# Ingredients of Institutional Reputations and Citizens' Compliance with Agency Recommendations

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**Abstract**

The purpose of this study is to examine the link between the reputational components of efficacy and moral reliability of institutions, and citizens' compliance with institutional recommendations. Research on bureaucratic reputations highlights the significance of positive political reputations based on credibility and legitimacy, but the impact of these components is not systematically isolated and studied. Here we draw insights from political and organizational psychology to move beyond a positive-negative valence-based approach of reputation, and highlight the different effect of efficacy and moral reliability components of reputation on citizens' cooperation, engagement in water saving activities, and levels of complaints. We use the Cypriot Water Authority as a case study and inquire how its institutional reputation influences Cypriot citizens' behaviour regarding water use. Our data was collected via a representative national survey administered to a random sample of 800 Cypriots in the spring of 2009 and show that favourable perceptions of particular components of the institutional reputation shape the levels of satisfaction with specific organizational outputs.

**Introduction**

This study examines the impact of the components of organizational reputations on citizens' reactions to regulatory policy proposals. Organizations have reputations, which function as distinctive identities in competitive environments. A reputation is the collective assessment and simplified characterization of an object, which contains evaluative judgements[1]. It is a distribution of specific images, favourable or unfavourable, embedded in networks of multiple audiences, such as ordinary citizens, specific stakeholders or interests groups; it is in other words a perception (Agle, Mitchell & Sonnenfeld 1999; Bryson 2004; Carpenter and Krause 2012; Wartick 1992). This perception can be mediated, being the subject of media coverage or public conversation, it can be formed directly based on contact, or indirectly from communications with other people (Coombs 2006; Wartick 2002). A reputation is also dynamic; it is formed on the basis of information regarding past actions and outcomes, and it generates future expectations (Bromley 2001; Cheney & Christensen 2001; Dowling 2001; Fombrun 1996).

We argue that we need to look more deeply into the specific components of organizational reputations in order to understand the particular functions of reputations and their impact on citizens' compliance with regulatory policies. Many existing studies adopt a valence approach, and assess the impact of favourable or unfavourable organizational reputations (e.g Carpenter 2001; Krause and Corder 2007; Krause and Douglas 2005; Maor 2007). For example, they show that favourable evaluations solidify the authority of the institution, and encourage cooperative action, an essential element of civic engagement. Some studies go beyond the valence measures of organizational reputation and note that specific components such as efficiency and moral reliability are attributed to organizations, but they do not systematically examine the effects of these reputational components (Bromley 2002; Capelos 2005; Carpenter 2010; Fombrum & van Riel 2004; Guisinger & Smith 2002; Mahon 2002; Maor 2005). We argue that citizens rely on the reputational components of efficacy and moral reliability to assess the ability of regulatory organizations to deliver satisfactory results. *Efficacy* is based on competence, knowledge and effective public service delivery, thereby inspiring confidence in citizens. *Moral reliability* reflects integrity, empathy, honest communication, showing care for the wellbeing of citizens, and results in trust between citizens and public organizations. Because attitudes are linked to behaviours, we expect that these specific reputational components motivate particular behaviours of users to follow organizational recommendations.

We use the Cypriot Water Authority as a case study and investigate how its institutional reputation influences Cypriot citizens' behaviour regarding water use. Our data was collected via a representative national survey administered to a random sample of 800 Cypriots in the spring of 2009 and show that favourable perceptions of particular components of institutional reputation shape the levels of satisfaction with regulatory processes and outcomes. We find that assessments of reputational efficacy demonstrating competence increase public willingness to support costly measures, while perceptions of moral reliability increase public willingness for sacrifice and patience.

These findings have important implications for the scholarly literatures dealing with bureaucratic politics, organizational reputations, as well as regulatory compliance. First, our study challenges models of bureaucratic politics that rest primarily on the value of ideology (e.g. McCubbins, Noll and Weingast 1987; Nathan 1983; Wood and Waterman 1994). These studies illustrate that agencies respond to constituents with ideological shifts in policy implementation. Our findings illustrate the value of examining institutional reputations because we show that citizens also care about the reputation of public service providers. Second, previous research has not systematically analysed the role of reputational components for regulatory agencies. Our focus on specific components of organizational reputation has implications for studying the relationships between government regulators, citizens and businesses. We look at this mechanism of institutional reputation more carefully to reveal that citizens' behaviour towards agencies will not be determined by one outsized reputation, but rather will vary according to different components of that reputation. As we examine multiple components of institutional reputation, our work also expands on previous research that focuses primarily on the role of trust in expanding citizen compliance with government regulations and recommendations (e.g. Scholz and Lubell 1998). Finally, business compliance with regulations can vary according to perceptions of the regulating agency (e.g. Ayres and Braithwaite 1992; Lodge and Wegrich 2012). Here we focus on citizens, but reputation components can be used to study whether business leaders adjust their attitudes and compliance practices, depending on whether they see regulators as competent, trustworthy or both. Thus, the concept of reputation components has the potential to shed further light on the relationships between regulators and their audiences.

Our article proceeds as follows: first, we develop the theory of organizational reputation and its components, borrowing insights from political science, public administration, political and organizational psychology and business; we then provide details

of our empirical context of the Cypriot Water Authority; we describe our methodology, survey design and measurement; we then review our results in detail with respect to the link between perceptions of efficacy, moral reliability, support for proposed policies and citizens' willingness for collaboration. Finally we discuss the implications of our research for the ongoing debates in the field.

**Reputations: a source of organizational capital**

The literature on reputations is multidisciplinary and increasingly growing, with parallel research taking place in numerous fields of scientific inquiry. Marketing studies measure the reputation of products and commercial companies, their branding and measurement (Olins 2000; Bromley 1993, 2001, 2002; Albert & Whelten 1985). Public relations focus on the making of desirable company reputations (Gray & Balmer 1998). Business studies examine the competitive advantage of desirable reputations in the global marketplace of products and ideas (Mahon 2002), while human resources scholars examine the impact of reputations on recruitment (Turban & Cable 2003). In the public management literature, and particularly regulatory governance, agency reputations are also significant because they bridge the gap between policy making and citizens (Carpenter 2010).

In an organizational setting we can study reputations and their qualities in a variety of ways. First, it is important to make a distinction between the reputation of the organization and the individual reputations that constitute its members and its leadership (Mahon 2002). The two interact, but they can also be studied independently. Similarly, we can identify internal and external reputations; the internal reputations in the eyes of the employees or its members, who very often also contribute to its construction, and external reputations held by stakeholders who are deeply involved with the organization, interest groups who have a casual interest, or the general public[2]. External reputations are particularly interesting to study because, as Carpenter (2010) notes, agencies have to deal with heterogeneous reputations generated in multiplex networks, across different audiences, which in turn can foster a variety of emotional reactions like confidence, familiarity, trust or hesitation, anxiety or anger. Padgett and Ansell (1993) discuss how political actors consolidate their power in multiplex networks managing uncertainty and different reputations in a conflux of multiple role structures. That is why it is best to approach agency external reputations in the plural, rather

than treat them as univocal. In this article, we focus on reputations and their components as perceived by a particular audience: ordinary citizens as individual consumers of water.

Much of the literature on public sector organizations has focused on their outputs as a function of ideology and how elected politicians attempt to structure and staff agencies to please their core constituencies. In the U.S. context, some scholars have argued that Congress "hard-wires" agencies so that their subsequent policies favour particular interests (McCubbins, Noll and Weingast 1987), while others have portrayed a messier picture of interest group battles being fought through congressional and executive representatives (Moe 1989). Additional research has focused more strongly on the president's ability to control agencies through the use of appointments (Moe 1985; Nathan 1983; Whitford 2005; Wood and Waterman 1994), executive orders (Cooper 1986; Krause and Cohen 1997; Mayer 1999), agency reorganization (Moe 1987; Wood and Waterman 1994) and with careful review of new regulatory rules (Kerwin 2003; McGarity 1991). Subsequent research, while acknowledging the important role of ideology, has focused more strongly on bureaucratic reputations, the processes by which they are formed, and their impact on bureaucratic outputs.

The value of favourable reputations for organizations is reflected in the notion of *reputational capital* and *autonomy.* Reputational capital, according to Fombrum and van Riel (2004) is an accumulated asset of an organization, capturing the image of the organization and its relationship with stakeholders. Reputational capital brands an organization and offers competitive advantage and benefits with respect to its different audiences, such as consumers, investors, competitors, or its own employees. Reputational capital is also useful in times of crisis; a favourable reputation can act as a cushion against serious damages for an organization, while a weak reputation does not act as a protective shield[3]. Carpenter (2001) and Maor (2005) discuss the concept of 'agency autonomy', a benefit that organizations with favourable reputations enjoy. According to Carpenter (2001), institutions with established reputations of innovation and effectiveness are politically independent actors that can resist political control. At the same time, agencies that lack autonomy struggle to provide the same quality of service that autonomous agencies can deliver, and consequently do not enjoy as good a reputation. This autonomy might be lacking because an agency competes with others to provide the same public service (Krause and Douglas 2006) or because an agency's design subjects it to greater political turnover and higher levels of organizational instability (Krause and Corder 2007).

Much of this literature has treated reputations as a black box and has not investigated the components of favourable organizational reputations and how they affect citizens' perceptions. The key contribution of this article is its focus on specific components of organizational reputations and how they impact citizens' compliance with policy recommendations. Studies of political psychology focus on reputations of political objects, particularly the reputations of political leaders, their parties, and institutions like the US Supreme Court, while organizational psychologists apply psychological concepts of personal reputations and personality to corporate reputations and their measurement (Bromley 2002; Capelos 2005; Caldeira 1983; Huddy & Capelos 2002). Both disciplines show that in describing organizations, citizens use a number of psychological attributes also used to describe individuals such as competent, honest, responsible, determined, or caring. This phenomenon of anthropomorphism is instinctive and citizens perceive organizations much the same way they perceive people.

A handful of studies scratch the surface of reputation components in order to understand reputation formation and the reactions of organizational audiences. Carpenter (2010), and Carpenter and Krause (2012) point to the performative, moral, procedural and technical dimensions of organizational reputations. Maor (2005) agrees that an agency's autonomy is determined by reputational elements that mirror competence and trust: expertise, efficacy, uniqueness of service on one hand, and moral protection on the other. Guisinger and Smith (2002) concur that when an agency is reputed to be efficient in solving citizens' problems and provides services that other institutions do not, then it gains citizens' support. Similarly, when an agency protects the rights of its citizens and has an established track record of competence, it again enjoys citizens' support. On the other hand if an agency is not domestically accountable, its support is decreased. Carpenter (2010) also highlights the importance of perceptions of competence, and symbolic beliefs of legitimacy and effectiveness, in the form of prestige, status, and authority[4]. These are important for members of the organization who can identify or distinguish themselves from the agency image, and for the 'outsiders', ordinary citizens, interest groups or stakeholders.

We build on this work and contribute to the literatures on bureaucratic politics, organizational reputations and regulatory compliance in three important ways. First, previous research on bureaucratic politics has focused on ideological shifts in agency outputs as a response to the demands of citizens and broader audiences. Ideology is an important factor for citizen attitudes towards regulatory activity, but we show that organizational reputation

matters to citizens as well. Second, existing work on bureaucratic reputation has tended to look at reputation as a singular, positive or negative phenomenon, but not has unpacked the issue to consider whether reputations have multiple components. These studies present valence models that demonstrate that a positive reputation can be related to the belief that any problems will be adequately addressed and solved by the agency, or that the agency is in tune with expressed concerns, while a negative reputation can be based on perceptions that an agency is ineffective, disengaged or corrupt. Some even highlight the variability of the components of organizational reputations, but do not isolate or analyse them systematically. This lack of systematic analysis is partly due to the fact that most of these studies employ the agency as their unit of analysis, but in order to understand how reputations are formed, one must examine the audience perceptions that help shape reputations—in this case, ordinary citizens that consume water. We build on these studies by examining the effects of distinct reputational components on perceptions of service provision. This is critical because it shows that citizens are responsive not to one monolithic reputation, but to what they perceive the qualities of organizations to be, and adopt different behaviours on the basis of these perceptions. This variation is also important, as previous work on citizen compliance has primarily focused on the role of trust in organizations. For example, citizens are more likely to comply with tax laws when they trust the collection agency, as well as their fellow citizens (Scholz and Lubell 1998). We show that while moral reliability and the trust it breeds are important, so is organizational efficacy and the confidence it inspires in citizens.

Finally, our study also has potential implications for studying the relationships between regulators and businesses. Just as citizens form perceptions according to specific reputation components and behave accordingly, so do businesses and other members of the organization's audience. Compliance with regulations is often shaped by the relationship between businesses and their regulators and while institutions shape much of the content of these relationships, compliance may also be shaped by business attitudes towards regulators. For example, if a business is punished for violating regulations, despite good-faith efforts to comply, the business may not believe in the moral reliability of the agency, thus eroding trust in the relationship. The business may then be less likely to heed advice and guidelines from the agency in the future. Conversely, a business may feel it is able to evade regulations if it does not believe in the efficacy of a regulatory agency. Thus, although we do not study this phenomenon here, reputation components have the potential to teach us about the relationships between business and regulators as well.

**Reputational components: efficacy and moral reliability**

Research on political psychology offers a systematic study of the components of reputations and their impact on behaviour. Looking at the components of political leaders' evaluations a number of scholars identify the significance of competence and reliability elements. Simonton (1993) argues that reputations include personality traits, policy preferences and performance indicators. A political leader is well reputed when his/her personality is likeable and attractive to citizens, inspiring trust by exhibiting a strong moral character (Simonton, 1993: 538). In addition, a political leader must appear to be confident enough to handle any crisis that may occur. In other words, the main components of political reputations are competence, related to performance in office, and integrity related to good moral judgment (Kinder 1986; Funk 1999; Capelos 2005). In the next paragraphs, we review in closer detail the characteristics of these two dimensions of reputation.

A reputation of competence is a significant feature in politics since citizens always evaluate leaders, institutions, and parties based on the outcomes they are able to deliver. Citizens expect political agents to be competent to fulfil normative expectations and able to perform satisfactorily within institutional boundaries. Moreover, citizens expect 'government officials to possess the technical competence needed to develop and implement sound public policy' (Rudolph, 2005: 852). Chanley, Rudolph & Rahn (2000) suggest that to judge agent competence, citizens take into account their level of economic performance. This means that citizens evaluate political agents through their policy development and implementation regarding economic matters. More specifically, Chanley et al. (2000) indicate that citizens' evaluations of agent efficiency 'rise and fall with the economy' (p. 249). What we see here is that effectiveness and competence evaluations are qualities that are related to political actions and performance indicators rather than personal qualities.

Political agents not only have to perform efficiently, but they have to be morally reliable. It is of outmost importance for a government official to be trustworthy, honest and straightforward with citizens. Parker and Parker (1993) emphasize how crucial it is for incumbents to be honest and trustworthy; 'constituent' loyalties to incumbents are sustained by a sense of personal trust in the legislator' (p. 443). Citizens follow and support political agents who are morally reliable thus helping them maintain their authoritative positions. They also withdraw their political support as soon as incumbents are known to be corrupt, as they

fear that their interests will be neglected. So, moral integrity has an important role for citizen support. Citizens want political agents who can be role models for younger generations in order to trust them. Moral integrity, even though separated from political performance is of equal importance.

Studies in political psychology also show that reputations, whether they refer to individual leaders or their party organizations, have a cognitive and an affective component (Capelos 2010a, 2010b). The affective component of institutional reputations is often seen as antithetical to their rational appeal. While the emotional appeal factor includes qualities like trust, the rational appeal includes elements like performance and risk (Fombrun, 1996). We argue that the affective and cognitive elements of reputations are interrelated. Efficacy and moral reliability generate feelings of confidence and trust towards the institution, which in turn affect the way citizens respond to institutional policies and measures. While a *reputation of efficacy* is linked to confidence in performance, a *reputation of moral reliability* generates trust.

Confidence differs from trust in the moral sense because confidence simply suggests that consumers of any product or service believe in the agent's competence due to past high performance. Therefore, competence to promote societal welfare by choosing the appropriate policies is crucial for government officials. When citizens have had experience with the agent's efficacy and are aware of his/her high level of performance, they gain the respective confidence. Trust is a complex social relationship which involves high risk of damage in the case of contrary results. Bellaby (2006: 3) defines trust in the context of public utility issues as 'reliance on another agent to deliver an outcome that is in one's own interests and, by implication, reliance on the other not to take advantage of this dependence to achieve contrary goals'. Trust is generated by attributions of openness, fairness and integrity. Furthermore, trust is necessary when 'behaviour cannot be predicted or when strangers are part of the interaction' (Seligman, 1998: 393). Trusting agents is not easy, because there is no guarantee that they will keep their end of the bargain. Moral trust is risky and it sometimes involves getting hurt. Earle and Siegrist (2006) suggest that trust is 'the willingness to make oneself vulnerable to another based on a judgement of similarity of intentions or values' (p. 386).

**Reputation of the Water Authority in Cyprus**

We apply the broad literature of reputational components to illustrate how citizens engage with public service providers. Reputations have behavioural consequences as they influence how people interact with an organization. Extant research demonstrates that citizens are more likely to be loyal to companies and institutions that are reputable (Carmeli & Tishler 2005; Davies, Chun, da Silva & Roper 2001; Fombrun, Gardberg & Sever 2000; Fombrum & van Riel 2004; van Riel & Balmer 1997). Going beyond valence and ideological explanations, we test how citizen perceptions of organizational reputations of efficacy and moral reliability can condition the way citizens think and behave in the context of specific institutional recommendations. We expect that a favourable institutional reputation will engage citizens to follow organizational recommendations. We also expect a differential role of efficacy and moral reliability on citizens' attitudes, with efficacy perceptions promoting preferred solutions that demonstrate ability, and moral reliability perceptions promoting measures that require fairness and trust.

We study the reputation of the Water Authority in Cyprus because water is a particularly high-profile issue in this island. According to the Flash Euro-Barometer on water, conducted in 2009, an overwhelming 96% of Cypriots are concerned about water quantity issues, whereas the average score among other EU countries is 62% (Flash Euro-Barometer 2009). Every year, particularly in the summer months, Cyprus faces water scarcity problems, which pose a threat to the welfare of Cypriots and tourism, which is a major source of income for the island. Political actors or, more specifically, water authority officials are expected to resolve this critical problem (Chenoweth et al. 2010). In Cyprus, bulk water is provided by the Water Development Department (WDD), which was established in 1951 and it operates under the Ministry of Agriculture. The WDD oversees four public treatment plants and two private desalination plants and manages water saving campaigns and incentives. It distributes water to the public via five regional Water Boards in Nicosia, Limassol, Larnaca, Famagusta, and Paphos which are semi-governmental non-profit organisations responsible for the supply of potable water locally. Consumers usually refer to their water board for requests or information relating to water consumption or quality.

We examine valence and component-specific relationships between agency reputation and consumer cooperation to understand levels of public complaints and levels of compliance with agency recommendations to preserve water. An indication of cooperation is often the extent to which citizens refrain from complaining. Interestingly, while one might expect a high level of complaints in light of water shortages, expressions of negative attitudes towards

the water authority are rare in Cyprus. At the same time, compliance with recommendations of water conservation is weak (Chenoweth, Barnett, Capelos, Fife-Schaw, & Kelay 2010; Kelay, Lundehn, Vloerbergh, Chenoweth, & Fife-Shaw 2008). In the absence of complaints, are all citizens satisfied and actively engaging in water-saving activities? A lack of complaints can originate from apathy, and one can identify several expressions of institutional support: the active engagement in preserving water at home and participating in relevant government sponsored initiatives, or the passive approval that does not result in complaints but is also devoid of action. This passive approval can rest on the expectation that everyone else will save water, or on (mis)placement of responsibility to save water in the hands of agents other than the individuals' household. It is therefore useful to examine a range of personal attitudes towards water saving activities, such as efficacy, confidence, involvement, and whether a favourable agency reputation and its components stimulate engagement with water saving practices, allow for higher level of tolerance towards inconveniences, and promote constructive contact with the relevant water authorities.

With respect to valence, we expect that the more favourable the reputation of the water authority, the higher the consumers' support for agency recommendations to preserve water. With respect to particular perceived reputations of efficacy and moral reliability, we anticipate a link between trust and the agency's reputation of moral reliability. In times where there are concerns about inadequate supplies of water, citizens find the water authorities morally reliable and trust them to solve the problem. Therefore, we expect a reputation of *moral reliability* of the water authority to be a significant indicator of attitudes towards water shortages and water saving behaviour. Kelay et al. (2008) also report that Cypriots are confident that when they turn on their taps they will get good quality water, and that water problems are mainly related to quantity and not quality. We expect confidence to stem from the agency's reputation of *efficacy,* and in turn efficacy evaluations to be relevant in performance related task and measures.

To recap, drawing from research on institutional and political reputations, we focus on the link between the reputation components of the water authorities, the lack of complaints and citizens' intentions in following recommendations for water saving activities. This research contributes to the understanding of water consumer behaviour and public attitudes towards relevant organizations. Furthermore, particularly in the case of Cyprus, there is a lack of studies to examine the impact of organizational reputations upon consumer behaviours.

**Methodology**

The data used to test our hypotheses comes from a public opinion survey conducted in Cyprus between April 4th and 16th, 2009. The questionnaires were administered in the form of face-to-face interviews by CYMAR Market Research Ltd. as part of an EU funded project which examines technological and regulatory solutions to safe drinking water[5]. Data was collected in early spring because then the water availability issue, although salient, did not dominate the public agenda as it would have in the summer months when water scarcity is higher. The selection of the spring months to run our study was intentional; we wanted to avoid the danger of receiving answers driven by public frustration due to water shortages.

Eight hundred questionnaires were completed by a randomly drawn and representative sample in major Cypriot cities and rural areas within the 5 districts of Nicosia, Limassol, Larnaca, Famagusta, and Paphos. The sample was selected through random multistage area probability sampling and the survey response rate was 57% (800 completed questionnaires, 1404 included addresses)[6]. In terms of regional spread, about 66.1% of participants come from urban areas (529 participants), which corresponds with the 2007 Cyprus National Statistics data, indicating that about 69.9% of the population lives in urban areas. Education is a parameter that can be a significant indicator of awareness of water saving measures. The most frequently reported education category among our participants is secondary school (41.4%). This corresponds with the 2005/6 National Statistics that report the 46% of citizens over 20 to have reached secondary education[7].

Our sample has a high proportion of middle-aged and male respondents. The largest percentage of our sample (24.8%, 198 respondents) is between 45-54 years old. In addition, 60.6% (485 respondents) are male[8]. Our higher proportion of male and middle-aged respondents is due to our survey eligibility screening practice. In order to get reliable estimates of water use and compliance with institutional recommendations, our screening question asked to speak to the person in each household that made financial decisions and was in charge of paying the water bill.

The original questionnaire was provided in Greek and was back-translated to English and five pilot interviews were conducted checking the functionality of the questionnaire. The survey contained closed and open-ended questions regarding evaluations of the water authority and its officials, water scarcity, and water saving measures and behaviours. To get measures on our independent variables, we asked six questions that tapped the reputation of the water authority, and particularly efficacy and moral reliability. Participants were asked to

evaluate whether the water authority was competent to solve water related problems quickly and efficiently, whether it had the knowledge necessary to ensure that the standard of the water had no negative effects on health, whether it had built a safe system that ensured there were no negative effects from the water, whether it communicated honestly about possible problems with the water supply, and whether it took public well-being into account when managing the water system. We also asked whether the local authorities were more concerned with their own problems than caring for the public's water problems.

Dependent variables in our study were several indicators of attitudes towards water saving measures and solutions promoted by the water authority. Specifically we asked participants to evaluate the importance of water shortages, the extent of concern about having enough water, and the acceptability and inconvenience generated by water cut-offs. We also measured their attitudes towards water conservation, confidence and knowledge of proposed measures and attitudes towards water restrictions. We also measured the frequency and extent of interaction between citizens and the agency by asking whether they would contact water authority agents to report a broken pipe or leakage, a problem with their bill, or a problem with the water meter. Participants were also asked to indicate their attitudes towards water re-use and actions to preserve water.

**Analysis and Results**

Our data show that the problem of water shortages in Cyprus is of high-salience among citizens. The average reported importance of water scarcity is at 9.66 points on a 0 to 10 scale, where 0 was not at all important and 10 was very important. Additionally, concern about having enough water runs high with an average of 9.11 points on the same scale, 10 denoting very high concern. In this high salience context, we are particularly interested in how the water authority is evaluated by citizens. Overall, and using a 0-10 scale, with 0 being the least favourable and 10 being the most favourable rating, the water authority receives mostly favourable ratings around 7 points. In more detail, the water agency receives a mean rating of 7.04 on whether it has the competence necessary to deal with water supply problems quickly and efficiently. On whether the water company has the knowledge necessary to ensure that the standard of the water has no negative effects on health, the average response was 7.21 points, and evaluating whether the agency has created a safe system that makes sure to provide healthy water had a mean response of 7.02 points. The highest score the water authority received was on honest communication about possible water problems (7.61

points). To the question whether the water authority takes public well-being into account during the management of the water system, the average response was 7.04 points. And when asked whether the water authority agents are more concerned with their own problems rather than citizens' problems the average response was 5.48 points.

The correlations between the agency reputation items show that they form two groups: one involving items reflecting efficacy (competence, knowledge and safety) and a second reflecting moral reliability (honesty and well-being)[9]. As we see in Table 1 correlations between competence, knowledge and safety, the items connoting efficacy, are all positive, significant and large (.73 between competence and knowledge, .73 between knowledge and safety, .65 between competence and safety) but drop lower when they are matched with the remaining variables. Similarly, the correlations between honesty and well-being, the variables connoting moral reliability, are positive, significant and large (.77 between honest communication and public well-being), but drop much lower when paired with the variables from the other group [10]. The negatively worded question on whether the agency cares more about its own problems than the public's problems fits better with this group of variables but its correlations are low (.54 between public well-being and caring for own problems, and .46 between caring for own problems and communicating honestly).

*** Please insert Table 1 here ***

To economize on the analyses that follow, we grouped the competence, knowledge and safety variables into a scale that measures efficacy (reliability coefficient α at .88) and the honesty and public well-being variable into a scale measuring moral reliability (reliability coefficient α at .87). We omitted the 'own problems' variable from the moral reliability scale as its poor correlations with the other variables lowered the reliability of the index. Looking at the overall scale scores, the mean of the efficacy dimension is 7.09 (standard deviation 2.27) and the mean for the moral reliability dimension is 7.33 (standard deviation 2.50). We also created an 'overall reputation' measure which combined the five efficacy and moral reliability items. The average evaluation of the agency on the overall reputation scale is favourable with mean 7.18 (standard deviation 2.13), in line with our expectation of high overall satisfaction levels with the water authority. However, there are a small proportion of unhappy citizens who provide unfavourable ratings which fall below 5, the midpoint on our five reputation items. About 13% of the sample are sceptical that the water agency has built a safe system that ensures no negative effects, 12% do not agree that the water agency has the

knowledge necessary to ensure high standards of water, and about 16% are sceptical about the water agency having the competence necessary to deal with water supply problems quickly and efficiently. About 11% are sceptical about the honest communication regarding possible water problems, and another 12% disagree that the agency takes public well-being into account when managing the water system. Taking the midpoint of the overall reputation scale as out cut-off, we identified 88 out of 800 citizens who provide unfavourable ratings which fall below 5 points[11].

When we compared scores on items tapping concern about water shortages for these 88 participants with the overall sample, and also with the group of 506 respondents who had above mid-point scores on the scale, we found no statistical significant differences in terms of the importance of water shortages (Mean $_{Unfavourable}$ 9.59; Mean $_{Favourable}$ 9.65; Mean $_{Overall}$ 9.66) or expectations of water shortages (Mean $_{Unfavourable}$ 4.84; Mean $_{Favourable}$ 4.79; Mean $_{Overall}$ 4.72). The 88 individuals with unfavourable agency views rated the importance of water shortages approximately the same as those with favourable agency evaluations and were equally concerned about shortages in the coming year.

However, agency reputation becomes relevant when we ask how tolerant participants are towards the problem of water shortages. Those with unfavourable agency ratings find the cut-offs significantly less acceptable (Acceptable Mean $_{Unfavourable}$ 4.88 points) and report that the cut-offs are more inconvenient (Inconvenient Mean $_{Unfavourable}$ 7.20 points) compared to those with more favourable agency evaluations (Acceptable Mean $_{Favourable}$ 6.52 points, and Inconvenient Mean $_{Favourable}$ 6.12 points). These differences are statistically significant (at the $p<.05$ level) and demonstrate that citizens who are critical of the water agency are overall more annoyed by the lack of water.

Interestingly, unfavourable citizens are also significantly less concerned about not having enough water with a mean concern score of 8.82 points, compared to those who give the water agency favourable evaluations (9.29 points). They are also significantly less eager to know more about saving water (6.24 points, compared to 7.11 points), less confident that their actions will make a difference (6.95 points compared to 7.54 points), and have a weaker sense of control regarding how to avoid running out of water in their household (7.25 points compared to 8.39 points). The above show that unfavourable evaluations of the water agency are associated with higher levels of irritation, lower levels of involvement, tolerance,

confidence and control, and a graphical representation of these differences is available in Figure 1.

*** Please insert Figure 1 here ***

The next step is to unpack the content of the agency reputation and examine whether its particular components, namely efficacy and moral reliability evaluations, can explain citizen's water-related decisions and behaviours. In the analyses that follow we compare the predictive power of the two reputation ingredients on assessments of the water shortage problem, levels of concern, and preference for particular solutions. Table 2 presents the results of four OLS regressions that examine the impact of the agency's reputation of efficacy and moral reliability on the significance and concern raised by the water shortage issue. We also add two controls: the frequency of cut-offs, accounting for the level of actual inconvenience imposed on the users, and the presence of empty storage tanks, accounting for the level of potential threat by water shortages.

*** Please insert Table 2 here ***

The results reported in the first column show that when it comes to the importance of water shortages, the agency reputation does not matter. This is in line with what we saw earlier: both those with favourable and unfavourable agency evaluations rated the significance of water shortages highly. While the efficacy and moral reliability evaluations of the agency are not significant, the frequency of cut-offs and whether the household storage tanks run dry matter significantly. Also, the importance of the problem is heightened when the personal situation of the user is compromised. The more frequently the storage tanks run empty, the more citizens feel that the importance of the water shortages rises.

But reputations are important and their components play a significant and distinguishable part in explaining citizens attitudes towards water use and cut-offs. Reputational components help us understand how considerations of an agency's efficacy and moral reliability can determine how concerned users are about having enough water, whether the cut-offs are inconvenient and how acceptable they deem them to be. In the second and fourth columns of Table 2, we see that perceptions of efficacy, but not moral reliability, affect the degree of concern regarding cut-offs and how inconvenient these cut-offs are considered. The user's personal situation is also relevant here. As the cut-off frequency progressively increases, public concern increases, and empty storage tanks raise perceptions of

inconvenience. In turn, perceptions of moral reliability, but not perceptions of efficacy, play a significant role when participants consider how acceptable the cut-offs were for them. As the perception of the moral reliability of the water provider increases, the acceptability of cut-offs increases. Trusting the agency in applying fairness when cutting off the water, makes cut-offs more acceptable. Citizens also get used to cut-offs more as their frequency increases, but not when they are affected personally. When their storage tanks are empty, their find cut-offs less acceptable.

Next we are interested in examining citizen's attitudes towards particular users of water, as this can indicate whether reducing usage in a particular area would make a difference and where the locus of responsibility lies for regulating and moderating water use. We asked participants whether they thought that it would effectively reduce water shortages if households, agriculture, tourism, and industry used less water. In Table 3 we used perceptions of efficacy and moral reliability as independent variables in four OLS regressions to identify a possible variable role of the two reputational components in attitudes towards the four categories of users. We also included the frequency of cut-offs and personal inconvenience, to test the degree to which they become significant considerations.

*** Please insert Table 3 here ***

An interesting finding here is that the two components of agency reputation have reverse impact. As the perception of the moral reliability of the agency increases, the proposals for households, agriculture, tourism and the industry to use less water in order to reduce water shortages are favoured more. When perceptions of moral reliability are in place, citizens do not feel that their own use is compromised in favour of other users. On the other hand, as efficacy assessments increase, the belief that the solution is in the hands of citizens, agriculture, tourism, and industry decline. Citizens who consider the agency competent perhaps expect alternative solutions that do not involve cutbacks in households or other sectors in order to solve the water shortage problem. We also find that personal circumstances matter only when participants considered the ability of households to make a difference. As cut-offs become more frequent, citizens think households could make a difference, but when their own tanks dry up, there is less scope for thinking about how to save water.

We were also interested in measuring the levels of support for specific solutions that are under the control of policy makers and the water company. In a set of questions,

participants were given the option of increasing water restrictions for everyone, reducing the amount of water going to agriculture, re-using of waste water, investing in desalination plants, or importing water from Greece[12]. We then ordered their responses from the most to the least favourably ranked, to find that building of desalination plants is the most desirable of all options (mean 6.67 points). It was followed by general water use restrictions (mean 5.08 points), whereas less desirable alternatives were the reduction in water going to agriculture (mean 4.53 points), using purified waste water for households (mean 4.09) and importing water from Greece (mean 3.46). The low rating of importing water is not surprising given the ill-managed attempt to import water from Greece the previous year. In July 2008, a Greek tanker had to discard tons of fresh water in the sea due to fears of contamination caused by long delays in off-loading the water[13].

Consistent with our expectations, the perceptions of the agency's efficacy and moral reliability influences support for the most desirable solutions, but different reputational components influence different proposed solutions. The OLS regression results presented in Table 4 show that as the reputation of efficacy of the agency becomes more favourable, the support for desalination plants increases. Citizens who think the agency will be competent in delivering on the desalination infrastructure are optimistic about the success of this technologically demanding solution. However, perceptions of moral reliability of the agency favour the option of household restrictions, under the assumption that they would be carried out in a fair manner. Trust and moral reliability are particularly needed in a situation of distribution of scarce resources, where individual households rely on the fairness of the water provider. When considering water cuts, the agency's reputation of efficacy plays a negative role. As efficacy perceptions increase, the preference for household restrictions declines, showing perhaps preference for alternative solutions.

*** Please insert Table 4 here ***

One of our main interests is how vocal citizens are in expressing their concerns about water related issues. We found that out of 800 respondents, only 114 (14.3%) had expressed a complaint about water related issues. We checked whether those who had complained saw the agency in a different light in comparison to those that do not complain. We found that those who complain give lower agency evaluations on efficacy than those who had not complained (6.77 points compared to 7.14 points), but the difference was not statistically significant. A similar picture applies to moral reliability evaluations. They are lower among

those who complain than those who do not (7.04 points compared to 7.42 points), but again the difference does not reach statistical significance (at $p<.05$).

Are citizens engaging with the water authorities and the state to solve the water scarcity problem, and if so, is this engagement related to the reputation of the agency? In our survey, we asked participants whether they have been engaging in water wasting activities, and only 27.5% (220 persons) admitted that they have been involved in activities in their everyday life that are wasteful. We also asked whether they actively save water. Most answered that they save water when they can, and only 6% (48 persons) answered negatively. Testing for a relationship between wasting water and agency reputation, we compared the average evaluations of agency efficacy and moral reliability between those who admitted wasting water and those who claimed that they did not. We found that those admitting to wasting water have a significantly lower assessment of the agent's efficacy (6.79 points) compared to those who do not waste water (7.22 points). It seems that when citizens believe that the agency is not competent in doing its job, they also engage in inefficient behaviours. Similarly, a good example followed by the agency seems to inspire citizens to do the right thing. Those who report saving water offer significantly more favourable evaluations of the agency's efficacy (7.17 points) compared to those admitting not saving water (6.17 points). Similarly, in the eyes of those saving water, the agency is significantly more morally reliable (7.04 points) than in the eyes of those admitting to not save water (6.31 points). The above differences are statistically significant (at $p<.05$).

Our next question is to what extent citizens had actively taken up government sponsored initiatives in saving water. We found poor engagement. Only 30% (239 persons) were able to name one of the available water saving subsidies and from them only 25 had actually taken a government subsidy. Again we tested for differences in agency reputation, and our mean comparisons found that those knowledgeable of subsidies provided higher efficacy ratings of the agency (7.24 points) than those who were not aware of the subsidies (6.71 points) but that difference did not reach statistical significance (at $p<.05$). This trend suggests however that favourable reputations of efficacy may stimulate and engage citizens in learning more about available options.

We were also interested in other types of action, such as reporting problems and collaborating with authorities when things go wrong. With this in mind, we asked participants whether they would contact the water company if they had problems with a broken pipe, with

their water bill, or their water meter. Overall, we found that citizens were very willing to contact the company, and their answers averaged slightly below 9.5 on a 0-10 scale. In addition, in line with our expectations, agency reputation becomes a factor in this decision. When we compared the average responses of those with negative agency evaluations to citizens with overall positive evaluations, we found that the unfavourable citizens were more reluctant to contact the water authority compared to those holding favourable reputations in all three complaint scenarios presented. Characteristically, the 88 individuals holding unfavourable agency evaluations reported means of 8.75 points when asked whether they would contact the water authority in the event of a broken pipe or leakage, 9.12 points if they had a problem with their bill and 9.17 points if they had problems with their water meter. These are statistically significant lower ratings (at $p < .05$) compared to 9.47 points, 9.50 points and 9.62 points respectively provided by the 506 respondents with favourable agency perceptions. It should be noted however that while these differences are statistically significant, the high overall means indicate that even those who have a negative view of the agency are still ready to complain when necessary.

We were also interested in checking whether the hesitation to make contact was related to one particular component of the agency reputation. The three OLS regressions presented in Table 5 show that the three contact decisions are influenced by the assessments of agency moral reliability rather than efficacy. An additional significant factor is again the personal situation of the user. Those whose storage tanks run empty during periods of water cut-offs are less likely to contact the agency for broken pipes, billing or water meter problems.

*** Please insert Table 5 here ***

Finally, we are mindful that survey data can generate problems with inference about the direction of causality and model specification due to missing variables. We ran Ramsey RESET tests for all regression model specifications and found that for the majority of our analyses, we can reject the possibility of omitted variable bias. Our model specification performs strongly and consistently for the analyses on the evaluations of water problems (Table 2), preferred solutions (Table 4), and solving water shortages by reducing use for agriculture and tourism (Table 3). However, reducing use for households and industry might be a more complex decision for most users that requires further investigation (Table 3). Because of concerns with causality, we also tested for measurement error in the efficacy and

moral reliability independent variables for all analyses. In addition to the standard models, we re-estimated all models using an errors-in-variables framework to test whether either of the two independent variables is measured with noise (reliability .85). We found that these regressions produced the same results as our original models, therefore indicating that measurement error was not a significant problem. A useful next step would be to employ experimental methods to test citizen compliance with agency recommendations, while manipulating the specific reputational components of efficacy and moral reliability in a controlled lab environment, therefore eliminating by design, any reciprocal causation issues.

## Discussion and Conclusions

In this article we examined the impact of the components of perceptions of water authority reputations on satisfaction with the water supply and willingness to engage at different levels with water-saving measures. These are important considerations where the protection of the environment is a significant public interest challenge. While we study the mechanism of public reputations of the water authority in Cyprus, we see a generic function of public reputation components that can inform our understanding on ordinary citizens' behaviours in other countries and contexts.

We found that the agency reputation components of efficacy and moral reliability are significant determinants of the extent to which Cypriot citizens perceive water authorities to be able to solve water-related problems and their willingness to accept or tolerate any water shortages. Looking at the overall sample, we saw that Cypriot citizens are in general pleased with water authorities. This is consistent with qualitative interviews with stakeholders which suggest that complaints are limited (Fife-Schaw, Kelay, Vloerbergh, Ramaker, Chenoweth, Morrison and Lundéhn 2007; Kelay et al. 2008; Bratanova, Vloerberg, Morrison, Capelos, Mangold & Fife-Shaw 2010). Here we find that citizens who acknowledge the moral reliability of the agency are more inclined to initiate contact in the event of problems. It is precisely when citizens perceive the agency to be accessible and willing to listen to suggestions or complaints, that they develop a relationship of trust that increases their contact. There are however a small number of citizens who held unfavourable evaluations of the water agency. These citizens are less tolerant of cut-offs, feel more inconvenienced in the event of water shortages, and are less inclined to see solutions ahead. They also feel they are less knowledgeable and confident to deal with water shortages.

Because our study integrates literature from several social science disciplines to shed light on the dynamics of agency reputations in influencing citizen behaviour, it builds interdisciplinary bridges that move forward our understanding of the functioning of organizational reputations. We find that efficacy and moral reliability reputations are significant predictors of citizens' attitudes, and they also have differential impact. While the significance of institutional reputations is often highlighted across political science, public policy, psychology, marketing, or business studies, the effect of its specific components is rarely isolated and measured (Bromley 2002; Capelos 2005; Carpenter 2010; Fombrum & van Riel 2004; Guisinger & Smith 2002; Mahon 2002; Maor 2005). Here we argue that we have a lot to learn by examining the impact of the reputational components of efficacy and moral reliability. We show that efficacy and moral reliability contribute to favourable reputations, but also operate differently in the evaluation of particular water-saving measures. Citizens who find water authorities morally reliable are in favour of solutions that require sharing of water management responsibilities among citizens, the tourism industry and agriculture, in the hope that this can be achieved in a fair fashion. And when citizens see water authorities as competent, they favour the construction of desalination plants to solve water scarcity problems rather than policies that require household water restrictions which would be painful for consumers.

Recognizing the significance of efficacy and moral reliability as cognitive components of reputations opens also the door for the examination of the impact of their affective counterparts, confidence and trust, which are also related to cooperation and civic engagement (Brehm & Rahn 1997; Cook & Gronke 2005; Earle & Siegrist 2006; Siegrist, Earle & Gutcher 2003). Trusting political institutions and having confidence in them is quite different. Citizens may be confident that a political agent will perform satisfactorily because of their reputation of efficacy, but this does not imply that they trust the agent's motives or intentions to act in the best interests of citizens rather than themselves. On the other hand, citizens may trust an agent to be morally reliable, share the same values as them and pursue policies that satisfy all, but this does not necessarily mean that citizens believe in the agent's competence.

The above highlight that strong reputations of efficacy and moral reliability come with a twist; high levels perceived organizational efficacy can lead to overinflated confidence which could compromise policy legitimacy for unpopular policies, such as those of water rationing in households as seen above, and instead favor alternative solutions that are less

painful for citizens, such as desalination plants. Additionally, political accountability literature suggests that strong reputations can generate higher standards in public perceptions which lead to more severe punishment when policies are unpopular. Similarly, strong perceptions of moral reliability can generate intense trust which can lead to serious compromises of the reputation of the organization in the context of a scandal.

While much can be learned from this case study of the water authority in Cyprus, it is also important to expand this research in other countries, sectors, domains and institutions, and approach, as Carpenter (2012) notes, cross-policy generalizations cautiously. Future work should also focus on additional audiences, such as businesses and organized interests and how these audiences might give preference to particular agency reputational components. Shedding light on how multiple audiences perceive agency reputations can facilitate better understanding of the audience/agency interactions. With respect to the citizenry, agents inform ordinary citizens about policies designed to offer solutions instead of simply state the seriousness of particular problems.

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**Endnotes**

[1] Reputations should be distinguished from personality, identity (personal or corporate) and image. Personality refers to the characteristics that make up an entity. Identity refers to the characteristics that set apart a particular entity from others. Image is a mental picture of an entity that is often shared and can be communicated to many. Reputations are opinions, which similar to images, have a collective character.

[2] Perceptions of reputations can differ across different external groups on the basis of the group's degree and quality of connection with the organization (Keen & Greenall 1987). Members of a group with similar experiences or the same values and perspectives will share high level of consensus regarding the organization's attributes, while members of a group with negative experiences or dissimilar perspectives will experience higher variability in their perceptions of the organizational reputation.

[3] Reputations have similar functions for political leaders. In times of crises, or following a political scandal, favourable reputations can act as a cushion of support, often providing immunity from political predicaments (Capelos 2010c; Fenno 1978; McGraw 1991)

[4] According to Carpenter (2010) 'competence' is rooted in the description of the ideal public official and it is particularly salient in the notion of 'neutral competence', the idea that the decisions of public officials are motivated by their professional abilities. This is contrasted

with the view of public officials as serving the public interest, carrying a reputation of minimizing risks in an unstable world.

[5] A total of 24 interviewers and four regional supervisors were employed for the purposes of this project.

[6] To secure 800 completed interviews, a total of 1404 addresses were selected in the sample, and a total of 2217 visits to these addresses were made. The response rate statistics are as follows: 800 successful interviews (57%), 298 refusals to participate (21.1%), 217 cases where an eligible respondent was not located after three visits (15.5%), 89 invalid addresses (not a household) (6.3%).

[7] Looking more specifically at the distribution of education, about 26% report only completing primary education, while a small number (3.5%) state they have not completed the primary level of education. About 10% continue above secondary school and complete the Gymnasium level, while 9.3% have reached the University Bachelors Degree. About 8% have a College diploma, and the smallest numbers are the University Postgraduates (only 1.4%).

[8] Looking at the distribution of age in more detail, the second largest percentage is 23.3% (186 respondents) for participants between 55 and 64 years old. About 16.8% (134 respondents) are people in the 65-74 years category, while close to 10.4% of the sample (83 participants) are between the ages of 25-34. Respondents older than the age of 75 cover 5.6% of the sample (45 respondents). The smallest group of our sample is between18-24 and covers the remaining 2.5% (20 participants). Turning to gender, according to the official website of the 2007 National Statistics of Cyprus, of the 789,300 citizens in the Government controlled area, 399,700 were females and 389,600 were males.

[9] The question wording on these items was as follows: *Competence*: The water company has the competence necessary to deal with water supply problems quickly and efficiently; *Knowledge*: The water company has the knowledge necessary to ensure that the standard of the water has no negative effects on health; *Safety*: The water company has built a safe system that ensures there are no negative health effects for the public from the water; *Honesty*: The water company communicates honestly about the possible problems with the water supply; *Well-being*: The water company takes public well-being into account when they manage the water system; *Caring*: The water company responsible for supplying water to your household is more concerned with its own problems than caring for the public's water problems. All variables ranged from 0-10 where 0 is the lowest evaluation and 10 the highest. A score of 10 indicates high importance, high concern, and high scores on competence, knowledge, safety, honesty, well-being, and caring.

[10] While exploratory factor analysis yields one factor representing the agency overall reputation, confirmatory factor analysis testing for two factors shows grouping of the variables consistent with our expectations. The competence, knowledge and safety variables form one factor, and the honesty and public well being form a separate factor.

[11] The 'overall reputation' scale ranged from 0-10 and was created taking the average score on the five efficacy and moral reliability items. As 'unfavourable' we identified ratings that fall below 5, the midpoint on the scale, and as 'favourable' we identified ratings that fall above 5. We also tried an alternative sample stratification strategy to identify the favourable and unfavourable groups. Instead of using the midpoint of the overall reputation scale as cut-off point, we classified as 'unfavourable' the individuals who reported agency ratings that fell below the midpoint on *both* the efficacy and moral reliability scales and as 'favourable' the individuals that offered above the midpoint ratings again on both scales. About 14.5% of the sample provided below the midpoint ratings on the agency efficacy scale, and 13.6% on the moral reliability scale. Combined, there were 45 individuals under this alternative classification identified as unfavourable and 436 individuals as favourable. These groups of individuals are even more polarized, since they hold consistently negative and consistently positive agency evaluations on both reputational dimensions. We run all analyses presented in this study with this alternative classification, the results were practically identical in all statistical tests to the ones provided in the manuscript tables and figures, generated on the basis of the overall reputation midpoint split.

[12] We asked respondents whether they would: support the building of a desalination plant to produce freshwater from sea water if financing the plant means no significant increase in your water bills; support an increase in water restrictions for everyone if this means no significant change in your water bill; support a major reduction in water going to agriculture if this means no significant change in your water bill; support the reuse of purified waste water for household water supply if this means no significant change in your water bill; support importing water from Greece if this was paid for by a non-significant increase in your water bill.

[13] For more information on this scandal and the public reactions it generated see BBC News: http://news.bbc.co.uk/2/hi/europe/7510778.stm

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**Tables and Figures**

| | Table 1: The Efficacy and Moral Reliability Dimensions of Water Authority Reputations | | | | |
|---|---|---|---|---|---|
| | Knowledge no negative effects (Efficacy) | Built system no negative effects (Efficacy) | Honest Communication (Moral Reliability) | Public well being (Moral Reliability) | Own problems (Moral Reliability) |
| Competence water supply problems (efficacy) | .73* | .65* | .55* | .60* | .37* |
| Knowledge standard of water no negative effects on health (efficacy) | .73* | .45* | .51* | .24* | |
| Built safe system – no negative health effects (efficacy) | | .49* | .52* | .30* | |
| Communicates honestly about possible problems (moral reliability) | | | | .77* | .46* |
| Takes public well-being into account (moral reliability) | | | | | .54* |
| Concerned with own problems than caring for the public's water problems (moral reliability) | | | | | |

Notes: Values are correlation coefficients, (*) indicates correlation is significant at the 0.05 level (significance test is 2-tailed).

## Table 2: Evaluations of Water Problems and Reputation Ingredients

| | Importance of Water Shortages | | Concern about having enough water | | Cut-offs Acceptable | | Cut-offs Inconvenient | |
|---|---|---|---|---|---|---|---|---|
| Efficacy | .01 | (.02) | .14 *** | (.04) | .08 | (.07) | -.15* | (.07) |
| Moral Reliability | .03 | (.02) | -.05 | (.03) | .26 *** | (.06) | -.02 | (.07) |
| Frequency of cut-offs | .08 *** | (.03) | .11 ** | (.04) | .25 *** | (.08) | -.10 | (.09) |
| Empty storage tanks | -.07 *** | (.02) | -.04 | (.03) | -.28 *** | (.05) | .35 *** | (.06) |
| Constant | 8.84*** | (.28) | 7.93*** | (.40) | 2.39 | (.74) | 7.70 | (.81) |
| Adj. $R^2$ | .04 | | .04 | | .17 | | .10 | |
| N | 503 | | 506 | | 506 | | 506 | |

Notes: * p<.05,   ** p<.01,   *** p<.001

Parameter estimates are unstandardised regression coefficients, standard errors in parenthesis. All variables range from 0-10.

## Table 3: Agency Reputation and Options for Solving the Water Shortage Problem

|  | Households using less water | Agriculture using less water | Tourism using less water | Industry using less water |
|---|---|---|---|---|
| Efficacy | -.17** (.06) | -.29 *** (.08) | -.17 * (.08) | -.21** (.08) |
| Moral Reliability | .33*** (.05) | .25 *** (.07) | .15 * (.07) | .19 ** (.07) |
| Frequency of cut-offs | .20** (.07) | -.01 (.10) | -.04 (.10) | -.01 (.10) |
| Empty storage tanks | -.19***(.05) | -.00 (.06) | -.10 (.06) | -.08 (.06) |
| Constant | 5.52*** (.64) | 6.36*** (.40) | 7.58 ***(.89) | 6.93***(.87) |
| Adj. $R^2$ | .12 | .02 | .01 | .01 |
| N | 504 | 493 | 497 | 487 |

Notes: * $p<.05$,  ** $p<.01$,  *** $p<.001$
Parameter estimates are unstandardised regression coefficients, standard errors in parenthesis.

## Table 4: Reputation Ingredients and Impact on Preferred Solutions

|  | Desalination Plant | Restrictions for Households |
|---|---|---|
| Efficacy | .36 ***(.08) | -.19 *   (.09) |
| Moral Reliability | -.08    (.07) | .23**   (.08) |
| Frequency of cut-offs | .07    (.10) | -.02    (.10) |
| Empty storage tanks | -.08    (.06) | -.10    (.07) |
| Constant | 4.69 ***(.89) | 4.93 ***(.94) |
| Adj. $R^2$ | .05 | .02 |
| N | 487 | 493 |

Notes: * p<.05,   ** p<.01,   *** p<.001
Parameter estimates are unstandardised regression coefficients, standard errors in parenthesis.

## Table 5: Agency Reputation and Contact with Authorities in Case of Problems

| | Contact if problem with broken pipe | Contact if problem with bill | Contact if problem with water meter |
|---|---|---|---|
| Efficacy | .03 (.04) | .01 (.04) | .03 (.03) |
| Moral Reliability | .13 *** (.04) | .08 * (.04) | .06 * (.03) |
| Empty storage tanks | -.08 * (.03) | -.05 (.03) | -.05 * (.02) |
| Constant | 8.29***(.28) | 8.82***(.25) | 9.01***(.21) |
| Adj. $R^2$ | .06 | .03 | .04 |
| N | 493 | 493 | 496 |

Notes: * p<.05,    ** p<.01,    *** p<.001
Parameter estimates are unstandardised regression coefficients, standard errors in parenthesis.

## Figure 1: Agency Reputation and Attitudes towards Water Shortages
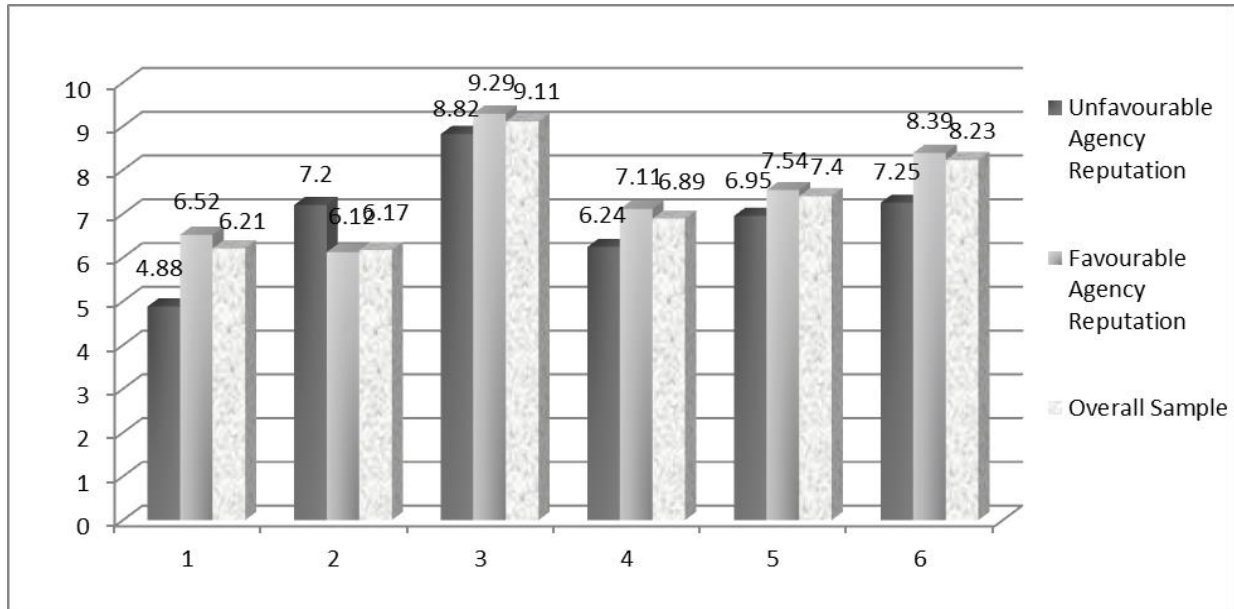


Note: Values are means generated by analysis of variance (ANOVA). All variables range from 0-10 where 0 is the lowest evaluation and 10 the highest. Across the horizontal axis, item 1: cut-offs acceptable; item 2: cut-offs inconvenient; item 3: concern about having enough water; item 4: eager to know more about saving water; item 5: confidence that actions would make a difference; item 6: control on how to avoid running out of water. A score of 10 indicates high acceptability, high inconvenience, high concern, high knowledge, high confidence, high control. All differences in means between the favourable and unfavourable agency reputation groups are statistically significant at the $p < .05$ level.