

# Swimming pools and intra-city climates: Influences on residential water consumption in Cape Town

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## **Abstract**

Water demand management can be effective as a resource management approach if demand estimation is accurate and consumption determinants are defined. While determinants such as household income, regional climate, water price, property size and household occupancy have been comprehensively studied and modelled, other determinants such as swimming pools and intra-city climates have not. This study examines residential water consumption in the City of Cape Town in 2008/2009, under property size regimes, to separately determine whether the presence of pools or occurrence of different intra-city precipitation patterns have an influence on water consumption. A sample of 14 233 properties is analysed, with 20.86% having swimming pools within their boundaries. Overall, those properties with swimming pools used 37.36% or 8.85 kℓ per month more water than those without, with pools having a larger influence on household consumption on smaller properties. These results were statistically significant. Different precipitation patterns occurred over the study period, and while there were indications that consumption may be lower if there is more rainfall, limited evidence was found to support the hypothesis.

**Keywords:** water consumption, water demand management, swimming pools, precipitation, Cape Town