



# Predictors of individuals' intention to conserve water in a lodging context: the application of an extended Theory of Reasoned Action

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## ABSTRACT

This study sought to develop an extended Theory of Reasoned Action (TRA) model to provide a clear understanding of individuals' intention to conserve water in a lodging context. In particular, the extended TRA incorporates two additional constructs: environmental concern and water conservation activities in everyday life, into the original TRA model. The outcomes of the present paper have shown that individuals' attitudes, subjective norms and water conservation activities in everyday life exert a positive influence on their intention to conserve water in a lodging context. The results also revealed that environmental concern has a positive influence on individuals' attitudes and water conservation activities in everyday life but a non-significant influence on their subjective norms. The empirical results of Structural Equation Modeling (SEM) indicated that the extended model provides a better fit of the data, and explains greater amounts of variance in individuals' intention to conserve water in a lodging context compared to the original TRA.

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## 1. Introduction

Tourism is at present the largest and fastest growing industry in the world (Kasim et al., 2014). According to the United Nation World Tourism Organization's report—Tourism 2020 Vision (UNWTO, 2012), international tourist arrivals in Europe were forecasted to grow from 414 million tourists in 2003 to 717 million in 2020, which means they will have nearly doubled in two decades (2000–2020). This forecast indicates future needs for more tourism support systems that would exert pressure on global resources' consumption, such as water, energy, air or pollution (Kasim et al., 2014).

The lodging industry is known as one of the least developed industries with regards to the implementation of sustainability policies (Smith and Feldman, 2003). Conventional hotels, especially, are often associated with issues related to deterioration of the environment (Han et al., 2011). It has been reported that about 75% of all environmental effects that conventional hotels have on the environment are related to excessive consumption of water,

energy and disposable products (Chen and Tung, 2014; Han and Yoon, 2015; Han et al., 2015). Water is an essential resource for the lodging industry. Previous studies have indicated that tourist water use tends to be high, with a corresponding water consumption that ranges between two and three times that of local water demand in developed countries (Garcia and Severa, 2003) and up to fifteen times the water consumption in developing countries (Gössling, 2001). Furthermore, according to Gössling et al. (2012), an average tourist within Europe uses over 300l of water per day, against approximately 150l per day for an average European resident. It was also found that tourist water consumption per capita varies between 100 and 2000l per bed per night, and it depends fundamentally on the category of the hotel and the levels of services offered (Gössling et al., 2012). In addition, it has been reported that higher category hotels consume more water yearly than lower category hotels (Barberán et al., 2013; Gössling et al., 2012). Bohdanowicz and Martinac (2007) also found that in European hotels, water consumption increases in relation to the number of nights stayed and the number of meals served. It has been reported that most water consumption occurs in guestrooms for direct uses, including activities that are under the control of individual tourists, such as washing, bathing, toilet flushing and the frequency of towel changing (Gössling, 2015; Page et al., 2014). One of the main reasons for high water consumption in the guestrooms

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relates to the behavioral tendencies of tourists. Hotel guests tend to have a “pleasure behavior approach” to showering or bathing, which increases the tendency to use more water than they normally would at home (Eurostat, European Commission, 2009). In addition, Jorgensen et al. (2009) emphasized that outdoor water consumption (e.g., in a lodging context) seems to be discretionary and it is often the first target for changes in water consumption.

Romania was selected for this study as it is a representative destination characterized by the increased droughts and water stress in the past ten years and by flood events that are projected to occur more frequently in many river basins (Gössling et al., 2015; Government of Romania et al., 2008). Water consumption is of considerable interest for the Romanian lodging industry, which has developed rapidly in the last two decades. According to the National Institute of Statistics (NIS, 2015), the number of total tourist arrivals (both inbound and domestic tourists) had increased from approximately 7.1 million in 1995 to 8.5 million in 2014 (Fig. 1) and the number of inbound tourist arrivals had increased from 0.77 million in 1995 to 1.9 million in 2014, which means they have nearly tripled in two decades. There were 20.3 million overnight stays in Romanian tourist establishments in 2014 (NIS, 2015). As of December 2014, in Romania there were 125 five-star hotels, 671 four-star tourist hotels, 2954 three-star rated hotels, and 1797 two-star hotels (Fig. 2). Further, the yearly average growth rate of beds was of 33.6%, 13.2%, 10.7%, and –0.6% for five-star, four-star, three-star, and two-star hotels respectively since 1995. Despite the lack of statistical data on the overall tourist water consumption in Romania, it is only logical to assume that as the lodging industry in Romania grows so too will its demand for water. Consequently, this uptrend of the lodging industry in Romania will exert a significant influence on water consumption and add to the already strenuous condition of water availability.

Although water consumption in hospitality settings has been studied extensively, research on water conservation in this industry is limited, especially in Romania. The most commonly studied pro-environmental behavior in hotel settings is the reuse of towels or linens (Goldstein et al., 2008; Shang et al., 2010). In addition, a survey among hotel guests in Iberotel indicated that 99% of participants accepted the reuse of treated wastewater for toilet flushing as long as no esthetical influence would occur (Antakyali et al., 2008). Nonetheless, no research has yet attempted to investigate individuals' water conservation behaviors in a lodging context. The present work aims to further contribute to the under researched topic of water conservation behavior in a lodging context as a possible tool to trigger the implementation of green practices in the lodging industry.

The Theory of Planned Behavior (TPB) is one of the most influential models in predicting pro-environmental intentions/behaviors. The TPB framework has been widely used to study a range of intentions/behaviors whose performance depends on the possession of requisite resources (such as time, money, skills) and/or opportunities (Han and Kim, 2010; Chen and Tung, 2014; Han et al., 2010). However, the present paper aims to examine individuals' intentions to conserve water in a lodging context. Under the terms of water conservation we considered curtailment water-saving procedures that are under the complete control of individuals (Lam, 2006). In this circumstance, the Theory of Reasoned Action (TRA) as a theoretical framework is more appropriate as it predicts an individual's intention under conditions of volitional control (Fishbein and Ajzen, 1975). Although the issue of water conservation is not new within environmental literature, no research has yet focused on the role of TRA in predicting individuals' intentions to conserve water in a lodging context.

There is growing empirical evidence that environmental concern and green activities in everyday lives (such as water, energy savings, and reduction of waste production) are powerful predic-

tors of pro-environmental intentions/behaviors. Such constructs could be integrated in the TRA as they are verified in various settings involving environment and conservation (Carrus et al., 2005; Chen and Tung, 2014; Clark and Finley, 2007; De Groot and Steg, 2007; Fujii, 2006; Gilg and Barr, 2006; Han and Yoon, 2015; Hedlund, 2011; Schultz et al., 2005; Willis et al., 2011; Wolters, 2014). However, as the literature has not covered the influence of environmental concern and water conservation activities in everyday life (as specific eco-friendly activities) on individuals' intentions to conserve water in a lodging context, the present study integrated these constructs into the original TRA framework.

Given these, the present research shall address the following objectives:

- (1) Building a theoretical framework of individuals' intentions to conserve water in a lodging context by including two additional constructs: environmental concern and water conservation activities in everyday life;
- (2) Comparing the proposed model to the original framework of TRA for the identification of its superiority in predicting individuals' intentions to conserve water in a lodging context;
- (3) Examining the mediating impact of environmental concern within the proposed theoretical model.

The paper is structured as follows. First, the Theory of Reasoned Action, environmental concern and water conservation activities in everyday lives are reviewed, and insights are presented on hypotheses development. Second, descriptions of the methodology and results are reported. Finally, theoretical and practical implications, limitations and directions for future research are presented.

## 2. Literature review

### 2.1. Theory of Reasoned Action

The Theory of Reasoned Action (TRA) was introduced by Fishbein and Ajzen (1975) to predict human behaviors under complete volitional control (i.e., depending on conscious personal choice rather than external forces). In this theory, intention, which is the immediate antecedent of behavior, indicates an individual's readiness to engage in a particular behavior (Ajzen, 1985). The TRA involves two major constructs for predicting intention, namely attitude and subjective norms. According to Ajzen and Fishbein (1980), attitude refers to the degree of one's positive or negative evaluation of behavior. Past studies have indicated that attitude has a positive impact on an individual's intention (Ajzen, 1991; Baker et al., 2007; Cheng et al., 2006; Taylor and Todd, 1995). In addition, subjective norms consist of the pressure on the individual to conform to the expectations of people who are important to him/her (Ajzen, 1991; Fishbein and Ajzen, 1975). When examining the relationships between an individual's subjective norms and behavioral intentions, most of the previous studies have revealed that subjective norms exert a positive impact on behavioral intention (Han et al., 2010; Taylor and Todd, 1995).

Sheppard et al. (1988) verified the predictive power of TRA and concluded that the model accurately predicted individuals' intentions when applied in different contexts. Furthermore, TRA has been widely applied to predict behavioral intentions in the area of environmental behaviors (Kim et al., 2013; Marandu et al., 2010) and recycling behaviors (e.g., Bagozzi and Dabholkar, 1994; Goldenhar and Connell, 1993). Most of these studies reported predictive power of the TRA. Nevertheless, the TRA model has received limited attention in the conservation literature. Most of the previous studies in this area investigated the residential water consumption and conservation (Aitken et al., 1994; Fishbein

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