FLINT WATER LESSONS: REGULATORY

© Janice A. Beecher, Ph.D. (2016)
INSTITUTE OF PUBLIC UTILITIES | MSU
ipu.msu.edu | beecher@msu.edu

Revised 12/8/2016 - watch for updates
Not for distribution or citation
Note disclaimer

MICHIGAN STATE UNIVERSITY

The Institute of Public Utilities at MSU

- IPU-MSU has served the regulatory policy community since 1965
  - More than 20,000 domestic and international program alumni
  - Celebrated 50 years at MSU in 2015
- IPU's mission
  - To support informed, effective, and efficient regulation of the electricity, natural gas, telecommunications, and water industries providing that provide essential services to the public.

MSU and the Flint water crisis

Roundtable

McGuire Beecher Hanna-Attisha Masten Rose

Left: Bottled water distribution on Jan. 23, 2016, by National Guard members at Fire Station 6 in downtown Flint, Mich. Below: Outside the City of Flint Water Plant. *Photos courtesy of Linda Parton/Shutterstock.com.*

City of Flint
WATER PLANT
Monday — Friday
7:00 a.m. to 4:00 p.m.

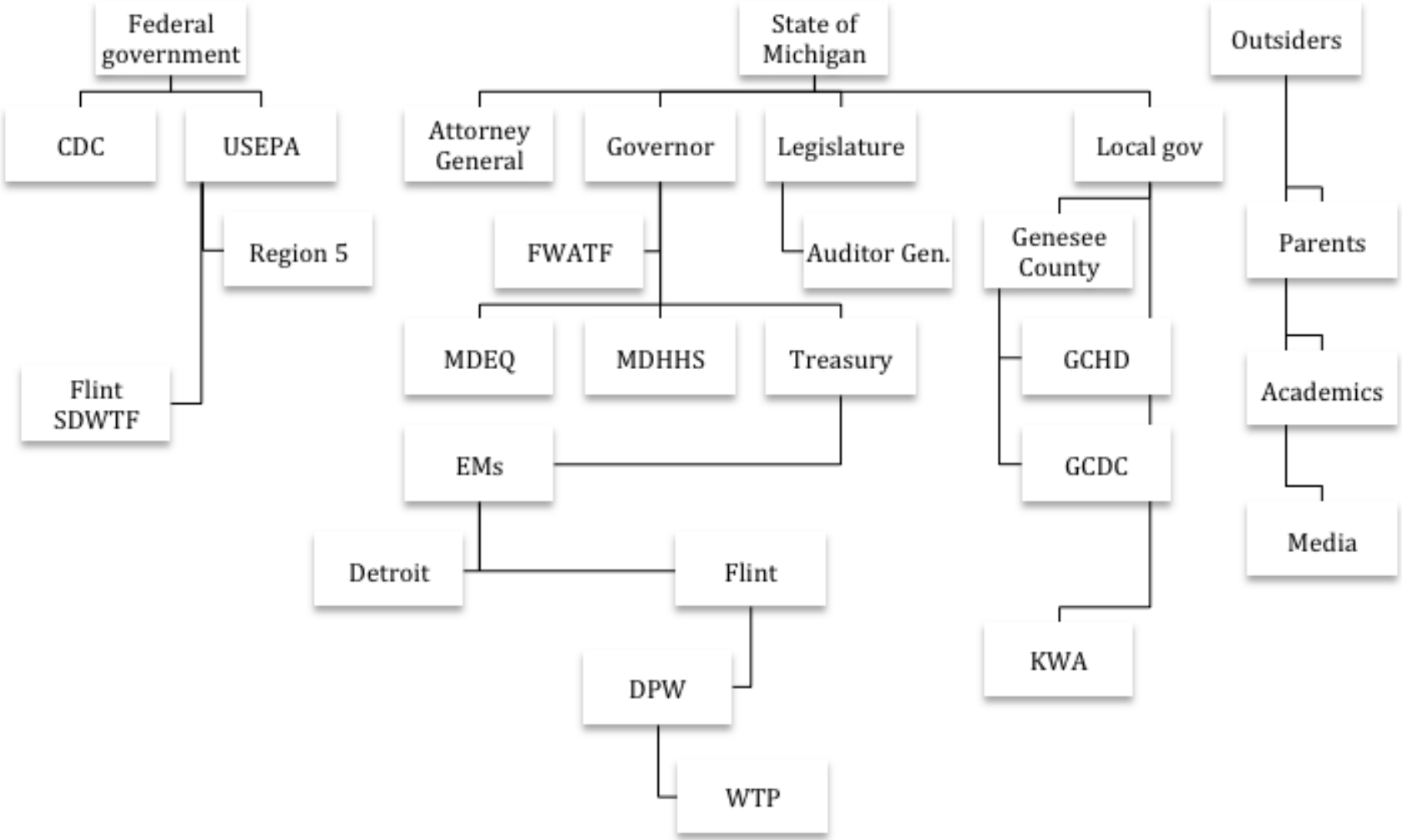
The Flint Crisis

In May 2016, *Journal AWWA* editor-in-chief, Michael McGuire, hosted a roundtable discussion on the water crisis in Flint, Mich. All four participants in this roundtable discussion are professors at Michigan State University (MSU) in East Lansing. Three of them are water professionals active in many areas of water research. The fourth panelist, Mona Hanna-Attisha, is the pediatrician who was at the center of the determination of the effect of lead exposure on children in Flint. MSU had a significant water research and education program before the Flint crisis, and all four of these professionals were busy doing their usual jobs. After the crisis became known, they had jobs on top of their usual jobs. They all felt a strong obligation to understand the issues and conduct a forensic analysis of what went wrong from their different disciplinary perspectives so that everyone would have a better understanding. This crisis happened in their state, in their neighborhood. We can benefit from their knowledge and points of view. The roundtable participants were Janice A. Beecher, director, Institute of Public Utilities, MSU; Mona Hanna-Attisha, director, Pediatric Public Health Initiative, Hurley Children's Hospital, MSU, Flint, Mich.; Susan J. Masten, professor, Department of Civil and Environmental Engineering, MSU; and Joan B. Rose, professor, Department of Fisheries and Wildlife, MSU. (*Editor's note: The transcript of the roundtable discussion that follows has been edited for length and clarity.*)

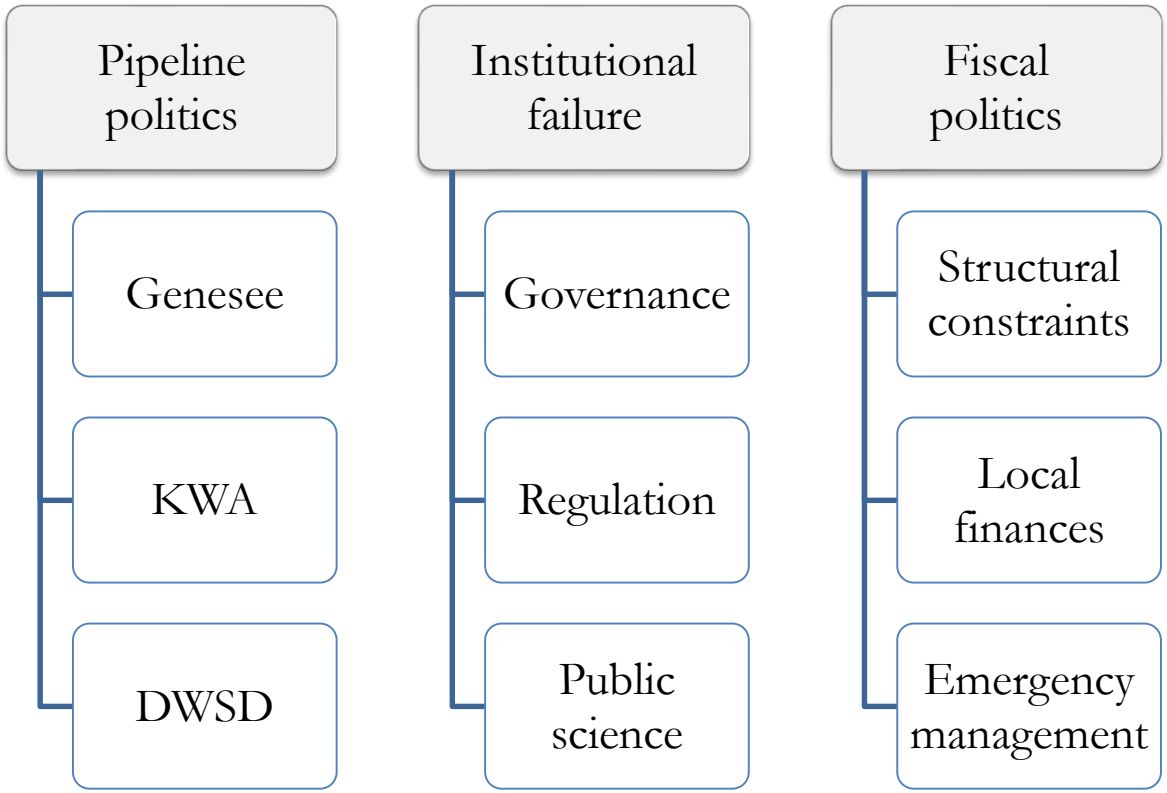
26 JULY 2016 | JOURNAL AWWA • 108:7 | ROUNDTABLE

2016 © American Water Works Association

Flint water crisis organizational chart



Flint water crisis as institutional failure



Pipeline politics

Fiscal politics

- Headlee amendment to the Michigan Constitution (1978), Art. IX, Sec. 31
  - Sec. 26. "There is hereby established a limit on the total amount of taxes which may be imposed by the legislature in any fiscal year on the taxpayers of this state. This limit shall not be changed without approval of the majority of the qualified electors voting thereon…"
  - Sec. 31. "Units of Local Government are hereby prohibited from levying any tax not authorized by law or charter when this section is ratified or from increasing the rate of an existing tax above that rate authorized by law or charter when this section is ratified, without the approval of a majority of the qualified electors of that unit of Local Government voting thereon..."
- Bolt v. City of Lansing (1998)
  - User fees

    (1) must serve a regulatory purpose rather than a (general) revenue raising purpose;

    (2) be proportionate to the necessary cost of the service; and

    (3) be voluntary in that users can refuse or limit their use of the commodity or service

Water federalism and regulation in the U.S.

	Water quality	Water quantity	Water funding	Water prices
Federal	**Congress and EPA**	Court review as applicable	Congress and EPA	Judicial review
Interstate	Basin commissions	Basin commissions	*n/a*	*n/a*
States	**Primacy agencies (health & environmental)**	**Resource agencies**	**Revolving loan funds (SRF)**	**PUCs and/or judicial review**
Substate	Management districts (varies)	Management districts (varies)	*n/a*	*n/a*
Local	**Local health departments**	Local zoning and fire officials (pressure)	Local financing (bonds)	Municipal and other local boards

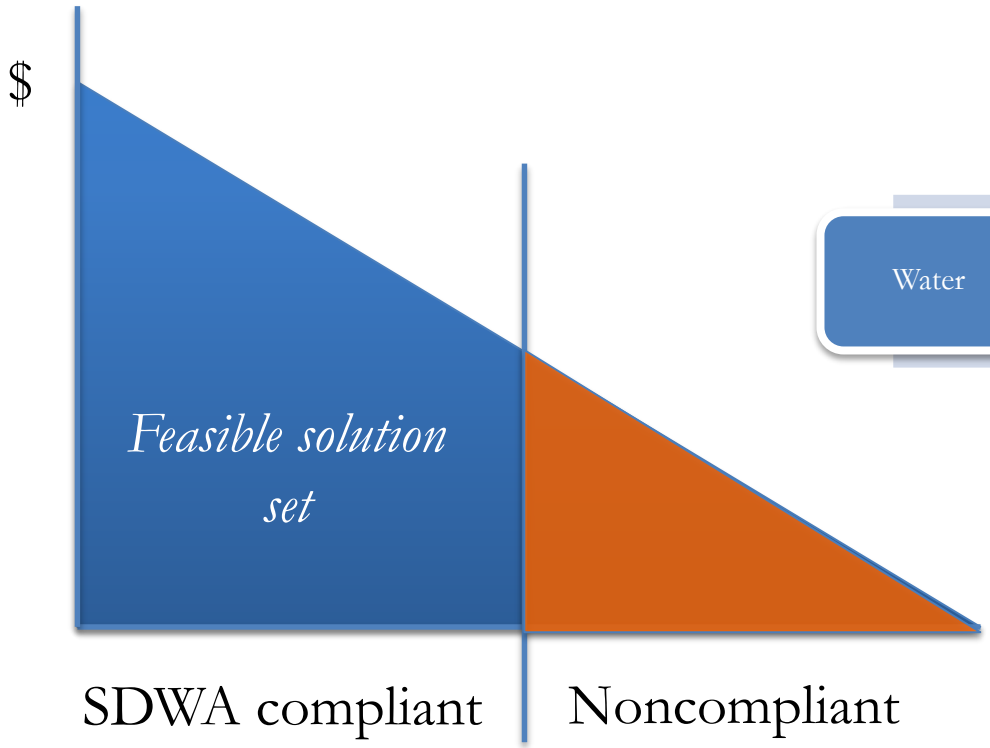
Federal water-quality legislation and goals

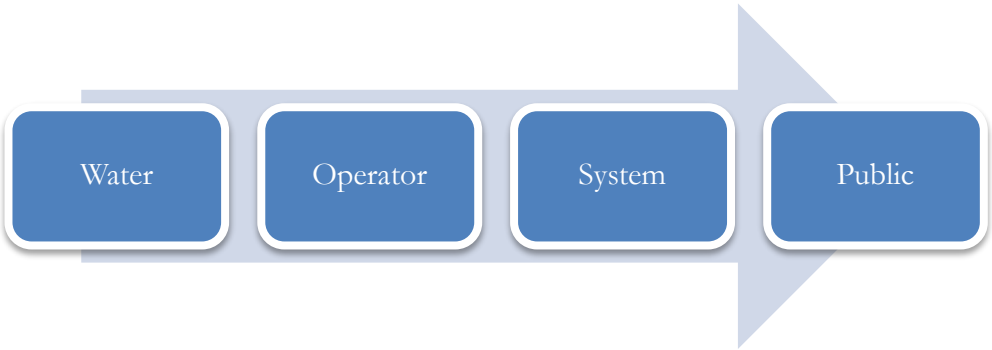
Clean Water Act
To achieve "fishable and swimmable waters" through pollution control, wastewater treatment, and stormwater management

Safe Drinking Water Act
To achieve a level of drinking water quality as close as feasible to that for which there are no known or anticipated adverse impacts to human health, including an adequate margin of safety

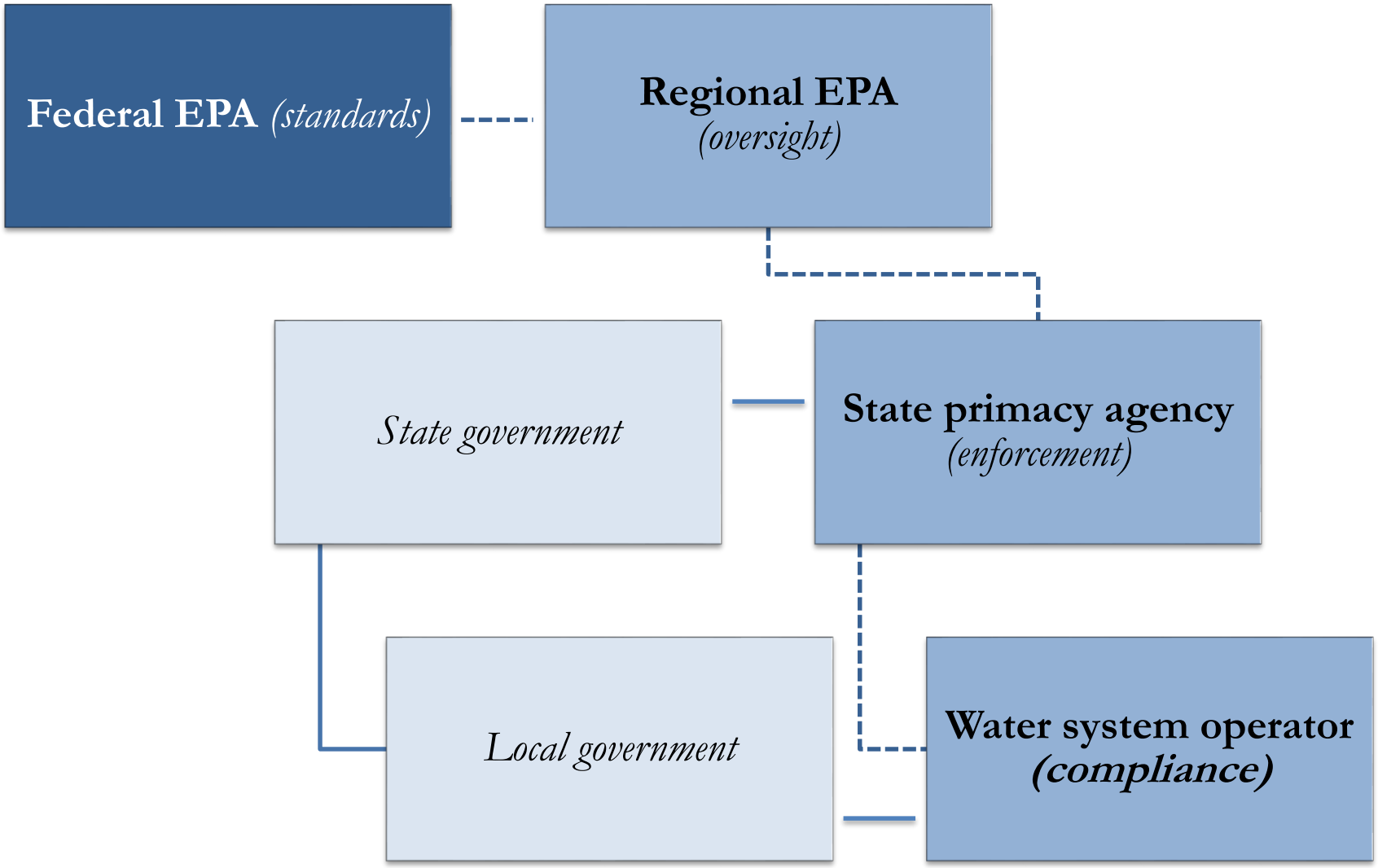
SDWA compliance is not optional

- Passed in 1974, with major amendments in 1986 and 1996
- States can be more but not less stringent than federal law – MI act mirrors
- Regulation is meant to provide multiple protective barriers



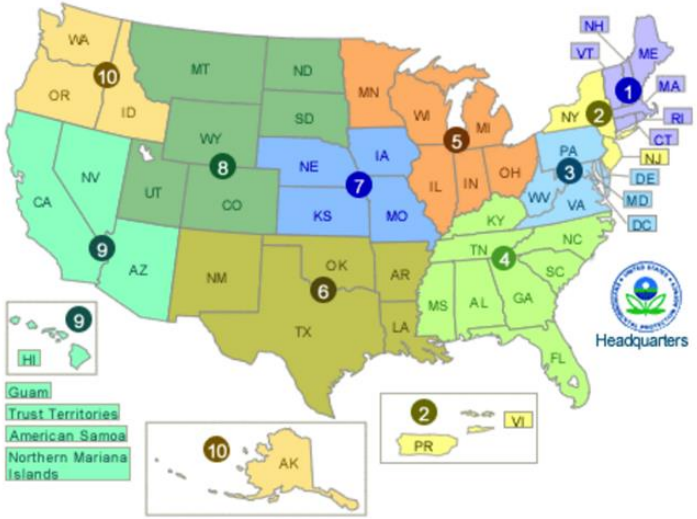


Regulatory chain of command

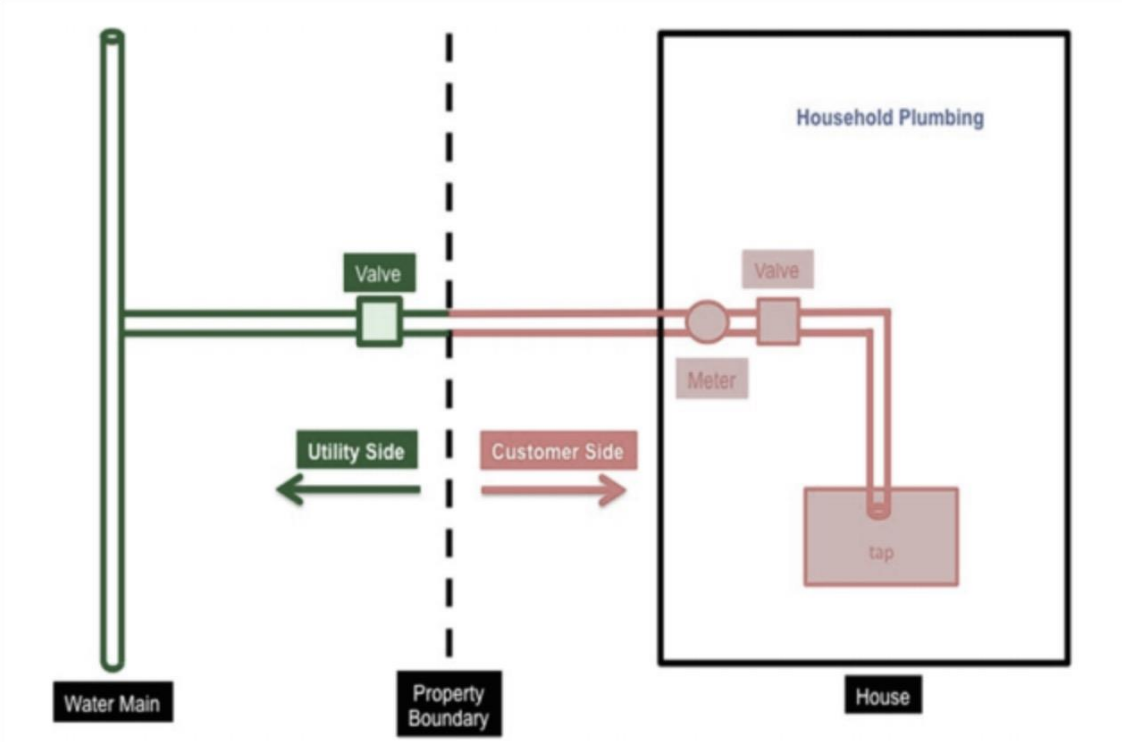


Regulatory framework under the SDWA (✓Flint)

- Microbial contaminants ✓
- Chemical, metal, and radiological contaminants (including lead) ✓
- Disinfectants and disinfection byproducts ✓
- Contaminant candidate listing
- Monitoring and reporting ✓
- Public information and notice ✓
- Certification, capacity, and planning ✓
- Funding (DWSRF) and incentives
- Variances and exemptions
- Six-year regulatory review
- EPA emergency powers ✓
- Secondary standards for aesthetics (non-enforceable) ✓

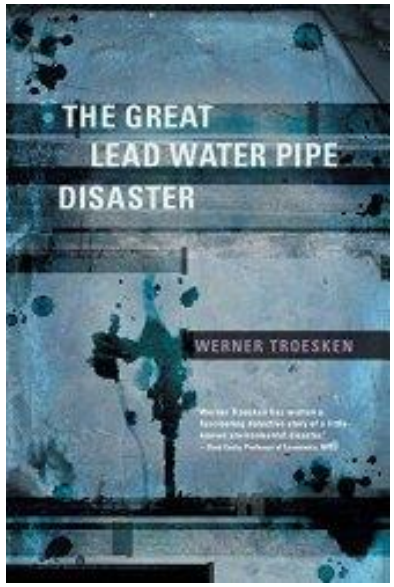


Lead infrastructure challenge



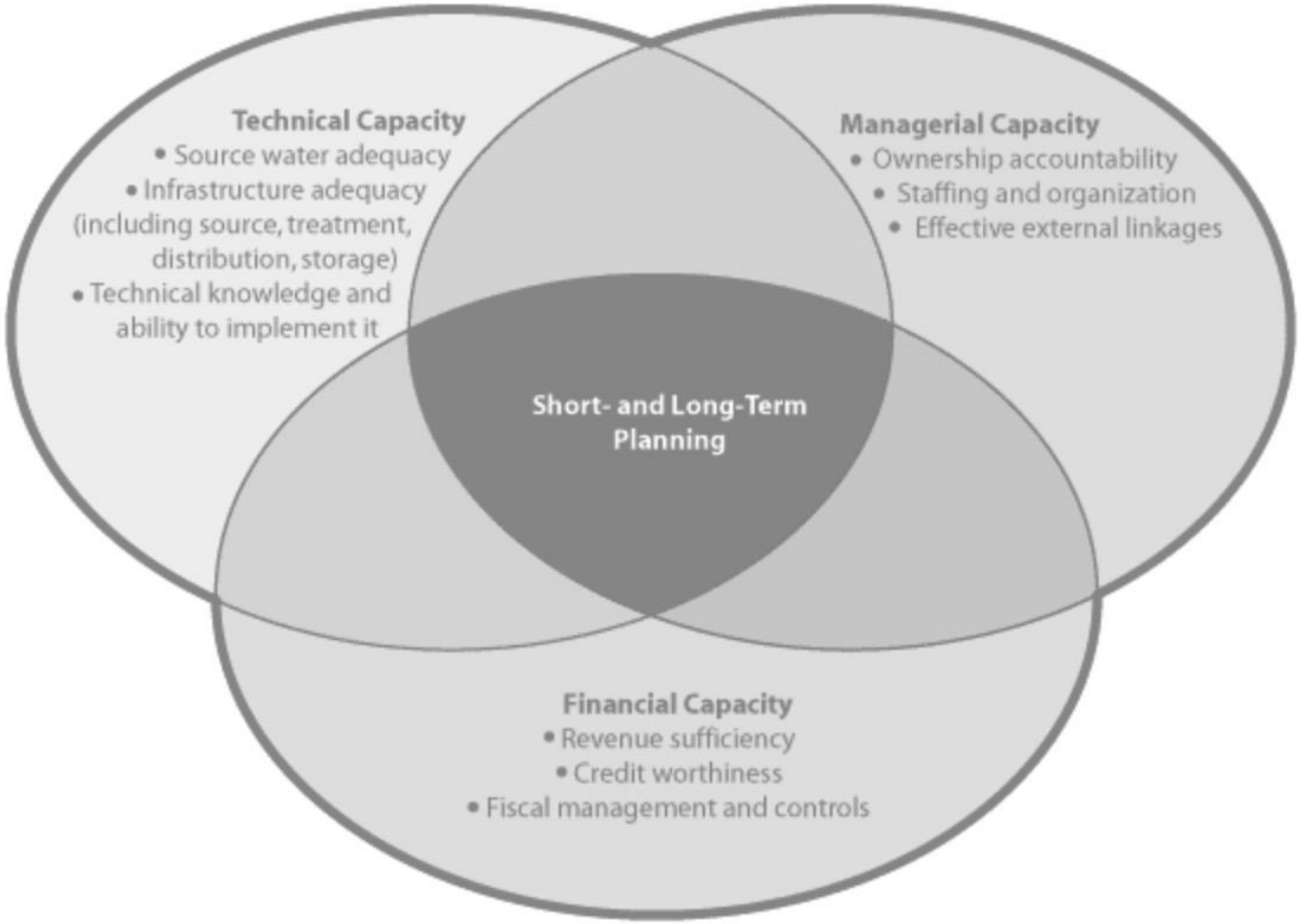
Source: Adapted from Hayes 2010

Figure 1.1 Depiction of water main in street, household plumbing, and the service line owned by utility/city to the property line and the remainder owned by customer



Capacity development for new and existing water systems (EPA)

Capacity development is the process through which water systems acquire and maintain adequate technical, managerial, and financial capabilities to enable them to consistently provide safe drinking water.



Michigan's capacity development model

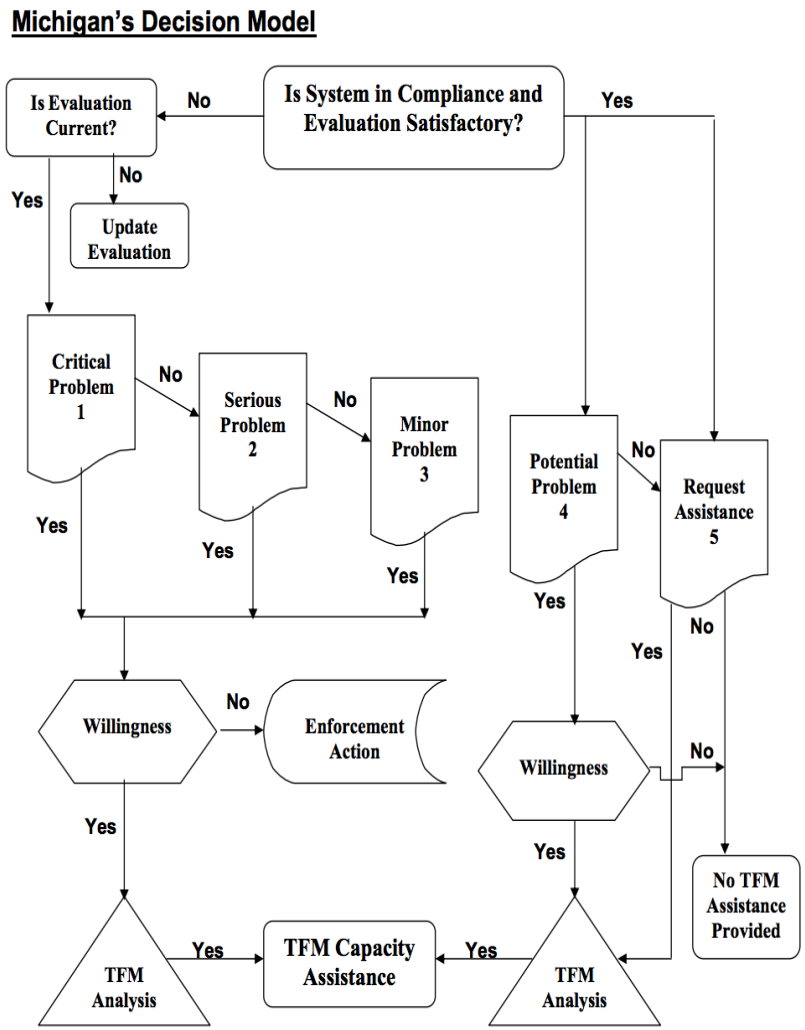


Figure 1

Michigan Department of Environmental Quality
Drinking Water and Radiological Protection Division

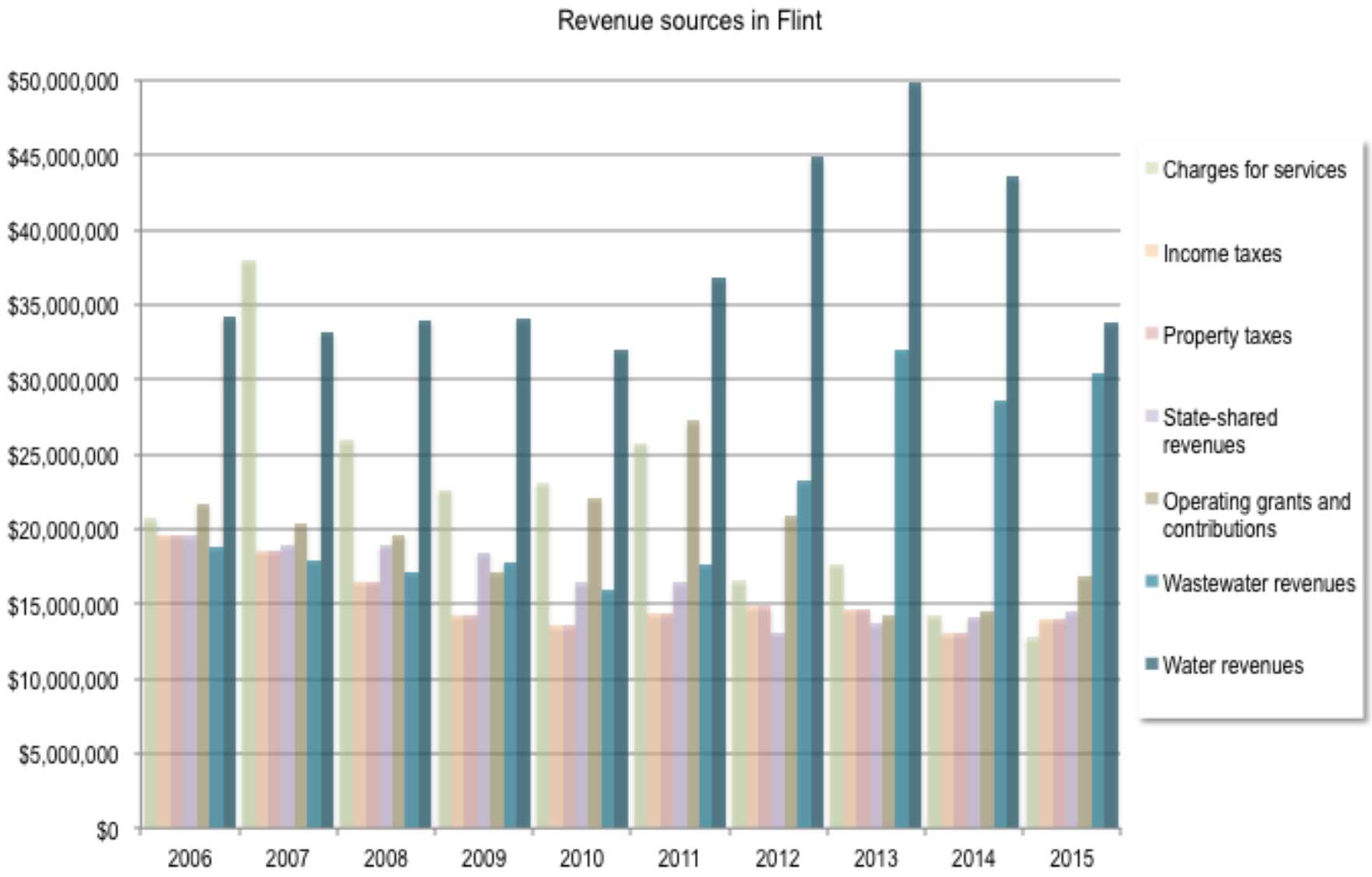
CAPACITY DEVELOPMENT STRATEGY FOR EXISTING PUBLIC WATER SYSTEMS

August 1, 2000

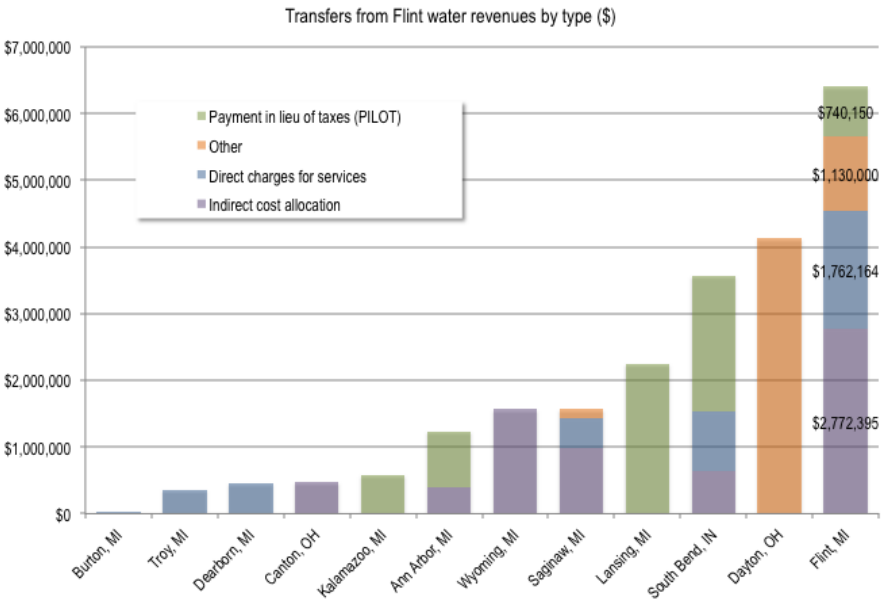
Fiscally sustainable systems (“enterprises”)

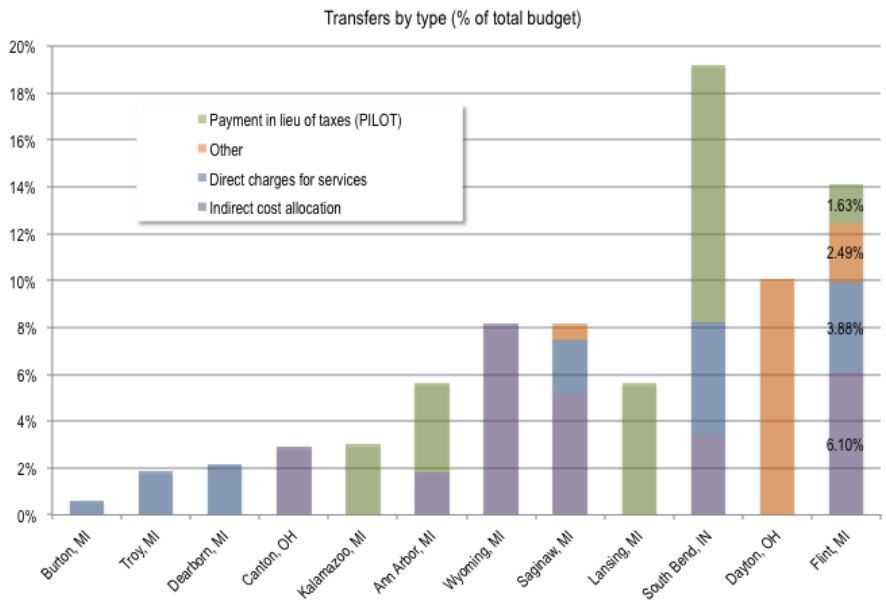
	Expenditures relative to optimized compliant service level		
Rate revenues relative to expenditures	< 1 expenditures are below optimum (“cost avoidance”)	= 1 expenditures are optimal	> 1 expenditures are above optimum (“gold plating”)
< 1 rate revenues are below expenditures (“price avoidance”)	Deficient system	Subsidized system	Budget-deficit system
= 1 rate revenues are equal to expenditures	Underinvesting system	SELF-SUSTAINING SYSTEM	Overinvesting system
> 1 rate revenues are above expenditures (“profit seeking”)	Revenue-diverting system	Surplus system	Excessive system

Revenue sources in Flint

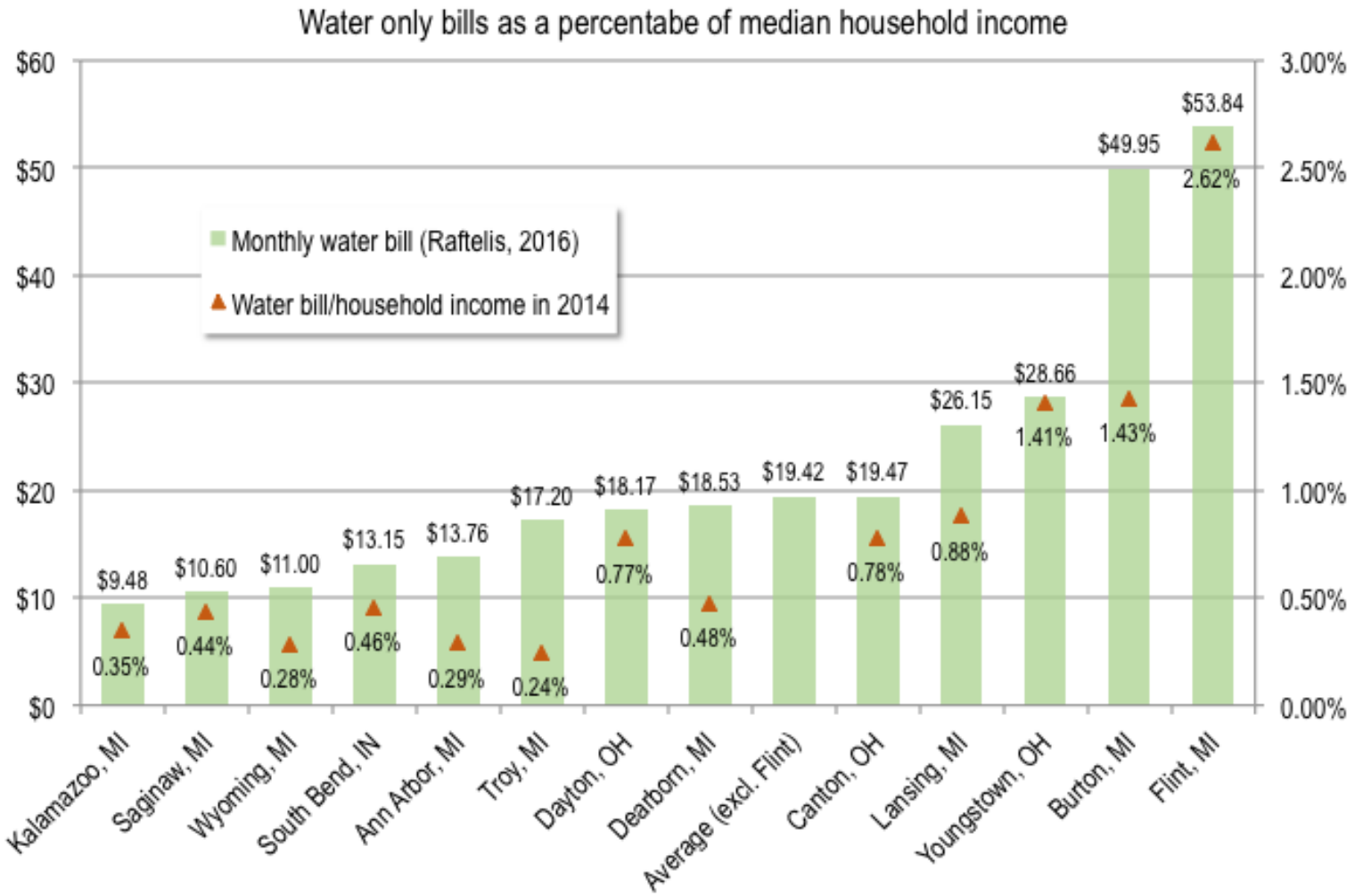


Transfers from water funds



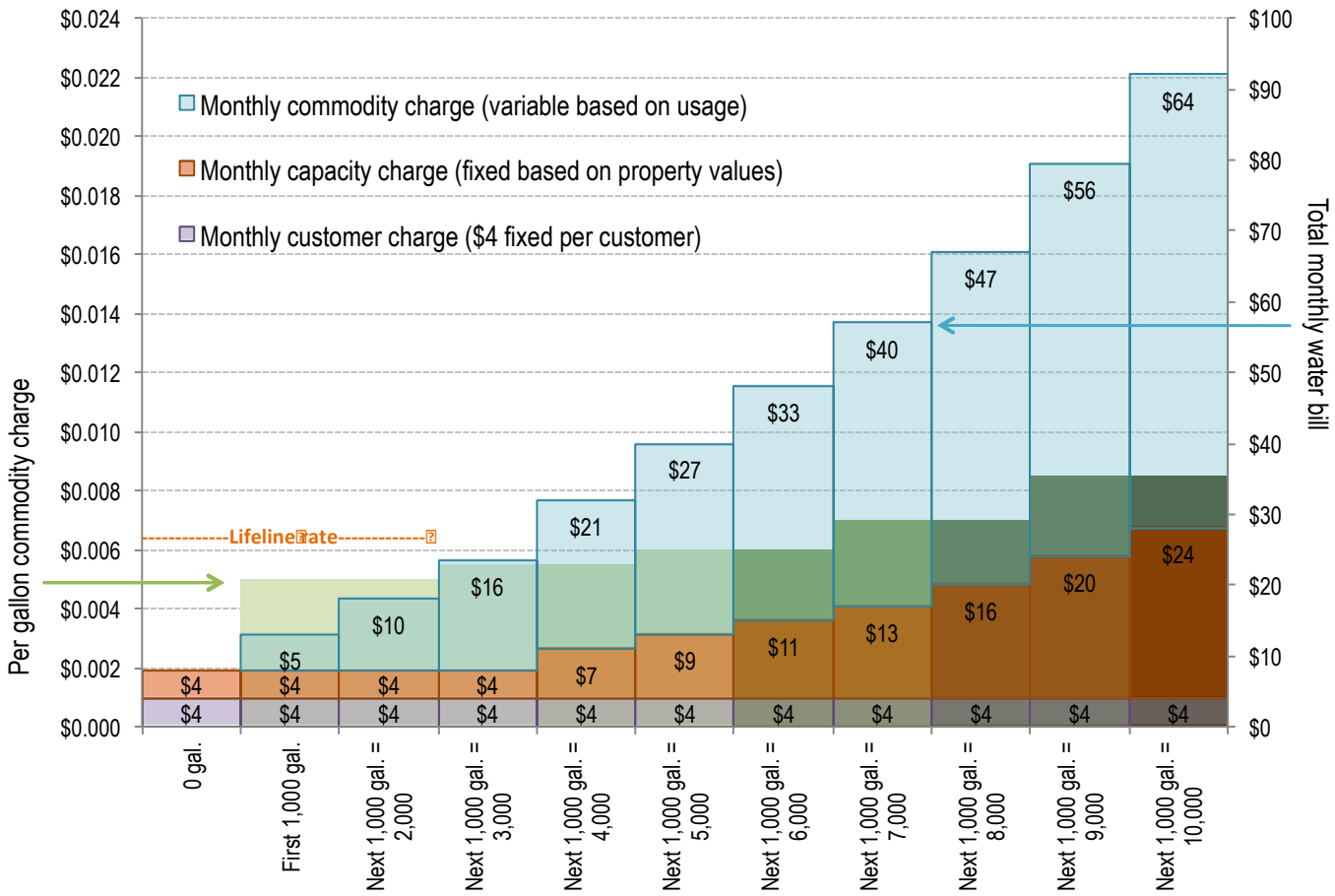


Water bills relative to income

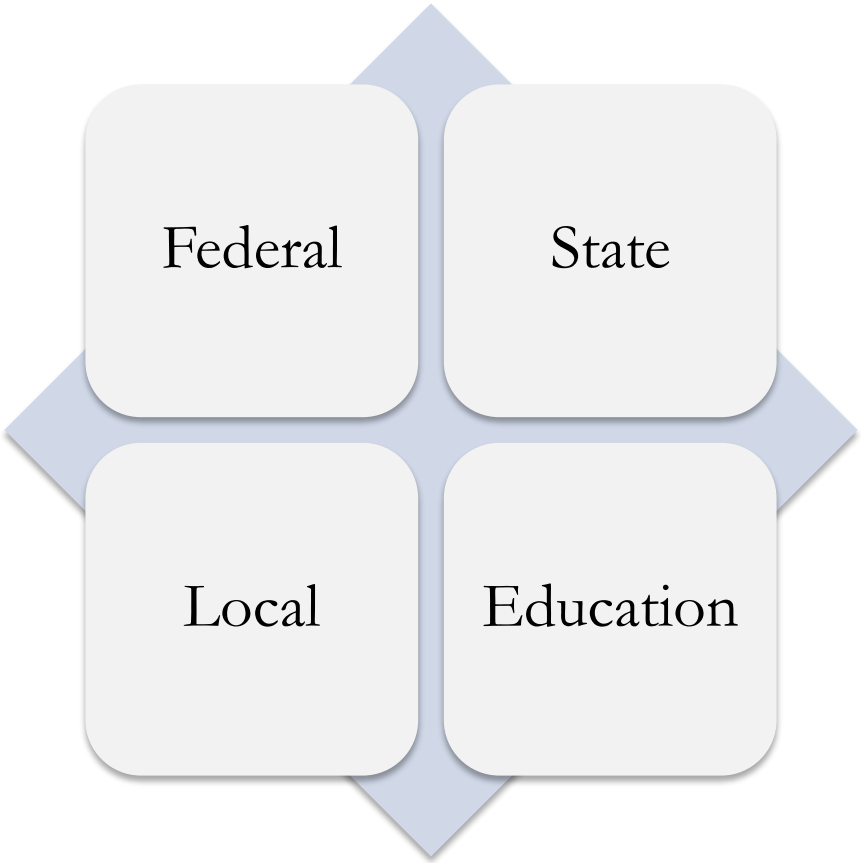


Efficiency and equity: the case for progressive rates

- Utility rates are regressive and may call for "lifelines" to protect public health (e.g., 25 gallons per person per day) and income thresholds



Reform as response



Committing to infrastructure