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Motivation

Effective management of water delivery and treatment systems would benefit from a regular national water demand data collection effort that captures consumption by economic sector as well as by end use. A water demand survey would provide the data necessary to better understand water demand trends, and ultimately to assess implications for water infrastructure needs and the U.S. economy.

Given the relationship between the use of water and energy, having water demand data collected in parallel on an annual basis would increase the impact and value of the energy consumption data currently collected by the federal government. Both energy production and generation make use of water. Industry, commerce, and residences are economic sectors that use water after its conveyance, treatment, and distribution, all of which require energy. Additionally, wastewater treatment and disposal are dependent on the level of water demand and are significant users of energy. Collecting water demand data and energy consumption data simultaneously would support policymakers' understanding of how energy can be saved across and within economic sectors. Water demand data would need to be collected on a similar scale and level of detail of the energy consumption data to understand the critical connection between these resources.

Technological Challenges

The lack of consistent and cohesive data collection regarding where, how, and how much water is used and/or consumed in the United States inhibits informed and effective decision making across many organizational entities and within all economic sectors. Significant factors preclude the use of existing information to inform water resource management and infrastructure investment. Without consistency within and across data sets, demand over any time period cannot be adequately characterized.

References

Dunham, Camilla, et al. 2017. BENEFITS OF A NATIONAL SURVEY ON WATER DEMAND: Existing Data and Reporting Recommendations. Lawrence Berkeley National Laboratory, LBNL-2001085.

Sector	Geographic range	Data collection frequency
Demographics	Building characteristics	Product stock inventory & characterization
Consumer use characterization	Measured water consumption	Conservation assessment

Data parameters for information captured in the report's summary table 2.1.

Research

LBNL assessed currently available national, regional, and local surveys or databases that collect water demand (and related) data for three sectors: residential, commercial/institutional, and manufacturing/industrial. LBNL briefly summarized each study generally, then for each supplied details relevant to the following parameters: sponsoring organization, sector, scope, geographic range, year(s), frequency, objective(s), methodological approach, information access, demographics, building characteristics, inventory and characterization of product stock, characterization of consumer use/interaction, measured water consumption, and conservation assessment. In addition to this summary of current publicly available water demand data, LBNL recommended essential data parameters to collect via a national survey on water consumption in order to ensure that the analyses enabled by such a survey would be useful to a variety of stakeholders. Ultimately, a federal survey could address the broader need to appropriately fund water infrastructure, supply, and efficiency programs on federal, regional, state, and local levels.

Acknowledgements

Funded by the US EPA. We acknowledge the contributions of EPA's Jonah Schein and LBNL's Alison Williams and Yuting Chen.