(Article)

Resistance to Change and Perceived Risk as Determinants of Water-Saving Intention

Francisco J. Sarabia-Sanchez[1]*, Isabel P. Riquelme and Juan Manuel Bruno[3]

[1] Full-Professor of Marketing. Center for Innovation and Business Development. Universidad Miguel Hernández (Spain); fransarabia@umh.es
[2] Assistant Professor. Department of Business and Financial Studies. Universidad Miguel Hernández (Spain); ip.riquelme@umh.es
[3] Assistant Professor; Facultad de Ciencias Económicas, Universidad Nacional de Córdoba (Argentina); jmbruno@unc.edu.ar

* Correspondence: fransarabia@umh.es

Abstract: Both academic literature and global organizations have emphasized the need for responsible water consumption, as stated in the Sustainable Development Goal 12. However, individuals' water-saving behaviors in their current state are not enough. This situation entails a resistance to change (RC) in consumer habits and a lack of perceived risk of scarcity. The novelty of this study lies in examining the influence of RC (through its emotional, cognitive, and confidence components) and perceived risk on water-saving intention. Interviews (n = 384) were conducted in the southeast Mediterranean area of Spain by interviewers using a paper-and-pencil questionnaire. The results of the structural equation modeling show that the perceived risk and the components of cognitive rigidity and negative emotions exert a direct influence on water-saving habits and an indirect influence on water-saving intention. None of the components of RC directly influence intention, and a lack of confidence in the outcomes of water saving does not influence water-saving habits or water-saving intention. In addition to the results obtained, the novelty of the work lies in the idea that in order to influence the perception of the risk of water scarcity through awareness campaigns, it is better to use an emotional message rather than showing facts or information, because this does not drive water saving behavior.

Keywords: water saving; resistance to change; perceived risk; intentions; Sustainable Development Goal 12.

1. Introduction

The elevated levels of water stress around the world are a major threat to achieving the Sustainable Development Goals [1]. This threat is due to the decreasing availability of water coupled with the growing demand driven by economic development and/or lifestyles based on increasing levels of consumption [2]. This situation has led governments and international organizations (UN, FAO, etc.) to promote an interest in caring for and saving this fundamental resource. However, such efforts are not enough [3], and there is a global emphasis on the need to consume less and save more in the face of current and future challenges [4]. While domestic consumption is low, compared to that of agriculture, industry, and services and "turning off the tap" will not alleviate the problem of scarcity [5], it can be used as a strategy to instill water-saving habits that can then be transferred to other economic sectors.

Forecasts indicate that within 15 years, 40% of the world's population will have severe problems of water scarcity [6]. Therefore, there is a need to relieve the pressure on the available water. The problem is that, in many countries, citizens have low awareness of this issue [7,8], hence the insistence in the need to foster a culture of saving [9].

Fielding et al [10] suggested that, to save water at the individual level, consumption habits must improve, which means that water-saving habits are necessary. However, current habits involve high levels of consumption and are difficult to change, creating a barrier in shifting toward efficient consumption models [11]. In addition, the low awareness that individuals have of the existence of a water crisis means that the usual behaviors (high consumption and lack of savings) are perceived as low risk. If there is no perceived risk or actual threat in current water consumption behavior, there will be no reason to accept a change in consumption habits. This scenario will lead to the phenomenon known as "resistance to change" (RC).

This RC may be supported by other inhibitors such as the low price of water, the lack of information about the water that is used, and the lack of incentives [12,13]. Furthermore, there are personality traits that limit change propensity, as intolerance to ambiguity or the rejection of new experiences. RC has been widely studied in the context of business [14-16], but the academic literature on sustainability and the organizations on which water policy and management depends have paid little attention to RC as an inhibitor of water-saving habits. Likewise, perceived risk has received considerable attention in the literature on environmental conservation, but it has not been linked to RC.

Therefore, the general aim of this paper is to study how RC (through individuals' emotions, thoughts, and expectations) and perceived risk influence water-saving intention at the individual level.

1.1. What Is Water Saving?

Dworak et al. [17] reported a lack of a specific definition of "water saving", defining it as a "reduction of the total water supply" (p.10). They define it as having an aggregate nature by referring to river basins. For these authors, savings can stem from taking less water from reserves, reducing overall demand, or using water more efficiently. Along the same lines, Gore et al. [18] defined water saving as reducing the consumption of water that is not really needed and that can be used for other present or future uses. In reality, water saving can be achieved by extracting less water, using it more efficiently, reducing water losses in distribution systems, and consuming less.

The literature also refers to the concept of "water conservation" as behavior that leads to one or more of the following outcomes: (a) reducing water use, waste, and loss, (b) maintaining or improving water quality, (c) enhancing efficiency in the use of water, and (d) improving water management practices [19,20]. Both "water conservation" and "water saving" encompass the activities of "reduction", "modification", and "improvement" of consumption, with underlying behavioral changes in the people or institutions involved.

1.2. Water-Saving Habits

One of the principal goals of water conservation policies is for individuals to adopt responsible consumption behaviors. It has been shown that the propensity to save increases when there is greater awareness of the scarcity of water and when others are seen to save too [21]. Koop et al. [22] concluded that, to achieve long-term saving behaviors, individuals need the right information, and strategies that promote saving must be based on social norms, emotional aspects, and support to ensure that individuals' behavior is well directed.

This behavior can be both rational and deliberate as well as a habit, which refers to the automation of a routine. Accordingly, a distinction can be made between usual behavior and habits. The former is fundamentally regulated in a conscious manner. The latter entail a high degree of deep or unconscious regulation and are shaped by the context. In this case, habits mean that individuals do not need to define their goals consciously [23]. However, even if habits are stable over time, it has been shown that "a minimal level of favourable conscious motivation may be required to sustain behaviours over time" [24] (p.

2). Therefore, habits may have a dual nature: saving behavior must be automated as well as being supported by cognitive aspects.

This dual nature of habits may be key for two reasons. The first relates to the point that individuals who are unaware of the need to be water savers cannot develop saving habits without performing conscious goal-directed behaviors. Undertaking actions directed at the goal of saving can take place quickly, but habits are achieved to a large degree by the antecedent stimuli received and achieved by the consequences of saving [25]. The second reason relates to the idea that many water savers think that they could do more, but they do not know how to save water effectively, have low motivation to act, or make ineffective savings [26;27]. Therefore, along with habits, there must be cognitive support to enhance the outcomes.

The relationship between water-saving habits and the reported intention to be a water saver has been widely studied [28]. For instance, Chaudhay et al. [29] showed that habits are significant in explaining intentions to save, although many individuals experience cognitive dissonance between their beliefs and the actions that they actually perform.

Based on these arguments, the hypothesis proposed is:

H1: The greater the saving habits, the stronger the intention to save water.

1.3. Resistance to Change (RC)

RC is a personality trait consisting of the tendency or disposition to avoid or reject changes to the usual situation or status quo [15,30]. Psychologically, it refers to an attitude or posture that reflects the difficulties in changing opinions or behaviors. This attitude is the result of a conflict between rational and emotional coping when pursuing a goal (be it one's own or imposed). This phenomenon has been widely studied in the areas of business [31,32] and psychology [33] because it has a strong influence on human resource management and individuals' personal lives. Although it refers to an individual posture, the sum of many cases of RC is crucial in achieving a common goal. Accordingly, it has been cited as one of the primary barriers to tackling environmental problems [34].

RC can emerge in simple avoidance behaviors regarding the goal or task at hand (e.g., "It's not important to save water"), defiance (e.g., "Why should I be the one to save water?"), or sabotage of the goal (e.g., "I have the right to use it however I like, and I'll use what I want because I can afford it"). RC can also appear when the change is objectively beneficial for individuals because RC is a system of defense in response to situations where people are asked to change their behavior but do not know how to do so or do not want to change [35].

The causes of this resistance vary considerably and can be grouped into individual and social factors. The literature describes individual factors that include a lack of trust, low personal stability, the stress caused by the change, the feeling of uncertainty, and the perception that the change is unnecessary [36]. Other cited factors include the strength of habits, selective information processing, economic factors, skepticism regarding the need to change, and the fear of the unknown due to the change [36,37]. Commonly cited social factors are group inertia and the potential threats to existing relationships [31].

There are several taxonomies and components of RC. One of the earliest is credited to Maurer [38], who described three levels or components of resistance: (1) cognitive, or the lack of comprehension of the target of the change; (2) affective, or the emotional reaction to the change; and (3) behavioral, as in a lack of confidence in the outcomes of the change. The most cited classification is perhaps that of Oreg [15], who defined four components (negative emotions or stress, cognitive rigidity, short-termism, and force of habit). However, there are other proposals, such as that of Ming-Chu and Meng-Hsiu [39], who differentiate between active and passive RC.

For the present study, the model described by Oreg [15] was adopted. However, the components were reduced to those proposed by Maurer [38]. Thus, three components

were considered: cognitive (measured using cognitive rigidity), confidence/trust (pessimism or a lack of confidence in the outcomes of the change), and emotional (focused on the negative emotions elicited by the rejection of change). The short-termism component proposed by Oreg [15] was not included because water saving has been promoted as an essential environmental action for more than 20 years [4]. It was also excluded because there is no set deadline for which this water-saving behavior should occur, although it is increasingly imperative to reduce consumption of the scarce water available.

1.3.1. The Cognitive Component: Rigidity

Cognitive rigidity is a component of the disposition to resist change [40]. It refers to the level of inflexibility of individuals in the way they think, making it difficult for them to accept new ideas, different perspectives, or innovations [15,41]. People with a high level of cognitive rigidity tend to repeat previously learned strategies, displaying difficulties in adopting new behaviors, even if they may prove more efficient [42]. Moreover, cognitive rigidity has a greater capacity than other personality constructs to predict responses to situations of change [43].

Cognitive rigidity is a characteristic of subjects with strong personal convictions and a sense of a high level of personal control over their lives. This situation is generally associated with self-confidence and personality traits such as dogmatism [16], conservatism, and authoritarianism [44]. People with a high level of cognitive rigidity tend to maintain their behaviors (saving or consumption) and to cling obstinately to them, rejecting new alternatives even if they can improve their current behavior [45]. In such situations, communication campaigns that promote water saving have been observed not to alter the behavior of individuals [46] because they tend to repeat their previous behavior as soon as the impact of the advertising goes away. In fact, for individuals with a high level of cognitive rigidity, the very act of changing (and how to do so) has a greater influence than the expected outcomes of this change [47].

Based on these arguments, the hypotheses proposed are:

H2a: The greater the cognitive rigidity, the weaker the water-saving habits.

H2b: The greater the cognitive rigidity, the weaker the water-saving intention.

1.3.2. The Trust Component: Lack of Confidence in Changes

Water-saving behavior can be positive for individuals (smaller bills) and society (greater availability of water for all). However, it can also be perceived as an unachievable goal. If so, there may be a belief that individual efforts to save will not contribute meaningfully to the savings that are needed. In these situations, many individuals develop a lack of confidence in the outcomes of saving (also known as pessimism), which is defensive in nature and constitutes a strategy to reduce or avoid the feeling of failure [48,49].

This lack of confidence in the outcomes of saving may stem from other sources. It may be that individuals do not trust that they can save, instead believing that they are incapable of reducing their current consumption. For instance, many may feel that their personal or family situation or their specific needs require them to maintain their current consumption, thereby preventing them from developing a commitment to the goals of saving [50]. There may also be low expectations when individuals realize that the efforts to save must be maintained over time. Long-term behaviors are in fact an indispensable part of saving water to achieve environmental change [51]. Finally, some people are pessimistic and believe that things always tend to go wrong. They therefore develop low or zero expectations that their wishes will be fulfilled or their goals achieved.

Given that the lack of confidence in the outcomes of saving water (pessimism) is a strategy that enhances the resistance to change, the hypotheses proposed are:

H3a: The greater the lack of confidence in future outcomes, the weaker the water-saving habits.

H3b: The greater the lack of confidence in future outcomes, the weaker the intention to save water.

1.3.3. The Emotional Component: Negative Emotions

Negative emotions are feeling-based experiences that activate defensive motivations and cause changes in mood [52]. The spectrum of emotions is broad, ranging from hard emotions (anxiety, fear, and anger) to soft emotions (stress, bother, and discomfort). Unlike positive emotions, negative emotions affect individuals by changing their normal state, interactions, and control [53]. When a change occurs (or is notified), negative emotions are the result of coping with this change and represent a form of emotional rebellion. Coping is a two-stage process [54]. In the first stage, individuals evaluate the change to be made and decide whether it represents a threat or involves unattainable demands. It is at this point that negative emotions emerge. In the second stage, individuals attempt to regulate their negative emotions through different response strategies [55]. It has also been suggested that negative emotions are a clear sign of a lack of commitment to change [56,57].

Negative emotions work differently depending on the initial state, which can generate both activating and deactivating negative emotions [58]. For instance, anger toward insufficient environmental protection or the waste of water acts as an activator of pro-environmental commitment [59-60]. However, perceptions of the global water crisis derived from climate change may also lead to just the opposite: if the problem is perceived as a "lost battle", then negative emotions elicited -fear, powerlessness- may lead people to also lose their motivation and feel unable to deal with this challenge [61].

Worldwide, the statistics and data all show that there is an excess of water consumption and huge pressure on hydric resources, from which it can be deduced that saving behavior has a small impact. Therefore, it is to be expected that, if individuals are encouraged to take saving measures, then they will be reluctant to change their consumption routines and will therefore develop negative emotions. Given these arguments, the hypotheses proposed are:

H4a: The greater the intensity of negative emotions, the lower the level of water-saving habits.

H4b: The greater the intensity of negative emotions, the lower the intention to save water.

1.4. Perceived Risk

Perceived risk is a key concept in environmental research. Because of its nature and scope for measurement, perceived risk can be defined both objectively and subjectively. Objective risk refers to the probability of a negative event occurring [62]. However, this approach is ineffective at providing an adequate assessment of individuals' perceptions [63]. Therefore, in most of the literature, risk is defined and measured from a subjective perspective [64]. Accordingly, perceived risk can be understood as a personal judgment about the possibility of a threat occurring and concern about its possible consequences for the people involved [65]. This approach is oriented more toward recognizing personal comprehension of the impact of an event (real or potential) because severe global threats (e.g., climate change) may be perceived as low risk, whereas other less influential and more localized events (e.g., drought for a few months in a given region) may be considered high risk.

People who are more prone to feel uneasy with risks or to perceive risks in ambiguous situations share some of this risk-averse predisposition [66]. These people are highly motivated to maintain their habits and avoid changes in their lives. Research indicates that the strategies adopted by these individuals to reduce risk are influenced by the perceived degree of certainty surrounding anticipated outcomes [67]. This insight translates into one of the predominant findings of the risk literature, which highlights the nature of risk-averse individuals: Regardless of individual differences in risk perceptions, the probability

of engaging in risk reduction behaviors is positively related to the amount of risk they perceive [68]. The cited authors showed that risk reduction behaviors in the context of natural hazard risks are positively related to individuals' perceived risks in such situations.

Accordingly, one should expect a positive relationship between perceived risk and conservative intentions and behaviors. The economics literature explains this idea in terms of what is called *precautionary saving behaviors*. This term means that one of the main motives for saving-related behaviors is individuals' sensitivity to future resource uncertainty [69]. Thus, more risk-averse individuals are more prone to adopt saving behaviors in the presence of resource uncertainty [69]. For more than two decades, the lack of water resources has been a globally accepted problem [4,70]. Therefore, conservative thinking and behavior by risk-averse individuals is expected in the context of conservative water-related intentions. This situation should be especially true in a country with an arid climate because the perceived risks of a period of generalized drought will be greater in such a country than in another with an oceanic climate [71].

This study focuses on the individual context. Accordingly, developing a willingness to save will generate overall welfare for society and the natural environment and will provide benefits at the personal and domestic/household levels (e.g., lower water bills). Thus, there is an additional motivation for risk-averse individuals to be water conservative. Following this logic, the hypotheses proposed are:

H5a: The greater the perceived risk, the greater the water-saving habits.

H5b: The greater the perceived risk, the greater the intention to save water.

1.5. The Mediating Effects of Habits

Numerous studies have shown that habits may mediate the relationship between personal antecedents and future behavior [72]. Habits, as explained in relation to the first hypothesis, are learned or automatized routines that do not demand conscious intention [23]. A basic assumption behind the mediating role of habits is based on the idea that personal variables such as personality (i.e., RC dimensions) and attitudes (i.e., perceived risk) are broad, general constructs that operate over time and situations. Thus, they should be further from intended behavior than habits. Accordingly, the personal antecedents of the future intention of saving water mentioned in Hypotheses 2 to 5 (i.e., cognitive rigidity, lack of confidence, negative emotions, and perceived risk) are also expected to exert an indirect influence on such intentions through their direct influence on habits. Specifically, the hypotheses proposed are:

H6a: Cognitive rigidity has a negative indirect effect (through water-saving habits) on the future intention to save water.

H6b: Lack of confidence has a negative indirect effect (through water-saving habits) on the future intention to save water.

H6c: Negative emotions has a negative indirect effect (through water-saving habits) on the future intention to save water.

H6d: Perceived risk has a positive indirect effect (through water-saving habits) on the future intention to save water.

Figure 1 shows the theoretical model.

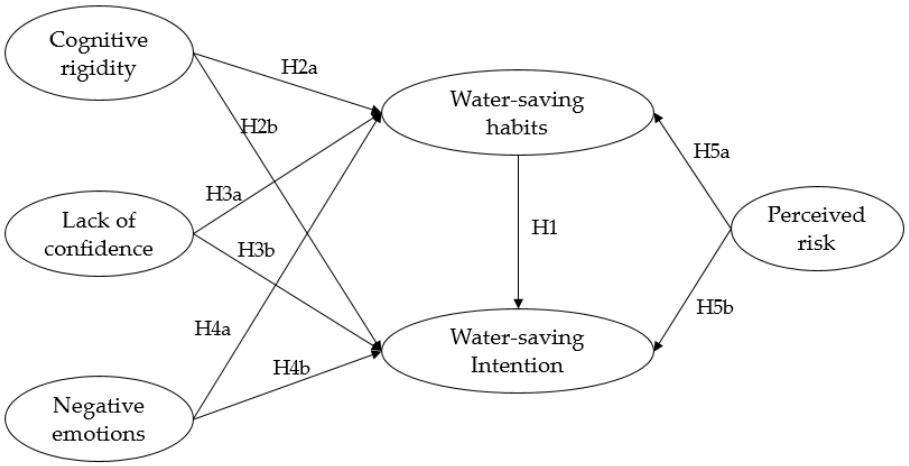

Figure 1. Theoretical model (Indirect hypotheses are not shown for the sake of clarity).

2. Materials and Methods

2.1 Area of Study

Spain provided the context for the study. Spain has major issues in establishing a clear policy on water, with rivalries among citizens accentuated by perceived scarcity [73]. There are also major water imbalances, with the northern region receiving high rainfall and the southern region regularly experiencing droughts. Spain is also a heavy consumer of water resources, with its water exploitation index (WEI, a measure of the pressure exerted by water consumption with respect to the total available water reserves) of 23.71% in 2017 far exceeding the European average of 8.39% [74]. The fieldwork was conducted in the south-east Mediterranean region of Spain. This area has scarce, highly seasonal resources, with increasingly intense and prolonged periods of drought. Although the perception of scarcity has been instilled in the minds of the residents of this area, the strategy followed by the government of importing water from other basins and using desalination has achieved a stable offering and has avoided restrictions on consumption. This situation has caused a certain degree of mitigation of the perceived water scarcity [75] and the relaxing of water-saving behaviors.

2.2 Procedures and Questionnaire

Data were collected using a structured questionnaire including all target items, as well as items to collect sociodemographic details to characterize the sample. The questionnaire was pretested with a group of university students and persons aged over 60 years. The pretest tested the correct interpretation of the items and the intrinsic difficulty in responding to each item. The questionnaire was designed to be administered by a single interviewer using a paper-and-pencil format. In each interview, respondents received cards (also in paper format) that showed the type of response requested by each question. This paper-and-pencil system was adopted because of its versatility and ease of use in places with no WiFi connection (rural areas, areas with no signal, etc.).

To translate the items that had not yet been translated to Spanish, a system of back-translation was used [76]. One of the authors first performed a one-way translation from English to Spanish. Next, a native bilingual professor performed an inverse translation to check the degree of similarity between the original and translated items. Finally, the translations were checked in the pretest of the questionnaire. Nevertheless, the wording of some items was modified such that, in the original, they were formulated as questions, and in the questionnaire used for this study, they were formulated as statements.

2.3 *Participants*

The target population was residents of the provinces of Alicante and Murcia aged 18 to 60 years. Non-random systematic sampling was used at random contact points. For the sampling frame, Spanish-speaking residents were considered, thereby excluding non-Spanish-speaking immigrants because the questionnaire was in Spanish. Gender quota were used, as well as age quota defined at three levels (18–28 years, 29–48 years, and 49–60 years). The interviewers went to different locations (train stations and bus stops, public parks, bars, and cafés), where they selected the interviewees by applying systematic criteria to randomize the selection.

The final sample (n = 384) consisted of people from urban and rural locations. The location consisted of 51 towns and villages, only eight of which had more than 30,000 inhabitants. Only in seven of these locations were more than 10 interviews conducted. There was a slightly higher percentage of men (51.3%), respondents with a pre-university education (52.6%), and low levels of income (75.8% earned up to 1200 euros/month). Table 1 describes the general sample profile.

Table 1. Sample profile (n = 384).

Criteria		N (%)
Sex	Male	197 (51.3)
	Female	187 (48.7)
Age	18 to 28	158 (41.1)
	29 to 48	133 (34.6)
	49 to 60	93 (24.2)
Education	Low (<H.S.)	51 (13.3)
	Middle (high school)	202 (52.6)
	High (college degree)	131 (34.1)
Monthly Income	Lesser than 650 euros	145 (37.8)
	650 to 1200 euros	146 (38.0)
	1201 to 1700 euros	52 (13.5)
	Higher than 1700 euros	16 (4.2)

2.4 *Fieldwork and Control*

In total, 459 responses were collected. Following each contact, the participants were provided with some context, with each interviewer explaining the aim of the study, the estimated duration of the interview, and the definition of the term "water saving". Following the interviews, the database was cleaned in two stages. First, the interviewer's perceived veracity of the respondents was assessed. To do so, at the end of each interview, the interviewers responded to the question "Did the respondent seem honest?" Possible responses were "Yes", "I cannot be sure", and "No". All interviews where the interviewer's response to this question was negative were discarded. Second, a study of inconsistency bias in the responses was conducted. Questionnaires with totally contradictory responses for the same conceptual domain were discarded (e.g., on a scale of 0 to 10 indicating 1 for the item "*I don't change my mind easily*" and 9 for the item "*My views are very consistent over time*"). Questionnaires with missing responses or straightlining were also eliminated.

2.5 *Measures*

Cognitive rigidity. The subscale provided by Oreg [15] was used. Cognitive rigidity was considered a personality trait that "involves individual's inflexibility in thinking and

difficulty in accepting alternative ideas, perspectives, and methods" [77] (p.179). It consisted of four items.

Lack of confidence. Given the equivalence of the concepts of "lack of confidence" in the outcomes of water saving and "pessimism" regarding these outcomes, this study used six items gathered from specific descriptions of pessimism [78] and the pessimism subscale from the Optimism-Pessimism Questionnaire [79].

Perceived risk. The scale of Mitchell and Vassos [80] was used. This scale was developed to study the reduction in perceived risk in purchase scenarios. In the present study, the items were adapted to reflect situations related to water scarcity.

Negative emotions. The study was based on the scale developed by Oreg [15] to measure the resistance to change expressed by negative emotions (stress, tense, hassle, uncomfortable). The items were taken from the subscales of "emotional reaction" and "short-term focus" of people faced with imposed changes. This scale has been used extensively in a wide range of international settings [16]. The questionnaire included the Spanish version of the items proposed by Arciniega and González [77]. It consisted of four items.

Water-saving habits. The study used the Self-Reported Habit Index [81], which was developed to measure the force of habit. The original scale consisted of 12 items measured using a 7-point Likert scale. Three of these items referred to the frequency of past behaviors, and these items were discarded for this study. A further two items were also discarded because they had the same meaning given their use of words that are synonymous in Spanish.

Water-saving intentions. Two types of stated intentions were considered: (1) those referring to the fact that efforts are currently being made to consume less water than in the recent past and (2) those referring to the idea of attempting to consume less water in the near future. To measure the "current water-saving intention", the item "behavioral intention" proposed by Trumbo and O'Keefe [82] was used. To measure the "perception of future water saving", the item proposed by Murtagh et al. [83] in relation to "intention to change" was used.

Table 2 describes the constructs and scales used in this study. Appendix A lists the items in English and Spanish.

Table 2. Summary of constructs and scales used.

Construct	Source of items	No. items	Codes
Cognitive rigidity	[15]	4	CR
Lack of confidence or pessimism	[78,79]	5	LW
Negative emotions	[77]	4	ER, ST
Perceived risk	[80]	4	RI
Water-saving habits	[81]	4	HA
Water-saving intention	[82,83]	2	IN, MU

The questionnaire targeted a population with a very well-established sense of the metric decimal system. Therefore, to ensure that the measures included in the questionnaire were homogeneous, all items were measured on an 11-point measurement scale ranging from 0 (totally disagree) to 10 (totally agree). This approach was chosen because Spaniards prefer to respond (*viva voce*) using scales ranging from 1 to 10 or 0 to 10.

3. Results

3.1. Measurement Model

Before examining the model, the first step was to evaluate the measurement instrument in terms of scale reliability and validity. For this purpose, confirmatory factor analysis (CFA) was conducted in LISREL 8.80. Although the robust χ^2 Satorra-Bentler statistic provides a significant result, $\chi^2(215) = 391.94$, $p < .01$, the goodness-of-fit indices for the measurement model indicate an excellent fit (GFI = 0.91; NNFI = 0.97; CFI = 0.98; RMSEA = 0.05). Moreover, the value for the normed χ^2 is 1.82, below the threshold proposed by Ullman [84]. This result indicates a good fit of the data to the theoretical model of scales. For the CFA and estimation of the structural model (SEM), robust estimates are used to avoid problems due to multivariate non-normality.

Following the procedures suggested in the literature [85], the convergent scale validity was evaluated by verifying the statistical significance of the *t* values associated with the factor loadings estimated in the model. Table 3 shows that all standardized factor loadings are positive and statistically significant ($p < .01$, t value > 1.96).

Table 3. Results of convergent validity tests.

Constructs and items	**SL (*t* value)**
Cognitive rigidity	
CR1. I often change my mind. (r)	0.40 (6.63)
CR2. I don't change my mind easily.	0.84 (17.36)
CR3. Once I've come to a conclusion, I'm not likely…	0.80 (18.57)
CR4. My views are very consistent over time.	0.70 (12.48)
Lack of confidence	
LW2. Life changes are for the best. (r)	0.67 (14.53)
LW4. Changes entail more sacrifices…	0.70 (14.72)
LW7. I tend to be pessimistic about…	0.67 (12.77)
LW8. I have a pessimistic view of…	0.81 (20.65)
Negative emotions	
NE1. If I were to be informed…	0.71 (16.03)
NE2. When I am informed of a change of plans…	0.77 (16.81)
NE3. Changing plans seems like a real hassle to me.	0.73 (15.88)
NE4. Often, I feel a bit uncomfortable…	0.70 (15.16)
Perceived risk	
RI1. I feel concerned about…	0.75 (13.03)
RI2. The negative consequences of scarcity…	0.83 (13.60)
RI3. I feel vulnerable about the possibility…	0.78 (14.24)
RI4. Water scarcity would affect my business…	0.75 (12.98)
Water-saving behavior and habits	
HA1. I do frequently.	0.88 (23.48)
HA2. I do automatically.	0.76 (17.77)
HA3. I do without having to consciously remember.	0.77 (19.15)
HA4. That makes me feel weird if I do not do it.	0.94 (29.63)
HA5. I do without thinking.	0.86 (25.48)
Intention to save water	
IN2. Next year I would intent to consume less water…	0.67 (12.93)

IN1. I intend to save more water than last year.	0.91 (18.63)

Note: (r) = reversed item, SL = standard loading.
The full text of all items is provided in the Appendix

Scale reliability was tested by verifying that all composite reliability indices (IFI) are greater than 0.60 and that the average variance extracted (AVE) of each scale is greater than 0.50 [85]. Discriminant validity was evaluated by comparing the AVE of each construct with the shared variance between that construct and the rest of the latent variables. For each comparison, the AVE is greater than the shared variance of the corresponding construct with any other in the model. The results thereby confirm the discriminant validity of each scale in the model. These results appear in Table 4.

Table 4. Mean, SD, correlations, AVE, and discriminant validity.

Constructs	Mean	SD	AVE	1	2	3	4	5	6
1. Cognitive rigidity	6.26	1.82	0.50	0.79	0.26	0.07	0.01	0.01	0.00
2. Lack of confidence	4.59	1.50	0.51	0.51	0.81	0.29	0.00	0.02	0.01
3. Negative emotions	4.74	2.06	0.53	0.27	0.54	0.82	0.00	0.05	0.03
4. Perceived risk	7.61	1.82	0.72	0.11	-0.01	0.02	0.86	0.10	0.19
5. Water-saving habits	5.63	2.42	0.60	0.08	-0.15	-0.22	0.32	0.93	0.37
6. Intention to save water	5.70	2.36	0.64	0.03	-0.12	-0.18	0.44	0.61	0.78

Note: SD = standard deviation, AVE = average variance extracted.
Composite reliabilities are on the principal diagonal.
Shared variances are in the upper half. Correlations appear in the lower half.

Overall, the tests performed to evaluate the convergent and discriminant validity, as well as the reliability and unidimensionality of the scales, all imply that the measurement model has good psychometric and fit indicators.

3.2. Analysis of Bias Due to Common Method Variance

In this study, a single cross-sectional data collection instrument was used with self-reported scales. Therefore, there was a potential risk of bias due to common method variance, given this use of a single data collection system. The possible existence of this bias was investigated using Harman's one-factor approach [86]. This approach consists of comparing the fit indices obtained in the actual measurement model (each scale is represented by a differentiated factor) with the fit indices for another model estimated by a single factor. For this single-factor model, the goodness-of-fit indices are poor: $\chi^2(230) = 3222.10$, $p < .01$; GFI = 0.54; NNFI = 0.53; CFI = 0.57; RMSEA = 0.18. These results imply that bias due to common method variance in the data is not a problem.

3.3. Exploratory Analysis

After checking the validity and reliability of the measures, exploratory analysis of the variables in the model was conducted. The sample is not random, so the mean is not a robust statistic of central tendency. Therefore, bootstrapping with n = 5000 samples was performed to measure the robustness of the sample means and standard error. All variables have means whose bias lies in the interval between -0.002 and +0.002. Therefore, the sample means are neither overestimated nor underestimated.

Perceived risk has the highest mean score of any variable: mean (M) = 7.61, standard error (SE) = 0.09, CI95% lower limit (LL) = 7.43, CI95% upper limit (UL) = 7.79. It appears

in the upper part of Figure 2, with considerable differentiation with respect to the other variables. The values are medium-high for the independent variables related to RC (cognitive rigidity: M = 6.26, SE = 0.09, (LL,UL) = (6.08,6.44)) and low for lack of confidence (M = 4.58, SE = 0.08, [LL,UL] = [4.44,4.74]). For negative emotions (M = 4.74, SE = 0.10, (LL,UL) = (4.54,4.97)), the behavior is similar and the confidence intervals overlap. The two dependent variables have results that lie above but very close to the central value of the scale. For water-saving habits (M = 5.62, SE = 0.12, (LL,UL) = (5.39,5.88)) and water-saving intention (M = 5.70, SE = 0.12, (LL,UL) = (5.45,5.94)), the values are very close to the mid-point of the range of the measure, and the confidence intervals almost completely overlap.

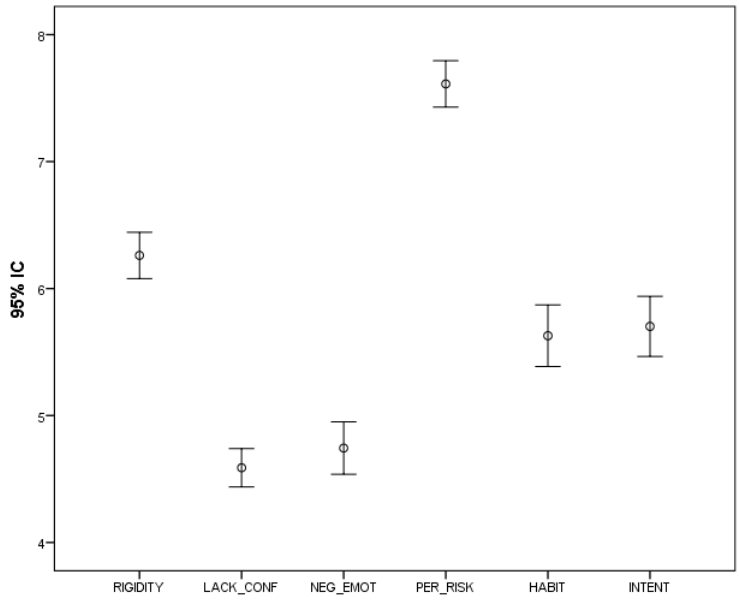

Figure 2. Error bar plot for the 95% confidence interval of the mean.

3.4. Results of the Hypothesis Testing

The results for the structural model reveal a significant result for χ^2, $\chi^2(215) = 391.94$, $p < .01$, but good indices of fit to the data (normed $\chi^2 = 1.82$; GFI = 0.91; NNFI = 0.97; CFI = 0.98; RMSEA = 0.05). The coefficients of determination are 0.169 for "Water-saving habits" and 0.450 for "Water-saving intention", providing a reasonably high percentage of variance explained.

The analysis shows that the force of habit is strongly related to the intention to save water ($\beta = 0.51$, t value = 7.09, Cohen's $d = 0.97$), confirming H1, with a very high effect size [87].

For H2a, the results contradict the hypothesis by showing a positive influence (with a very small effect size) of cognitive rigidity and the tendency to have water-saving habits ($\gamma = 0.13$, t value = 2.00, Cohen's $d = 0.14$). For H2b, the effect is non-significant ($\gamma = -0.02$, t value = -0.43). Therefore, it is not possible to affirm the existence of the hypothesized relationship.

H3a and H3b proposed the influence of a "Lack of confidence" in the outcomes of water saving on "Water-saving habits" and "Water-saving intentions", respectively. This variable does not explain the savings behavior in relation to water consumption. Specifically, the results show that this variable does not seem to have a significant effect on either the tendency to have water-saving habits ($\gamma = -0.05$, t value = -0.70) or the intention to save water ($\gamma = -0.01$, t value = -0.02). These results lead to the rejection of H3a and H3b because they do not detect the proposed relationship.

In relation to "Negative emotions", there is a significant negative relationship between the level of "Negative emotions" elicited by the change and the tendency to engage in "Water-saving habits" (H4a; $\gamma = -0.23$, t value = -2.96, Cohen's $d = -0.40$). The effect size

is medium, and this is a point of inflection on the path to an above-average effect [87]. In contrast, for H4b, no such "Negative emotions" are found to affect "Water-saving intention" (γ= -0.06, t value = -0.85) directly. However, it does have a weak influence and acts indirectly on "Water-saving intention". These results lead to the acceptance of hypothesis H4a but not H4b.

As expected, "Perceived risk" regarding the possible scarcity of water is found to be strongly related to "Water-saving habits" (H5a; γ = 0.31, t value = 5.28, Cohen's d = 0.72) and "Water-saving intention" (γ = 0.28, t value = 4.56, Cohen's d = 0.62), thereby supporting H5a and H5b.

Figure 3 shows the standardized coefficients and t values, as well as the coefficients of determination (percentages of explained variance) for the hypothesized model.

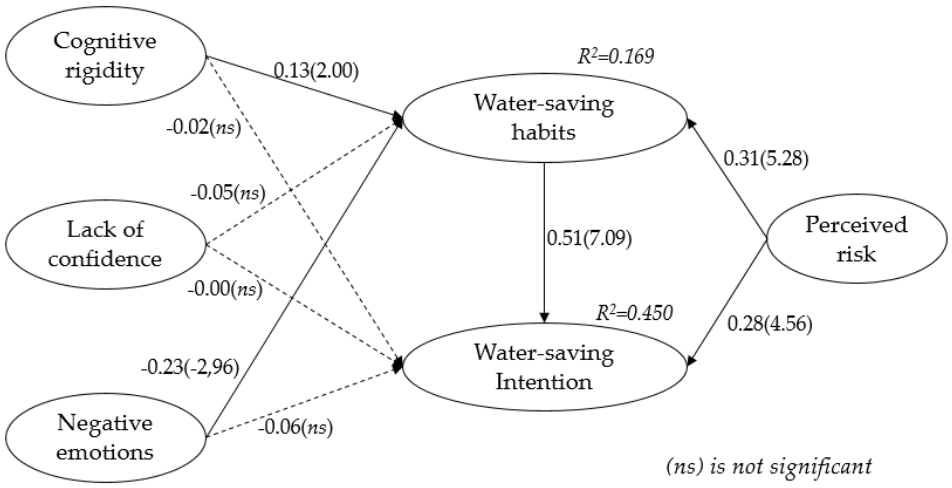

Figure 3. Estimated structural model (standardized coefficients and t values).

In the analysis of the existing indirect effects in the model, for H6a, a weak influence of cognitive rigidity on water-saving intention was observed (γ = 0.06, t value = 1.96, Cohen's d = 0.27). This influence is contrary to the hypothesized influence and is explained in the Discussion section. In light of the unexpected sign, H6a hypothesis is rejected.

For H6b, the results do not support the existence of a relationship between the variable "Lack of confidence" and the intention to save water (γ = -0.03, t value = -0.70). Therefore, the hypothesis is rejected.

For H6c, the results indicate the existence of an influence of negative emotions on the intention to save water, as hypothesized (γ = -0.12, t value = -2.74, Cohen's d = -0.37).

These results thereby show that the influence of the components "Lack of confidence" and "Negative emotions" on the intention to save water is completely mediated by saving habits. The lack of confidence in the outcomes of saving water, which is a non-significant antecedent of water-saving habits and intention, therefore does not have significant indirect effects either.

Perceived risk was observed to influence the intention to save water (γ = 0.16, t value = 4.32, Cohen's d = 0.59), which confirms H6d. This finding reveals that, for this variable, the mediation of habits is partial. Therefore, the total effect on the intention to save water is even greater (total effect = 0.44; t value = 6.53, Cohen's d = 0.89) than the effect observed using simple direct effects.

Finally, the relationship between the dependent variables (water-saving habits and intentions) is significant (r = 0.40, p < 0.01, Cohen's d = 0.61), although far from what would be expected. The error bar plot (Figure 4) shows the change in mean and SE of the variable "Water-saving intention" at different levels of the variable "Water-saving habits". The intention to save water grows linearly up to moderate levels of intensity of water-saving

habits. From this point, it stays parallel with the x-axis. Therefore, very high levels of intensity of water-saving habits correspond to a stagnation in the intention to save water.

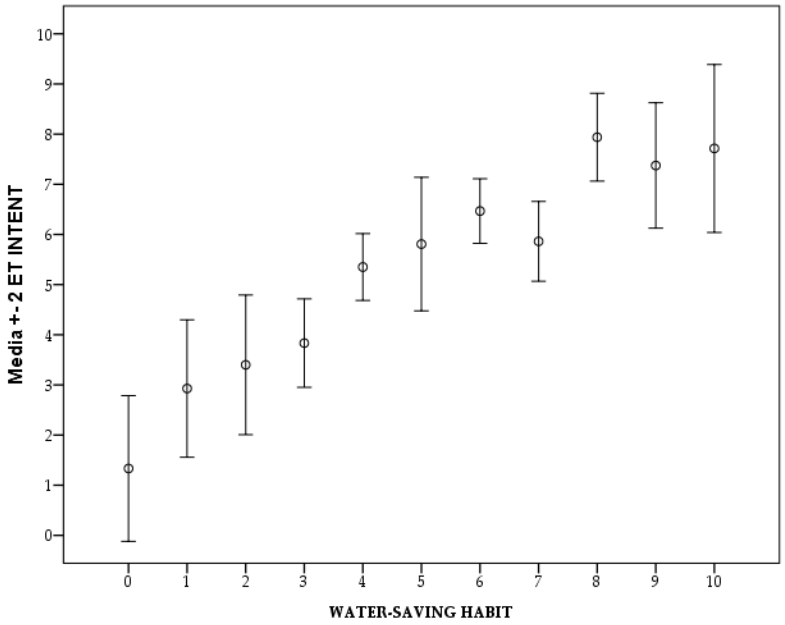

Figure 4. Error bar for the 95% confidence interval of the mean for intention to save water considering water-saving habits.

4. Discussion

Regarding the positive relationship between "Water-saving intention" and "Water-saving habits", the results of this study (acceptance of H1) are reasonable. It is possible to defend that the relationship should be negative, given that stronger water-saving habits mean that there is less scope for saving. The underlying idea is that the potential savings in water correspond to the difference between the real consumption (Ca) and the smallest possible consumption (C_{min}). In the absence of water-saving behavior, the potential savings are equal to ($Ca-C_{min}$). However, this difference will tend to zero as water-saving habits become stronger because the capacity to increase water savings and the intention to make this extra effort will be small or non-existent. However, water-saving habits tend to be weak and far from ideal (see Figure 2). Accordingly, the margin to continue saving is high. Therefore, when there is a greater force of habit in terms of water saving, it is reasonable to find a stronger intention to continue to save because there is still plenty of margin for saving.

The results do not confirm hypotheses H2a and H2b. For H2a, the results contradict the hypothesis. However, the results are reasonable given the role of context in studies of environmental problems [88]. For instance, higher levels of involvement in water conservation are from areas of high water scarcity. Accordingly, because this study was performed in a region with high water scarcity and a high WEI, water-saving habits are more ingrained. Thus, cognitive rigidity should work in favor of strengthening existing habits. The findings contradict those of [45], who reported that ingrained beliefs limit the adoption of saving habits precisely because of the importance of the context where the environmental behavior takes place.

Regarding H2b, the results are surprising and may be as the consequence of a degree of complacency among the population analyzed. Although this area has high water scarcity, the installation of desalination plants and improvements to water treatment and distribution facilities have meant that there have not been water shortages in recent years,

despite the large amount of tourism in the region (the tourism sector is a major consumer of water).

Regarding the "Lack of confidence" component of RC, the results do not support the hypotheses proposed in H3a and H3b. These results can be explained by the fact that the sample has positive expectations toward changes (the levels of "Lack of confidence" are low). Moreover, the respondents live in areas where there is a high awareness of water saving, which may explain these positive expectations. The absence of a relationship between the lack of confidence in the results of saving water and the fact of saving water itself can be interpreted in the sense that individuals do not consider reaching specific savings results (which they do not know) and, therefore, do not generate lack of confidence in their achievements. Indeed, people know (or should know) they are asked to save as much as possible, but the message remains unclear in that it does not provide specific goals.

In this study, "Negative emotions" are the expression of feelings of disturbance or disruption when faced with change. They arise in response to resistance to change. It is possible to find recent examples that show the refusal to wear a facemask or limit social interactions to curb the COVID-19 pandemic. In the context of the environment, negative emotional responses can be observed when fines are imposed for not separating household refuse material correctly or when the use of personal vehicles is limited due to excessive levels of urban smog.

The results show that "Negative emotions" act as a direct disincentive of the force of habit to save water (H4a) and an indirect disincentive of the intention to save when mediated by habits (H6c). In other words, they inhibit the externalization of water-saving habits and negatively affect efforts to consume less water. However, its effect on water-saving habits and intentions is small [87]. Therefore, the threat of negative emotions on habits can be interpreted as negligible, even though it is negative for water saving. These findings are consistent with the theory of psychological reactance, even though the force of the reaction is weak.

Perceived risk is the most important antecedent of the intention to save water, both directly and indirectly through its effect on water-saving habits. This first finding confirms the proposals in the literature regarding the positive relationship between precautionary saving behaviors and individuals' sensitivity to future resource uncertainty [69], also supporting similar findings in other environment-related research [68]. Specifically, the results show that having a high concern about the availability of future water resources not only directly encourages the development of a conscious, cognitive-based intention to act as a water saver in the future, but also does so indirectly by promoting more automatic and unconscious responses to this problem, namely by encouraging positive water-saving habits. Thus, as proposed in risk theory [66], our finding reveals that perceived risk about the future availability of water resources can effectively lead to the development of (positive) risk-averse behaviors [66]. Accordingly, given that risk attitudes are highly malleable, these individual attitudes represent a critical focus for public actors and governments to promote future water-saving behaviors.

It is clear that our findings refer exclusively to the consumers' perspective, which is one of the stakeholders in the broader and more complex system related to water management. It is accepted that the stakeholders involved (policy makers, communities, managers, social representatives) must have a shared vision and continuous communication [89], so knowing the existence of CR and its intensity can help to improve the adaptation and commitment of stakeholders, as well as to propose more effective management and governance models.

The topic of the present study is novel (there is very few existing analysis of CR in the environmental field), and offers robust clues about the role of CR in the water domain and recognize the main inhibitors of conservation behavior. Like any academic research, this study has certain limitations. The first is the context of the study, given that it covered only

one area of Mediterranean Europe. This Western European context within a country with good water distribution infrastructures may have influenced the results. Analysis in other water settings could help capture different realities. A second limitation relates to the small number of variables. Initially, the pre-questionnaire had a very large number of items, but the pretest revealed that the time required to respond was impractical for collecting responses on the street.

The results show that there are still unanswered questions in relation to how to cope with the inhibitors of water-saving habits and intention. Consequently, it would be of interest to evaluate the impact of other components of RC, such as the reluctance to lose control or temporal orientation, which have not yet been analyzed in this context. In addition, it is important to consider whether regional or national water conservation and environmental policies could influence individuals' RC, especially since in some countries there may be political inaction or denial of environmental and water availability issues. Similarly, given that many societies and countries have water-scarcity problems, it is important to address the effects of possible restrictive regulations on consumption from both an individual and a contextual perspective. It is therefore considered necessary to analyze the role of social marketing beyond communication actions to promote states of opinion and rapid responses in water saving. Finally, we consider interesting to replicate the proposed model in others contexts and others saving behaviors, as energy, recycling or transportation in private vehicles, with the purpose of widening the scope of the findings presented in this work.

Supplementary Materials: Not applicable.

Author Contributions: Conceptualization, S.-S.; methodology, S.-S.; statistical analysis, R.-M.; data curation, S.-S., and R.-M.; writing—original draft preparation, All authors; writing—review and editing, All authors. All authors have read and agreed to the published version of the manuscript. [S.-S.: Sarabia-Sanchez; R.-M.: Riquelme-Martinez; B.: Bruno].

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable

Informed Consent Statement: No personal information was collected.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A. Final items used in this study (Spanish statements in italics)

NE1. If I were to be informed that there is going to be a significant change regarding the way things are done at ____, I would probably feel stressed. (*Si se te informara que va a haber un cambio importante en la forma en que se hacen las cosas en ____ seguramente te estresarías*).

NE2. When I am informed of a change of plans, I tense up a bit. (*Cuando te informan sobre un cambio de planes, te pones un poco tenso*).

NE3. Changing plans seems like a real hassle to me. (*Cambiar planes te parece una verdadera molestia*).

NE4. Often, I feel a bit uncomfortable even about changes that may potentially improve my life. (*Con frecuencia te sientes un poco incómodo incluso con los cambios que pueden potencialmente mejorar tu vida*).

CR2. I do not change my mind easily (*No cambias fácilmente de opinión*).

CR3. Once I have come to a conclusion, I'm not likely to change my mind. (*Una vez que llegas a una conclusión, es poco probable que cambies de opinión*).

CR4. My views are very consistent over time. (*Tus opiniones son muy consistentes a lo largo del tiempo*).

LW3. Change normally entails sacrifices that are not worth the benefits provided by the change. (*Normalmente, cambiar genera sacrificios que no compensan los beneficios del cambio*).

LW4. Changes entail more hassle than positive outcomes. (*Los cambios suponen más privaciones que resultados positivos*).

LW7. I tend to be pessimistic regarding the future. (*Tiendes a ser pesimista en relación a lo que está por venir*).

LW8. I have a pessimistic view of future changes. (*Tienes una imagen pesimista de los futuros cambios*).

HA1. Saving water is something I do often. (*Ahorrar agua es algo que haces con frecuencia*).
HA4. I feel strange/bad when I do not save water. (*Te sientes raro/mal cuando no ahorras agua*).
HA5. Saving water is something I do without thinking. (*Ahorrar agua es algo que Te sale sin pensar*).
HA6. It is an effort not to save water. (*Te supondría esfuerzo no ahorrar agua*).
RI1. What extent do you feel concerned about the effects of ___. (*Te sientes preocupado por las consecuencias que tendría una época de escasez de agua*).
RI2. How serious do you feel the negative consequences of ___ are to you personally. (*Piensas que son graves las consecuencias personales de la escasez de agua*).
RI3. How vulnerable do you feel about the possibility of ___ physically affecting you or your family. (*Te sientes vulnerable sobre la posibilidad de que tu o tu familia os afecte la escasez de agua*).
RI4. How vulnerable do you feel about the possibility of ___ affecting your property and/or possessions. (*Te sientes vulnerable por la posibilidad de que la escasez de agua afecte a tu negocio, hogar, nivel de vida o pose*siones).
RI5. How severe will the impact of a ___ be where you live. (*El impacto de una sequía será severo en el lugar donde vives*).
WC1. I am aware of the various ways to save water in the home. (*Eres consciente de las diversas formas de ahorrar agua en el hogar*).
WC2. I believe water consumption can be reduced using water-saving devices. (*Crees que se puede reducir el consumo de agua mediante dispositivos para el ahorro*).
WC3. I usually monitor the amount of water I use. (*Controlas habitualmente la cantidad de agua que gasta*).
WC4. I know the reasons for my current water consumption. (*Sabes a qué se debe tu actual consumo de agua*).
WC5. I know what I have to do to save water in the home. (*Sabes lo que tienes que hacer para ahorrar agua en el hogar*).
IN1. I intend to save more water than last year. (*Intentas gastar menos agua que el pasado año*).
IN2. Within the next year, how likely is that you would intent to consume less water than you spend now? (*En el próximo año, ¿hasta qué punto es posible que intentes consumir menos agua de la que ahora gastas?*).

References

1. United Nations. Ensure availability and sustainable management of water and sanitation for all. 2021; Available online: https://unstats.un.org/sdgs/report/2020/goal-06/ (accessed on 02 February 2021).
2. Rodríguez, C.; Sánchez, R.; Lozano-Parra, J.; Rebolledo, N.; Schneider, N.; Serrano, J.; Leiva, E. Water balance assessment in schools and households of rural areas of Coquimbo Region, North-Central Chile: potential for greywater reuse. *Water* **2020**, 12(10), 2915, doi:10.3390/w12102915.
3. World Bank. Water supply. 2021; Available online: https://www.worldbank.org/en/topic/watersupply (accessed on 02 February 2021).
4. United Nations. Water: Our common wealth. 2021; Available online: https://www.un.org/en/observances/water-day (accessed on 02 February 2021).
5. Ruiz, D.M.; Tallis, H.; Tershy, B.R.; Croll, D.A. Turning off the tap: Common domestic water conservation actions insufficient to alleviate drought in the United States of America. PloS one 2020, 15(3), e0229798, doi:10.1371/journal.pone.0229798.
6. Guppy, L.; Anderson, K. *Global water crisis: The facts*. United Nations University Institute for Water, Environment and Health: Ontario, Canada, 2017; Available online: https://inweh.unu.edu/wp-content/uploads/2017/11/Global-Water-Crisis-The-Facts.pdf (accessed on 02 February 2021).
7. U.S. Government Accountability Office (GAO). Freshwater. Supply concerns continue, and uncertainties complicate planning. Report to congressional requesters. GAO-14-430; May 2014; Available online: https://www.gao.gov/assets/670/663343.pdf (accessed on 02 February 2021).
8. Outhuijse, A.; Groninga, I.H.; Brunings, T.M. Alleviating water scarcity across the EU: The contribution of the European Union's proposal for a regulation on water Reuse in the agricultural sector. European Law Blog; 2020; Available at http://bit.ly/3tr867G (accessed on 02 February 2021).

9. European Commission. Call for evidence: Water scarcity & droughts in the EU. Available online: https://ec.europa.eu/environment/water/quantity/call_evidence.htm (accessed on 02 February 2021).
10. Fielding, K.S.; Russell, S.; Spinks, A.; Mankad, A. Determinants of household water conservation: The role of demographic, infrastructure, behavior, and psychosocial variables. *Water Resour. Res.* **2012**, 48, 1-12, doi:10.1029/2012WR012398.
11. Gifford, R. The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *Am. Psychol.* 2011, 66(4), 290, doi:10.1037/a0023566.
12. Hoque, S.F. *Water conservation in urban. Households: Role of prices, practices and technologies*; IWA Publishing: London, UK, 2014.
13. Addo, I.B.; Thoms, M.C.; Parsons, M. Barriers and drivers of household water-conservation behavior: A profiling approach. *Water* **2018**, 10(12), 1794; doi:10.3390/w10121794.
14. Judge, T.A.; Thoresen, C.J.; Pucik, V.; Welbourne, T.M. Managerial coping with organizational change: A dispositional perspective. *J. Appl. Psychol.* **1999**, 84(1), 107-122, doi:10.1037/0021-9010.84.1.107.
15. Oreg, S. Resistance to change: Developing an individual differences measure. *J. Appl. Psychol.* **2003**, 88(4), 680-693, doi:10.1037/0021-9010.88.4.680.
16. Oreg, S.; Bayazit, M.; Vakola, M.; Arciniega, L.; Armenakis, A.; Barkauskiene, R.; ...; Hřebíčková, M. Dispositional resistance to change: Measurement equivalence and the link to personal values across 17 nations. *J. Appl. Psychol.* **2008**, 93(4), 935-944, doi:10.1037/0021-9010.93.4.935.
17. Dworak, T.; Berglund, M.; Laaser, C.; Strosser, P.; Roussard, J.; Grandmougin, B. Kossida, M.; Kyriazopoulou, I.; Berbel, J.; Kolberg, S.; et al. *EU Water saving potential (Part 1 -Report)*. Institute for International and European Environmental Policy: ENV.D.2/ETU/2007/0001r, Brussels, 2007. Available online: http://ec.europa.eu/environment/water/quantity/pdf/water_saving_1.pdf (accessed on 2 February 2021).
18. Gore, L.; Makin, I.W.; Chegwin, M.; Freeman, B.; Steley, C. Guidance for investments in improved irrigation services. Proceedings of the 2nd World Irrigation Forum, Chiang Mai, Thailand, (WIF2), 6-8 November 2016, Chiang Mai, Thailand, 6-8 November; Available online: https://www.icid.org/wif2_full_papers/wif2_w.3.2.01.pdf (accessed on 2 February 2021).
19. Christensen, M. *Water Conservation Programs: A Planning Manual*; American Water Works Association: Denver, CO (USA), 2005.
20. Baumann, D.D.; Boland, J.J.; Sims, J.H. Water conservation: The struggle over definition, *Water Resour. Res.* **1984**, 20(4), 428-434, doi:10.1029/WR020i004p00428.
21. Corral-Verdugo, V.; Frias-Armenta, M.; Pérez-Urias, F.; Orduña-Cabrera, V.; Espinoza Gallego, N. Residential water consumption, motivation for conserving water and the continuing tragedy of the commons. *Environ. Manag.* **2002**, 30, 527–535, doi:10.1007/s00267-002-2599-5.
22. Koop, S.H.A.; van Dorssen, A.J.; Brouwer, S. Enhancing domestic water conservation behaviour: A review of empirical studies on influencing tactics. *J. Environ. Manage.* **2019**, 247, 867-876, doi:10.1016/j.jenvman.2019.06.126.
23. Mazar, A.; Wood, W. Defining habit in Psychology. In *The Psychology of Habit*; B. Verplanken, Ed.; Springer, Cham: Switzerland, 2018; pp. 13-29, doi:10.1007/978-3-319-97529-0_2.
24. Gardner, B.; Lally, P.; Rebar, A.L. Does habit weaken the relationship between intention and behaviour? Revisiting the habit-intention interaction hypothesis. *Soc. Personal. Psychol. Compass* **2020**, e12553, doi:10.1111/spc3.12553.
25. Dezfouli, A.; Balleine, B.W. Habits, action sequences and reinforcement learning. Eur. J. Neurosci. 2012, 35(7), 1036-1051, doi:10.1111/j.1460-9568.2012.08050.x.
26. Attari, S.Z. Perceptions of water use. *PNAS* **2014**, 111(14), 5129-5134, doi:10.1073/pnas.1316402111.

27. McCarroll, M.; Hamann, H. What we know about water: A water literacy review. *Water* **2020**, 12, 2803; doi:10.3390/w1210280.
28. Rodriguez-Sanchez, C. Analysing barriers to water conservation behaviour: Implications for social marketing. Doctoral Dissertation, Miguel Hernandez University, Elche (Spain), May 2016. Available online: https://bit.ly/3d6m9d5.
29. Chaudhary, A.K.; Lamm, A.J.; Warner, L.A. Using cognitive dissonance to theoretically explain water conservation intentions. *J. Agric. Educ*. **2018**, 59(4), 194-210, doi:10.5032/jae.2018.04194.
30. Diamond, M.A. Resistance to change: A psychoanalytic critique of Argyris and Schon's contribution to organizational theory and intervention. *J. Manag. Stud.* **1986**, 23(5), 543-562, doi:10.1111/j.1467-6486.1986.tb00436.x.
31. Pardo-del-Val, M.; Martínez-Fuentes, C. Resistance to change: A literature review and empirical study. *Manag. Decis.* **2003**, 41(2), 148-155, doi:10.1108/00251740310457597.
32. Canning, J.; Found, P.A. The effect of resistance in organizational change programmes: A study of a lean transformation. *Int. J. Qual. Serv. Sci.* **2015**, 7(2/3), 274-295, doi:10.1108/IJQSS-02-2015-0018.
33. Forsell, L.M.; Åström, J.A. An analysis of resistance to change exposed in individuals' thoughts and behaviors. *Compr. Psychol.* **2012**, 1, 17, doi:10.2466/09.02.10.cp.1.17.
34. Harich, J. Change resistance as the crux of the environmental sustainability problem. *Syst. Dyn. Rev.* **2010**, *26*(1), 35-72, doi:10.1002/sdr.431.
35. Chen, J.; van Tulder, R.; Hu, T.E.; Kwakkenbos, T. Why people do not keep their promise: understanding the pro-environmental behavior in China. *Sustainability* **2020**, 12(17), 6720, doi:10.3390/su12176720.
36. Damawan, A.H.; Azizah, S. Resistance to change: Causes and strategies as an organizational challenge, 5th ASEAN Conference on Psychology, Counselling, and Humanities (ACPCH 2019), University of Muhammadiyah Malang, Indonesia, January 2020; Atlantis Press: Amsterdam, The Netherlands, 2020; 49-53.
37. Zantvoort, B. On inertia: Resistance to change in individuals, institutions and the development of knowledge. *Cosm. Hist.* **2015**, 11(1), 342-361.
38. Maurer, R. Using resistance to build support for change. *The Journal for Quality and Participation* **1996**, 19 (3), 56-66.
39. Ming-Chu, Y.; Meng-Hsiu, L. Unlocking the black box: Exploring the link between perceive organizational support and resistance to change. *Asia Pacific Manag. Rev*. **2015**, 20(3), 177-183, doi:10.1016/j.apmrv.2014.10.003.
40. Di Fabio, A.; Bernaud, J.L.; Loarer, E. Emotional intelligence or personality in resistance to change? Empirical results in an Italian health care context. *J. Employ. Couns.* **2014**, 51(4), 146-157, doi:10.1002/j.2161-1920.2014.00048.x.
41. Heidenreich, S.; Kraemer, T. Passive innovation resistance: The curse of innovation? Investigating consequences for innovative consumer behavior. *J. Econ. Psychol.* **2015**, 51, 134-151, doi:10.1016/j.joep.2015.09.003.
42. van Hiel, A.; Onraet, E.; De Pauw, S. The relationship between social-cultural attitudes and behavioral measures of cognitive style: A meta-analytic integration of studies. *J. Pers.* **2010**, 78(6), 1765-1800, doi:10.1111/j.1467-6494.2010.00669.x.
43. Oreg, S.; Nevo, O.; Metzer, H.; Leder, N.; Castro, D. Dispositional resistance to change and occupational interests and choices. *J. Career Assess.* **2009**, 17(3), 312-323, doi:10.1177/1069072708330599.
44. van Hiel, A.; Onraet, E.; Crowson, H.M.; Roets, A. The relationship between right-wing attitudes and cognitive style: A comparison of self-report and behavioural measures of rigidity and intolerance of ambiguity. *Eur. J. Pers.* **2016**, *30*(6), 523-531, doi:10.1002/per.2082.
45. Stanley, S.K.; Wilson, M.S. Meta-analysing the association between social dominance orientation, authoritarianism, and attitudes on the environment and climate change. *J. Environ. Psychol.* **2019**, 61, 46-56, doi:10.1016/j.jenvp.2018.12.002.

46. Katz, D.; Grinstein, A.; Kronrod, A.; Nisan, U. Evaluating the effectiveness of a water conservation campaign: Combining experimental and field methods. *J. Environ. Manag.* **2016**, 180(15), 335-343, doi:10.1016/j.jenvman.2016.05.049.
47. Amarantou, V.; Kazakopoulou, S.; Chatzoudes, D.; Chatzoglou, P. Resistance to change: An empirical investigation of its antecedents. *J. Organ. Chang. Manag.* **2018**, 31(2), 426-450, doi:10.1108/JOCM-05-2017-0196.
48. Norem, J.K. (2001). Defensive pessimism, optimism, and pessimism. In *Pessimism. Implications for theory, research and practice*; Chang, E.C., Ed.; American Psychological Association: Ann Arbor, USA, 2001; pp.77-100.
49. Chang, E.C.; Chang, R.; Sanna, L.J. Optimism, pessimism, and motivation: Relations to adjustment. *Soc. Personal. Psychol. Compass.* **2009**, *3*(4), 494-506, doi:10.1111/j.1751-9004.2009.00190.x.
50. Shamloo, Z.S.; Cox, W.M. The relationship between motivational structure, sense of control, intrinsic motivation and university students' alcohol consumption. *Addic. Behav.* **2010**, *35*(2), 140-146, doi:10.1016/j.addbeh.2009.09.021.
51. O'Brien, C. Sustainable happiness: How happiness studies can contribute to a more sustainable future. *Can. Psychol. Rev.* **2008**, *49*(4), 289-295, doi:10.1037/a0013235.
52. Solgi, Z.; Yaseminejad, P. The role of cognitive emotion regulation strategies in depression, anxiety and stress of coronary heart disease patients. *Res. Bull. Med. Sci.* **2018**, 23(1), e8-e8.
53. Solomon, R.C.; Stone, L.D. On" positive" and" negative" emotions. *J. Theory Soc. Behav*. **2002**, 32(4), 417-435.
54. Lazarus, R.S.; Folkman, S. *Stress, appraisal, and coping.* Springer Publishing Company: New York, USA, 1984.
55. Ojala, M. Regulating worry, promoting hope: How do children, adolescents, and young adults cope with limate change? *Int. J. Environ. Sci. Educ*. **2012**, 7, 537-561.
56. Judson, A.S. *Changing behavior in organizations: Minimizing resistance to change.* Blackwell: Cambridge, MA, USA, 1991.
57. Kiefer, T. Feeling bad: Antecedents and consequences of negative emotions in ongoing change. *J. Organ. Behav*. **2005**, 26(8), 875–897. doi:10.1002/job.339.
58. Pekrun, R. (2000). A social-cognitive, control-value theory of achievement emotions. In *Motivational psychology of human development*; J. Heckhausen, Ed.; Elsevier Science: Amsterdam, The Netherlands, 2000, pp. 143-163, doi:10.1016/S0166-4115(00)80010-2.
59. de Miranda Coelho, J.A.P.; Gouveia, V.V.; de Souza, G.H.S.; Milfont, T.L.; Barros, B.N.R. Emotions toward water consumption: Conservation and wastage. *Rev. Latinoam. Psicol.* **2016**, 48(2), 117-126, doi:10.1016/j.rlp.2015.09.006.
60. Kals, E.; Schumacher, D.; Montada, L. Emotional affinity toward nature as a motivational basis to protect nature. *Environ. Behav.* **1999**, 31(2), 178-202, doi:10.1177/00139169921972056.
61. Bloodhart, B.; Swim, J.K.; Dicicco, E. "Be worried, be VERY worried:" Preferences for and impacts of negative emotional climate change communication. *Front. Commun.* **2019**, 3, 63, doi:10.3389/fcomm.2018.00063.
62. Hansson, S.O. Dimensions of risk. *Risk Anal.* **1989**, 9(1), 107-112, doi:10.1111/j.1539-6924.1989.tb01225.x.
63. Slovic, P. Trust, emotion, sex, politics, and science: Surveying the risk assessment battlefield. *Risk Anal.* **1999**, 19(4), 689–701, doi:10.1023/A:1007041821623.
64. Rodriguez-Sanchez, C.; Sarabia-Sanchez, F.J. Perceived risk of urban water consumption: Scale development, validation and characterisation in Spain. *Urban Water J.* **2017**, 14(4), 354-360, doi:10.1080/1573062X.2016.1148179.
65. Sjöberg, L.; Moen, B.; Rundmo, T. *Explaining risk perception. An evaluation of the psychometric paradigm in risk perception research*; Rotunde: Trondheim, Norway, 2004, p. 8.
66. Mandrick, C.A.; Bao, Y. Exploring the concept and measurement of general risk aversion. *Adv. Consum. Res.* **2005**, 32(1), 531−539.
67. Slovic, P. Perception of risk. *Science* **1987**, 236, 280-285, doi:10.1126/science.3563507.

68. Martin, W.E.; Martin, I.; Kent, B. The role of risk perceptions in the risk mitigation process: The case of wildfire in high-risk communities. *J. Environ. Manag.* **2009**, 91(2), 489-498, doi:10.1016/j.jenvman.2009.09.007.
69. Bommier, A.; Grand, F.L. Risk aversion and precautionary savings in dynamic settings. *Manag. Sci.* **2018**, 65(3), 955-1453, doi:10.1287/mnsc.2017.2959.
70. Liu, J.; Yang, H; Gosling, S.N.; Kummu, M.; Flörke, M.; Pfister, S.; Hanasaki, N.; Wada, Y.; Zhang, X.; Zheng, C.; Alcamo, J.; Oki, T. Water scarcity assessments in the past, present, and future. *Earth's future* **2017**, 5(6), 545-559, doi:10.1002/2016EF000518.
71. van der Pligt, J. Psychology of vulnerability and perceived susceptibility. In *International Encyclopedia of the Social & Behavioral Sciences*; Smelser, N.J., Baltes, P.B., Eds.; Pergamon: Oxford, U.K., 2001; pp. 16333-16335, doi:10.1016/B0-08-043076-7/03807-9.
72. Klöckner, C.A.; Blöbaum, A. A comprehensive action determination model: Toward a broader understanding of ecological behaviour using the example of travel mode choice. *J. Environ. Psychol.* **2010**, 30(4), 574-586, doi:10.1016/j.jenvp.2010.03.001.
73. Sanchez Martinez, M.T.; Salas-Velasco, M.; Rodríguez-Ferrero, N. Who Manages Spain's Water Resources? The Political and Administrative Division of Water Management. *Int. J. Water Resour. Dev.* **2016**, 28(1), 27-42, doi:10.1080/07900627.2012.640610.
74. Eurostat. European Water exploitation index, plus (WEI+). Available online: https://ec.europa.eu/eurostat/databrowser/view/sdg_06_60/default/table?lang=en (accessed on 21 December 2020).
75. March, H.; Saurí, D.; Rico-Amorós, A.M. The end of scarcity? Water desalination as the new cornucopia for Mediterranean Spain, *J. Hydrol.* **2014**, 519, 2642-2651, doi:10.1016/j.jhydrol.2014.04.023.
76. Brislin, R.W. The wording and translation of research instruments. In *Field Methods in Cross-Cultural Research;* Lonner, W.L., Berry, J.W., Eds.; Sage Publications: Newbury Park (California), USA, 1986; Vol. 8, pp. 137-164.
77. Arciniega, L.M.; González, L. Validation of the Spanish-language version of the resistance to change scale. *Pers. Individ. Differ.* **2009**, *46*(2), 178-182, doi:10.1016/j.paid.2008.09.024.
78. Dember, W.N.; Martin, S.H.; Hummer, M.K.; Howe, S.R.; Melton, R.S. The measurement of optimism and pessimism. *Curr. Psychol.* **1989**, *8*(2), 102-119, doi:10.1007/BF02686675.
79. Norem, J.K.; Cantor, N. Anticipatory and posthoc cushioning strategies: Optimism and defensive pessimism in 'risky' situations. *Cognit. Ther. Res.* **1986**, 10, 347-362, doi:10.1007/BF01173471.
80. Mitchell, V.W.; Vassos, V. Perceived risk and risk reduction in holiday purchases: A cross-cultural and gender analysis. *Journal of Euromarketing* **1998**, 6(3), 47-79, doi:10.1300/J037v06n03_03.
81. Verplanken, B.; Orbell, S. Reflections on past behavior: A self-report index of habit strength. *J. Appl. Soc. Psychol.* **2003**, *33*(6), 1313-1330, doi:10.1111/j.1559-1816.2003.tb01951.x.
82. Trumbo, C.W.; O'Keefe, G.J. Intention to conserve water: Environmental values, planned behavior, and information effects. A comparison of three communities sharing a watershed. *Soc. Nat. Resour.* **2001**, 14, 889-899, doi:10.1080/089419201753242797.
83. Murtagh, N.; Gatersleben, B.; Uzzell, D. Self-identity threat and resistance to change: Evidence from regular travel behaviour. *J. Environ. Psychol.* **2012**, *32*(4), 318-326, doi:10.1016/j.envp.2012.05.008.
84. Ullman, J. B. Structural equation modeling. In *Multivariate Statistics* (4th ed.); Tabachnick, B.G., Fidell, L.S., Eds.; Allyn & Bacon: Needham Heights (MA), USA, 2001; pp.653-771.
85. Bagozzi, R.; Yi, Y. On the evaluation of structure equation models. *J. Acad. Mark. Sci.* **1988**, 16(1), 74-94, doi:10.1007/BF02723327.

86. Podsakoff, P.M.; MacKenzie, S.B.; Lee, J.Y.; Podsakoff, N.P. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Appl. Psychol*. **2003**, 88(5), 879-903, doi:10.1037/0021-9010.88.5.879.
87. Lenhard, W.; Lenhard, A. Calculation of effect sizes. Available at: https://www.psychometrica.de/effect_size.html. *Psychometrica*: Dettelbach, Germany, 2016, doi:10.13140/RG.2.2.17823.92329.
88. Rodriguez-Sanchez, C.; Sarabia-Sanchez, F.J. Does water context matter in water conservation decision behaviour? *Sustainability* **2020**, 12, 3026, doi:10.3390/su12073026.
89. Alamanos, A.; Rolston, A.; Papaioannou, G. Development of a decision support system for sustainable environmental management and stakeholder engagement. *Hydrology* **2021**, 8(1), 40, doi:10.3390/hydrology8010040.