Wageningen University

NHTV Breda

Tourism BSc

Bachelor Thesis

25.06.2015

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Examiner: dr. Machiel Lamers

Tourists' water consumption in hotels

- The role of awareness, attitude and hedonism

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Authorship statement

Thesis title: Tourists' water consumption in hotels

Subtitle: The role of awareness, attitude and hedonism

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Authorship statement

I hereby declare that this thesis is wholly the work of Michèle Schiermann. Any other contributors have either been referenced in the prescribed manner or are listed in the acknowledgements together with the nature and the scope of their contribution.

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Abstract

One of the most important resources in tourism constitutes fresh water. Especially hotels consume tremendous amounts of it to maintain landscape and facilities, supply kitchen and ensure water rich activities outside as well as inside. Often however, accommodations, which are located in water scarce regions claim more water than actually available for both hotel and local population. While so far ensuring water responsibility has been mostly a task by the hotel itself, it is of increasing importance to encourage hotel guests in the water saving process; especially in the bathroom where they have direct control over water flow and laundry frequency. Until now, a moderate amount of research has been conducted studying the gap between tourists' awareness of general environmental issues and their willingness to act more responsibly. However, limited research exists regarding tourists' water consumption behaviour. This exploratory research starts with an extensive literature review to point out the severity of sustainable resource treatment as well as the state-of-art research addressing tourists' environmental behaviour. The obtained information has been transformed into the study's basic conceptual framework. By means of a self-administered questionnaire, this framework has been extended to explain the gap between awareness and action-taking more in-depth. The online questionnaire yielded 1035 respondents, which provides a solid foundation to establish theories. Hence, this report reveals that the gap between awareness and action-taking in the water context consists of three pillars. The first one claims that tourists have to command over a certain degree of knowledge to be able to reflect and create awareness. However, to reach the final stage of action-taking, the phase of concern has to be passed first. The second pillar claims that hedonistic thinking, in terms of pleasure seeking, can hinder this process of action-taking. Lastly, the third pillar addresses the tourist's attitude in terms of mind-set and openness for water saving interventions applied by hotels, such as the water saving signs in bathrooms. It has been identified that even though tourists consider themselves as aware about water related problems, they tend to be more water consuming in hotels than at home. However, as most respondents perceive water saving signs as a helpful reminder and encouraging, the foundation for tackling the next step, action-taking, exists. This study also revealed that while the tourist's education level and net income do not affect their attitude and water saving behaviour, age does have minor effects.

Key words: water, scarce resource, tourism, behaviour, attitude, environment, hotel, consumption, behaviour-attitude gap

Tourists' water consumption in hotels

- The role of awareness, attitude and hedonism

"A sustainable world means working together to create prosperity for all."

- Jacqueline Novogratz

Introduction and overview

Dropping water tables, depletion of underground aquifers, shrinking water bodies and desiccation of wetlands are serious global consequences of both natural as well as man-made events (Graci & Kuehnel, 2010). The number of people living in water -stressed or even -scarce regions is rising continuously (Becken, 2014). By 2025 up to 1.8 billion people are expected to live in countries suffering from absolute water scarcity (UN Water, 2006). Even though tourism has enormous effects on the economy, it carries also noteworthy negative impacts on natural resources and the global environment (Dubois & Ceron, 2006; Gössling, 2002; Gössling, 2015). Besides remarkable waste production, the ongoing process of burning fossil fuels and its consequence of greenhouse gas emissions (Mc Kercher, Prideaux, Cheung & Law, 2010), also water sources across the world are increasingly strained and constitute a scarce source near depletion in vulnerable regions (Dubois & Ceron, 2006; Gössling, 2015; UN Water, 2006). Consequently, tourism embodies a phenomenon containing a very dynamic nature. While it has the ability to adapt to external changes, it simultaneously can change its environment (social, environmental and social factors) significantly (Hall, 1991; Poon, 1993). Due to globalization, technology innovations as well as mind set changes, the tourism sector has undergone a tremendous increase in travellers within the last decades. Speaking in numbers, there were 25 million international tourists in 1950 compared to 1,1 billion international tourists in 2013, accompanied by 5 to 6 billion domestic tourists. Furthermore, tourist numbers will experience a further increase of 3,3% from 2010 to 2030 to reach 1,8 billon tourists (UNWTO, 2014). Hence, (water scarce) destinations across the world are expected to experience an increased demand on water during the upcoming decades. Therefore, to sustain tourism businesses as well as economies, which rely solely on tourism, it is of exceptionally urgency to consume water in a more responsible and saving way to allow future generations access to fresh water. In spite of water regulations and policies, eco-certification programmes and the adoption of water-management departments in bigger hotels (Gössling, 2002; McKercher et al., 2010; McKercher & Prideaux, 2011; Prigram, 1995), without active participation and the will of cooperation among tourists, none of these intervention strategies will gain long term success. Hence, a certain degree of knowledge and understanding regarding water but also region-related issues is required to enhance the discernment of

visible water saving applications among hotel guests. Those applications have to evoke feelings of implicitness and global benefit instead of functional restrictions in terms of comfort. Even though more people become aware of environmental issues and resource exploitation, the willingness to change their consumer behaviour remains still low (Anable, Lane & Kelay, 2006; Ester, Simoes & Vinken, 2004; Kollmuss & Agyeman, 2002; McKercher & Prideaux, 2011). In a climate-related context Highham, Reis and Cohen (2015) explain the tourists' attitude-behaviour gap based on the distinct views of modernism and post-modernism. Here, the former views tourism as external to everyday life and is "associated with freedom, escape, abandon, and attenuation for daily practices" (Highham, Reis & Cohen, 2015, pp. 4-5, from Pearce, 1993). The post-modernist view claims that tourism is already entangled in everyday life (Edensor, 2007; Hall, 2013) and becomes less extraordinary. Since the contemporary life consists of fluid and continuously changing elements (Baumann, 2000), the personal and individual identity and thus, behaviour, is also viewed as dynamic and complex. According to Higham et al. (2015) tourism is an "arena where different identities may be practiced, performed, played out, and discarded" (p. 5), claiming that due to the fragmented nature of behaviour one should not expect consistency across situations, backgrounds and contexts (Cohen, Highham & Reis, 2013; Hibbert, Dickinson, Gössling & Curtin, 2013). In short, while modernism views tourism as escape and post-modernism describes tourists' identities as dynamic and situational, there is no definite reason to transfer responsible behaviour performed at home (partly or completely) into tourism contexts (Barr, Shaw, Coles & Prillwitz, 2010; Cohen at al., 2013).
These suggested explanations provide a solid foundation for further investigation of the attitude-behaviour gap among tourists in a water context. However, the concepts of modernism and post-modernism will not find major attention throughout this report as they solely served as background information.

This paper will investigate the extent to what tourists are aware of water shortages and their actual willingness to act more responsibly, since several factors prevent them from actively changing their consumption behaviour on holidays. The gap between awareness and willingness to save water will be the focus of this paper and is examined by means of an extensive literature review on water scarcity, its link to tourism and potential reasons for not taking action in a more general context. Furthermore, a quantitative study, which is partly designed according to the literature findings on behaviour issues, investigates tourists' awareness, attitude as well as behaviour regarding (their) water consumption in hotel bathrooms. The obtained results will contribute to a better understanding of such risen gap in a water context and deliver information regarding differences amongst sex, education level and age as well as the effectiveness and perception of water saving signs in hotel bathrooms. The following research questions form the study.

RQ 1: How do tourists view the seriousness of water scarcity and tourism's role in it?

RQ 2: What factors determine tourists' propensity to change their behaviour?

RQ 3: What effect do water saving signs implemented in hotel bathrooms have on tourists?

Literature review

Concept of water scarcity and distribution

Due to population growth, stronger economies, more sophisticated water supply systems as well as a general change in international trade patterns, lifestyle and technology (Gössling et al., 2012), global water usage has tripled within the past 50 years (Carbon Disclosure Project, 2010) or in other terms, increased more than twice the rate of population growth in the last century (UN Water, 2006). Furthermore, considering a strong demand and thus an increasing consumption of fresh water, the availability of water sources will decrease since non-renewable fossil water resources (such as ground water and glacier ice) will move towards depletion, an increasing amount of water bodies and ground water spots will experience pollution, but also climate change is seen as a contributor. Consequences of the just mentioned harms constitute a drop in precipitation levels, more frequent droughts, increased evaporation as well as alterations in run-off habits (Parry, 2009).

Nevertheless, water scarcity, which is "*defined as the point at which the aggregate impact of all users impinges on the supply or quality of water under prevailing institutional arrangements to the extent that the demand by all sectors, including the environment, cannot be satisfied fully"* (UN Water, 2006, p.2.), is assessed by hydrologists by evaluating the population-water equation (see fig. 1).

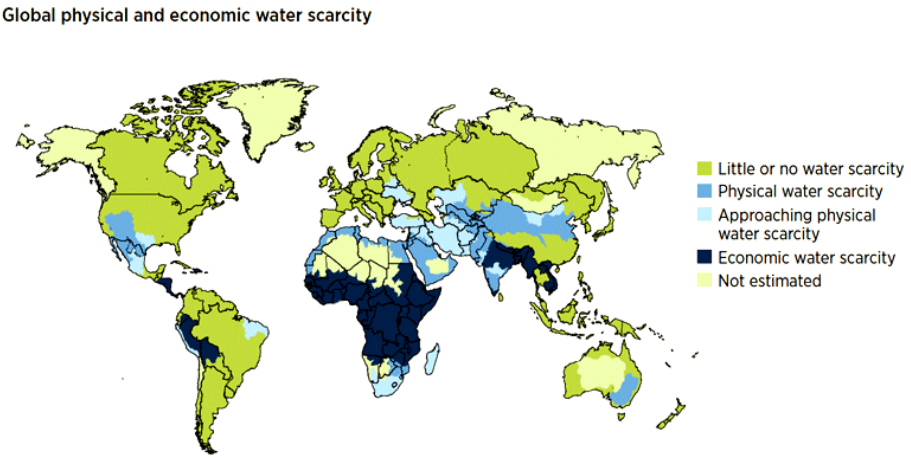


Figure 1 – Geographical distribution of water scarcity

- Water stress = annual water supply below 1,700m³ per person
- Water scarcity = annual water supply below 1000m³ per person
- Absolute scarcity = annual water supply below 500m³ per person

In 2006, 1.2 billion people (1/5 of world population) were living in areas facing water scarcity. Furthermore, 1.6 billion people (1/4 of world population) have been dealing with economic water shortages, which refer to a lack of water extracting infrastructure. Water stressed regions constitute North Africa, Middle and Near East, Southern Asia, west coast of South America and the Mediterranean countries (Arnell, 2004; Vörösmarty, Green, Salisbury & Lammers, 2000). Sub Saharan Africa counts the highest amount of water stressed countries. By 2025, 1.8 billion people are expected to live in countries/regions suffering from absolute water scarcity.

Even though water scarcity constitutes a relative concept, it "can occur at any level of supply or demand" (UN Water, 2006, p.2.). Going further and with respect to aspects of affluence, expectations and economic behaviour, scarcity might even embody a social construct. Nevertheless, it is important to bear

in mind that water scarcity is caused naturally as well as man-made. While the planet contains sufficient amounts of water to supply seven billion people, its water sources are distributed unevenly and moreover, high amounts are wasted, polluted and managed in an unsustainable way (UN Water, 2006).

Occurring tensions between water scarcity and tourism

Water scarcity does not exist globally, instead, some countries and regions suffer chronically from water shortages (UN Water, 2006). As mentioned before, the availability of fresh water sources is unevenly distributed across the globe. It is possible that water scarce and water abundant areas are just 100km apart from each other (Gössling et al., 2012). Generally, Becken (2014) stresses that an increased concentration on agricultural production, fast development processes and urbanization structures have led to an "increased withdrawal of freshwater resources, with mounting risks of water stress" (p.10). Tourism counts as a major global industry with partly significant contributions to local water demands (Garcia & Servera, 2003; Gössling, 2001; Tortella & Tirado, 2011). Logically, if a destination implements touristic intentions, an additional number of people need to be provided with water. Therefore, local communities often stay in competition with hotels and other touristic institutions regarding water supply as both parties withdraw fresh water municipally (Rico-Amoros, Olcina-Cantos & Sauri, 2009). Even though water scarcity constitutes a challenge for local populations (Scott, El-Naser, Hagan & Hijazi, 2003), tourism is oftentimes the only possibility to generate revenue, especially in least developed countries (Gössling, Hall & Scott, 2009). For instance in Phuket, Thailand, rice farmers experienced restrictions regarding their cropping seasons to conserve water for tourism purposes (Barron & Baum, 2008).

The Mediterranean's register more than 300 million arrivals per year, which declares them to most visited region worldwide. It has been identified that tourism exerts a tremendous pressure on local water supplies, which caused competition between tourism and locals (Gössling et al., 2012; Kent, Newnham & Essex, 2002). For instance, Bali's tourism demands 65% of the local water resources (Cole, 2012). Furthermore, precipitation rates in tropical areas such as Fiji, Indonesia, Jamaica, Malaysia, Philippines and Singapore are all exceeding 2000mm per year. In contrast, Egypt registers less than 100mm per annum. The Water Resources Vulnerability Index reveals that Egypt, the United Arab Emirates and Singapore are highly water scarce. Egypt and the UAE demand even more water than their actual annual renewal quote. The water supply for the UAE for instance derives from groundwater (up to 51% for irrigation purposes), desalination (40%) and treated waste water (9%) (UAE Ministry of Environment and Water, 2011). Figure 2 illustrates that part of these countries count to the top 15 of international tourist arrivals in 2014, which emphasizes the severity.

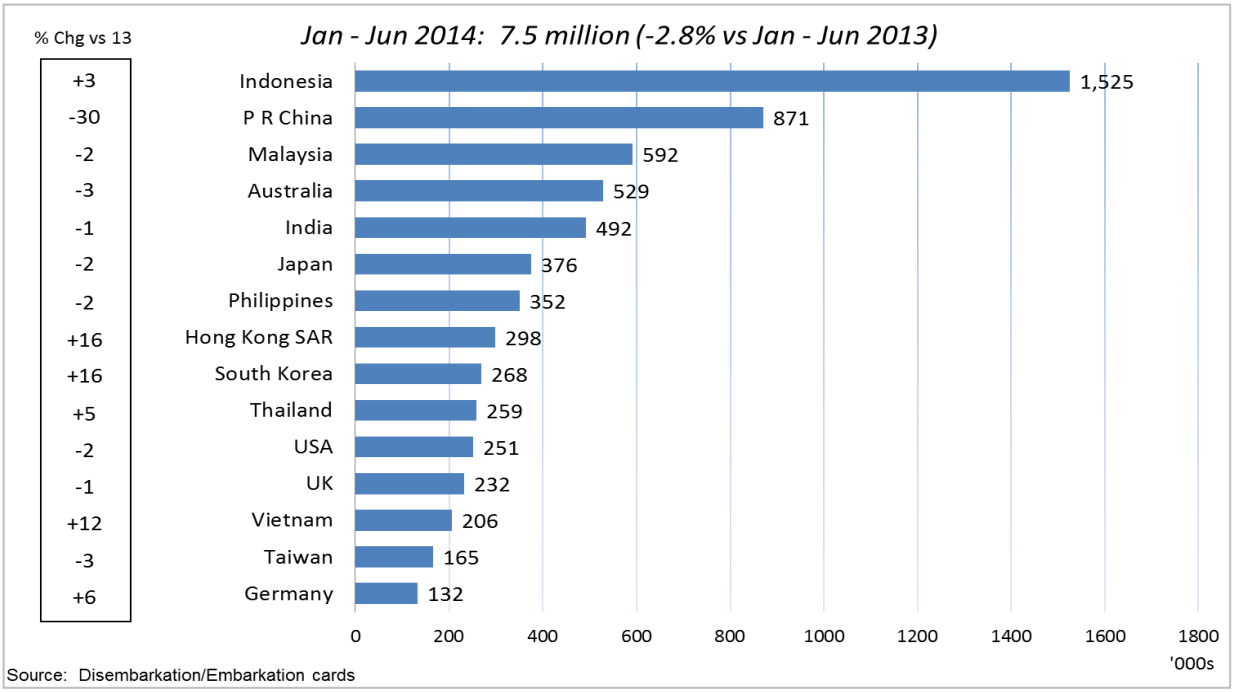


Figure 2 – International visitor arrivals, top 15 markets, Jan - Jun 2014

Especially on water scarce coastal tourism destinations, water related problems tend to be more serious since conflicts over consumption rights arise (agricultural vs. urban purposes). This becomes emphasized when peak-times of tourism overlap with agricultural seasonality, hence, water supply runs near depletion, especially in dry seasons. Two major consequences are evolving: a) such high and sudden demand on water can cause deterioration of water sources and b) sector rivalry and social conflicts arise, especially when the local population suffers from increased water prices, resource allocation and insufficient quality standards (Tortella & Tirado, 2011).

Ecologic (2007) emphasizes significant disparities in water use regarding different types of lodging. Thus, hotels and holiday houses tend to use more fresh water than campsites. 5-star hotels register due to water rich activities and high value on appearance highest water consumption compared to average hotels. Furthermore, the presence of a swimming pool adds 60l to the tourist's daily water consumption, while a café or bar adds up to 35 litre (Hamele & Eckhardt, 2006). However, one has to identify and distinguish the key drivers of tourism water usage in accommodations (Charara, Cashman, Bonnell & Gehr, 2011; Barberán, Egea, Gracia-de-Rentería & Salvador, 2013):

- Property size
- Occupancy rates
- Number and size of swimming pools
- Number of employees
- Climate
- Other services

The study of Becken (2014) revealed three key findings regarding fresh water availability and consumption in hotels.

1. Water consumption patterns differ drastically within and between nations (between 200-900l per guest night). Industrialized countries (e.g. France, Germany) resulted to be more water efficient concerning water consumption in accommodations than developing countries, where both water intensity per guest night as well as the water variation were accounted to be highest. Highest intensity has been registered in the Philippines (981l/night), China (956l/night) and Malaysia (914l/night).
2. Water consumption patterns in hotels are not linked to the availability of water resources within a country. New Zealand for instance has access to considerable amounts of fresh water while the tourism water usage rates remain efficient. In contrast, water scarce countries such as India and Egypt present highest tourism water usage rates. However, Becken claims the importance of further investigating disparities regarding location and seasons.
3. The water use between tourism related purposes and municipal consumers differs most significantly in developing countries, such as Fiji and Sri Lanka. A high disparity is especially alarming when the country already suffers from water scarcity, such as Egypt and India. These large variations are mainly caused by both lavish water consumption behaviour of tourists and the spare, often constrained, domestic usage patterns by local communities. These inequalities evoke serious concerns regarding water justice and underlying norms and values concerning water access.

To approach these inequalities and enhance a destination's sustainability (see fig. 3) as well as longevity, tourism businesses should be encouraged to operate beyond own affairs and adopt a broader perspective that identifies both its own needs to survive, but also recognizes local needs. Such a symbiosis will ensure long-term survival for both parties. Oftentimes a partnership among government, businesses and consumer are considered to be the first step of combating environmental problems within tourism. For instance, UNWTO support and encourage the existence of protected areas and engages in tourism planning to minimize environmental impacts (UNWTO, 2008).

Figure 3 – People, planet, profit

Water as a 'hot issue' in tourism

As mentioned before, the global demand for traveling will undergo a tremendous and continuous increase in the future to an annual growth rate of 4-7%. The Middle East and Asian-Pacific region are expected to experience a growth, which nearly doubles that rate (ITB, 2008).

Bearing in mind the expectations on tourism numbers, the planet is facing crucial challenges to be able to supply the mankind (and tourism) with efficient amounts of water. However, since the 1960s several environmental conferences contributed to an implementation of more sustainable tourism operations

concerning water consumption (Gössling, 2015; Knowles, 1999). A range of researchers and scientists recognized some forms of tourism to be exceedingly harmful to the physical environment, often accompanied by irreversible consequences (McKercher & Prideaux, 2011).
A sophisticated and thorough tourism planning needs to take place, which recognizes and monitors all water-related events as well as the region's characteristics. This demands expertise regarding climate and weather patterns collected over an extended period, groundwater information as well as information about surface waterbodies and their distribution (Pigram, 1995). However, to enhance the level of sustainability within tourism destinations, hotels and activities, this knowledge has to be successfully implemented on-site, e.g. in cooperation with hotel managers. The promotion of sustainable tourism aims to conserve natural resources and positively influence social but also cultural dynamics (Gössling, 2002; Gunn, 1988; Pigram, 1995), which "can protect resources while improving quality and enhancing visitor satisfaction" (Gunn, 1988 in Pigram 1995, p.211).

Utilization of water in tourism

While the agricultural sector accounts for 70% of the global fresh water use, industrial purposes claim only 20% and domestic purposes (households, public services, commercial institutions) account for 10% (see fig. 4) (Bates, Kundzewicz, Wu & Palutikov, 2008; UNESCO, 2009). It is noteworthy that these shares differ considerably between countries and regions (Gössling, 2006).
Even though the tourism sector increasingly demands fresh water, tourism-related water usage constitutes less than 1% of globally consumed water. Nevertheless, it is important to bear in mind that water spreads rather locally and regionally instead of globally. Hence, global averages do not reveal details about certain regions or countries. However, due to an increase in tourist numbers, more sophisticated hotel standards (accompanied by more affluent individuals) as well as more reliance on water intense activities (e.g. golf and ski), forecasts predict an increase of tourism-related water consumption by 2020 (Gössling et al., 2012).

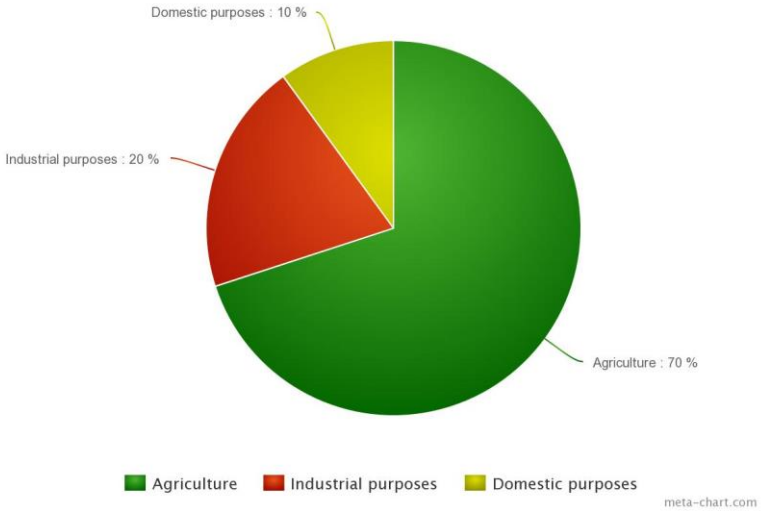
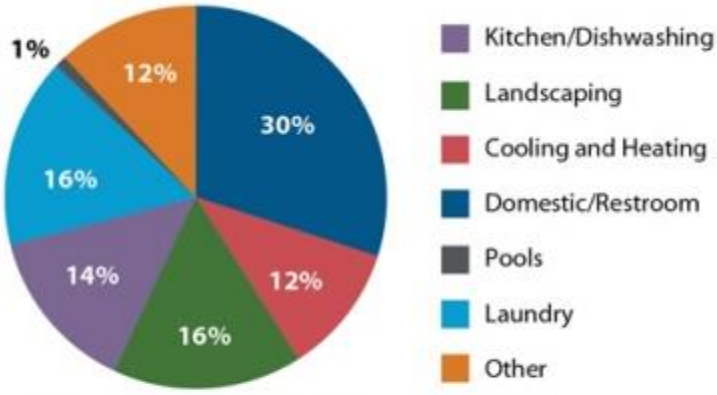


Figure 4 – Water use among sectors

Intervention strategies implemented by hotels

While hotels continuously seek to cut costs, they oftentimes lack efficient methods to save resources, which will turn out beneficial in the long term. There is evidence that American hotels' restrooms, landscaping and laundry facilities consume most amounts of water circling in hotels (see fig. 5). Furthermore, over the past 10 years fresh water costs have been increasing and are among other operational costs expected to rise even further. Hence, water use is not only affecting the environment, it also impacts operational costs to a great extent. By adopting water efficient measures in hotels, companies can reduce their operational costs by 11%, energy/water use by between 10 and 15% (WSH Report, 2012). Due to the global fall of water tables, depletion of underground aquifers, shrinking water bodies and the desiccation of wetlands (Graci & Kuehnel, 2010), hotels are encouraged to implement certain water saving measures to ensure the destination's longevity and sustainability. Figure 6 gives an overview of the average water usage per guest night in hotels across different countries (Ali, 2013).



Created by analyzing data from: New Mexico Office of the State Engineer, American Water Works Association (AWWA), AWWA Research Foundation, and East Bay Municipal Utility District.

Figure 5 – End uses of water

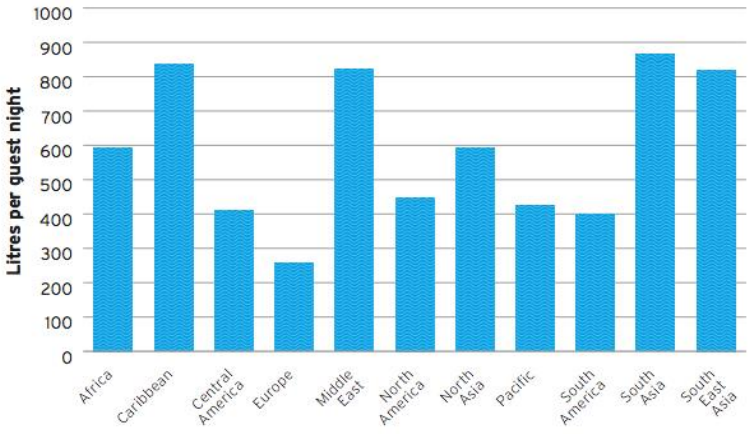


Figure 6 – Average water usage per guest per night in hotels

In regard to the paper's objective, namely examining the gap between awareness and action-taking among tourists specifically in guest rooms, the following presents (technical) water saving interventions implemented by hotels to reduce the consumption in hotel rooms (WSH Report, 2012).

<u>Guest rooms</u>

- Since guestrooms/bathrooms are one of the most water consuming elements in hotels, it is highly recommended to implement water efficient faucets, showerheads, toilets and urinals. These interventions will guarantee at least 20% more water efficiency and deliver equal or improved performance quality. While water efficient shower heads use 10l per minute,

conventional ones use between 20-30l, dual-flush toilets save in a 100 bed hotel approximately 200.000l a year (Australia Tourism, n.a).

- A very inexpensive and feasible intervention constitutes towel and linen reuse programs, often in form of notification cards placed in bathroom (see fig. 7) or beside beds. Goldstein, Cialdini and Griskevicius (2008) claim that wording on such cards has a tremendous effect on the actual participation rate of tourists. Hence, they found out that 'social norm messaging' supports hotels' intentions to save water. This would mean that those cards indicate for instance that previous hotel guests of that specific room have reused their towels as well; therefore, current hotel guests feel inspired and want to contribute positively as well. This method does not only save water, it also prevents tons of chemicals entering the water circle (Graci & Kuehnel, 2010). The United Nation Conference on Environment and Development in 1992 stressed that the visible instalment of eco-friendly measures evokes thinking and reflecting amongst tourists (Kang, Stein, Heo & Lee, 2012).
- Staff has to be instructed to use less water when cleaning hotel rooms (Australia Tourism, n.a).

Figure 7 – Towel reuse sign

Example 1: The *Willard Intercontinental* in Washington D.C. equipped their restroom facilities with water free urinals. This implementation has saved 95.000 gallons of water (=359.614 litres) in 2005 (Graci & Kuehnel, 2010).
Example 2: The *Fairmont Royal York* in Toronto applied a special water softener that decreases the amount of water being used in laundries. This alteration saves them 476.000 litres a day (Graci & Dodds, 2009).

Employment engagement

To successfully implement the above mentioned water saving measures, employee's commitment and engagement regarding those is inevitable. Educative trainings, site visits, competitions amongst each other and newsletters inform but also encourage staff members to carry along the message of water sustainability. It is of significant importance that employees are treated and paid fairly to develop an intrinsic motivation to support such changes (Graci & Kuehnel, 2010).

Nevertheless, hotels remain sceptical to investments, which turn out beneficial oftentimes only in the long run (Bird et al., 2007). It is important to consider and detect new markets, which are especially environmentally concerned and prefer staying in sustainable hotels. Manaktola and Jauhari (2007) claim that sustainable measures evoke also intangible benefits, such as satisfaction of emotional desires as well as strengthening self-esteem and the feeling of achievement ("I have acted more responsible and contributed to a better environment"). It is crucial to notice that tourists have a chance to influence the hotel's water consumption predominantly in bathrooms as there they stand in direct contact with it and are able to regulate water flow (e.g. toilet duo-flush, short or long showers, frequency of towels washed)

themselves, while they do not have an impact on water being used on food preparation or maintaining hotel and landscape.

Factors of an increasing awareness and degree of willingness to cooperate among tourists

Although environmental issues in the tourism context have been investigated by diverse scientists (Amelung, Nicholls & Viner, 2007; Anable et al., 2006; Cohen et al., 2013; David, 2009; Gössling et al., 2009; Scott, 2005), little research has been undertaken regarding the link between awareness and action-taking in context of water and tourism. The former, however, builds a solid background and demonstrates similar patterns, which also play a role in water related issues. Therefore, a broad review of existing literature, dealing about awareness gaps, has been done. Based on that information research question have been established to reveal potential reasons for the disparities between awareness and action-taking.

During the past three decades research has been investigating to what extent tourism impacts the environment, economy and society, both positively as well as negatively. Media in forms of TV, newspaper and internet, distribute the findings to the wider public – to especially rise awareness concerning the negative impacts tourism is causing (e.g. pollution of aviation, resource exploitation in poor countries, neglecting local communities) (McKercher & Prideaux, 2011). TNS (2007) states evidence that individuals have gained awareness regarding potential adverse effects of travel on social and environmental factors. However, even though travellers have become more aware, they do not necessarily change their consumption behaviour on holidays (McKercher et al., 2010).

Until now there has been little specific research on water consumption behaviour, but considerable research on travel behaviour in response to climate change (Becken, 2004; Cohen et al., 2013; Gössling et al., 2009; Highham et al., 2015; McKercher et al., 2010; McKercher & Prideaux, 2011; Patchen, 2006). These insights have potential bridging the uncertainty regarding the gap in a water context and provide a foundation for this research. The following section presents possible reasons for such a gap.

Insufficient/lack of knowledge

Individuals rank climate change as 'low order issue', which demonstrates a lack of understanding (McKercher et al., 2010). The study of McKercher and Prideaux (2011) revealed that less than 1% (n= 2621 students) consider tourism as an environmental issue with global consequences. Even though a range of code of ethics and green certification programmes conquer the tourism industry since the past 10 years, its effectiveness remains questioned (Buckley, 2000; Zhong at al., 2007). Researchers found out that the vast majority of travellers does not consider environmental problems when arranging their holiday. Climate change is not seen as a hot issue (Anable et al., 2006; Leiserowitz, 2007) and besides, tourists tend to notice environmental education attempts in protected and endangered areas only to a little extent (McNamara & Prideaux, 2010).

Overload of information

Another reason, which could possibly explain tourists' non-willingness to change consumption patterns deals with an overload of information and choices, also called 'green fatigue' (Greenberg, 2008). People are confronted with too many highly important environmental issues deriving from a diverse set of sources that they tend to rank them and thus, develop a (personal) priority list.

Information overload:	Information > ability to process/insufficient time (Eppler & Mengins, 2003)
Value overload/complexity:	Knowledge < Information (Sparrow, 1998)
Choice overload:	Number of choices > Ability to make decision (Haynes, 2009; Johnson, 1989)

Personal benefits

Becken (2004) revealed that people who attach high personal benefits to an activity (e.g. car riding) consider its environmental impacts as less severe. Hence, while traveling embodies high personal benefits, its consequences on social and natural environment are underestimated. Furthermore, behaving environmentally consciously in one field (e.g. recycling waste) does not predict similar behaviour in another one (e.g. driving car instead of public transportation) (McKercher et al., 2010). Hardin's (1968) concept of "Tragedy of the commons" implies that rational individuals tend to overuse natural resources as they extract high personal benefits from an increased consumption. However, Hardin warns that such a system can only sustain as long the resource remains unlimited or if the amount of users stays small, otherwise the recourse cannot meet its carrying capacity and eventually collapses.

Routines

It is of importance to also reflect upon personality, traits and habits. Several studies reveal that people tend to go with simple alternatives, which demand least personal involvement before changing their actions in a more radical way. Deferring as well as delaying actions is a common strategy. Unless they do not choose options with least risks, they continue their routines (Bettman, Luce & Payne, 1998; Griffin, Liu & Khan, 2005; Sparrow, 1999).

Nevertheless, McKercher and Prideaux (2011) found out that 69% of the students (n= 4376) altered their behaviour in terms of more environmentally friendly methods between 2008 and 2011. While 16,9% indicated they save water in a general sense, saving water on a holiday was considered by only 2,7% (n=328).

Hedonistic motivations

Hedonism, derived from the Greek *hēdonē* and standing for 'pleasure', represents according to the Oxford Dictionary (2015) "[t]he ethical theory that pleasure (in the sense of the satisfaction of desires) is the highest good and proper aim of human life". Carr (2002) revealed that the majority of people is seeking for hedonism and pleasure rather on holiday than at home. This is caused by the fact that hedonistic behaviour patterns are often viewed as unacceptable in the home environment. A hedonistic lifestyle is regarded as highly pleasure seeking and oftentimes even egoistic (O'Shaughnessy & Jackson

O'Shaughnessy, 2002). Therefore, people who view their holiday as contrast to their non-hedonistic home environment tend to consume more resources based on the desire to experience pleasure without any restrictions. Thus, one theory is that it is the socially constructed and accepted behaviour, which is responsible for the differences between home and holiday regarding resource consumption. People are driven by different cultural backgrounds bringing different definitions of pleasure. Furthermore, hedonistic actions are not evolved out of opportunities, which are carried out by the holiday, they are rather stemming from personal factors the tourist is bringing to the destination (Carr, 2002).

External force

It has been observed that most tourists are unwilling to change their lifestyle in terms of a more responsible behaviour unless external forces come into action (e.g. regulators, price). Therefore, it becomes increasingly necessary to involve governments, which can establish policies and regulations for the sake of the social and natural environment (McKercher et al., 2010). The government of the Maldives for instance introduced a carbon tax of $3 per visitor per day (David, 2009).

McKercher and Prideaux (2011) emphasize that policies embody a starting point for altering tourist behaviour; however, they will affect such behaviour only to a little extent as long as there is no environmental education provided. Hence, influencing tourists' behaviour is being identified as the most challenging task when combating environmental problems. It demands to change holiday behaviour of literally more than a billion individuals. Becken (2004) claims that it is of necessity to create a balance between personal benefits and the collective costs they have to take when adapting their behaviour to the environment.

Other factors

McKercher et al. (2010) stress that even though tourists become more aware, they do not show much willingness to change their consumption behaviour by means of voluntary actions. Thus, although climate change is an issue of concern for most of the travellers, it does not impact their holiday decision-making (Anable et al., 2006; Leiserowitz, 2006). The fact that 'global warming' and 'climate change' are considerably vague terms, taking place in the (far) future, is one possible explanation and points to a lack of conceptual clarity (Patchen, 2006). Therefore, "the more amorphous the environmental issue, the less likely is that the consumers will know how to act" (McKercher et al., 2010, p. 300). As soon as a connection between contribution, impact and the self is established ("tripping point"), awareness transforms into action (Gladwell, 2000; McKercher et al., 2010).

Gap between awareness and action

As mentioned before and caused by multiple factors, environmental problems suffer, amongst other things, from a gap between the traveller's awareness and action-taking (Anable et al., 2006; Ester et al., 2004; Kollmuss & Agyeman, 2002). Closing such a gap constitutes a complex challenge, caused by the high and steadily increasing amount of tourists, who are highly heterogeneous (different social and cultural backgrounds, education differences, etc.). While water use may be driven by hedonism,

conscious consumption and a sense of carelessness, it can also entail a more complex meaning that for instance certain people are less sensitive to the consequences of the resource exploitation.
Interventions that have potential closing this gap are self-interest and self-reflection (Rohrschneider, 1988), personal impacts (Patchen, 2006) as well as a sense of empowerment amongst businesses as they have the opportunity to implement technological solutions (Blake, 2001).
While there is much literature on action-taking patterns regarding more general environmental issues, it is of special interest how it works for water in particular.

Conceptual framework based on literature

The reviewed literature on tourists' behaviour regarding environmental issues has been transformed to a framework (see fig. 8). Three pillars have been identified, which have potential explaining the gap between awareness and actual action-taking. The first one demonstrates the necessity of knowledge and awareness among tourists to increase the ability to respond to resource shortages. The second pillar declares hedonistic thinking as obstacle to action-taking. Some tourists seem to make a clear cut between home and the less restricted hotel environment in terms of resource consumption. Lastly, the third pillar refers to the tourist's attitude and mind-set, especially concerning the severity of problems.
This framework has been produced on the basis of existing literature in regard to climate change. However, this study tries to explore each of the pillars to a larger extent to be able to develop more concrete theories in the water context. This will be achieved by means of a self-administered questionnaire, which is designed around those three pillars to provide in-depth information about tourist's awareness and action-taking in the water context. This framework will be adapted according to the study's outcomes (see end of discussion section, p. 50).

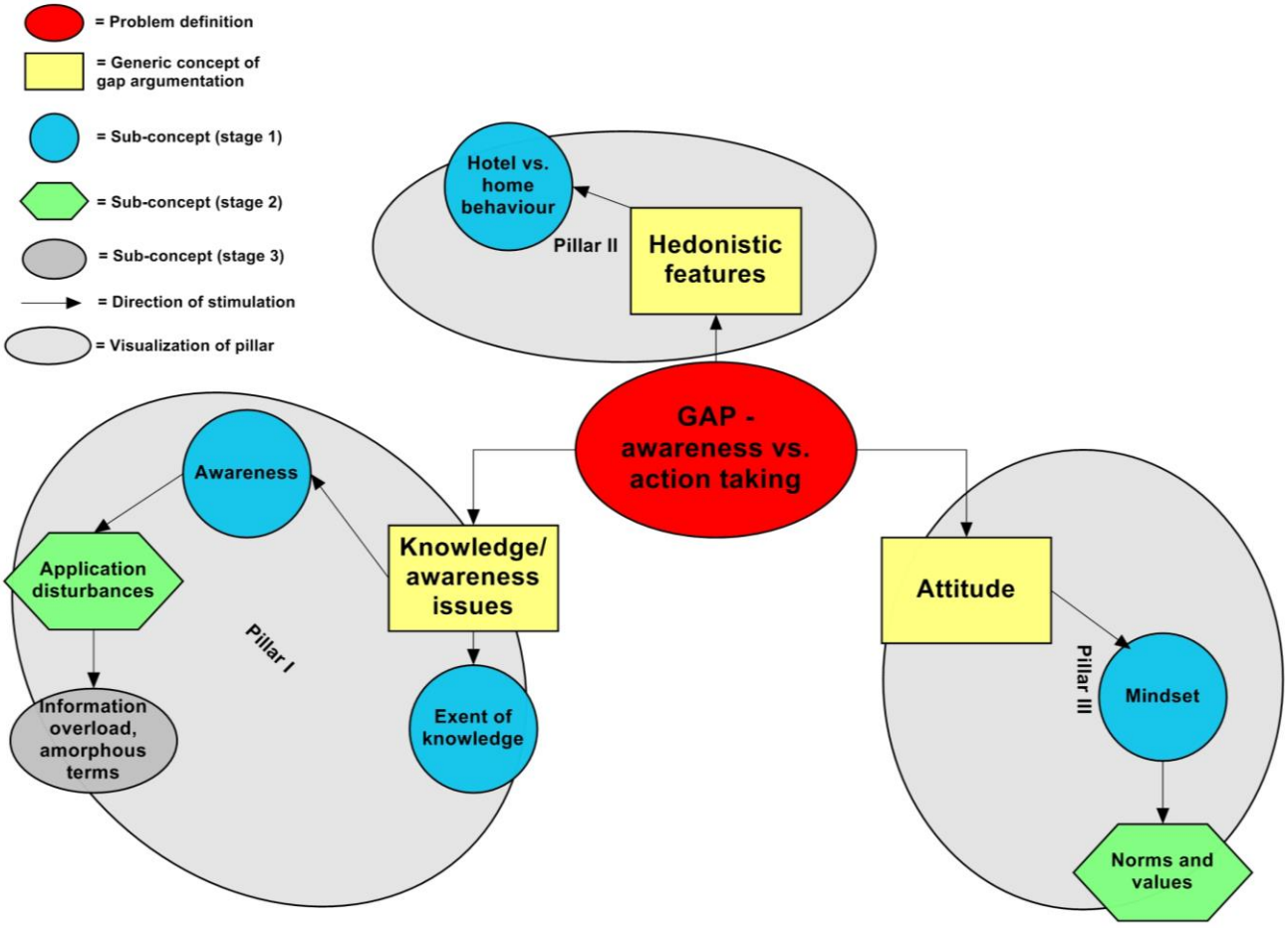


Figure 8 – Established framework based on tourist behaviour literature in a more general climate context

Methodology

The following section will present the study's research design, its sampling frame, methods and analytic approaches.

Research design

This exploratory research consists of both descriptive (*what*-questions) and explanatory (*why*-questions) data (de Vaus, 2010) as well as qualitative and quantitative methods. First, a literature review has been conducted to gain insights in already existing theories on the attitude-behaviour gap, which focusses so far merely on climate change in general. Identified reasons for this gap have been used to design the questionnaire to test whether those potential reasons are also applicable for the gap between

awareness and action-taking in the water context. Subsequently, a self-administered questionnaire served as means to examine tourists' views on water scarcity, knowledge and awareness but also their extent of cooperation. This method is considered as appropriate as it gains reliable and representative data regarding the determination of social variables (such as behaviour and attitude patterns) and constitutes an appropriate measure to test theories but also to discover unexplored fields (Bryman, 2008; de Vaus, 2010).

Research instrument

A self-administered online questionnaire in English language constituted the means of data collection in this study. Besides the above mentioned advantages of unbiased answers and the aim to generalize attitude and behaviour of a large sample population, online questionnaires are inexpensive, can cover wide geographical areas and ensure that respondents can answer the questions according to their schedule and conveniently at home. The guarantee of anonymity unconsciously encourages respondents to tell the truth and share more personal information instead of trying to 'appear good' (Adler & Clark, 2011). Furthermore, Fricker and Schonlau (2002) claim that online distributed questionnaires are conveniently manageable concerning time and automatized data insertion.

The above listed research questions form the foundation and content of the questions.
The questionnaire starts with a brief but informing cover page (see app. 1) introducing the purpose of the study, security of anonymity and confidentiality, information and contact details of the researcher, a note that there is neither a right nor wrong answer and the estimated time of completion (detected through piloting). Furthermore, the questionnaire's topic has been introduced as an investigation of 'tourists' attitude and behaviour regarding water consumption in hotels', rather than an examination of an existing gap between awareness and action-taking since that would might have influenced their answers.

Content of questionnaire
The online questionnaire (see app. 2) consists of five sections, examining different fields of interests. In case of Likert-scales, the following evaluation has been used: 1= disagree, 2= slightly disagree, 3= neutral, 4= slightly agree, 5= agree.

PART A – Water and general issues (5 questions)
This section consists of statements, which had to be rated according to a Likert-scale. Respondents were asked to evaluate their level of awareness regarding environmental and water related problems. Besides that they should state the extent to what they are concerned about environmental issues and more specifically, water-related problems. This part was meant to slowly introduce the respondent to the overall topic and examine their self-assessment regarding environmental knowledge.

PART B – Gathering water information (3 questions)
Here, respondents were asked to estimate the three most water consuming activities within tourism to examine their knowledge and identify potential gaps. Furthermore, respondents identified sources where they gained information regarding water related problems. Lastly, it was of interest whether they estimate tourism as a negative contributor to water issues. This part consists of multiple choice questions and one closed-ended question.

PART C – Behaviour (27 questions)
This section contains four components.

a. The first one provides clear statements regarding the extent the participant makes effort to save water at home and when staying in a hotel. One question directly addresses the gap between awareness of water related issued and actual cooperation to save fresh water in hotels. Besides, it is of interest whether the respondents have noticed any water saving signs in hotels beforehand.
b. The second component of part C is introduced by a photograph of a towel reuse sign implemented in a bathroom of a Marriott Hotel (see app. 3). Based on statements, respondents were asked about its effectiveness, appeal and room for improvement.
c. The following part investigates the respondent's attitude and consumption behaviour at their home based on statements, which cover whether he is concerned about water environmentally or rather financially as well as the extent of applying water saving methods.
d. The last part consists of the exact same statements as the previous one. However, these questions address attitude and behaviour when staying in a hotel.

PART D – Willingness to change behaviour (9 questions)
This section confronts the respondent with rather provoking statements to investigate why tourists might not be willing to change their consumption behaviour in a hotel. Hence, the respondent needed to decide whether an individual can enforce change, whether changing behaviour is irrelevant since it affects the far future and whether he is even aware of potential water saving methods. It furthermore stresses the assumptions listed in the literature review, which state that people feel stressed due to an information overload and/or lack of knowledge. Besides, it has been examined whether tourists would make a difference in saving water based on the type of accommodation (inexpensive low-scale hotels vs. 4-star or higher hotels) and whether a high price per night has an influence on their water consumption behaviour.

Final Part – Demographics
Here, data regarding the participant's gender, age, education and net income was obtained. Due to the researcher's sampling scope, it did not seem of necessity to include a nationality variable. However, due to the unexpected high response rate, it now constitutes a limitation to not have included a nationality variable.

Figure 9 demonstrates the above identified framework and points out what pillar is covered by which part of the questionnaire (see previous section).

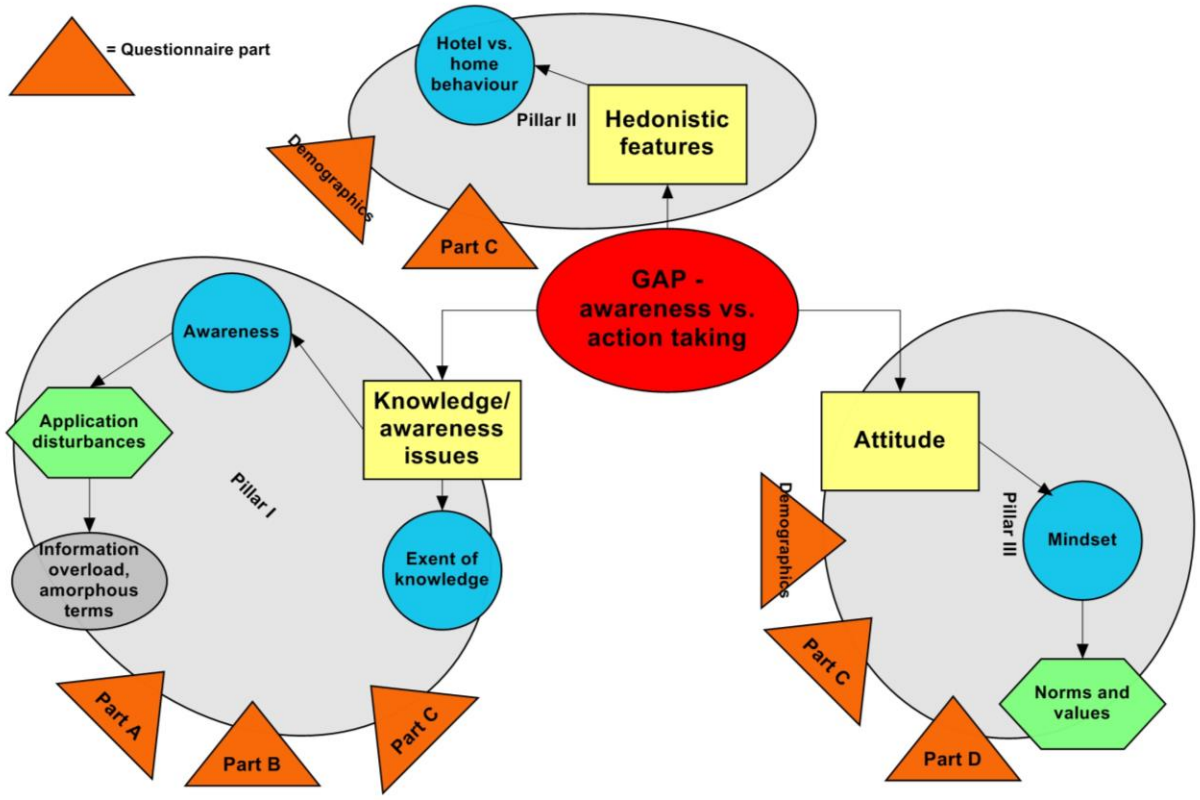


Figure 9 – Illustration of questionnaire approach

Piloting questionnaire

To test upon validity, data quality and comprehensibility of the questions (Adler & Clark, 2011; Silman & Macfarlane, 2002), the questionnaire has been piloted beforehand by the researcher's supervisor (expertise in subject and research), a German university lecturer (experience with questionnaires), a native English speaker (avoidance of language errors), a student of a non-environmental subject (neutral perception of questions/topic) as well as a student of the researcher's study programme (critical review). Each of them provided the researcher with feedback, highlighting problems regarding ambiguous wording/questions or issues concerning layout/functionality. After consultancy, the problems have been eliminated and sent out for a second review. As there have not been any further issues, the researcher launched the questionnaire online.

Sampling frame and sample size

The internet-based questionnaire is sampled according to non-probability (Adler & Clark, 2011; Fricker, 2006) as well probability (Adler & Clark, 2011) strategies.

a. *Non-probability sampling* – the researcher distributed the questionnaire to her more than 420 contacts on the social media platform Facebook. By means of individual and personalized messages the completion of the questionnaire has been requested. The response rate was very high.
b. *Probability sampling* – by means of cluster-sampling only a specific group is addressed. This study utilizes three ways of cluster-sampling. Hence, the questionnaire has been distributed via:
   - a travel agency's e-mailing list of employees.
   - a German lecturers e-mailing list of university employees.
   - a diverse set of Facebook groups.

Sample size

The distribution of the questionnaire took place between April 29th and May 15th, 2015 and achieved to obtain n=1035 respondents.

Limitations sampling method

Due to the fact that not every individual of the whole population has access to internet, coverage errors occur. Besides, since the researcher primarily addressed own contacts and posted the questionnaire into specific social media groups, a so called size bias takes place as certain units had greater chances to become selected. However, by means of distributing the questionnaire via e-mail lists within networks of a) employees of a travel agency and b) employees of a German university, the mentioned biases were compensated.

Data analysis

Google forms (questionnaire provider), has inserted the transmitted data immediately into an excel table, which has been incorporated into SPSS, a statistical software. To be able to work rule-consistent with the data, it was necessary to adapt several values' measurement of scale, which is used for categorization and/or quantification of variables (for specification see table 1). Some variables have been recoded into different variables to enable measurability (e.g. net income, education). Furthermore and based on the research questions, several variables have been newly computed, consisting of summed up variables (when referring to one, description is added in findings section).

Measurement of scale	Variable
Nominal	'gender', 'water_consuming_tourism_activities', 'knowledge_source', 'tourism_bad_contributor_water' and 'Noticing_water_signs_hotel'

Ordinal	all Likert-scale statements as well as 'education' and 'net_income'
Scale	'age'

Table 1 – Identified measurement of scales

To answer the research questions the following statistical tests have been applied.
Frequency distributions revealed information regarding mean, median and mode (= descriptive statistics). Pearson's r-test (correlation) as well as simple regression have been used to assess the strength between metric variables. To determine the strength of correlation the following scheme has been used (Williams, n.a.):

R (Pearson's correlation) =

- + 0,7 or higher = very strong positive relationship
- + 0,4 to + 0,69 = strong positive relationship
- + 0,3 to + 0,39 = moderate positive relationship
- + 0,2 to + 0,29 = weak positive relationship
- + 0,1 to + 0,19 = no or negligible relationship
- 0 = no relationship
- - 0,1 to -0,19 = no or negligible relationship
- - 0,2 to -0,29 = weak negative relationship
- - 0,3 to -0,39 = moderate negative relationship
- - 0,4 to -0,69 = strong negative relationship
- - 0,7 or higher = very strong negative relationship

Simple regression is used to predict values of an outcome of one predictor and constitutes a model of a relationship between two variables, one dependent and one independent. This test as well as ANOVA demonstrate the significance of values (significant when p-value <0,05) as well as R^2 values (proportion of variance accounted for by model). Moreover, these tests show to what extent the independent variable explains the variance/differences of the dependent variable.
ANOVA (=analysis of variance) provides information regarding F-statistics, whether the variance explained by the model is significantly greater than the error within the model and whether the regression model is significantly better at predicting values of the outcome than using the mean.
For each regression analysis a null hypothesis has been established, which states that there is no supported relationship between variable x and variable y (H_0: b=0).

Findings

This section presents an overview of the obtained data retrieved from the self-administered online questionnaire.

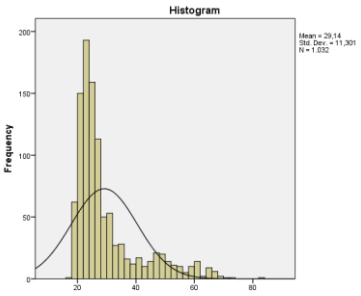


Figure 10 – Age distribution

Brief presentation of the sample

The sample consists of 1035 respondents (29,1% male; 70,9% female) with an age range between 17 and 82 (for distribution see fig. 10). While almost 42% hold a Bachelor's degree, 30% pursued a Master's degree. Therefore, the majority of respondents has attended college. The questionnaire did not contain nationality related questions.

Do tourists consider water as a scarce resource?

47,4% (n=491) of the respondents 'agree' (5) and 32,1% (n=332) 'slightly agree' (4) with the statement "I am aware that water constitutes a limited resource on earth". The remaining 20,5% (n= 212) of respondents vary between 'disagree' (1) (1,9%, n= 20), 'slightly disagree' (2) (5,6%, n= 58) and neutral (3) (12,9%, n= 134) (frequency table in app. 6). Thus, the vast majority (79,5%) of the sample population is aware of the fact that water constitutes a limited resource. For illustration see figure 11.

Are tourists aware about water scarcity across vulnerable region?

34,7% (n= 359) of the respondents 'slightly agree' (4) with the statement "I am well informed about water related problems in certain regions and seasons". 24,4% (n= 263) responded with 'neutral' (3), while 21,3% (= 220) 'agree' (5). 18,6% (1 and 2) indicated they are not informed about water region related water issues, (frequency table in app. 4). This means that more than half of the respondents (56%) consider themselves aware about issues related to water scarcity across vulnerable regions. For illustration see figure 12.

Does water scarcity concern tourists in general?

36,3% (n= 376) indicated that they 'slightly agree' (4) with the statement "I am concerned about water as a resource", while 32,7% (n= 338) 'agree' (5). A considerably small share (11,3%, n= 117) (1 and 2) indicates no concern regarding water issues (frequency table in app. 5). Therefore, 69% of the sample population is concerned about water scarcity. For illustration see figure 13.

What source provides tourists with information regarding water scarcity?

Since the respondents were asked to indicate their top three knowledge sources concerning water related issues, there is no fixed 100%. However, 71,1% (n= 736) consider 'internet' as their knowledge source when it comes to water related

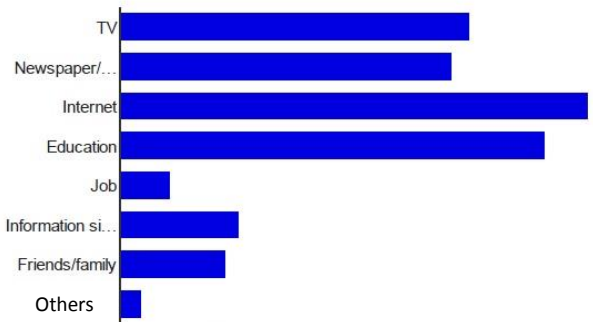


Figure 14 – Knowledge source

topics. 'Education' serves as knowledge provider for 64,5% (n= 668), while 'TV' informs 53% (n= 549) and 'newspaper/magazine' 50,4% (n= 522). The participants receive less information from the following knowledge sources. 'Information signs in hotels' informed 18% (n= 186) of the respondents, 'friends/family' inform 15,9% (n= 165) and 7,6% (n= 79) receive water related information through their 'job'. Interestingly, 3,1% (n=32) named 'others' as knowledge source and specified 'common sense' (n= 4), 'travel experience' (n= 2), 'books' (n= 2), 'radio' (n= 2), 'personal experiences' (n= 2) and 'living in developing countries' (n= 2) (remaining answers in app. 7). To conclude, besides education, the respondents mainly extracted water related knowledge from public media sources. For illustration see figure 14.

Are tourists able to point out the most important threats within tourism on water?

Similar to the previous result, due to the fact that the respondents had the possibility to indicate three of the most important threats within tourism on water, there is no fixed 100%. 'Maintenance (hotel, garden, cleaning)' constitutes for 79,7% (n= 825) an important threat within tourism on water. 71,3% (n= 739) consider 'Hygiene (shower, toilet)' and 63,3% (n= 655) 'Wellness (incl. Spa, pool) as water threatening. Less importance was dedicated to 'Activities (golf, ski)' with 31,5% (n= 326), 'Food and drinks' with 24,2% (n= 250) and lastly, 'Infrastructure/building' with 19,5% (n= 202). For illustration see figure 15.

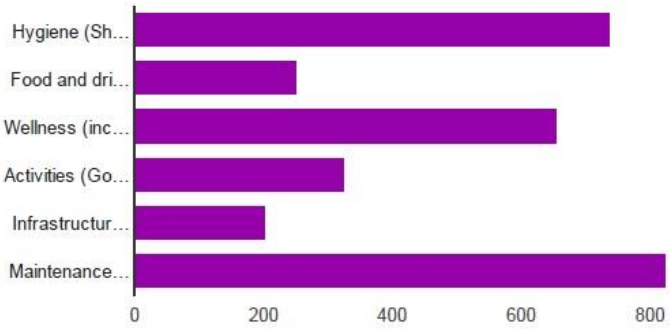


Figure 15 – Identification of most important threats within tourism on water

Do tourists consider tourism as water exploiting?

A frequency analysis reports that 43,9% (n=454) does consider tourism as a negative contributor to water issues. 37,8% (n=391) answered 'a little bit' on the question whether tourism contributes negatively to water issues and 6,6 % (n=68) responded with 'no'. However, 11,8% (n= 122) chose the option 'I am not sure' (frequency table in app. 8). For illustration see figure 14.

1= disagree, 2= slightly disagree, 3= neutral, 4= slightly agree, 5= agree

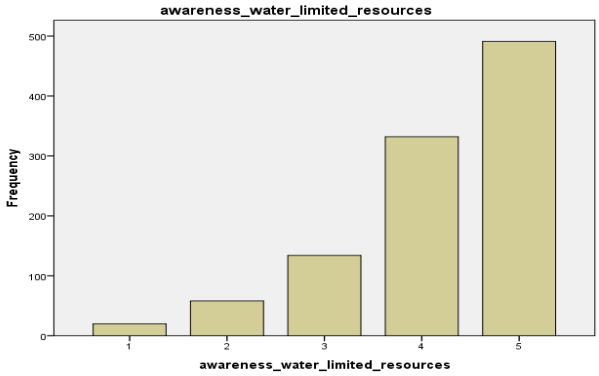


Figure 11 – "I am aware that water constitutes a limited resource on earth."

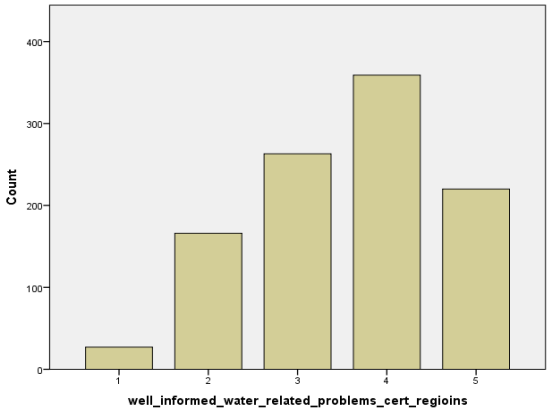


Figure 12 – "I am well informed about water related problems in certain regions".

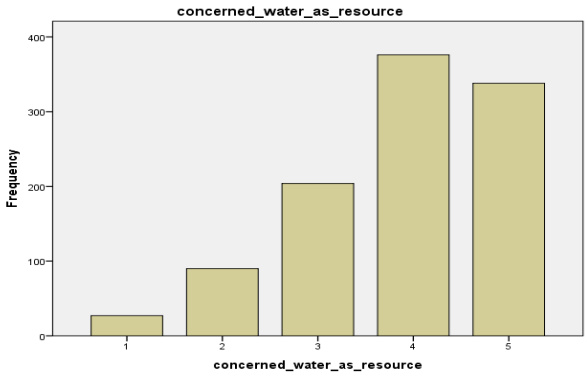


Figure 13 – "I am concerned about water as a resource."

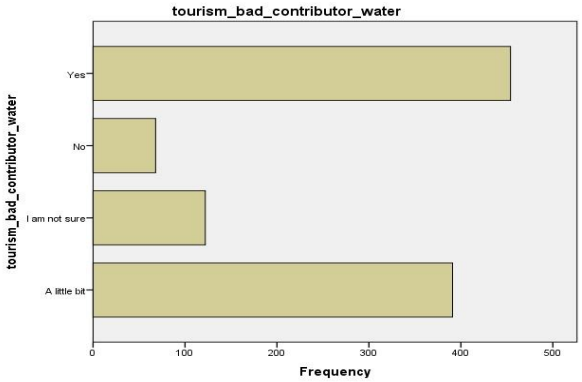


Figure 14 – Personal assessment whether tourism is a bad contributor to water issues

Do tourists notice water saving engagement amongst hotels?

The majority of respondents (68,4%; n= 708) has noticed water saving signs in hotels before. 21,1% (n= 218) indicated that they have not noticed any, while 10,5% (n= 109) were not sure (frequency table in app. 9). For illustration see figure 15.

How do tourists perceive water saving methods implemented in hotels?

In the questionnaire respondents have been confronted with a water saving sign (see app. 10), which is oftentimes implemented in hotel bathrooms. Several statements investigated their perception of this sign.

Sign helps to raise awareness

43% (n= 445) of the respondents 'slightly agree' (4) that the sign helps to raise awareness, while 32,9% (n= 340) clearly 'agree' (5) that it does. 7,3% (n= 76) do not consider that sign as awareness raising (1 and 2). Therefore, those signs constitute for the vast majority (75,9%) a good reminder to act more responsibly. For illustration see figure 16.

Wish for more information on sign

The distribution of answers regarding the desire for more information displayed on such a sign has been moderately evenly. While 24,1% (n= 249) remain 'neutral' (3), 38,6% (n= 400) do not wish more information (1 and 2). On the contrary, 37,3% (n= 386) do favour more information on the sign. It is of interest whether there are any underlying demographic patterns behind the contradicting answers. This will be elaborated in 'additional findings'. For illustration see figure 17.

Good feeling staying in responsible hotel

The majority of respondents (77,3%; n= 800) (4 and 5) receives a good feeling when staying in an environmentally responsible operating hotel, signalized by such a sign. 7,7% (n= 80) (1 and 2) indicated that the sign does not have any impacts on their emotional state. For illustration see figure 18.

Hotel just wants to save money

61,7% (n= 639) (1 and 2) of the sample population do not perceive such a sign as a hotel's strategy to cut operational costs. 20,6% (n= 213) (4 and 5) do consider those signs as cutting costs strategy. For illustration see figure 19.

Sign should be implemented in every hotel

83,3% (n= 863) of the respondents agree that such a sign should be implemented across every hotel. 10,9% (n= 113) remain 'neutral' (3), while 5,7% (n= 69) do not consider it as necessary. For illustration see figure 20.

Sign serves as good reminder

While 77,6% (n= 803) view such a sign as good reminder to act more responsibly with water, 9% (n= 93) of the respondents do not consider it as one. For illustration see figure 21.

Overload of signs leads to ignorance

74,4% (n= 770) of the respondents do not perceive such signs as omnipresent and hence, do not tend to ignore them. 14,9% (n= 154) remain 'neutral' (3), while 10,8% (n= 111) do ignore them due to too frequent presence. For illustration see figure 22.

1= disagree, 2= slightly disagree, 3= neutral, 4= slightly agree, 5= agree

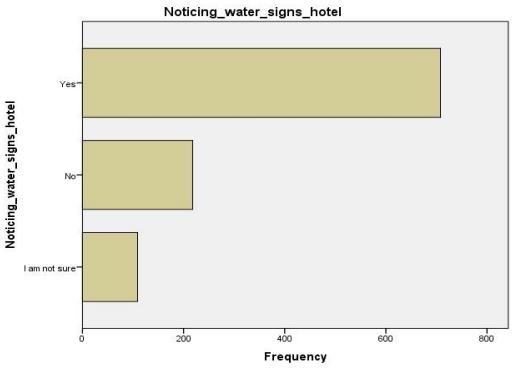


Figure 15 – Notification of water signs in hotels

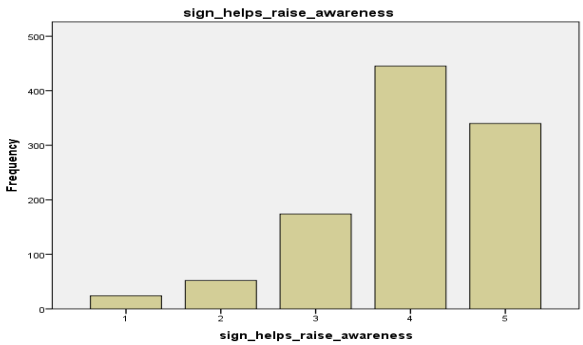


Figure 16 – "Such a sign helps to raise awareness regarding water issues among tourists."

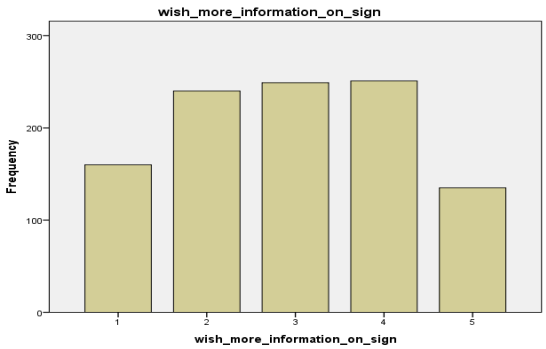


Figure 17 – "I wished to have more information regarding water problems on that sign."

Figure 18 – "It gives me a good feeling staying in a hotel, which cares about water issues."

Figure 19 – "This sign gives me the feeling that the hotel just wants to save money on water."

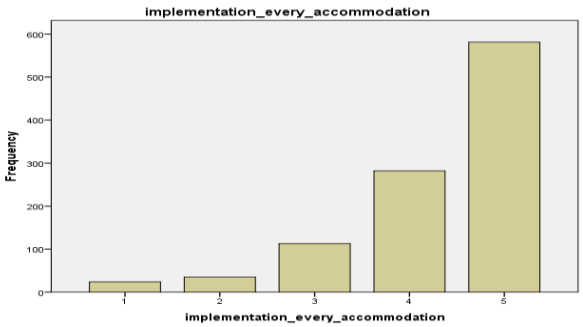


Figure 20 – "Every hotel/hostel/pension should implement those signs."

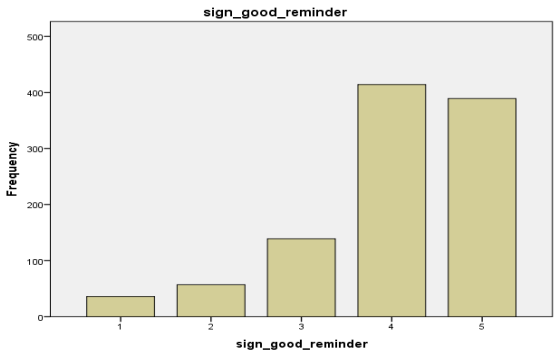


Figure 21 – "Such a sign is a good reminder for me to act more responsible with water."

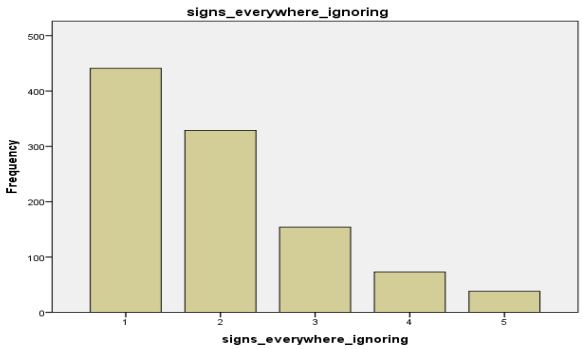


Figure 22 – "Since these signs are placed in almost every hotel, I tend to ignore them."

Are tourists more water saving at home than on holidays?

To find out whether tourists are more water saving at home than on holidays, two variables have been computed based on the following equation (consists of question labels as used in SPSS).

- Average_saving_hotel = [(hotel_reducing_shower_saving_costs_andor_water + hotel_enough_towelchange_1to2_aweek + hotel_brushingteeth_turnoff_water + hotel_shampooinghaair_turnoff_water) / 4]
- Average_saving_home = [(home_reducing_shower_saving_costs_andor_water + home_enough_towelchange_1to2_aweek + home_brushingteeth_turnoff_water + home_shampooinghaair_turnoff_water) / 4]

A frequency analysis revealed that the respondents (n=1035) on average have chosen 'neutral' (3) and 'agree' (4) most frequently on statements investigating to what extent they save water, both in hotel and home. The mean of saving water in a hotel is 3,39 while the mean of saving water at home is slightly higher with 3,6, which results in the fact that respondents are slightly more responsible in their water consumption behaviour at home than on holidays.

Moreover and as a back-up, examining the direct statements "I make an effort to save water when I am staying at a hotel" and "I make an effort to save water at home" revealed that the mean of making an effort to save water in a hotel is 3,25 (towards 'neutral' (3)) while the mean of making an effort to save water at home is 3,77 (towards 'agree' (4)). In numbers speaking, 65,2% (n= 675) of the respondents indicate effort of saving water at home, while 46,3% (n= 480) of them save water in a hotel.
12,4% (n= 128) state that they do not save water at home, while 18,7% (n= 291) state they do not save water in a hotel (frequency table in app. 11).

What methods do tourists apply to save water in a hotel?

The questionnaire contained and investigated the behaviour on the following saving methods (frequency tables in app. 12).

Reduction of shower length

27,4% (n= 283) of the respondents claim to reduce their "shower length to save costs and/or water" in a hotel (4 and 5), while 49,8% (n= 505) indicate that they tend to not reduce their shower length (1 and 2). 23,9% (n= 247) remain 'neutral' (3) (see fig. 23).

How do they act at home? *37,8% (n= 392) reduce their shower length, while 36,3% (n= 376) do not indent to do so (see fig. 24).*

Towel change 1-2 times a week

50,6% (n=524) 'agree' (5) and 20,2% (n= 209) 'slightly agree' (4) that it is enough to change towels once or twice a week. 18,3% (n= 189) do not consider this amount as sufficient (1 and 2). 10,9% (n= 113) remain 'neutral' (3) (see fig. 25).

How do they act at home? *64,3% (n= 665) 'agree' and 18,2% (n= 188) 'slightly agree' that this amount of changing towels is sufficient. 10,1% (n= 105) disagree (see fig. 26).*

Turn off water while brushing teeth

72,7% (n= 752) of the respondents 'agree' (5) and 13,5% (n= 140) 'slightly agree' (4) that they turn off the water while brushing teeth. 8,7% (n= 90) indicated that they leave it on (1 and 2). 5,1% (n= 53) remain 'neutral' (3) on that question (see fig. 27).

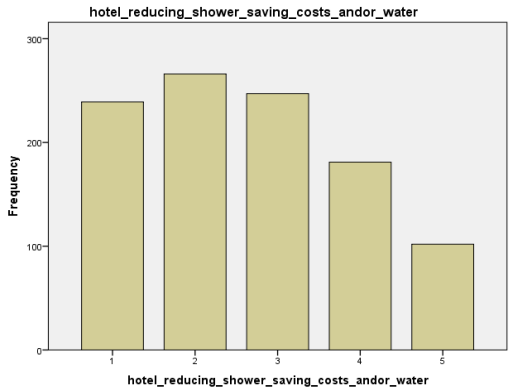
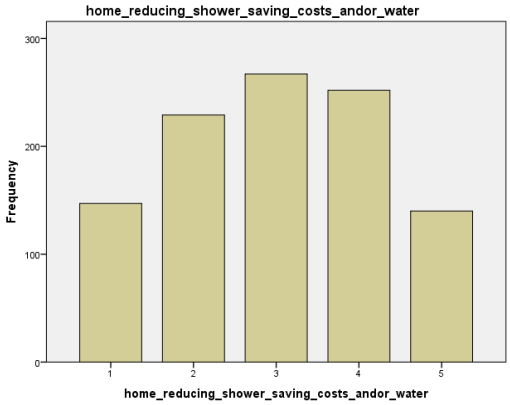
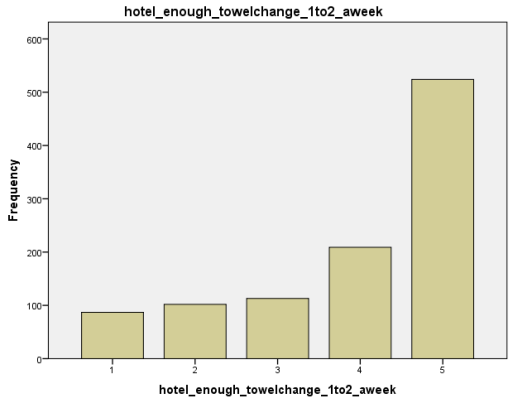
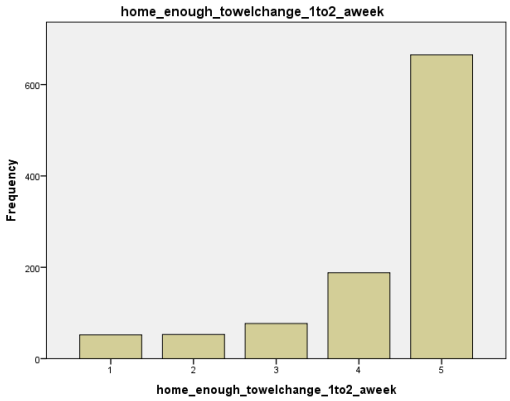
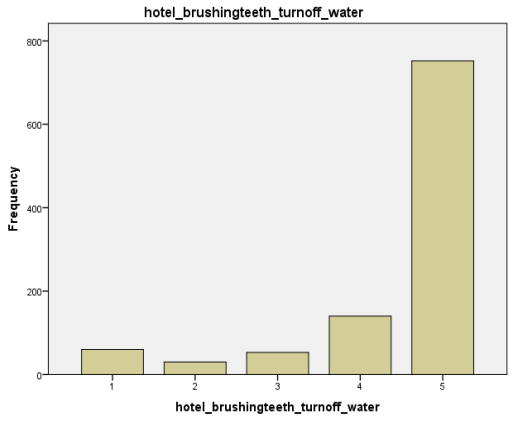
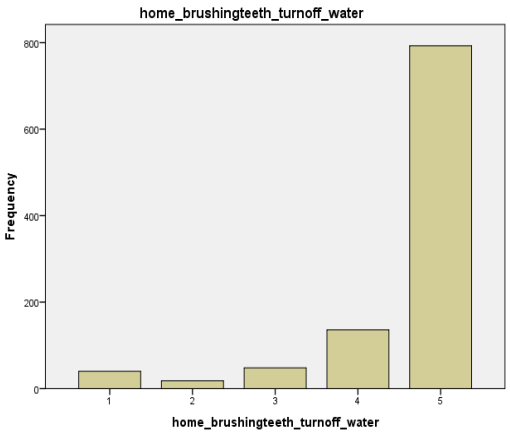
How do they act at home? *76,6% (n= 793) 'agree' and 13,1% (n= 136) 'slightly agree', while 5,6% (n= 58) stated that they leave the water on (see fig. 28).*

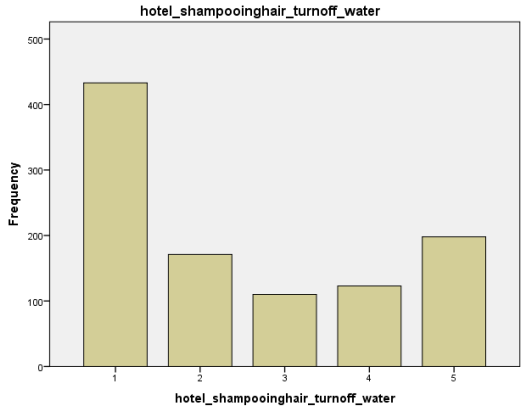
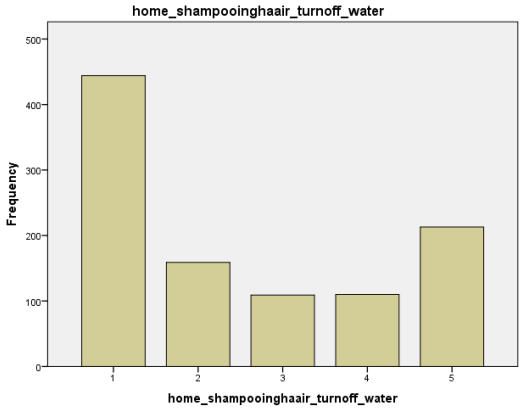
Turn off water while shampooing hair/body

58,4% (n= 604) of the sample population indicate that they leave the water on while shampooing their body and hair in a hotel (1 and 2). On the contrary, 31,2% (n= 323) turn off the water while doing so (4 and 5) (see fig. 29).

How do they act at home? *Similar to the hotel behaviour, at home 58,3% (n= 603) of the respondents leave the water on while shampooing hair and body, while 31,2% (n= 323) decide to turn it off. Hence, there is no difference towards the hotel behaviour regarding shampooing behaviour (see fig. 30).*

1= disagree, 2= slightly disagree, 3= neutral, 4= slightly agree, 5= agree

Reducing shower length to save costs and/or water	
 Figure 23 – in hotel	 Figure 24 – at home
Change of towels one to twice a week enough	
 Figure 25 – in hotel	 Figure 26 – at home
Turning water off while brushing teeth	
 Figure 27 – in hotel	 Figure 28 – at home

Turning water off while shampooing hair/body	
 Figure 29 – in hotel	 Figure 30 – at home

If tourists do not act (more) water responsible, what are potential reasons for not taking action?

The questionnaire contained and investigated the behaviour on the following statements (frequency table in app. 14).

No importance as it affects far future

The statement "I do not see the importance of changing my water usage behaviour since it will only affect the far future" yielded high disagreement among the respondents. While 55,6% (n= 575) 'disagree' (1) and 27% (n= 279) 'slightly disagree' (2), only 6,8% (n= 70) stated agreement (4 and 5). Therefore, the respondents seem aware that their behaviour constantly contributes to environmental quality. For illustration see figure 31.

Individual cannot change much

60,2% (n= 623) of the respondents stress disagreement (1 and 2) with the statement "As an individual it seems that I cannot change much regarding water issues". On the contrary, 19,8% (n= 205) state agreement (4 and 5), while 20% (n= 207) remain 'neutral' (3). Thus, the majority views the individual as a driving force. For illustration see figure 32.

Lack of know-how

While 67,2% (n= 696) of the respondents claim to know how to change their water behaviour more responsibly (1 and 2), 13,4% (n= 139) state that they lack such knowledge (4 and 5). 19,3% (n= 200) do not take any side. Therefore, most of the respondents do command over some water intervening methods. For illustration see figure 33.

Wish for more guidance by hotels

47,6% (n= 493) wish to have more guidance by hotels regarding water saving methods (4 and 5), while 26,4% (n= 273) do not see the necessity (1 and 2). 26% (n= 269) remain 'neutral' (3) regarding the need of more information provided by hotels. For illustration see figure 34.

Stressed due to information overload

The vast majority of 57,2% (n= 592) 'disagrees' (1) with the fact they do not feel stressed due to a potential water information overload. 23,5% (n= 243) 'slightly disagree' (2). A small share of 6,2% (n= 65) does feel stressed due to an overload of water relating information (4 and 5). Therefore, it is to assume that those information signs do not cause overwhelming feelings among tourists. For illustration see figure 35.

Reminder necessary for attention

67,4% (n= 698) of the respondents consider (visual) reminders as helpful (4 and 5) as it raises their attention concerning more responsible water consumption. On the contrary, 15,7% (n= 163) do not view such reminders as helpful (1 and 2). For illustration see figure 36.

Willingness to reduce consumption in a small scale hotel vs. upscale hotel

While 69,6% (n= 721) of the sample population claim their willingness to reduce their water consumption in small scale hotels, 57,9% (n= 599) are willing to reduce their water usage in upscale hotels. On the contrary, 11,3% (n= 117) of the respondents state their non-willingness of a lower water usage in small scale hotels, while 19,7% (n= 204) of them does not want to reduce it in upscale hotels. Therefore, the respondents tend to reduce their water consumption rather in small scale than upscale hotels. For illustration see figure 37 and 38.

High room price, lower willingness to reduce length of shower

58,3% (n= 603) of the respondents show disagreement (1 and 2) with the statement "If I stay in an expensive hotel, I DO NOT want to reduce the length of my shower ("I paid for that")". However, 25% (n= 259) claim agreement (4 and 5) and make the price level responsible for their cooperation willingness. For illustration see figure 38.

1= disagree, 2= slightly disagree, 3= neutral, 4= slightly agree, 5= agree

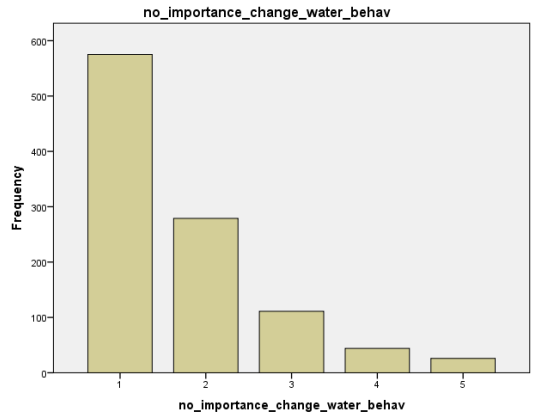


Figure 31 – "I do not see the importance of changing my water usage behaviour since it will only affect the far future."

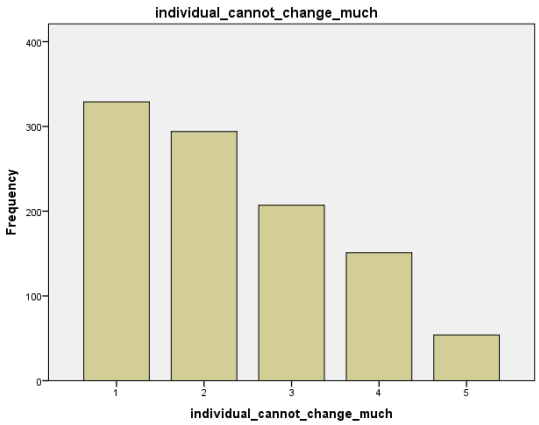


Figure 32 – "As an individual it seems that I cannot change much regarding water issues."

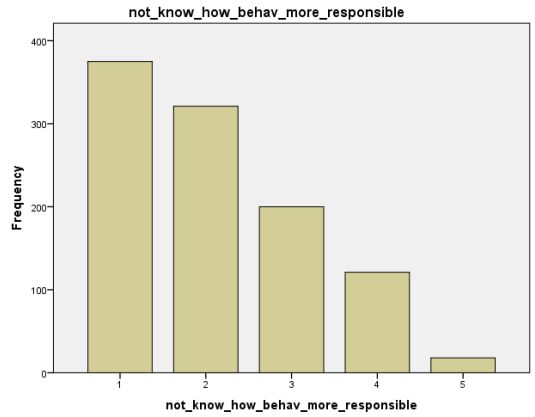


Figure 33 – "I do not know how to change my water behaviour in a more responsible way."

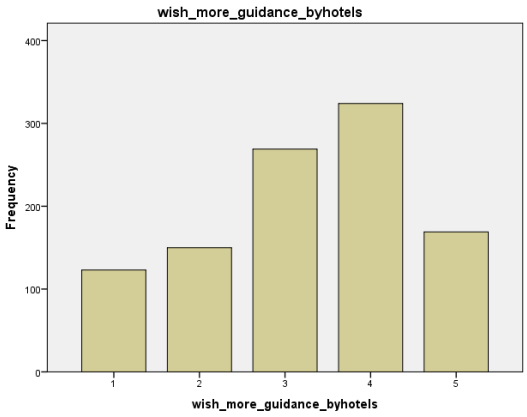


Figure 34 – "I wish more guidance by hotels on how to improve water consumption in a more responsible way."

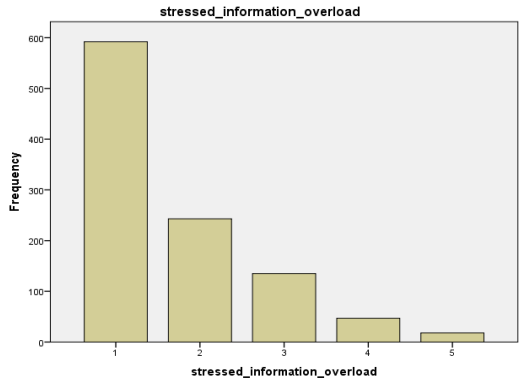


Figure 35 – "I feel stressed due to an information overload regarding water saving issues in hotels."

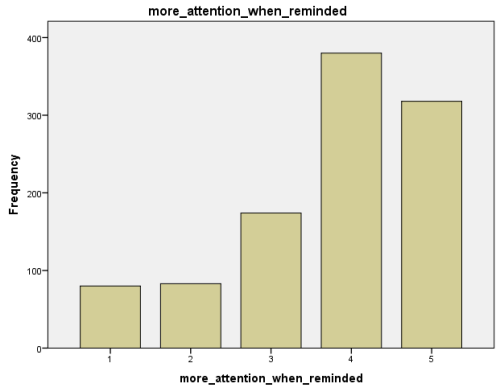


Figure 36 – "I pay more attention to saving water when I get reminded (by e.g. water signs)."

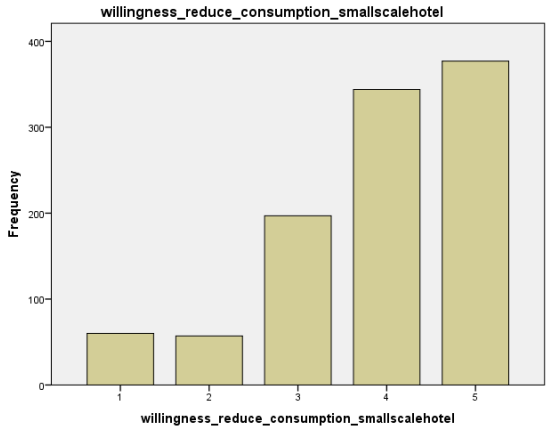


Figure 37 – "I am willing to reduce my water consumption in small-scale hotels (such as hostels, pensions or cheap hotels)."

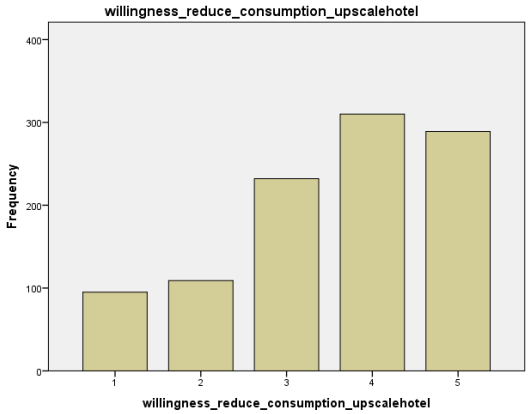


Figure 38 – "I am willing to reduce my water consumption in upscale hotels (such as 4 star hotels or higher)."

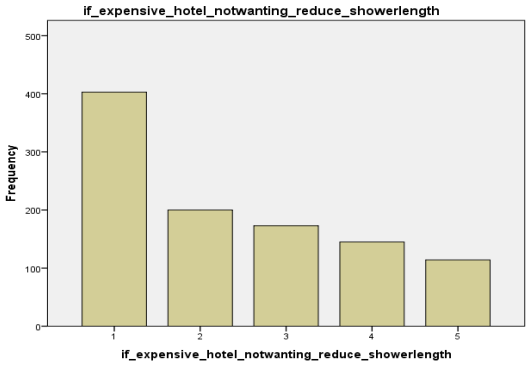


Figure 39 – "If I stay in an expensive hotel, I DO NOT want to reduce the length of my shower ("I paid for that")."

Do age, education and net income have an impact on tourists' water usage behaviour?

AGE

a) In this regression analysis, 'average_saving_hotel' constitutes the dependent and 'age' the independent variable.

H_0: There is no supported relationship between 'age' and 'average_saving_hotel'.

Correlation

The correlation between 'age' and 'average_saving_hotel' reveals a significance value of 0,000 at the p = 0,05 level. Pearson's r value amounts -0,112 and therefore, contains no or only a negligible relationship.

Regression analysis

The R^2 equals 0,012 meaning that in this sample the independent variable 'age' explains 1,2% of the variance of the dependent variable 'average_saving_hotel' and thus has only a minor impact. Therefore, 98,8% of the variance is explained by other variables. The F-value equals 12,972 (with df 1/1030), which is highly significant at a 5% level. Hence, the null hypothesis becomes rejected claiming that 'age' and the tourist's average saving behaviour are not associated in the population. After consulting the t-test for coefficients it can be concluded that the constant in the model is not equal to zero in the population (regression analysis in app. 15).

However, even though the null hypothesis has been rejected, a variance explanation by 1,2% is considered as too low and thus, will be treated as non-relevant.

b) To gain a general understanding of linkages between different age groups and their degree of average concern[1] regarding environmental issues has been investigated in the following.

The results show (see table 2) that by an increase of the respondent's age the awareness of environmental issues rises as well. However, it is important to mention that already younger aged respondents have a moderately high awareness of such issues. A mean of 3,67 lies in between the answer possibilities 'neutral' (3) and 'slightly agree' (4), while a mean of 4,4 lies in between 'slightly agree' (4) and 'agree' (5).

Age group	Mean
1 (15-20)	3,67
2 (21-25)	3,88
3 (26-30)	4,06
4 (31-40)	4,05
5 (41-50)	4,08
6 (51-60)	4,1
7 (61-85)	4,4

Table 2 – Influence of age on awareness

[1] Variable concern_average= (concerned_env_issues + concerned_water_as_resource)/2

c) Furthermore, to investigate potential linkages between 'age' and the question whether they make an effort to save water in a hotel, the mean of the different age groups has been examined (see table 3).
The steadily increasing mean value indicates that by an increase in age the respondent's effort to save water in a hotel increases as well.

Age group	Mean
1 (15-20)	2,9
2 (21-25)	3,08
3 (26-30)	3,35
4 (31-40)	3,49
5 (41-50)	3,69
6 (51-60)	3,76
7 (61-85)	3,76

Table 3 – Influence of age on effort to save water in a hotel

EDUCATION
a) In this regression analysis, 'average_saving_hotel' constitutes the dependent and 'education_without_others'[2] the independent variable.

H_0: There is no supported relationship between 'education_without_others' and 'average_saving_hotel'.

Correlation
The correlation between 'education_without_others' and 'average_saving_hotel' reveals a significance value of 0,000 at the p = 0,05 level. While the correlation is significant at a 5% level, the correlation itself is only -0,079, which is so low that it does not indicate any correlation between these two variables.
Regression analysis
The R^2 value equals 0,006 meaning that in this sample the independent variable 'education_without_others ' explains 0,6% of the variance of the dependent variable 'average_saving_hotel' and thus has barely any effect. Therefore, 99,4% of the variance is explained by other variables. The F-value equals 6,174 (with df 1/976), which is highly significant at a 5% level. Hence, the null hypothesis becomes rejected claiming that 'education_without_others' and the tourist's average saving behaviour are not associated in the population. After consulting the t-test for coefficients it can be concluded that the constant in the model is not equal to zero in the population (regression analysis in app. 16).

However and similar to the previous regression with the variable of age, even though the null hypothesis has been rejected, a variance explanation by 0,6% is considered as too low and thus, will be treated as non-relevance between these two variables.

[2] Variable education_without_others: limited to predetermined answers, options added by respondent left out.

b) To find out whether there are differences between the level of education and awareness patterns, a frequency analysis has been established (see table 4). It can be concluded that the higher the education level (2= high school, 3= apprenticeship, 4= undergraduate, 5= postgraduate, 6= ph.d), the higher is the respondent's awareness about environmental issues. However, since the mean values do not differ tremendously, no major assumption can be made.

Statistics

Education_without_others			awareness_env_water	average_concern
2	N	Valid	162	162
		Mean	3,8066	3,7963
3	N	Valid	43	43
		Mean	3,7364	3,7209
4	N	Valid	433	433
		Mean	3,8661	3,9065
5	N	Valid	310	310
		Mean	3,9914	4,0839
6	N	Valid	30	30
		Mean	4,0556	4,1667

Table 4 – Impacts of education on awareness and concern

c) Investigating the average concern of the respondents with different educational backgrounds the following came out. Similar to the awareness increase, also the level of concern increases with the level of education (see table 4). Again, the differences in mean increases are moderately low that it is not appropriate to claim far reaching assumptions.

NET INCOME

a) In this regression analysis, 'average_saving_hotel' constitutes the dependent and 'net income' the independent variable.

H_0: There is no supported relationship between 'net income' and 'average_saving_hotel'.

Correlation

The correlation between 'net income' and 'average_saving_hotel' reveals a significance value of 0,000 at the p = 0,05 level. While the correlation is significant at a 5% level, the correlation itself counts -0,138, which stands for a non or only a negligible relationship.

Regression analysis

The R^2 value is 0,019, which means that in this sample the independent variable 'net income ' explains 1,9% of the variance of the dependent variable 'average_saving_hotel', which again has barely any effect. Therefore, 98,1% of the variance is explained by other variables. The F-value equals 20,171 (with df 1/1033), which is highly significant at a 5% level. Hence, the null hypothesis becomes rejected stressing that 'net income' and the tourist's average saving behaviour are not associated in the population. After consulting the t-test for coefficients it can be concluded that the constant in the model is not equal to zero in the population (regression analysis in app. 17).

However and similar to the previous regression with the variable of age, even though the null hypothesis has been rejected, a variance explanation by 1,9% is considered as very low and therefore, will be treated as non-relavant.

Additional findings

The following results were established through linear regression analyses. In some cases variables have been computed to a new variable to find out the average of multiple similar variables.

Awareness_env_water & average_saving_hotel

- Awareness_env_water = [(well_informed_env_problems + well_informed_water_problems + awareness_water_limited_resources)/3)]

H_0: There is no supported relationship between 'awareness' and 'average saving hotel'.

In this regression, 'average_saving_hotel' constitutes the dependent and 'awareness_env_water' the independent variable.

Correlation
The correlation between awareness and 'average_saving_hotel' reveals a significance value of 0,000 at the p = 0,05 level. The correlation is 0,356, which shows a moderately positive relationship.
Regression analysis
The R^2 equals 0,127 meaning that in this sample the independent variable 'awareness_env_water' explains 12,7% of the variance of the dependent variable 'average_saving_hotel', thus, 87,3% is explained by other variables. The F-value equals 150,226 (with df 1/638), which is highly significant at a 5% level. Therefore, the hypothesis that the regression coefficient (B) is equal to zero in the population is rejected, thus, the independent and dependent variable have a relationship in the population. The t-statistics reveal that the constant is unequal to zero in the population.
To conclude, the extent to what a tourist is saving water in a hotel depends on his level of awareness. The more aware he is, the likelier it is for him to save water (regression analysis in app. 18).

Awareness_env_water + effort_save_water_hotel

H_0: There is no supported relationship between 'awareness' and 'effort_save_water_hotel'.

In this regression, 'effort_save_water_hotel' constitutes the dependent and 'awareness_env_water' the independent variable.

Correlation

The correlation between awareness and effort_save_water_hotel reveals a significance value of 0,000 at the p = 0,05 level. The correlation of 0,372 reveals a moderately positive relationship.

Regression analysis

The R^2 equals 0,139 meaning that in this sample the independent variable 'awareness_env_water' explains 13,9% of the variance of the dependent variable 'effort_save_water_hotel'. The F-value equals 166,278 (with df 1/1033), which is highly significant at a 5% level. Therefore, the hypothesis that the regression coefficient (B) is equal to zero in the population is rejected, hence, the independent and dependent variable have a relationship in the population. The t-statistics reveal that the constant is unequal to zero in the population (regression analysis in app. 19).

Average_concern + effort_save_water

In this regression analysis, 'average_concern' constitutes the dependent and 'effort_save_water' the independent variable.

H_0: There is no supported relationship between 'average_concern' and 'effort_save_water_hotel'.

Correlation

The correlation between 'average_concern' and 'effort_save_water_hotel'reveals a significance value of 0,000 at the p = 0,05 level. Pearson's r value amounts 0,444 and therefore, demonstrates a strong positive relationship. In other words, these two variables are highly correlated with each other.

Regression analysis

The R^2 value equals 0,197 claiming that in this sample the independent variable 'average concern' explains 19,7% of the variance of the dependent variable 'effort_save_water_hotel'. The F-value equals 253,590 (with df 1/1033), which is highly significant at a 5% level. Hence, the null hypothesis becomes rejected claiming that the respondent's concern regarding the environment and his actual effort to save water in a hotel not associated in the population. After consulting the t-test for coefficients it can be concluded that the constant in the model is not equal to zero in the population (regression analysis in app. 20).

Therefore, there is evidence that people who are concerned about environmental and water-related issues, tend to put more effort in saving water in hotels than the respondents, who are aware of environmental issues.

Wish for more background information on water saving signs

Since the frequency analysis of the variable 'wish_more_information_on_sign' has yielded moderately even distributions, it is of interest whether there are any differences in the respondent's age or level of education.

Age

While there is no clear pattern in the means, it is striking that with an increase in age the wish for more information on water signs is decreasing (see table 5). Thus, respondents between 21 and 30 years chose most often 'slightly agree' (4), which means that this age group wants additional information the most. The most frequent answer of respondents between 31 and 50 years is 'neutral' (3) and hence, do not take any position. Lastly, respondents between 51 and 85 chose most often 'disagree' (1), indicating more information is not necessary. It is important to note that the latter age group consists of only 75 respondents.

Age group	Mean	Mode
1 (15-20)	3,07	2
2 (21-25)	2,99	4
3 (26-30)	3,14	4
4 (31-40)	2,92	3
5 (41-50)	2,71	3
6 (51-60)	2,35	1
7 (61-85)	2,76	1

Table 5 – Influence of age on wish for more background information on water saving signs

Education

Based on the consideration of the mode value (most frequently chosen answer) it becomes obvious that especially respondents with an education background of an apprenticeship or undergraduate degree desire more information on a water sign implemented in a hotel bathroom (see table 6). By then, the higher the respondent's education level, the less frequently was chosen for more information.

Education level	Mode
2 (High School)	2
3 (Apprenticeship)	4
4 (Undergraduate)	4
5 (Postgraduate)	3
6 (Ph.D.)	2

Table 6 – Influence of education level on wish for more background information on water saving signs

Discussion

The following section examines the findings more elaborately and besides, establishes confrontation with existing literature to identify potential conflicts and consistencies. Furthermore, the contribution of this study to scientific concepts, limitations and recommendations for future research is going to be outlined later.

The findings revealed that a great number of respondents consider themselves aware about environmental but also water-related issues. It has been further exposed that the tourists who state awareness, show more water saving engagement than the tourists who lack awareness. However, if tourists are actually *concerned* about water-related issues, they are even likelier involving in water saving methods. Therefore, concern embodies a stage the tourist should ideally reach and pass to increase the

chance of action-taking. Hotels, schools and media (latter identified as main knowledge source in terms of water problems) should be encouraged to emphasize the linkage between vulnerable regions and water issues, and specifically identify how visitors of those regions can contribute responsibly to natural environment and local population. Another important finding refers to the positive effect of water saving signs in hotel bathrooms. This study found out that most hotel guests perceive those signs as a good reminder to act more responsibly with water. As there have been barely any negative perceptions, hotels are encouraged to incorporate those signs to on the one hand save water and preserve the natural and social environment, and on the other, to also save tremendous amounts of money. Moreover, statistical analyses revealed that education level and net income do not have an impact on actual saving behaviour of tourists in hotels.

The study's objective was to extend and test the knowledge, which is stated by existing literature, in a water context. The above located framework identified three pillars, which so far explained the attitude-behaviour gap regarding climate change issues in general. This information served as partial foundation for the questionnaire, which aimed to specifically stimulate those pillars to receive more information about tourists' perceptions, attitudes and level of knowledge as well as to test whether existing explanations are also applicable on the water attitude-behaviour gap. To recall, the identified pillars are:

I: Knowledge/awareness issues,
II: Hedonistic features and
III: Attitude

Therefore, the following discussion will be divided into three parts to elaborate the above mentioned major findings, comprehensively discuss each pillar in general and suggest potential interventions which stimulate awareness building and action-taking.

Pillar I: Gap between awareness and action-taking due to knowledge and awareness issues

The border between awareness and knowledge is very sensitive as both serve as functional roles in an individual's life (Pecho, 2015). However, in this study knowledge refers to information, which can be passed on, tested for validity and represents objectivity. Awareness is reflecting upon these things and portrays the individual's personal interaction with the world, driven by norms and values. Hence, in contrast to knowledge, awareness is the subjective nature of consciousness with the ability to attach emotions and feelings to certain information (knowledge). Unlike knowledge, it is not possible to share awareness (Bush, 2015; Hollomon, 2015).

Knowledge

When estimating the respondents' actual knowledge about tourism related issues, the study reveals that the majority of respondents is able to point out that bedroom, maintenance and wellness factors are the most water consuming activities, which stand in alignment with the study of Gössling et al. (2012). However, it is noteworthy that only less than 1/3 of the respondents declare food production as water

threatening activity within tourism, while it demands immense amounts of water to produce food (1000-20.000l of water for 1kg of meat, (Gössling et al., 2012)). However, since here water is unlike the correct identified activities used indirectly, tourists do not get confronted with the amounts water being used. Thus, it is to assume that as soon as tourists have physical contact with water or notice it as tangible good, they are capable of drawing their own conclusions and link concepts such as water scarcity to aspects they have experienced and/or seen by themselves. Furthermore and as pointed out earlier, water consumption per guest per night differs among climate zones, whether the accommodation is established in a rural or urban environment, the way a hotel is structured (rather high-rise or resort style) and the level of comfort (1-5 stars). It is likely that respondents have applied the questions to their individual holiday context, which could be that person x spends his holiday only in water rich regions, while person y visits solely water scarce destinations. Hence, it is of limitation that the questionnaire did not contain any region specific questions to test the respondent's understanding and values concerning water scarce destinations.

Furthermore, the examination of water knowledge sources reveals that besides education, the vast majority obtains topic-related information from media in form of internet (informs most of respondents), TV as well as textual data and less from family or information signs in hotels. This implies that travellers are best reachable through media when it comes to transmitting water related knowledge. However, there is one important limitation regarding that question. Due to technical issues the respondent was not able to skip this question in case he does not have any knowledge about water related issues. This forced respondents who lack knowledge to choose an answer, which impacts the validity. Nevertheless, as a great share of tourists, between 40 and 50 % (Stevens, 2012), book their holiday trips online, the chance could be taken to convey region specific information concerning water problems. Hence, people who intend to travel to water scarce and vulnerable regions should receive information about the destination's water circumstances, statistics about hotels' water consumption in general, ways how to act responsibly as well as giving incentives (e.g. to stimulate feeling of doing something 'good'). This information should be predetermined for certain areas and distributed by online travel agencies per booking. To spread this intervention among major online travel agencies, a higher standing organization (e.g. UNWTO) should become involved to regulate and monitor process and success.

Awareness

When considering the awareness aspect it is of interest whether tourists are aware about water scarcity across vulnerable regions. The study reveals that the majority (56%) is aware, while the remaining share remains neutral or states a lack of awareness. This lack could be explained by an absence of travel experiences in water scarce regions, but could also relate to different norms and values among tourists. The latter refers to luxury resorts, which are often located at tropical, exotic beaches with partly poor water connection. Nevertheless, due to policies and regulations those resorts are able to claim fresh water to a great extent to maintain hotel but also to enable water intense activities such as golf. Affluent tourists enjoy luxury and might see it as a reward for their hard work that they blend environmental as well as social consequences of irresponsible water consumption completely out. However, it must be said that tourists do not have an impact on indirect water consumption, such as the maintenance of golf

courses. As it does not fall under the tourists' control, it is to assume that they feel less informed and thus, less aware of the consequences. Here, it is up to the hotels to apply water saving methods to maintain golf courses as well as landscape in a sustainable manner. It is possible though to raise additional charges in case of high construction costs. This tends to work out successfully especially in luxury hotels as their guests do not rate the price per night as most important booking factor. It is important to mention that the questionnaire did solely ask whether or not the respondent is aware about those regions – it is unclear whether in case of awareness the respondent is truly informed and could name a range of scarce regions as they might overestimate themselves. Furthermore, it is of interest that around 80% of the respondents are aware of the fact that water constitutes a scarce resource in general. The high awareness level remains in conflict with actual action-taking.

Model of action-taking process

It is essential to understand what stages and obstacles a traveller has to pass to be willing to take action. Therefore the researcher developed a model and suggests that the whole process starts with gaining knowledge about water issues (see fig. 40). The second stage deals about critical reflection and awareness building. This process is influenced by the traveller's norms and values as well as cultural background since they determine a human being's priorities and also interests. Based on the extent and direction of awareness, the traveller develops concern. The study revealed that there is a high correlation between awareness and concern. Thus, being aware about partly non-reversible impacts irresponsible water consumption brings, provides a good foundation for concern development. To reach the final stage of action-taking, it is up to the traveller to transform concern into proactive cooperation. Here, the findings showed that there is a moderately high correlation between concern and the actual tourists' effort to save water in hotels (higher than the correlation between awareness and the tourist's effort to save water). This means that concern is an important mediator between awareness and action-taking. However, both stages reflection/awareness and concern can be disrupted by external forces. A small share of the study's respondents (19,2%) feels stressed due to an information overload. Hence, more than 80% are not disrupted by too much information. Even though it is a considerable small share of travellers feeling disturbed, it is integrated in the model as 'dead end'. As indicated by Eppler and Mengins (2003), it is likely that tourists feel overstrained due to an information overload, which hinders them to take action. Furthermore, according to the study only 6,8% state non-importance to act since it affects the remote future. As the questionnaire did not specifically investigate the respondent's exact understanding of those terms, it remains uncertain whether he is truly aware of their meaning. This refers to Patchen (2006) who claimed that the amorphousness of terms (e.g. global warming, scarcity, ozone depletion) has an impact on the awareness building as many travellers assume to not experience the consequences of their (irresponsible) action since they take place in the far future. However, according to the study, only 6,8% state non-importance to act since it affects the remote future. As the questionnaire did not specifically investigate the respondent's exact understanding of those terms, it remains uncertain whether he is truly aware of their meaning. Besides, also personal highly rated benefits (e.g. hot and lengthy showers, frequent baths) constitute a dead-end derived from either awareness or concern (Becken, 2004; McKercher et al., 2010). However, this has not been part of the study and calls for future investigation.

Going back to the assumption that the traveller has reached the stage of concern, a range of factors have the potential to turn concern into action-taking. Besides intrinsic motivation and deep convictions, also external factors such as reminders influence tourists. Almost 70% of the respondents claim that visual reminders implemented in hotels encourage awareness and cooperation, which stands in accordance with the propositions made at the United Nation Conference on Environment and Development in 1992 (Kang et al., 2012). This intervention responds to the fact that between 13% and 20% of the respondents lack knowledge about how to become more water saving. Since around 50% wish more guidance by hotels, reminders constitute a welcome mediating tool to close the gap between concern and action-taking as 78% of the study's respondents claim that specifically water saving signs in bathrooms serve as a good reminder to act more responsibly. While external forces such as taxes lead to coercive and indirect participation (McKercher at al., 2010), it is incorporated as a driver of action-taking. Thus, to reach the final stage several stages and obstacles have to be passed beforehand.

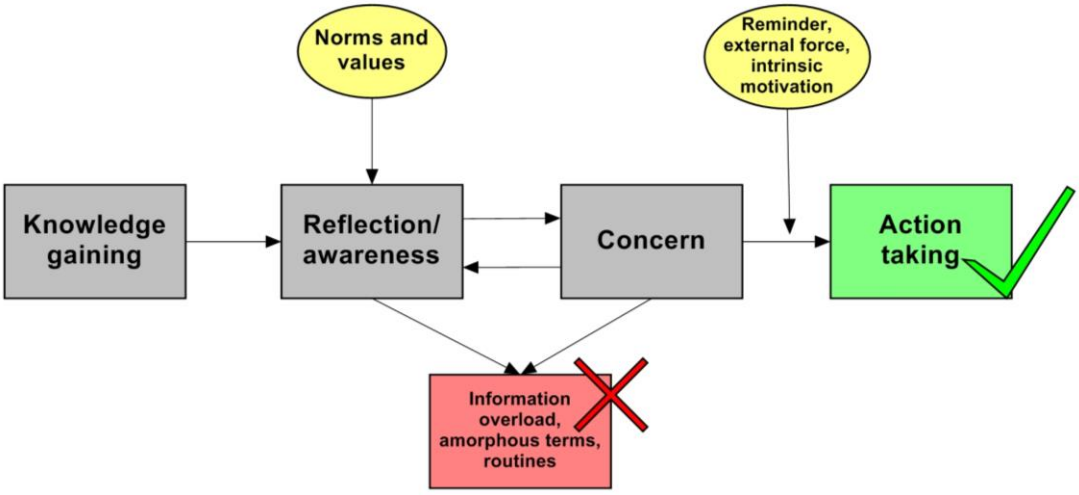


Figure 40 – Model of action-taking process

Pillar II: Gap between awareness and action-taking due to hedonistic features

Hotel versus home behaviour

Since hedonism embodies pleasure and in terms of tourism oftentimes the contrast to the home environment, it is of special interest whether tourists in fact live more (water) consuming on holidays than at home. Due to the fact that the respondents have been confronted with the exact same questions to home and hotel water consumption, it is possible to draw precise conclusions by means of a confrontation.

Considering the shower length it is of interest that there is a 10% difference in saving water between home and hotel. Thus, while almost 38% of the respondents reduce their shower length at home, only 27,5% do so when staying at a hotel. It is to assume that one major reason for this difference is the fact that the respondents shower more responsibly due to cost issues. Water and gas prices are increasing, which influences the shower behaviour of less affluent people. Thus, taking a holiday is often the

equivalent to escaping the everyday environment to seek relaxation. Therefore, it is to assume that tourists see it as a 'right' to feel good and enjoy warm and longer showers. What role the price tourists pay per night plays will be discussed in the following. Aside from the shower length, the study also revealed differences in towel change behaviour. While around 83% of the respondents consider a towel change at home once or twice a week as sufficient, around 71% do so when staying at a hotel. This again refers to the feeling of luxury when having the chance to receive freshly washed towels on a daily basis without paying extra. However, it is important to bear in mind that a great share of tourists is satisfied with a once or twice occurring towel change a week in a hotel. Overall, these differences are not shocking; it would have been of greater value to find out more about the specific desired frequency of towel change instead of already limiting it down to a change of once or twice a week. A value-chain analysis conducted on Koh Chang, Thailand, claims that among 65 hotel guests in upscale accommodation (4 star +), 34% prefer to have their towel washed on a daily basis, while 65% consider it as sufficient to have them replaced every second day or later (Schiermann, Hesping, Gonçalves, Dischereit & Pottier, 2014). Even though the sample of the latter study is considerably small, it has been identified that the majority of tourists does not demand freshly washed towels on a daily basis. It is essential to communicate this to hotels. Even though hotels, especially from the upper segment, have to offer the possibility of daily replacements, this finding could encourage them to implement signs informing about a towel reuse program (later discussed). While tourists still have the possibility to have them exchanged on a daily basis, they are able to interfere. It does not only save water in the general sense, it also saves tremendous amounts of money spent by the hotel.

While those two bathroom aspects (shower length and towel change) indicated differences between home and hotel, there are barely any differences when it comes to turning the water off while brushing teeth and while shampooing hair and body. The great majority of around 86% states they turn the water off in a hotel while brushing teeth, 90% do so at home. Moreover, both in hotel and at home, around 58,5% leave the water on and around 31,2% turn it off while shampooing hair and body. The similarity between home and hotel can be explained by the fact that brushing teeth and shampooing hair/body constitute activities, which are carried out unconsciously.

To conclude, when it comes to water consumption behaviour in the bathroom (shower length and towel change), hotel guests use more water than at home, which stands in alignment with the theory of Carr (2002) that people view the holiday environment as contrast to their home and thus, act more 'lavish'. Therefore, the more tourists see their holiday as right to use resources unlimitedly to enhance pleasure, the less likely it is to close the gap between awareness and action-taking.

Effect of age, education level and net income on water saving behaviour

- Age

  The study revealed that with an increase in the tourist's age, the awareness level rises. Since awareness does not yet mean actively saving water, it is suggested to implement information signs or similar especially in accommodation types, where predominantly younger people (17-25 years old) stay (e.g. hostels, backpacker bungalows). Furthermore, with an increase in age, the effort to save water increases too. This observation might result from the fact that younger people (17-20 years old) have been most likely not yet confronted with saving patterns as they

are still living at home where parents regulate financial issues. On the other hand, older people (41-81 years old) might save more water due to low retirement income (Parker, n.a.) or simply due to wisdom and common sense.

- Education level
  The research has shown that there is no link between the tourist's education level and his water saving activity. This is considered as positive as it is impossible to influence the traveller's education level. Moreover, even though the awareness about environmental issues and general concern rises with an increase of education level, the differences are considerably low that it is not appropriate to draw any conclusions.
- Net income
  Also this demographic feature is not linked to guests' water saving patterns. Hence, it is not to assume that more affluent tourists save less water as they are not financially restricted.

Overall, the behaviour of tourists appears to be quite homogeneous across different ages, education and income levels.

Impact of price per night

The study revealed that 25% of the respondents consider an expensive price per night as reason not to reduce their shower length to save water. Therefore, a high price constitutes for 1/4 a blockade to close the gap between awareness and action-taking. Another point of view represents a high price as status or prestige symbol, which embodies the right to enjoy water consuming activities without restrictions and negative feelings. Since it is burdened and stressful for a great share of people to deal with high water and gas prices at home, it is likely that for a short period of the year they do not want to care about water related issues, especially when they have saved for a particular holiday for a long time. Nevertheless, this presents only a distanced perspective onto price driven behaviour patterns and has potential to be further investigated.

Pillar III: Gap between awareness and action-taking due to tourist's attitude

Mind-set

As mentioned earlier, tourists are driven by different norms and values with different cultural backgrounds. These factors summed up determine a tourist's mind-set and his priorities regarding life and environmental issues. Every human being is subject to socialization process taking place in one's childhood to learn from others in terms of controlling body functions, languages, behaving according to rules of the daily life as well as establishing norms and values. The development of the latter two functions enables interpretation and evaluation of environmental threats and its consequences on humanity (Chen, 2009). Therefore, it is of interest how important travellers value the necessity of a more water saving behaviour.

It is to assume that a great share of tourists thinks according to the motto that one single individual cannot change much regarding water scarcity; hence, it might seem senseless to apply water saving methods. Around 25% of the study's respondents represent this idea, while 60% hold against it. Even

though the majority does identify an individual's power, a considerable share is not yet aware that every single tourist can contribute to a certain extent to a better environment. Hence, it is essential to convey the idea of togetherness and that every individual automatically lines up with other similar human beings (see fig. 41). To tackle this dead-end thinking of a minority group of tourists, it can be helpful to pick up on the earlier mentioned concept 'social norm messaging' Goldstein et al. (2008) have presented. Accordingly, 'social norm messaging' being incorporated on towel/linen reuse signs in hotel rooms can eliminate this group of thinkers, claiming that previous hotel guests of that particular room have saved water as well has an encouraging effect on the individual guest and supports a feeling of togetherness.

Figure 41 – Togetherness

Another interesting thought is whether hotel guests attach different meaning to small scale and upscale hotels when it comes to the call to save water. The study revealed that a greater share of tourists (70%) is willing to save water in small scale than in upscale hotels (58%). This result leads to the question whether higher room prices in upscale hotels justify unlimited water consumption. As stated under pillar II only a small but considerable share of respondents (25%) make the price level responsible for their willingness to act. Thus, further research is requested to disclosure behaviour patterns among different accommodation types and to what extent price plays a role.

Bathroom signs

The effectiveness and perception of hotel bathroom signs (towel reuse programs) play a significant role when investigating tourists' attitudes and identifying potential reasons for the gap between awareness and action-taking.

More than 68% of the respondents state that they are familiar with those signs as they have been encountered in hotels by themselves. This high number conflicts with the findings of McNamara and Prideaux (2010), claiming that tourists tend to notice environmental education only to a little extent in hotels. Moreover, 75% of the stress that the sign shown in the questionnaire (see fig. 42) helps to raise awareness about water related problems and simultaneously constitutes for 78% a good reminder to put awareness into practice. However, 37% of the respondents do wish more information on those signs for a more comprehensive understanding. According to Sparrow (1998) many of these signs contain too little information about the actual problem

Figure 42 – Hotel sign in bathroom

that the guests remain clueless. Therefore, such a sign needs to contain a clear presentation of the facts without being overloaded as this causes deterrence among guests (Eppler & Mengins, 2003).
Besides that it is also of interest what kind of feelings these signs evoke. As an increasing share of tourists becomes more aware of environmental problems and many of them prefer staying in a 'green' hotel (Teng, Horng, Hu, Chien & Shen, 2011), those signs impart for 77% a good feeling as it implements to stay in an environmentally friendly hotel. It remains questionable whether this feeling is driven by rather superficial aspects or by intrinsic motivations. However, on the contrary, around 20% of the respondents perceive these signs as strategy to cut costs. As this constitutes still a considerable share of tourists, it seems necessary to work on the sign's messages (e.g. by means of eco-labels, more precise information) to increase the participation rate. Furthermore, 83% of the respondents state that those signs should be implemented in every hotel. This positive response rate has to be distributed to hotels as it serves as encouragement to implement water saving measurements. This study found out that only 11% of the respondents tend to ignore those signs as they are implemented too frequently. This result conflicts with Greenberg's (2008) 'green fatigue', where people feel overstrained due to the amount of environmental signs. It is important to bear in mind that with each litre of water being conserved, the hotel saves tremendous amounts of money, especially in the long term.
To sum up, towel/linen reuse signs are inexpensive in implementation, easy to apply and have tremendous effects on environment as well as on the hotel's finances, thus, a win-win. Most importantly, however, is that hotel guests perceive these signs as positive, reminding and encouraging. Without this attitude this method would not yield any effect towards more a more sustainable environment.

Before and after – Extension and explanation of framework

Based on the results, the initial framework has been revised and extended with information derived from the questionnaire (see fig. 43). In the extended framework, **pillar I** experienced on the one hand additional information regarding tourists' knowledge sources and their actual state of knowledge, and on the other it was possible to enhance the issue of awareness. Hence, besides already identified application disturbances, which can harm the process of action-taking, it has been analysed that concern constitutes a mediator between awareness and action-taking too. Going beyond concern, it is crucial to have a closer look to the methods being implemented by hotels, whether they stimulate concern or/and lead to action-taking. Moreover, the earlier identified differences between hotel and home behaviour due to pleasure seeking motives in **pillar II** can be broadened as the questionnaire yielded information regarding demographic differences, which provide information whether those are determining for cooperation. Furthermore, the pillar has been extended with another factor, which could stop tourists from taking-action, namely the hotel's price per night. Moving on to **pillar III**, as revealed in existing literature, tourists' mindsets constitute one side of the overall attitude, which could stop tourists from taking action. Here, existing statements (e.g. that an individual cannot change much) have been incorporated into the study's questionnaire to test upon their reliability in the water context. As this research examined water saving signs in hotels in terms of effectiveness and perception, it was possible to broaden information concerning the importance of a tourist's attitude.

Overall, this framework serves as method to on the one hand illustrate already identified explanations of the attitude-behaviour gap (in a more general climate change context), and on the other hand pick up on those existing findings and extend it with this study's revelations in the water context. It is important to mention that it is of necessity to explore this framework on other variables and factors. The following figure (43) illustrates the scope of extension.

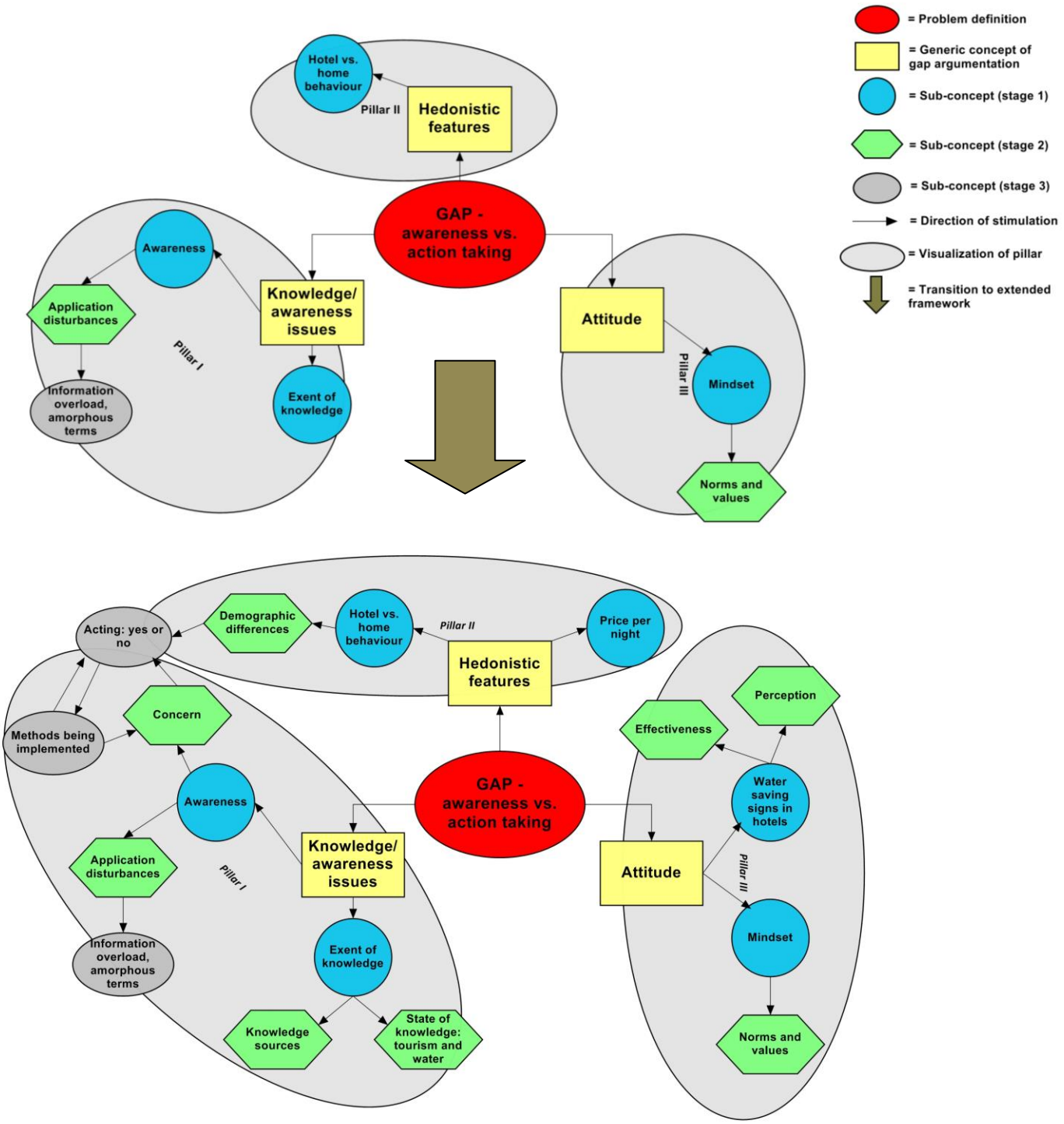


Figure 43 – Transition of framework based on literature to framework extended by questionnaire

Limitations

The greatest limitation of this study is that the questionnaire did not contain any nationality variables as it was expected to yield only 100 respondents at most. As the questionnaire has been distributed mainly among Dutch people, Germans and North Americans, it would have been of interest whether there are any major behaviour differences across nations.

Another limitation addresses the implementation of knowledge related questions in an online questionnaire. Respondents could be tempted to respond correctly, which could falsify the outcome. Furthermore and questionnaire related as well, especially European respondents experienced difficulties with the education terms 'undergraduate' and 'postgraduate', referring to 'bachelor' and 'master'. Many of them filled in the equivalent term under 'others'. Hence, there has been uncertainty concerning education level statements, which questions the validity when dealing with this variable. Another weakness refers to the fact that the questionnaire was solely available in English. Even though it made use of simple terms, non-native speakers might have experienced troubles understanding the questions' meaning. More conceptually, respondents were asked to assess their level of awareness regarding environmental and water-related issues. It is possible that they have under- or overestimated themselves, which could lead to a distortion of the outcome's validity and reliability. Lastly, this study focused merely on the tourists' bathroom behaviour and neglected other water demanding spaces, such as wellness activities or the use of a kitchen in bungalows/holiday apartments.

Future research

Since this research has been mainly focused on bathroom behaviour as this constitutes the most involving and direct consumption among tourists, there is space to investigate beyond that. It is still uncertain whether behaviour varies between different accommodation types and to what extent tourists save water in other facilities than the bathroom, such as in guesthouse kitchens. Furthermore, it should be examined whether tourists treat water differently when spending their holiday in a water scarce destination. For instance, are there any behaviour differences when visiting water rich cities such as Amsterdam or water scarce cities such as Dubai? And besides, further research should investigate the tourist's knowledge regarding water related issues to a greater extent. Are tourists aware of the fact that the more luxurious the accommodation, the more water is being used?

More conceptually, as there are different outcomes regarding the analysis of water consumption per activity, more research has to focus on actual consumption rates, preferably across water scarce regions. Lastly, to see what effect bathroom signs have in a more statistical context and less in a perceiving way, research should be designed in such a way that a cooperating hotel removes half of their bathroom signs, while the other half remains in the rooms. It is of interest whether there are noteworthy differences in consumption rates among the rooms. In case rooms *with* signs use less water, it would constitute the yet missing objective component to this study's result (that signs are perceived positively and encouraging). More generally, however, several case studies (of qualitative nature) should investigate to what extent hotels are informed about water saving methods, its financial and environmental benefits as well as the necessity of applying those to remain sustainable. Lastly, to expand the literature on the attitude-behaviour gap in the water context, in-depth interviews have the potential

to identify further reasons of not action-taking. These outcomes can then serve for quantitative studies to check upon representativeness.

Contribution to literature

By means of a self-administered questionnaire, it was possible to extend the literature based framework on potential reasons for the gap between awareness and action-taking. Thus, this study revealed that a) lack of awareness, b) hedonistic thinking and c) different attitudes can cause but also widen this gap. Therefore, reasons, which have been identified in a more general context, have found confirmation in the water-context. Based on the findings an additional model has been established describing the phases a tourist has to go through to become responsibly acting. This draws scientific attention to the fact that tourists should ideally be concerned, instead of *just* aware, about water problems.
Furthermore, this study contains two unique investigations, which have not been conducted before. The first one is that a tourist's water consumption behaviour has been studied at home as well as in a hotel by means of identical questions. This did not merely reveal usage differences, it also provided information regarding demographic issues regarding saving patterns. The other unique feature describes the investigation of effectiveness and perception of water saving signs implemented in hotel bathrooms. Due to the fact that those signs are perceived as very positive, this study can contribute beyond literature purposes; it can be communicated to hotels to increase the implementation of this easy to implement and inexpensive tool. Even though the study's methodology contains some limitations, it still yields relevant insights as it is the first of its kind.

Conclusion

Besides the confirmation of the existence of an attitude-behaviour gap, this exploratory research revealed that water saving interventions implemented by hotels, have the potential to stimulate hotel guests' willingness to act more responsibly. In the context of this study, towel/linen reuse programs communicated on bathroom signs constitute for the vast majority of the respondents a good reminder to act more responsibly with water, while they also have the ability to increase tourists' awareness about water issues. While these findings should be used to on the one hand encourage hotels to implement such inexpensive signs and refer to region specific circumstances, some tourists on the other hand might increase their knowledge and hence, awareness and concern evolves, which affects their water treatment in more responsible manners. It has been further revealed that tourists' education level and net income do not influence the extent of action-taking. Therefore, it cannot be argued that tourists who are water saving command over a certain level of education or are steered by money restrictions. However, age has a minor effect on the tourist's behaviour as such as with an increase in age, the actual water saving rate increases as well. These insights especially serve for researchers as a good basis to work with to extend knowledge on that field of interest.

This research has further led to the theory that the gap between awareness about water related issues and tourists' actual willingness to cooperate is determined by three main factors (presented as pillars). The first one describes a lack of knowledge and awareness. Here, a model has been suggested explaining the process from knowledge gaining, to the creation of awareness by means of reflecting the gained knowledge, to the development of concern, to reach the final stage of action-taking. It is of importance to examine potential dead-ends caused by external annoyances or the prioritization of personal benefits. However, one has to bear in mind that each tourist's way of dealing with those issues is influenced by a set of individual norms and values as well as cultural background. Thus, future research should examine those differences more in-depth and compare population groups which each other when it comes to water saving behaviour on holiday. The second pillar, which can embody an obstacle to action-taking, is hedonistic thinking. Here, a tourist declares his holiday as pleasure event to such an extent that he is drawing a clear line between home and holiday environment. The study has revealed that his water consumption behaviour in hotel bathrooms is higher than at home, which leads to the fact that tourists like to experience a more non-restricted handling with water as a resource. The third and last factor addresses the tourist's attitude regarding water saving methods applied in hotels (here, water saving signs in bathrooms) and his mind-set regarding the severity of water related problems. This research has shown that an increasing share of tourists perceives water saving interventions, such as the water sign, as positive, reminding and encouraging to cooperate. This builds a solid foundation not only for hotels to implement those and save tremendous amounts of money and water, it serves also as general understanding that tourists are open to water saving methods, which constitutes a first solid achievement. Therefore, open-minded tourists are more likely going to cooperate than 'ignorant' ones. This raises the importance of transferring water-related information and ways how to act more responsibly in hotels (especially in vulnerable regions) to younger generations. They might have the greatest chance to internalize water values and treat water unconsciously and intrinsically conscientious as well as pass knowledge onto future generations. Accordingly, these three factors have to be influenced to increase action-taking.

While tourists form one important group of interveners, also hotels have to understand their role in water scarce regions. As some accommodation businesses enjoy more rights over fresh water than local communities, it has to be strictly reconsidered whether neo-liberalistic structures among hotels lead to long-term success. This study has proven that intervention strategies yield positive effects, both socio-ecologically as well as financially. Hence, being more water conservative constitutes a win-win situation. Among environmental organizations, UNTWO and governments – hotels have to realize that they have the power (and perhaps task) to influence the human mankind to turn 'potential willingness to act' into a matter of course.

One should not forget that many (developing) countries experience high economic benefits from tourism, which lead to development and poverty reduction. Due to the fact that tourism will experience a tremendous increase in numbers the upcoming years, it is crucial to maintain ecosystems and natural resources to keep tourism and its benefits for local communities, travellers as well as businesses alive.

"It's not too late at all. You just don't yet know what you are capable of."
- Mahatma Gandhi

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Appendices

Appendix 1 and 2 – Cover page of questionnaire and questionnaire itself

Survey

Dear respondent,

My name is Michèle Schiermann and I am a BSc Tourism student of Wageningen University (the Netherlands). For my thesis which is supervised by dr Bas Amelung, I am examining tourists' attitudes regarding water usage in hotels, specifically in bathrooms.
The following questionnaire will require 8-10 minutes to complete. Please answer every question honestly and keep in mind that there is no right or wrong answer. All obtained data will be treated confidentially and you remain completely anonymous.

If you have any questions, please do not hesitate to ask (michele.schiermann@wur.nl).

I appreciate your participation! Thank you very much.

Michèle Schiermann

* Erforderlich

PART A: Water - general issues

Please rate the following statements according to the scale. Keep in mind, there is no right or wrong!

1. **I am well informed about environmental problems (Global warming, ozone depletion, CO2 emissions etc.).** *
   Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

2. **I am concerned about environmental issues.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

3. **I am concerned about water as a resource.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

4. **I am well informed about water related problems in certain regions and seasons.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

5. **I am aware that water constitutes a limited resource on earth.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

PART B: Gathering of water information

Keep in mind, there is no right or wrong!

6. **According to you, which are the 3 activities within tourism with the highest water consumption?** *
Maximum of three answers possible.
Wählen Sie alle zutreffenden Antworten aus.

- ☐ Hygiene (Shower, toilet)
- ☐ Food and drinks
- ☐ Wellness (incl. Spa, Pool)
- ☐ Activities (Golf, ski)
- ☐ Infrastructure/building
- ☐ Maintenance (Hotel, garden, cleaning)

7. **If you are aware of water problems, where did you obtain the information from?** *
   More answers are possible.
   Wählen Sie alle zutreffenden Antworten aus.

   - [ ] TV
   - [ ] Newspaper/magazine
   - [ ] Internet
   - [ ] Education
   - [ ] Job
   - [ ] Information signs in hotels
   - [ ] Friends/family
   - [ ] Sonstiges: .....

8. **In your opinion, does tourism contribute negatively to water issues?** *
   Markieren Sie nur ein Oval.

   - ◯ Yes
   - ◯ A little bit
   - ◯ No
   - ◯ I am not sure

PART C: Behaviour

Please answer according to your first impression and later on, according to the scale.

9. **Have you ever noticed any water information signs in hotels (e.g. in bathrooms)?** *
   Markieren Sie nur ein Oval.

   - ◯ Yes
   - ◯ I am not sure
   - ◯ No

10. **I make an effort to save water at home.** *
    Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

11. **I make an effort to save water when I am staying in a hotel.** *
    Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

12. **I use more water in the bathroom during my holidays than at home.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

13. **I am aware of water shortages/problems, but I do not actively limit my water consumption in a hotel.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

Water information sign - Please read the following sign and answer according to your first impression.

14. **Such a sign helps to raise awareness regarding water issues among tourists.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Not at all	◯	◯	◯	◯	◯	A lot

15. **I wished to have more information regarding water problems on that sign.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Not at all	◯	◯	◯	◯	◯	A lot

16. **It gives me a good feeling staying in a hotel which cares about water issues.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Not at all	◯	◯	◯	◯	◯	A lot

17. **This sign gives me the feeling that the hotel just wants to save money on water.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Not at all	◯	◯	◯	◯	◯	A lot

18. **Every hotel/hostel/pension should implement those signs.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Not at all	◯	◯	◯	◯	◯	A lot

19. **Such a sign is a good reminder for me to act more responsible with water.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Not at all	◯	◯	◯	◯	◯	A lot

20. **Since these signs are placed in almost every hotel, I tend to ignore them.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Not at all	◯	◯	◯	◯	◯	A lot

21. **Since I pay a certain price per night, I do not want to save on water.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Not at all	◯	◯	◯	◯	◯	A lot

Water attitude and consumption at your HOME

Please evaluate your water consumption at HOME based on the following statements. Keep in mind, there is no right or wrong!

22. **When I am at home I care about water as a resource due to environmental issues.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

23. **When I am at home I care about water as a resource due to cost factors.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

24. **I actively reduce my shower time to save water and/or costs.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

25. **It is enough for me to change towels 1-2 times a week.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

26. **While brushing my teeth I turn off the tap water.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

27. **While shampooing my hair/body I turn off the water.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

28. **When taking a bath I worry about the high amount of water being used.**
Only applicable if you have a bathtub.
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

Water attitude and consumption in HOTEL

Please evaluate your water consumption when staying in a HOTEL based on the following statements. Keep in mind, there is no right or wrong!

29. **When I stay at a hotel I care about water as a resource due to environmental issues.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

30. **When I stay at a hotel I care about water as a resource due to cost factors.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

31. **I actively reduce my shower time to save water.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

32. **It is enough for me to change towels 1-2 times a week.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

33. **While brushing my teeth I turn off the tap water.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

34. **While shampooing my hair/body I turn off the water.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

35. **When taking a bath I worry about the high amount of water being used.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

PART D - Willingness to change behaviour

Please rate the following statements according to the scale. Keep in mind, there is no right or wrong!

36. **I do not see the importance of changing my water usage behaviour since it will only affect the far future.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

37. **As an individual it seems that I cannot change much regarding water issues.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

38. **I do not know how to change my water behaviour in a more responsible way.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

39. **I wish more guidance by hotels on how to improve water consumption in a more responsible way.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

40. **I feel stressed due to an information overload regarding water saving issues in hotels.** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

41. **I pay more attention to saving water when I get reminded (by e.g. water information signs).** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

42. **I am willing to reduce my water consumption in small-scale hotels (such as hostels, pensions or cheap hotels).** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

43. **I am willing to reduce my water consumption in up-scale hotels (such as 4 star hotels or higher).** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

44. **If I stay in an expensive hotel, I DO NOT want to reduce the length of my shower ("I paid for that").** *
Markieren Sie nur ein Oval.

	1	2	3	4	5	
Disagree	◯	◯	◯	◯	◯	Agree

FINAL PART - Demographics

All your data will be treated confidentially and anonymously.

45. **What is your gender?** *
Markieren Sie nur ein Oval.

- ◯ Female
- ◯ Male

46. **What is your age?** *

.....

47. **What is the highest education you obtained (or currently obtaining)?** *
Markieren Sie nur ein Oval.

- ◯ Basic school
- ◯ High school
- ◯ Apprenticeship
- ◯ Undergraduate degree
- ◯ Postgraduate degree
- ◯ Ph.D.
- ◯ Sonstiges: .....

48. **What is your monthly net income?** *
Markieren Sie nur ein Oval.

- ◯ < 500€
- ◯ 501-1000€
- ◯ 1001-1500€
- ◯ 1501-2000€
- ◯ 2001-2500€
- ◯ > 2501€

Appendix 3 – Water sign in bathroom

Source: http://www.treehugger.com/corporate-responsibility/2-of-global-gdp-would-stop-poverty-save-the-planet-united-nations.html

Appendix 4 – Frequency table

Are tourists aware about water scarcity in vulnerable regions?

well_informed_water_related_problems_cert_regioins

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	27	2,6	2,6	2,6
	2	166	16,0	16,0	18,6
	3	263	25,4	25,4	44,1
	4	359	34,7	34,7	78,7
	5	220	21,3	21,3	100,0
	Total	1035	100,0	100,0	

Appendix 5 – Frequency table

Does water scarcity concern tourists in general?

concerned_water_as_resource

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	27	2,6	2,6	2,6
	2	90	8,7	8,7	11,3
	3	204	19,7	19,7	31,0
	4	376	36,3	36,3	67,3
	5	338	32,7	32,7	100,0
	Total	1035	100,0	100,0	

Appendix 6 – Frequency table

Do tourists consider water as a scarce resource?

awareness_water_limited_resources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	20	1,9	1,9	1,9
	2	58	5,6	5,6	7,5
	3	134	12,9	12,9	20,5
	4	332	32,1	32,1	52,6
	5	491	47,4	47,4	100,0
	Total	1035	100,0	100,0	

Appendix 7 – remaining answers to question about knowledge source

- Common sense (4)
- Travel experience (2)
- Books (2)
- Radio (2)
- Work experience in hotel (2)
- Personal experience (2)
- Living in developing countries (2)

- Flyers in disco (1)
- University research (1)
- Personal belief (1)
- Green Peace (1)
- Documentary (1)
- General assumptions (1)
- Wade gravy (1)

Appendix 8 – Frequency table

Do tourists consider tourism as water exploiting?

tourism_bad_contributor_water

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A little bit	391	37,8	37,8	37,8
	I am not sure	122	11,8	11,8	49,6
	No	68	6,6	6,6	56,1
	Yes	454	43,9	43,9	100,0
	Total	1035	100,0	100,0	

Appendix 9 – Frequency table

Do tourists notice water saving engagement amongst hotels?

Noticing_water_signs_hotel

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I am not sure	109	10,5	10,5	10,5
	No	218	21,1	21,1	31,6
	Yes	708	68,4	68,4	100,0
	Total	1035	100,0	100,0	

Appendix 10 – Frequency tables

How do tourists perceive water saving methods implemented in hotels?

Statistics

		sign_helps_raise_awareness	wish_more_information_on_sign	good_feeling_staying_responsible_hotel	hotel_saving_money	implementation_every_accommodation	sign_good_reminder	signs_everywhere_ignoring
N	Valid	1035	1035	1035	1035	1035	1035	1035
	Missing	0	0	0	0	0	0	0
Mean		3,99	2,96	4,06	2,36	4,31	4,03	1,97
Median		4,00	3,00	4,00	2,00	5,00	4,00	2,00
Mode		4	4	5	2	5	4	1

sign_helps_raise_awareness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	24	2,3	2,3	2,3
	2	52	5,0	5,0	7,3
	3	174	16,8	16,8	24,2
	4	445	43,0	43,0	67,1
	5	340	32,9	32,9	100,0
	Total	1035	100,0	100,0	

wish_more_information_on_sign

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	160	15,5	15,5	15,5
	2	240	23,2	23,2	38,6
	3	249	24,1	24,1	62,7
	4	251	24,3	24,3	87,0
	5	135	13,0	13,0	100,0
	Total	1035	100,0	100,0	

good_feeling_staying_responsible_hotel

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	29	2,8	2,8	2,8
	2	51	4,9	4,9	7,7
	3	155	15,0	15,0	22,7
	4	390	37,7	37,7	60,4
	5	410	39,6	39,6	100,0
	Total	1035	100,0	100,0	

hotel_saving_money

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	317	30,6	30,6	30,6
	2	322	31,1	31,1	61,7
	3	183	17,7	17,7	79,4
	4	131	12,7	12,7	92,1
	5	82	7,9	7,9	100,0
	Total	1035	100,0	100,0	

implementation_every_accommodation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	24	2,3	2,3	2,3
	2	35	3,4	3,4	5,7
	3	113	10,9	10,9	16,6
	4	282	27,2	27,2	43,9
	5	581	56,1	56,1	100,0
	Total	1035	100,0	100,0	

sign_good_reminder

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	36	3,5	3,5	3,5
	2	57	5,5	5,5	9,0
	3	139	13,4	13,4	22,4
	4	414	40,0	40,0	62,4
	5	389	37,6	37,6	100,0
	Total	1035	100,0	100,0	

signs_everywhere_ignoring

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	441	42,6	42,6	42,6
	2	329	31,8	31,8	74,4
	3	154	14,9	14,9	89,3
	4	73	7,1	7,1	96,3
	5	38	3,7	3,7	100,0
	Total	1035	100,0	100,0	

Appendix 11 – Descriptive information

Are tourists more water saving than on holidays?

Statistics

		average_saving_hotel	average_saving_home
N	Valid	1035	1035
	Missing	0	0
Mean		3,3860	3,5998
Median		3,5000	3,7500
Mode		3,00	3,50

Appendix 12 – Frequency tables

Do tourists make an effort to save water in a hotel/at home?

Statistics

		effort_save_water_home	effort_save_water_hotel
N	Valid	1035	1035
	Missing	0	0
Mean		3,77	3,25
Median		4,00	3,00
Mode		4	4

effort_save_water_home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	26	2,5	2,5	2,5
	2	102	9,9	9,9	12,4
	3	232	22,4	22,4	34,8
	4	404	39,0	39,0	73,8
	5	271	26,2	26,2	100,0
	Total	1035	100,0	100,0	

effort_save_water_hotel

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	97	9,4	9,4	9,4
	2	194	18,7	18,7	28,1
	3	264	25,5	25,5	53,6
	4	316	30,5	30,5	84,2
	5	164	15,8	15,8	100,0
	Total	1035	100,0	100,0	

Appendix 13 – Frequency tables

What methods do tourists apply to save water in a hotel? Comparison between home and hotel consumption.

hotel_reducing_shower_saving_costs_andor_water

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	239	23,1	23,1	23,1
	2	266	25,7	25,7	48,8
	3	247	23,9	23,9	72,7
	4	181	17,5	17,5	90,1
	5	102	9,9	9,9	100,0
	Total	1035	100,0	100,0	

home_reducing_shower_saving_costs_andor_water

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	147	14,2	14,2	14,2
	2	229	22,1	22,1	36,3
	3	267	25,8	25,8	62,1
	4	252	24,3	24,3	86,5
	5	140	13,5	13,5	100,0
	Total	1035	100,0	100,0	

hotel_enough_towelchange_1to2_aweek

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	87	8,4	8,4	8,4
	2	102	9,9	9,9	18,3
	3	113	10,9	10,9	29,2
	4	209	20,2	20,2	49,4
	5	524	50,6	50,6	100,0
	Total	1035	100,0	100,0	

home_enough_towelchange_1to2_aweek

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	52	5,0	5,0	5,0
	2	53	5,1	5,1	10,1
	3	77	7,4	7,4	17,6
	4	188	18,2	18,2	35,7
	5	665	64,3	64,3	100,0
	Total	1035	100,0	100,0	

hotel_brushingteeth_turnoff_water

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	60	5,8	5,8	5,8
	2	30	2,9	2,9	8,7
	3	53	5,1	5,1	13,8
	4	140	13,5	13,5	27,3
	5	752	72,7	72,7	100,0
	Total	1035	100,0	100,0	

home_brushingteeth_turnoff_water

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	40	3,9	3,9	3,9
	2	18	1,7	1,7	5,6
	3	48	4,6	4,6	10,2
	4	136	13,1	13,1	23,4
	5	793	76,6	76,6	100,0
	Total	1035	100,0	100,0	

hotel_shampooinghair_turnoff_water

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	433	41,8	41,8	41,8
	2	171	16,5	16,5	58,4
	3	110	10,6	10,6	69,0
	4	123	11,9	11,9	80,9
	5	198	19,1	19,1	100,0
	Total	1035	100,0	100,0	

home_shampooinghaair_turnoff_water

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	444	42,9	42,9	42,9
	2	159	15,4	15,4	58,3
	3	109	10,5	10,5	68,8
	4	110	10,6	10,6	79,4
	5	213	20,6	20,6	100,0
	Total	1035	100,0	100,0	

Appendix 14 – Frequency tables

If tourists do not act (more) water responsible, what are potential reasons for not taking action?

no_importance_change_water_behav

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	575	55,6	55,6	55,6
	2	279	27,0	27,0	82,5
	3	111	10,7	10,7	93,2
	4	44	4,3	4,3	97,5
	5	26	2,5	2,5	100,0
	Total	1035	100,0	100,0	

individual_cannot_change_much

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	329	31,8	31,8	31,8
	2	294	28,4	28,4	60,2
	3	207	20,0	20,0	80,2
	4	151	14,6	14,6	94,8
	5	54	5,2	5,2	100,0
	Total	1035	100,0	100,0	

not_know_how_behav_more_responsible

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	375	36,2	36,2	36,2
	2	321	31,0	31,0	67,2
	3	200	19,3	19,3	86,6
	4	121	11,7	11,7	98,3
	5	18	1,7	1,7	100,0
	Total	1035	100,0	100,0	

wish_more_guidance_byhotels

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	123	11,9	11,9	11,9
	2	150	14,5	14,5	26,4
	3	269	26,0	26,0	52,4
	4	324	31,3	31,3	83,7
	5	169	16,3	16,3	100,0
	Total	1035	100,0	100,0	

stressed_information_overload

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	592	57,2	57,2	57,2
	2	243	23,5	23,5	80,7
	3	135	13,0	13,0	93,7
	4	47	4,5	4,5	98,3
	5	18	1,7	1,7	100,0
	Total	1035	100,0	100,0	

more_attention_when_reminded

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	80	7,7	7,7	7,7
	2	83	8,0	8,0	15,7
	3	174	16,8	16,8	32,6
	4	380	36,7	36,7	69,3
	5	318	30,7	30,7	100,0
	Total	1035	100,0	100,0	

willingness_reduce_consumption_smallscalehotel

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	60	5,8	5,8	5,8
	2	57	5,5	5,5	11,3
	3	197	19,0	19,0	30,3
	4	344	33,2	33,2	63,6
	5	377	36,4	36,4	100,0
	Total	1035	100,0	100,0	

willingness_reduce_consumption_upscalehotel

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	95	9,2	9,2	9,2
	2	109	10,5	10,5	19,7
	3	232	22,4	22,4	42,1
	4	310	30,0	30,0	72,1
	5	289	27,9	27,9	100,0
	Total	1035	100,0	100,0	

if_expensive_hotel_notwanting_reduce_showerlength

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	403	38,9	38,9	38,9
	2	200	19,3	19,3	58,3
	3	173	16,7	16,7	75,0
	4	145	14,0	14,0	89,0
	5	114	11,0	11,0	100,0
	Total	1035	100,0	100,0	

Appendix 15-17 – Regression analyses

Do age, education and net income have an impact on tourists' water usage behaviour?

AGE

Correlations

		average_saving_hotel	age
Pearson Correlation	average_saving_hotel	1,000	-,112
	age	-,112	1,000
Sig. (1-tailed)	average_saving_hotel	.	,000
	age	,000	.
N	average_saving_hotel	1032	1032
	age	1032	1032

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,112[a]	,012	,011	,87237

a. Predictors: (Constant), age

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9,872	1	9,872	12,972	,000[b]
	Residual	783,863	1030	,761		
	Total	793,735	1031			

a. Dependent Variable: average_saving_hotel

b. Predictors: (Constant), age

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,639	,075		48,427	,000
	age	-,009	,002	-,112	-3,602	,000

a. Dependent Variable: average_saving_hotel

EDUCATION

Correlations

		average_saving_hotel	Education_without_others
Pearson Correlation	average_saving_hotel	1,000	-,079
	Education_without_others	-,079	1,000
Sig. (1-tailed)	average_saving_hotel	.	,007
	Education_without_others	,007	.
N	average_saving_hotel	978	978
	Education_without_others	978	978

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,079[a]	,006	,005	,86731

a. Predictors: (Constant), Education_without_others

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4,644	1	4,644	6,174	,013[b]
	Residual	734,175	976	,752		
	Total	738,819	977			

a. Dependent Variable: average_saving_hotel

b. Predictors: (Constant), Education_without_others

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,642	,107		33,930	,000
	Education_without_others	-,064	,026	-,079	-2,485	,013

a. Dependent Variable: average_saving_hotel

NET INCOME

Correlations

		average_saving_hotel	net_income
Pearson Correlation	average_saving_hotel	1,000	-,138
	net_income	-,138	1,000
Sig. (1-tailed)	average_saving_hotel	.	,000
	net_income	,000	.
N	average_saving_hotel	1035	1035
	net_income	1035	1035

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,138[a]	,019	,018	,86961

a. Predictors: (Constant), net_income

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15,253	1	15,253	20,171	,000[b]
	Residual	781,168	1033	,756		
	Total	796,422	1034			

a. Dependent Variable: average_saving_hotel

b. Predictors: (Constant), net_income

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,579	,051		70,573	,000
	net_income	-,070	,016	-,138	-4,491	,000

Appendix 18 – Regression analysis

Additional finding: Relationship between awareness and average water saving patterns in hotels

Correlations

		average_saving_hotel	awareness_env_water
Pearson Correlation	average_saving_hotel	1,000	,356
	awareness_env_water	,356	1,000
Sig. (1-tailed)	average_saving_hotel	.	,000
	awareness_env_water	,000	.
N	average_saving_hotel	1035	1035
	awareness_env_water	1035	1035

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,356[a]	,127	,126	,82042

a. Predictors: (Constant), awareness_env_water

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	101,116	1	101,116	150,226	,000[b]
	Residual	695,306	1033	,673		
	Total	796,422	1034			

a. Dependent Variable: average_saving_hotel

b. Predictors: (Constant), awareness_env_water

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,821	,130		13,991	,000
	awareness_env_water	,402	,033	,356	12,257	,000

a. Dependent Variable: average_saving_hotel

Appendix 19 – Regression analysis

Additional finding: Relationship between awareness and effort to save water in a hotel

Correlations

		effort_save_water_hotel	awareness_env_water
Pearson Correlation	effort_save_water_hotel	1,000	,372
	awareness_env_water	,372	1,000
Sig. (1-tailed)	effort_save_water_hotel	.	,000
	awareness_env_water	,000	.
N	effort_save_water_hotel	1035	1035
	awareness_env_water	1035	1035

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,372[a]	,139	,138	1,115

a. Predictors: (Constant), awareness_env_water

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	206,680	1	206,680	166,278	,000[b]
	Residual	1284,000	1033	1,243		
	Total	1490,680	1034			

a. Dependent Variable: effort_save_water_hotel

b. Predictors: (Constant), awareness_env_water

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,010	,177		5,711	,000
	awareness_env_water	,574	,045	,372	12,895	,000

a. Dependent Variable: effort_save_water_hotel

Appendix 20 – Regression analysis

Additional finding: Relationship between concern and effort to save water in a hotel

Correlations

		effort_save_water_hotel	average_concern
Pearson Correlation	effort_save_water_hotel	1,000	,444
	average_concern	,444	1,000
Sig. (1-tailed)	effort_save_water_hotel	.	,000
	average_concern	,000	.
N	effort_save_water_hotel	1035	1035
	average_concern	1035	1035

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,444[a]	,197	,196	1,076

a. Predictors: (Constant), average_concern

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	293,817	1	293,817	253,590	,000[b]
	Residual	1196,863	1033	1,159		
	Total	1490,680	1034			

a. Dependent Variable: effort_save_water_hotel

b. Predictors: (Constant), average_concern

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,922	,150		6,155	,000
	average_concern	,590	,037	,444	15,925	,000

a. Dependent Variable: effort_save_water_hotel