

# Recycled water for consumer markets — a marketing research review and agenda

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## Abstract

A review of past marketing-related research in the area of recycled water has been conducted. Findings are reported within the main areas of past research: willingness to adopt different forms of usage of recycled water, concerns of the general public towards the use of recycled water, the socio-demographic profile of early adopters, strategies to increase acceptance and adoption of recycled water in communities, perceived benefits among users of recycled water. The limitations of prior studies are reviewed and gaps identified, leading to recommendations for a future marketing-related research agenda to support public acceptance of recycled water in communities.

*Keywords:* Recycled water; Consumer attitudes; Public acceptance

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## 1. Introduction

Marketing is the means by which the capabilities of a company are matched to the needs or wants of the consumer. Each company has different capabilities and it cannot maximize all market opportunities equally. However, all companies are similar in that they want to be as successful as possible. According to Saunders and Wong [1] this success is dependent on four elements: The pro-

duct or service that is being provided (the core value), the production process (which relies on efficiency), the people (and their reactivity) and professional marketing (reliant on understanding market needs). One can therefore appreciate that marketing is important in creating a successful company or product. The basis of any marketing activity is the examination of the market environment so that a product can be created to best possibly satisfy the wants of the consumer. Alternatively, if the product cannot be modified, a market must be identified or created for the product.

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The above principles of marketing can be applied to many products from consumer goods (like toothpaste) to services of non-profit organizations (like hours of volunteering work) and are ubiquitous. Consequently, such principles should be applicable to recycled water, a unique product that poses significant new challenges to marketing: firstly, it is a new product on the marketplace. Therefore, consumers have not yet developed firm opinions or attitudes about recycled water for their personal use. Secondly, water is essential for the survival of the human race and it is likely that our use of recycled water will one day be obligatory. It is therefore the marketer's responsibility to make this product attractive to the consumer. This requires, as a first step, the identification of a market segment of 'recycled water innovators' who are willing to purchase or consume the product at its early life cycle stage.

The importance of marketing in the context of recycled water has been pointed out by numerous researchers in the past: For instance, DeSena [2] reports on a failed potable reuse project in the USA stating explicitly that "One of the biggest factors contributing to the project's demise ... was the difficulty building public consensus in several political jurisdiction" (p. 18). Dillon [3] conducted an expert study in this area on behalf of the Australian Water Association surveying one or two representatives for each state or territory about Australian water reuse research priorities. He found that 'factors affecting public acceptance of reuse' was ranked first of nine factors emerging. Lu and Leung [4] anchored the need for marketing planning in Task 5 of their Outline of wastewater reclamation and reuse plan. Dishman et al. [5] studied acceptance for direct potable use and conclude that "All ... problems associated with potable reuse may be resolved, but the issue of public acceptance could kill the proposal." (p. 158).

The aim of this study is to: (1) review past marketing-related work in the area of recycled water, and (2) propose a research agenda for future studies.

Water recycling is typically defined as reclamation of effluent generated by a given user for on-site use by the same user. However, in recent years, there are other more general definitions in use, such as in the California Water Code (State of California) [6] where it is defined to mean 'water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur'. The Australian community has come to realise that environmental resources are not infinite, and widely accepts recycling at a household scale. The term 'water recycling' has therefore been suggested by the Australian Academy of Technological Sciences and Engineering [7] as the preferred term to be adopted for generic water reclamation and reuse in Australia. We follow this recommendation throughout this article.

## 2. The starting point in Australia

The ABS has collected a vast amount of information related to water and water use in Australia: between 2000 and 2001 24,909 Giga litres (GL) (10<sup>9</sup> litres) of water were consumed in Australia. However, of this amount only 516,264 mega litres (ML) was produced as recycled water, adding up to a mere 4% of total water consumption. Although this is an increase of 3% on the amount of recycled water used between 1996–97 it still remains a rather insignificant quantity. Agriculture is by far the largest consumer of water, using 16,660 GL (67% ) of water in 2000–01 and 82% of the total recycled water produced, but this accounting for only 423,264 ML. The household is the second largest consumer of water, taking 9% (2,181 GL) of the total water consumption in 2000–01. However, in 1998 only 0.4% of water used by households was recycled or grey water, 88.4% of the water coming from mains. Consequently, 44% of household water used is on gardens and a further 15% is by toilets, where recycled water would be more than sufficient. Furthermore, it must be recognised that despite the increasing

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