Environmental Science Graduate Program Seminar Series

Drivers and Barriers to Circular Water Economy Implementation in Ohio

MacKenzie Hull

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Abstract

Most processes in the economy are linear, with resources being extracted, processed, used, and disposed. As sustainability becomes a more prevalent goal, the concept of a circular economy has gained popularity. A circular water economy, with water reuse within and between sectors, has the potential to preserve or increase the affordability and availability of clean water despite changes in the climate. This study will focus on four sectors of Ohio's economy including municipal, agricultural, power, and oil and gas to identify whether reusing water in Ohio is a viable or attractive proposition. These four sectors were selected because they represent 92% of freshwater withdrawals in the state and are large contributors to water quality concerns. Semi-structured key informant interviews with water managers in these sectors and relevant regulators are used in this study to identify the potential drivers and barriers to adoption of a circular water economy in Ohio. Transcripts from these interviews are analyzed using qualitative methods to determine the trends and patterns within and between sectors in their experiences and perception of water reuse. The primary barriers that emerged were financial among all sectors, especially capital costs. Regulatory uncertainty and liability concerns were prevalent among potential sources of recycled water. Most respondents were open to the idea of reuse to solve existing problems, while doubts persisted on its feasibility in a water rich state where the costs to access water are minimal. Because water reuse practices are uncommon in this region, this study's results can help inform policymaking and future research that promotes and enables water reuse in Ohio.

For more information, contact Heather Lochotzki (Lochotzki.7@osu.edu) or visit https://esgp.osu.edu/