



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2003CO71B

Title: Urban Landscape Irrigation with Reclaimed Wastewater: Water Quality Assessment and Community Experience

Project Type: Research

Focus Categories: Irrigation, Waste Water, Water Supply

Keywords: Urban landscape irrigation, Water reuse, Turfgrass, Water quality

Start Date: 03/01/2003

End Date: 02/28/2004

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Matching Funds: \$ 27516.00

Congressional District:N/A

Principal Investigators: Qian, Yaling

Abstract:Landscape irrigation represents 50-60% of the water used in municipalities. With several years of low precipitation and low winter snow pack, the extreme drought in 2002 has resulted in mandatory lawn and landscape watering restrictions in many of the cities along the Front Range of Colorado. Landscape business and green industry are facing great threats. The current practices in many municipalities of using pure, potable water for urban landscape irrigation (which does not require potability) and simultaneously dumping treated wastewater to the rivers are both environmentally unacceptable and wasteful. Reclaimed wastewater is a potential valuable resource. Using reclaimed wastewater in urban landscape irrigation can free-up potable water supplies for public consumption, thereby enhancing the long-term infrastructure for drought protection in the Front Range of Colorado. Moreover, discharging municipal effluent water to streams with low flow conditions during extreme drought would increase water temperatures, increase nutrient content of the stream, increase levels of microbial contaminants, and promote algal blooms, thereby increasing the costs to downstream public water systems. Excessive nutrients (nitrates and P) can contaminate surface and ground water. Landscape plants are not a part of the food chain; thus, landscapes might serve as highly effective wastewater disposal facility for partially polluted water. Research done in southern U.S. has indicated that dense, well-managed turfgrass areas

are among the best bio-filtration systems available for removal of excess nutrients. Due to the dense plant canopy, turfgrass landscapes are increasingly being viewed as environmentally desirable disposal sites for wastewater.

[U.S. Department of the Interior, U.S. Geological Survey](#)

Maintain: Schefter@usgs.gov

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