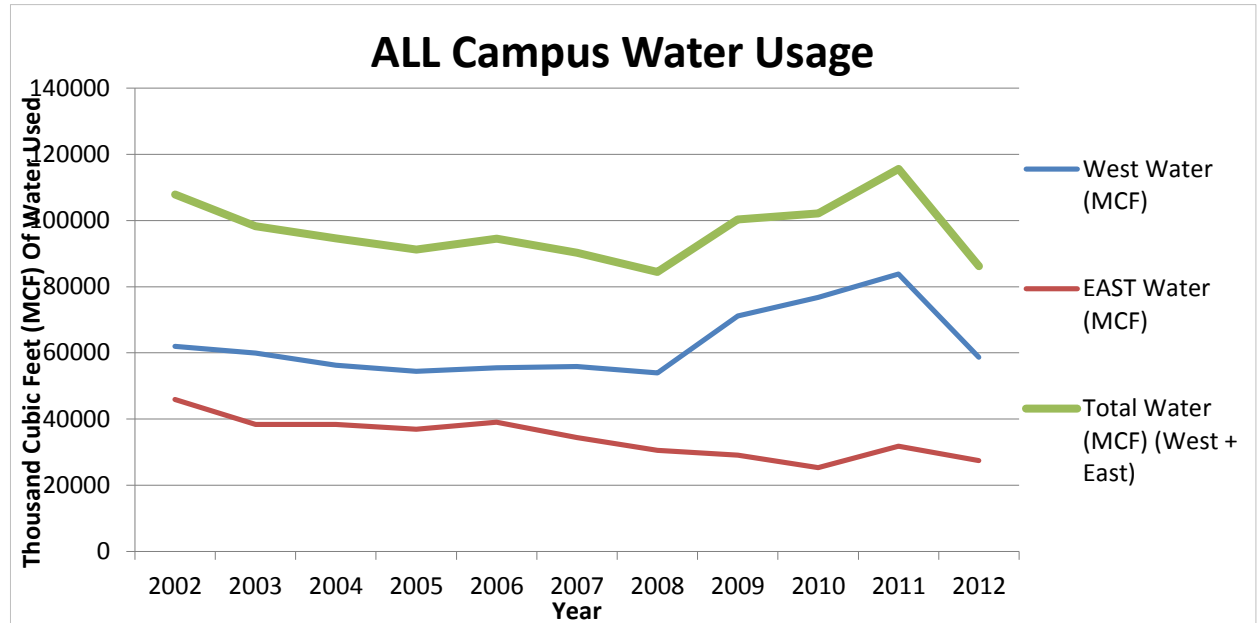


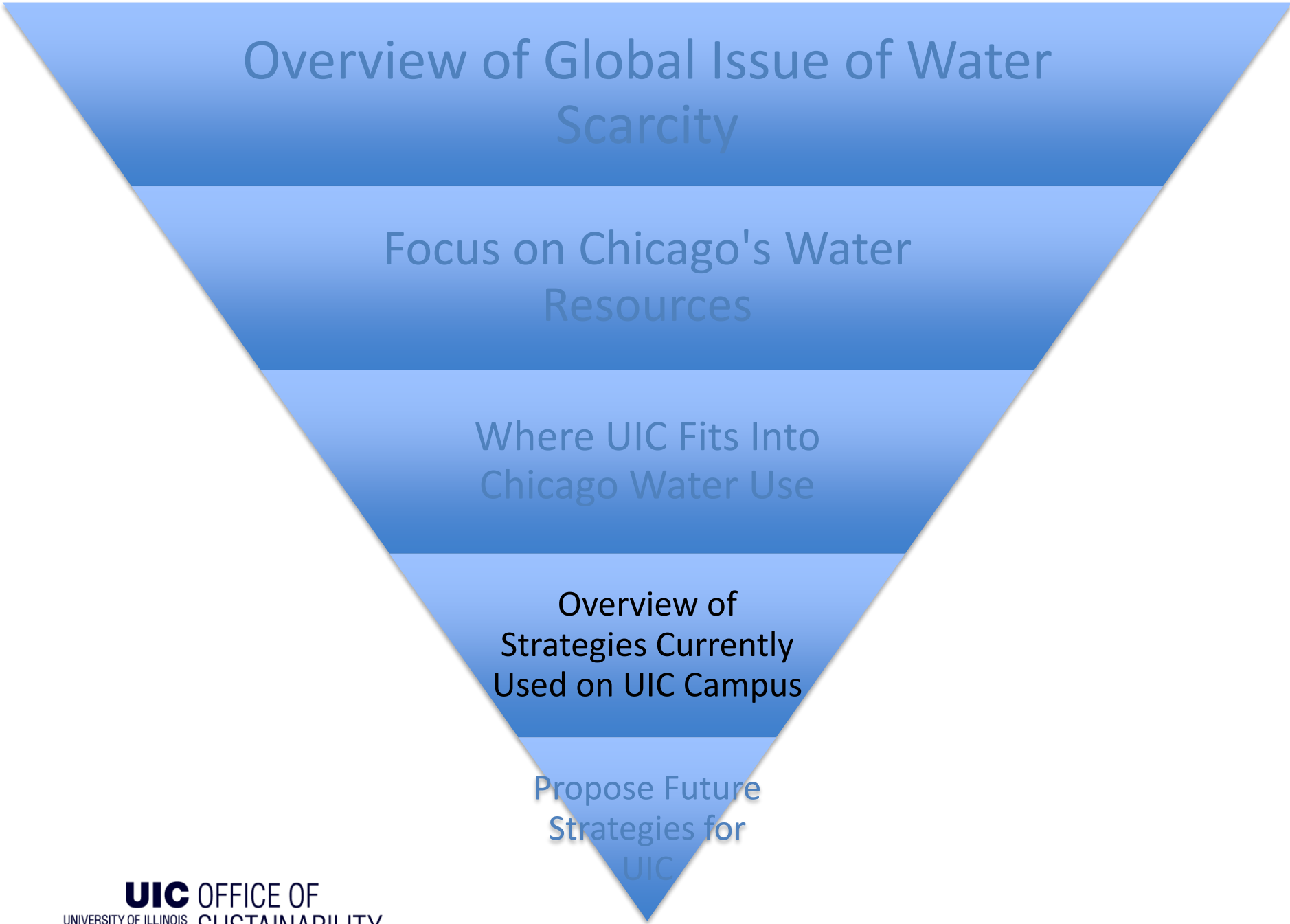
Where UIC fits into Chicago Water Use



UIC Water Use

- Be mindful of units
- Monthly monitoring and consistent units could potentially prevent major issues in water data





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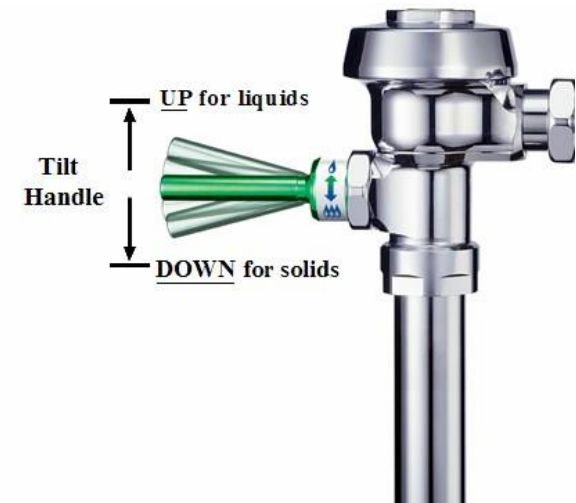
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UIC Current Strategies

Assess overall trends in water usage at UIC (past and present)

- **Retrofits** of restroom facilities as fixtures need replacing- ex. **Dual flush toilets** are installed in newly renovated buildings
- Energy Policy – includes **elimination of one-pass cooling systems**
- In addition, stormwater flow may be captured for reuse in irrigation such as at the **UIC Forum**
- Buildings that have been constructed in the past 6 years have been landscaped with **native plants** that do not require special irrigation
- Water bottle refilling stations in recreational facilities, student centers, and student services building.



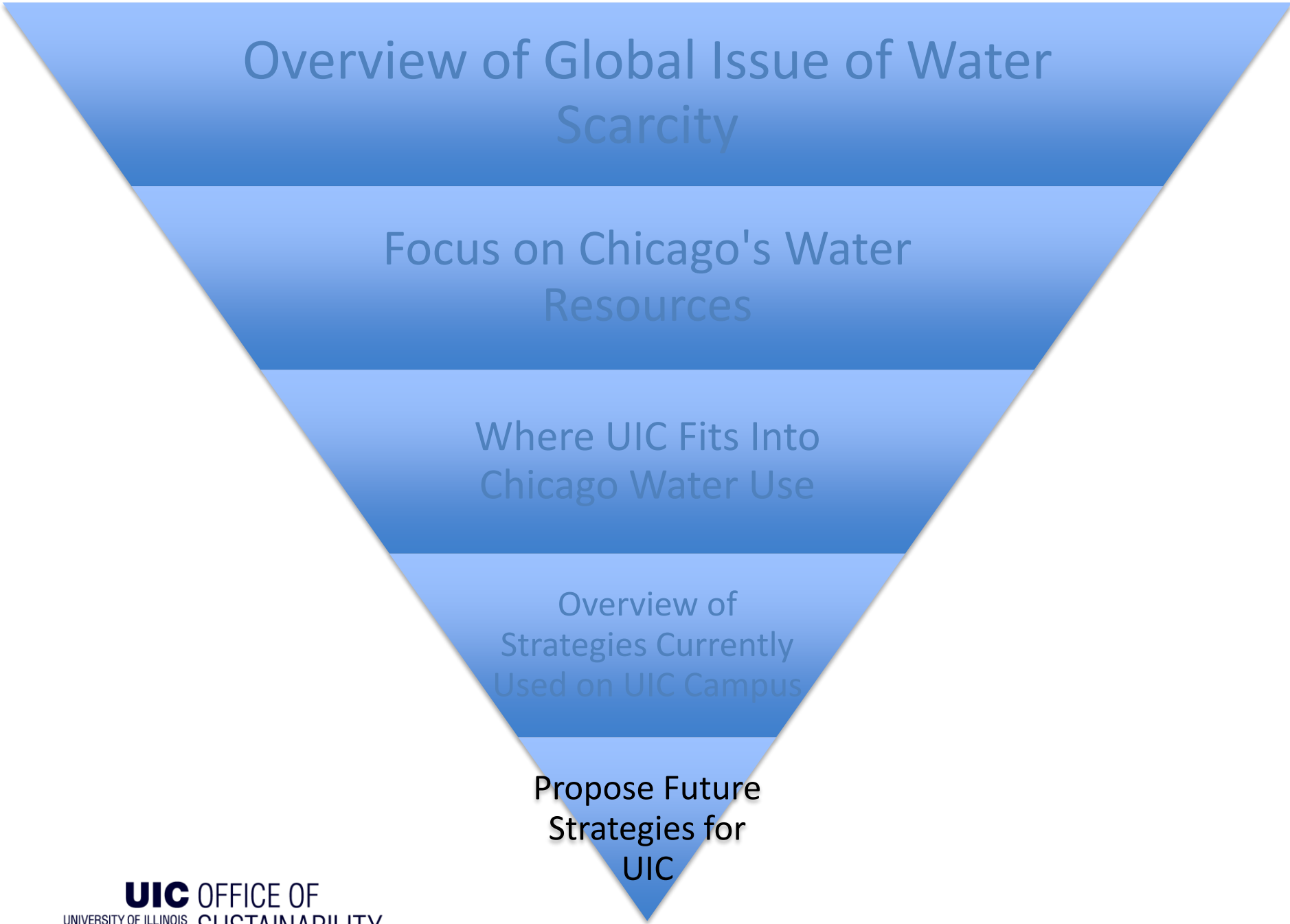
UIC Current Strategies



Lincoln Hall, Douglas Hall, and Grant Hall

- drought resistant landscaping
- low flow fixtures in the restrooms
- permeable paving
- Bioswales for storm water management

Lincoln-Douglas have been renovated
earned **LEED-NC Gold rating** from the
U.S. Green Building Council



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Future Strategies for UIC campus

Establishing future goals related to:

Education

- Engage students in water conservation
- Bottled water awareness campaign
- Work with lab researchers to increase awareness and identify strategies to reduce water use
- Awareness campaign/Water conservation signs
- Encourage students to take courses related to water quality and environmental sustainability on campus

Efficiency

- Optimized Cooling Tower
- Elimination Single-Pass Cooling
- Upgrade Sanitary Fixtures (High-Efficiency Toilets and Urinals, Faucet Aerators)
- High efficiency washer replacement
- Reduction of Steam Sterilizer Tempering Water
- Reuse Grey water

Proper metering

- Universalize meters
- Standardize units on all meters on campus (gallons vs. MCF)
- Track water use monthly to detect anomalies
- LEAK PREVENTION

Outdoor Water Management

- Drought resistant landscaping
- Storm water management and recapture/ flood control
- Install or program weather-based irrigation controllers
- Permeable pavement

Next Steps at UIC

- Complete data analysis (funny peak)
- Propose fixture standards to incorporate into campus building codes
- **Develop water reduction goals**
- Complete draft of Water Management Plan
- Facilities staff review of plan
- Review by Chancellor's Committee on Sustainability and Energy and on up

On your campus...

1. Speak to facilities/utilities to see who is tracking water usage on your campus
2. Brainstorm target areas for water reduction
 - Landscaping/ Parking lots
 - Power Plants
 - Heating and cooling towers
 - Recreational facilities
 - Residence Halls
 - Cafeterias & Food service facilities
 - Science labs
3. Engage students on all levels (student gov.*, student orgs., sustainability office, campus programs and events)

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