

# Securing Illinois' Groundwater Future

Nora Beck, CMAP

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## Securing Illinois' Groundwater Future

A review of the 1983 Water Use Act and  
high-capacity well review process

 Chicago Metropolitan  
Agency for Planning

December 2024

# Context

Withdrawals are exceeding the amounts we can sustainably withdraw at the county level, and we know other areas are at risk

Water demand is decreasing across the Chicago region, but increases are expected in some locations with stressed groundwater sources.

# Best practices for maintaining a budget

- Regularly track your spending
- Differentiate between needs and wants
- Set realistic goals
- Automate savings
- Compare actual spending to budgeted amounts to identify areas for improvements
- Adjust the budget

# Maintaining a groundwater budget is inherently complicated

- Budget is shared across multiple users, some of whom don't know each other
- Users are using multiple groundwater aquifers, each with their own constraints
- Budget itself is in flux, could be changed by drought, water quality, and evolving understanding of the resource

# Exploring groundwater governance

Partnered with Illinois-Indiana Sea Grant

**Funding:** Illinois Department of Natural  
Resources, Office of Water Resources

# Exploratory work

**Purpose:** Investigate options to inform conversation about how to coordinate efforts to ensure all communities in the region have a sustainable supply of water.

- Literature review
- Characterize existing system
- Explore new structures

# Literature review findings

Groundwater is classic common pool, decentralized resource.

Also has characteristics that inherently complicate its effective and efficient management:

- It is, in effect, an **INVISIBLE** underground resource
- It has relatively **SLOW** flow rates
- It has a **DISTRIBUTED** occurrence, with open access to all stakeholders, at least in principle

# Literature review findings

- Beyond federal regulations, groundwater use is **highly decentralized**, focused on reasonable use, and generally reactive.
- **Fragmentation:** Different agencies have regulatory authority over different portions of water use sectors in different regions of a state.
- **Site scale no longer works;** system level is needed. System level includes a larger set of stakeholders.
- Almost half of states anticipate that **changes** in groundwater regulation are likely in the next five years.
- **Talking about governance not management** because governance covers a much larger framework of groundwater use laws, regulations, and customs as well as the process of engaging the public sector and civil society.



# Evaluation criteria for effectiveness of governance arrangements

Table 2 : Check-list of 'top-20' benchmarking criteria for the evaluation of groundwater governance provision and capacity

TYPE OF PROVISION/ CAPACITY	CHECK LIST <i>in each instance the criteria should be individually ranked in relation to considerations of 'existing provisions' and 'institutional capacity to implement'</i>		
	No.	CRITERION	CONTEXT
Technical	● 1	Existence of Basic Hydrogeological Maps	for identification of groundwater resources
	● 2	Groundwater Body/Aquifer Delineation	with classification of typology
	● 3	Groundwater Piezometric Monitoring Network	to establish resource status
	● 4	Groundwater Pollution Hazard Assessment	for identifying quality degradation risks
	● 5	Availability of Aquifer Numerical 'Management Models'	at least preliminary for strategic critical aquifers
	● 6	Groundwater Quality Monitoring Network	to detect groundwater pollution
Legal & Institutional	● 7	Waterwell Drilling Permits & Groundwater Use Rights	for large users, with interests of small users noted
	● 8	Instrument to Reduce Groundwater Abstraction	waterwell closure/constraint in critical areas
	● 9	Instrument to Prevent Waterwell Construction	in overexploited or polluted areas
	● 10	Sanction for Illegal Waterwell Operation	penalizing excessive pumping above permit
	● 11	Groundwater Abstraction & Use Charging	'resource charge' on larger users
	● 12	Land-Use Control on Potentially-Polluting Activities	prohibition or restriction since groundwater hazard
	● 13	Levies on Generation/Discharge of Potential Pollutants	providing incentive for pollution prevention
	● 14	Government Agency as 'Groundwater Resource Guardian'	empowered to act on cross-sectoral basis
Cross-Sector Policy Coordination	● 15	Community Aquifer Management Organisations	mobilizing and formalizing community participation
	● 16	Coordination with Agricultural Development	ensuring 'real water saving' and pollution control
	● 17	Groundwater-Based Urban/Industrial Planning	to conserve and protect groundwater resources
Operational	● 18	Compensation for Groundwater Protection	related to constraints on land-use activities
	● 19	Public Participation in Groundwater Management	effective in control of exploitation and pollution
	● 20	Existence of Groundwater Management Action Plan	with measures and instruments agreed

primarily ● groundwater extraction related ● groundwater quality related ● groundwater extraction and quality related

# Characterize existing system

## Sample provisions

- Technical: delineation of aquifer boundaries, groundwater model, etc
- Legal & Institutional: drilling permits & groundwater use rights, instrument to prevent well construction, etc.
- Cross-Sector Policy coordination: integration of land use and groundwater planning, etc
- Operational: groundwater management plan

# Key findings

- Technical provisions are fairly advanced, reflecting the good work of ISWS
- Legal provisions are lacking:
  - Drilling permits are focused on water quality only; no mechanisms to address quantity problems except retroactively via the courts.
  - No mechanisms to limit the amount of withdrawals or prevent well construction except for water quality issues.

# 2022 State Water Plan

- Review 1983 Water Use Act and determine if modifications are needed
- Enable authority for groundwater management districts
- Improve accuracy of water use reporting



# Review the water use act of 1983

Focus on the high capacity well review process

Partnered with Freshwater, a MN-based non-profit

Funded by the Joyce Foundation

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# 1983 Water Use Act

- Established reasonable use doctrine (versus absolute ownership doctrine)
- Emergency restrictions on withdrawals (not in NE Illinois)
- Public notice and review of new withdrawals deemed substantial or high-capacity
- Annual water use reporting by high-capacity wells

***Reasonable use is, “the use of water to meet natural wants and a fair share for artificial wants. It does not include water used wastefully or maliciously.”***



# 1983 Water Use Act – Administrative Rules

- Require landowners to notify the local soil and water conservation district (SWCD) of proposed high-capacity well
- The SWCD must request the assistance of the Illinois State Water Survey (ISWS) and Illinois State Geological Survey (ISGS) in reviewing the proposed withdrawal's effects on other users of water.
- The SWCD is required to distribute information regarding any potential impacts via local newspapers and notify relevant local governments.
- No further steps are outlined for addressing and resolving potential conflicts identified by the review.

# Status of high capacity well review

- The Act did not establish a dedicated revenue stream, and it hasn't been funded since 1992
- Some administrative processes continue, but no review takes place
- Number of wells that should have gone through the process is unclear
- Duplicative with other state processes for well construction and water quality review
- No clear connection to well construction



# Minnesota & Wisconsin

- Broader management goals focused on maintaining a long-term water supply.
- Established permit processes, with allocations, evaluation criteria, and corresponding fees.
- Designate groundwater management areas where more planning and review is required.
- Water use reporting and annual fees, based on user type or withdrawal amounts.
- Set water conservation and efficiency goals.

# Applying findings to Illinois

- Groundwater management objectives should include long-term supply
- Resource the high-capacity well review process
  - Harness synergies and improve available information
  - Improve administrative funding and capacity
  - Connect well review process to decision making
  - Align review criteria with groundwater management goals
- Improve the water use reporting process

# Discussion

# Discussion questions

- Who is most impacted by the lack of a funded high-capacity well review process?
- Is there appetite in the region and/or state to build a more robust connection between groundwater science and well approvals?
- What do you want to know more about?



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# Thank you!

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