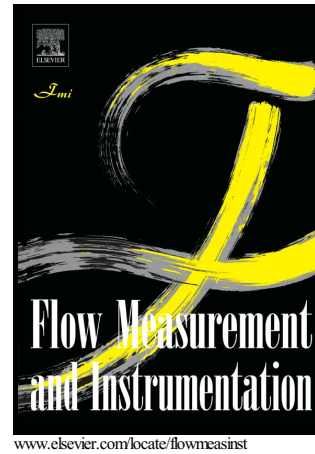


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# The evolution of urban water metering and conservation in Australia

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## Abstract

Water metering has traditionally been seen as a means of measuring the amount of water consumed primarily for billing purposes. However, with the recent entry into the market of smart water meters, metering is now increasingly considered as an integral aspect of integrated water management. The purpose of this paper was to undertake a review of urban water metering in Australia, and to understand the nexus between water metering and water conservation. The review has demonstrated that metering has contributed to water conservation. The use of smart meters, and their integration with other household appliances, is on the increase.

## Keywords

measurement, water meter, policy, regulation, conservation

## Introduction

With the increase of population in urban areas, the demand for water has followed forth. The changing lifestyles and eating habits has added into the increased demand for water, which has further been exacerbated by the adverse effects of climate change, and the need to allow more water for environmental purposes. In many cities, it is no longer feasible to rely on increasing the supply of water so as to meet the increasing demand. In order to address the challenges brought about by these changes, the water sector has undergone a number of policy and institutional reforms over the past decades. A brief history of the water institutional reforms in Australia from the pre-European settlement era (1788) to 2004 is described in McKay (2005).

The reforms mentioned above include those agreed upon by the Council of Australian Governments (COAG) in 1994, which aimed at achieving efficient use of water through strategies such as pricing for full cost recovery, delinking water access rights from land ownership, water trading and setting aside water for the environment (Neal, 1994). The water reforms that were initiated in 1995 following the 1994 COAG agreement appear to be the most notable based on their impacts (McKay 2005), and heralded the requirement for metering water consumption nationally. In particular, the reforms were intended to introduce universal measurement of water consumption, and hence, to ensure equity in water usage charges, and better demand management and leakage detection (National Measurement Institute [NMI], 2010). This approach is in tandem with the adage that goes: “You cannot manage what you cannot measure.”

Metering of water is not only crucial for equity purposes, but also has fairness and legal implications, as inaccurate metering may lead to some users being randomly advantaged or disadvantaged (Water Use Efficiency, 2009). A water meter that under-reads (or has a negative error), implies that cumulatively, it will record less volume of water than actually supplied, and hence a direct loss to the supplier. On the other hand, a water meter with a positive error means a financial loss to the client. As

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