# Residential Water Demand Management in South East Queensland: A Report on Water Conservation Beliefs

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The Urban Water Security Research Alliance (UWSRA) is a $50 million partnership over five years between the Queensland Government, CSIRO's Water for a Healthy Country Flagship, Griffith University and The University of Queensland. The Alliance has been formed to address South East Queensland's emerging urban water issues with a focus on water security and recycling. The program will bring new research capacity to South East Queensland tailored to tackling existing and anticipated future issues to inform the implementation of the Water Strategy.

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Dripping Tap

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# FOREWORD

Water is fundamental to our quality of life, to economic growth and to the environment. With its booming economy and growing population, Australia's South East Queensland (SEQ) region faces increasing pressure on its water resources. These pressures are compounded by the impact of climate variability and accelerating climate change.

The Urban Water Security Research Alliance, through targeted, multidisciplinary research initiatives, has been formed to address the region's emerging urban water issues.

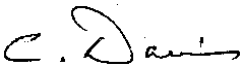
As the largest regionally focused urban water research program in Australia, the Alliance is focused on water security and recycling, but will align research where appropriate with other water research programs such as those of other SEQ water agencies, CSIRO's Water for a Healthy Country National Research Flagship, Water Quality Research Australia, eWater CRC and the Water Services Association of Australia (WSAA).

The Alliance is a partnership between the Queensland Government, CSIRO's Water for a Healthy Country National Research Flagship, The University of Queensland and Griffith University. It brings new research capacity to SEQ, tailored to tackling existing and anticipated future risks, assumptions and uncertainties facing water supply strategy. It is a $50 million partnership over five years.

Alliance research is examining fundamental issues necessary to deliver the region's water needs, including:

- ensuring the reliability and safety of recycled water systems.
- advising on infrastructure and technology for the recycling of wastewater and stormwater.
- building scientific knowledge into the management of health and safety risks in the water supply system.
- increasing community confidence in the future of water supply.

This report is part of a series summarising the output from the Urban Water Security Research Alliance. All reports and additional information about the Alliance can be found at http://www.urbanwateralliance.org.au/about.html.



**Chris Davis**
Chair, Urban Water Security Research Alliance

# CONTENTS

# LIST OF FIGURES



# LIST OF TABLES

# EXECUTIVE SUMMARY

The research described in this report forms the first phase of the Systematic Social Analysis of Household Water Demand Management project. The aim of the first phase of the research is to identify the salient and important beliefs associated with household water use and conservation in South East Queensland (SEQ).

In total, twelve focus groups were conducted across SEQ: three focus groups in each of four local government areas of Brisbane, Ipswich, Sunshine Coast and the Gold Coast. In total, 84 participants took part in the research with approximately equal numbers of males and females and a spread of low, medium, and high water users.

A semi-structured format was used to ask about the advantages and disadvantages, barriers and facilitators of, and important influences on, everyday water conserving behaviour (i.e. curtailment behaviours such as shorter showers, only washing full loads) and one-off installation of water efficient appliances (i.e. efficiency behaviours such as installing water efficient shower heads and rainwater tanks). Participants were also asked to describe what they liked and disliked about water conservation and to nominate those water saving practices that were now habits in their household. Listed below is a summary of the most important (i.e. nominated most often) beliefs.

### What do Households think are the Benefits and Costs of Household Water Conservation?

The most often nominated benefits of *everyday water conserving behaviours*:

- Saves money.
- Protects water for future generations.
- Promotes greater awareness of need for water conservation.
- Protects the environment.

The most often nominated benefits of *installing water efficient appliances*:

- Long-term monetary savings.
- Alleviates need for constant monitoring of behaviour.

The most often nominated costs of *everyday water conserving behaviours*:

- Time consuming and inconvenient.
- Reduces quality of life.
- Concerns about health, safety, and hygiene.

The most often nominated costs of *installing water efficient appliances*:

- Initial set-up costs.
- Functionality of water efficient fittings.
- Red-tape associated with rebates.

### Who are the Main Influences on Household Water Conservation?

Government and environmentalists were most often nominated as approving of everyday water saving behaviours and installing water efficient appliances. Not surprisingly, businesses who manufacture these types of appliances were also thought to approve. Some participants also believed that local councils may disapprove of everyday water saving actions due to the loss of revenue associated with lower household water use.

### What are the Facilitators and Barriers of Household Water Conservation?

Listed below are the most often nominated barriers and facilitators of household water conservation.

The most nominated facilitators of *everyday water saving behaviours:*

- Social marketing reminders (e.g. Government media campaigns).
- Technology that can make conservation behaviours more convenient.
- School education.

The most nominated facilitators of *installing water efficient appliances*:

- A home installation and advice service.
- Rebates.

The most nominated barrier to *everyday water saving behaviours:*

- Visitors' lack of awareness.

The most nominated barrier to *installing water efficient appliance*:

- Expense, time, and effort of set-up.

### What do People Like and Dislike about Household Water Conservation Behaviour?

Results indicated that everyday water conserving behaviours helped to cultivate positive feelings amongst participants. Installing water efficient appliances gave them a sense of freedom and security by being self-sufficient. There were a number of negative emotional responses to everyday water conserving behaviours, including feelings of guilt for using water, a sense of unfairness of restrictions, disliking being told what to do, and concern that children no longer get to play with water. In terms of installing water efficient appliances, participants expressed negative feelings about the poor aesthetics of appliances (e.g. of water tanks) and the inflated prices of these items.

### What Water Conserving Behaviours have become Habitual?

The most frequently identified habitual behaviours were:

- Checking and fixing leaking taps.
- Turning off taps when brushing teeth.
- Having shorter showers.
- Only running dishwashers/clothes washers with full loads.
- Water-wise gardening (e.g. only water at night, less watering, using a bucket).

The next phase of the Systematic Social Analysis of Household Water Demand management will comprise a baseline survey of SEQ residents of owner-occupied houses to investigate the key psycho-social and socio-demographic drivers of household water conservation behaviours.

# 1. INTRODUCTION

At the international level, recent predictions of the Intergovernmental Panel on Climate Change (IPCC) point to the vulnerability of freshwater resources to the impacts of climate change and highlight the potentially severe consequences of these impacts for countries around the world (Bates et al., 2008). Furthermore, IPCC predictions suggest that residential water demand is an important area for focus, given projected and actual population growth in relatively water-scarce urban areas (Bates et al., 2008). In the SEQ context, recent severe long-term drought that reduced dam levels to record lows is a local indicator of the need to develop a range of strategies, including demand side management, to secure urban water supplies into the future.

In response to the drought conditions and low dam levels, the Queensland Government instituted a range of demand management measures in SEQ, including rebates for water efficient appliances, a Home WaterWise service, Home WaterWise Scheme and a Demand Behavioural Management Program that included setting domestic per person targets of 140 litres per day. These measures were successful in reducing water use in SEQ, with households sustaining low levels of household water use during the Target 140 litres campaign and during subsequent targets of 170 and 200 litres (Queensland Water Commission, 2010). Only recently, in January 2010, has average water use increased above the target of 200 litres per person per day during a hot dry period (Queensland Water Commission (QWC)). Although these figures are promising, the key question that remains is whether household water conservation can be maintained in the long-term.

In light of these considerations, the current report describes the first stage of a larger research project aimed at understanding how households use water in their daily lives and how water conserving behaviours may be supported as a "way of life" in SEQ through a mix of interventions. Specifically, the larger research project aims:

- to identify the psycho-social and socio-demographic drivers of residential water using practices.
- to determine the effectiveness of targeted intervention strategies for achieving long term sustainable residential water use.
- to make a significant contribution to the scientific literature on water demand management.

The research addressing these questions will proceed in three stages. The first stage, described in the current report, involves qualitative research to identify the salient beliefs associated with household water conservation. The second phase of the research involves a baseline quantitative survey of households from the SEQ community. Survey responses will be linked to household water use data collected from council rates notices and in conjunction with a water end use project (the Residential End Use Study being conducted by Dr Rodney Stewart, Griffith University, as part of the Urban Water Security Research Alliance). Results of the baseline study will be used to design interventions that target the key psycho-social and socio-demographic drivers of household water use. The third phase of the project will entail a trial of the interventions to evaluate their effectiveness for achieving long-term household water conservation. This research approach has the potential to significantly advance our understanding of household water conservation as current knowledge in this research area is limited.

### Conceptual Framework

The overarching theoretical framework adopted for the research is the Theory of Planned Behaviour (TPB) (Ajzen, 1991). This model has been used extensively to understand a range of behavioural decision-making contexts, including household water conservation (Clark and Finley, 2007; Harland et al., 1999; Kantola et al., 1982; Lam, 1999, 2006). It should be noted, however, that previous research using this model to address household water conservation has been marked by methodological and measurement limitations (Russell and Fielding, 2010).

The TPB is a parsimonious model of the informational and motivational influences that combine to predict behaviours. In the TPB, the most immediate predictor of behaviour is an intention (i.e. a motivation or plan) to engage in the behaviour. The TPB proposes intention to be determined by the additive effects of attitude, subjective norm and perceived behavioural control. Attitudes refer to the overall positive or negative evaluation of performing the behaviour (e.g. water conservation). Subjective norms are based on individuals' perception of whether important other people in their life would want them to perform the behaviour. Perceived behavioural control reflects the extent to which individuals perceive the behaviour to be within their control.

Therefore, according to the TPB, individuals who hold positive attitudes toward water conservation, think that there is support from important others for engaging in water conservation, and who perceive that they can easily engage in this activity, should have strong intentions to conserve water in the household. In addition, to the extent that perceived behavioural control is a proxy for actual control, it may also directly impact on behaviour, such that a greater sense of control over conserving water around the house will be associated with higher levels of actual household water conservation.

An important aspect of the TPB is that it highlights the importance of beliefs and provides a framework for eliciting the most important beliefs. Past research has shown that both general environmental beliefs and more specific water-related beliefs (e.g. perceived water rights, perceived vulnerability to drought, perceived benefit of water efficient appliances) are associated with household water conservation behaviour (e.g. Corral-Verdugo, Bechtel and Fraijo-Sing, 2003; Lam 1999, 2006). Allon and Sofoulis (2006) have also shown that beliefs about comfort, cleanliness, and pleasure also underpin the way people think about and use water. To our knowledge, however, there is no research that systematically investigates the beliefs associated with household water conservation behaviour. Furthermore, according to TPB methodology, beliefs are context specific and it is therefore necessary to investigate the water conservation beliefs that are particular to the SEQ region.

According to the TPB, and as illustrated in Figure 1, our attitudes are formed via an expectancy-value analysis, whereby:

- Our beliefs that the behaviour will be associated with an outcome (behavioural beliefs) are weighted by an evaluation of the outcomes (outcome evaluations).
- Our perceptions of normative support (i.e. subjective norms) are thought to be a function of how much we perceive other referents think we should perform the behaviour (normative beliefs) weighted by our motivation to comply with the referents (motivation to comply).
- Finally, perceptions of behavioural control are proposed to be underpinned by our beliefs about the factors that facilitate or act as barriers to perform the behaviour (control beliefs), weighted by the expected impact that these factors would have if they were to be present (perceived power).

Thus, attitudes, subjective norms and perceived behavioural control are determined by behavioural, normative, and control beliefs. This model will provide a framework for investigating household water use. However, in line with previous research, it will be expanded to include other factors that may be important drivers of household water conservation (e.g. water use habits, household culture, community identification).

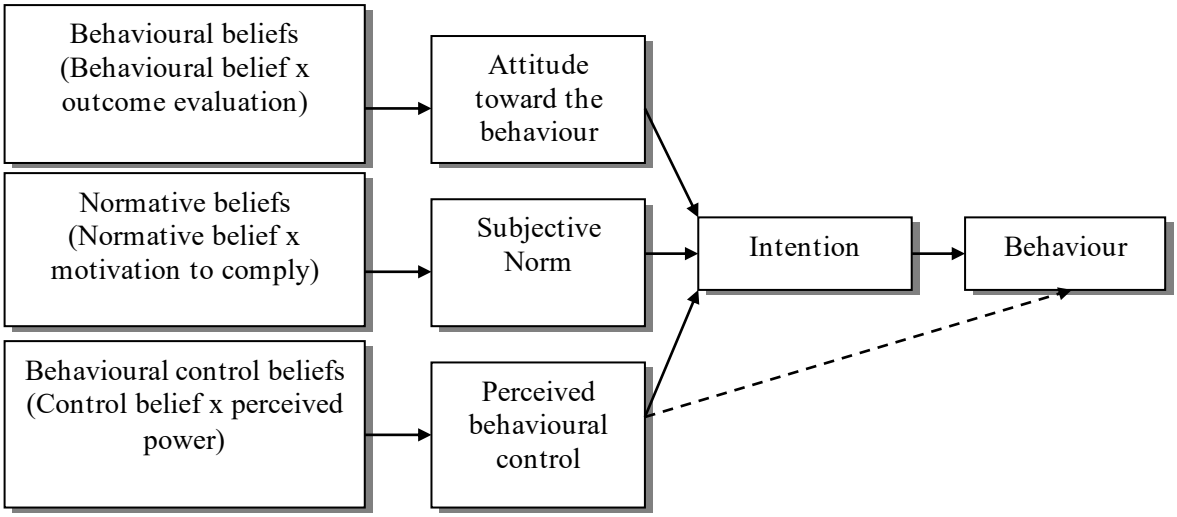



**Figure 1: Theory of Planned Behaviour.**

In the first phase of the research, the TPB provides a systematic and rigorous methodology to identify and explore the beliefs associated with two different types of household water conservation behaviours: 1) curtailment behaviours that refer to everyday water saving actions such as taking shorter showers, and only washing full loads of clothes; and 2) efficiency behaviours that refer to one-off installation of water efficient appliances such as water efficient washing machines and rainwater tanks (Gardner and Stern, 1996). It must be acknowledged that there may be some overlap between these two types of actions; for example, a person can only use a half-flush option if they have installed a dual-flush toilet. Nevertheless, this distinction exists in the conservation literature and is useful in delineating everyday, habitual conservation behaviours from more one-off actions that allow for ongoing efficiencies. Moreover, past research has shown that different factors may be related to water curtailment rather than water efficiency actions (Russell and Fielding, 2010). An understanding of the costs, benefits, barriers, facilitators and sources of influence that relate to water conservation can provide valuable information to policy makers and stakeholders seeking to promote these types of actions.

# 2. METHODOLOGY

In total, 12 focus groups were conducted across SEQ: three focus groups in each of four local government areas of Brisbane, Ipswich, Sunshine Coast and the Gold Coast. A semi-structured format was used for the focus groups and a digital audio recording of each focus group was taken and transcribed verbatim.

## 2.1. Participants

Participant recruitment was outsourced to a professional recruitment company who obtained participants by sampling their database of members registered as willing volunteers for social research. This approach supported the goal of recruiting community members who may or may not have had a particular interest in water conservation and who represented households with a range (low, medium and high level) of water use. Participants were classified as low, medium, and high water users on the basis of their own reports of household water use (low = less than 140 litres/person/day, medium = 140 – 190 litres/person/day, high = more than 190 litres/person/day). Note that the high and medium use categories are lower than the classifications used by the QWC. A further consideration is that householders' perceptions of their water use do not always match their actual water use. Nevertheless, the main aim was to achieve a spread of household water use within the sample and as Table 1 shows, that was largely achieved. A mix of demographic characteristics (age and sex) was also achieved through this recruitment strategy. At the time of recruitment, participants were invited to attend one of three timeslots (two evening and one daytime session) and were informed that they would receive a $70 voucher as an incentive for attending a 1.5 hour group discussion about home water use.

An average of seven participants (ranging between five and eight) attended the 12 focus groups. A total of 84 people participated, including 41 males and 43 females with an average age of approximately 47 years (*Mean* = 47.49 years, *Standard Deviation* = 12.93 years). Note that consistent with a qualitative approach to research, the aim of the study was to try to see water conservation through the eyes of community members (Neumann, 2003). The qualitative approach allowed community members to nominate key issues rather than merely respond to issues predetermined by researchers. Although the sample of 84 participants cannot be considered representative of the broader population, theoretical saturation (Silverman, 2000) was achieved in the focus groups such that similar themes emerged across all of the focus groups. Taken across all regions, 31 participants were identified as low-level water users, 27 as medium-level water users and 26 as high-level water users. All participants were owner-occupiers and they were also asked to provide consent for CSIRO to access their historical water use data for the past two years. We only included owner-occupiers because they were able to provide consent to access water billing data and, more so than tenants, they were able to comment on the full range of water conservation practices (e.g. installing water efficient appliances). Table 1 summarises the specific characteristics of participants recruited within each region, including historical water use data obtained from council water billing data.

**Table 1: Participant Characteristics by Region.**

| Region | Age | | Gender | | Level of Water Use (Recruited Category) | | | Historical Water Use (Litres per person per day) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Male | Female | Low | Medium | High | Mean | Min | Max |
| Sunshine Coast | 47.86 | 14.44 | 10 | 11 | 8 | 6 | 7 | 196.88 | 70.62 | 334.43 |
| Ipswich | 50.05 | 11.21 | 10 | 11 | 9 | 6 | 6 | 223.52 | 25.11 | 727.40 |
| Gold Coast | 44.95 | 12.91 | 10 | 11 | 7 | 8 | 6 | 149.82 | 97.68 | 228.34 |
| Brisbane | 47.10 | 13.38 | 11 | 10 | 7 | 7 | 7 | 144.46 | 63.17 | 289.08 |

* SD = Standard Deviation

## 2.2. Procedure

Upon arrival, all participants were introduced to the facilitation team and told that the purpose of the focus group was to have an informal group discussion about home water use. Participants were informed that discussions would be recorded, but that no individually identifying information would be paired with the transcripts produced from these recordings.

As part of the first exercise, participants were asked to write down ideas of how to save water around the house. Participants were given a booklet of post-it notes and asked to write one idea per post-it. Examples of curtailment and efficiency behaviours were given to participants in order to prompt them to identify both types of behaviours. Participants were encouraged to generate about 10 ideas. This exercise served two purposes. First, it helped to identify the range of actions that community members associate with household water conservation. Second, it allowed the categorisation of water conservation behaviours into the categories of curtailment and efficiency behaviours.

During this process, the facilitators collected the post-it notes and placed them on a whiteboard. Similar ideas were grouped together with a clear separation of efficiency and curtailment behaviours in order to illustrate the differences between these categories of behaviour. Participants were then advised that they would be asked a series of questions pertaining to curtailment behaviours and then the same set of questions would be posed with respect to efficiency behaviours. During the focus groups, efficiency behaviours were often referred to as "one-off installations or purchases" and curtailment behaviours were often referred to as "ongoing behaviours", or "things you do on a day to day basis."

Following the recommendations of Fishbein and Ajzen (1975) on the TPB, a series of questions was asked in order to identify the most frequently occurring beliefs relating to household water conservation behaviours. The same set of questions was asked for curtailment behaviours and efficiency behaviours. *Instrumental beliefs* (i.e. beliefs that underpin attitudes) were assessed by asking about the advantages and disadvantages of engaging in household water conservation behaviours. To identify the *affective beliefs* that relate to attitudes, participants were asked to indicate what they like and dislike about water conservation behaviours. *Normative beliefs*, conceptualised as underlying subjective norms, were elicited by asking about the individuals or groups who would approve and disapprove of participants engaging in household water conservation behaviours. Finally, *control beliefs* (i.e. those that underpin perceived behaviour control) were assessed by asking what would enable or make it difficult for participants to engage in household water conservation behaviours. Throughout the focus groups, the list of water saving ideas that were generated by each group was referred back to as a way of exemplifying each behavioural category (i.e., efficiency and curtailment).

Following these sets of questions, participants were also asked to identify from among the list of curtailment behaviours, those that had become a habit in their household. The aim was to gain an understanding of the range of household conservation behaviours that have become habitual or routine for participants across SEQ.

On completion of the focus groups, participants were thanked for their time, asked to sign an attendance form provided by the recruitment company and provided with a $70 Coles/Myer voucher. Participants were also encouraged to sign a consent form which would allow the researchers to approach their local council to request access to the last two years worth of water meter readings for their property[1]. Participants were advised that this information would be strictly confidential and that the purpose of obtaining such information was to verify that a range of water users had been involved in the study as was intended.

[1] 72 participants gave consent for their water data to be accessed through the local council.

# 3. RESULTS

The results from this study are separated into four sections. First, the results pertaining to ongoing curtailment behaviours are presented followed by the results relating to long term efficiency changes. A section summarising the similarities and differences between these two categories of results is offered, followed by a summary of observations about the behavioural changes that have (and have not) become habitual. This structure reflects a priori, theoretical conceptualisations underlying this research, as well as the sequencing of elicitation questions that was adopted during the focus group discussions. In each section, the results are displayed in a table and quotes will illustrate the most frequently cited beliefs. Frequency counts (except for Tables 2 and 3) relate to the number of times a belief was mentioned, rather than the number of people who mentioned the belief. This approach was taken to allow for multiple comments (that might be mentioned by the same person) to be grouped under the same theme (i.e. belief). The quotations used in section 2.1.1 provide an illustration; they both reflect a belief that curtailment actions can save money, although in different ways. Note that care was taken to ensure that none of the participants dominated sessions and therefore biased results.

## 3.1. Data Analysis

The qualitative data analysis program NVivo (QSR International Pty Ltd, 2008) was used to complete a thematic content analysis of the textual data. The analysis produced a list of key themes that were subjected to a content analysis to identify the most frequently occurring instrumental, affective, normative and control beliefs.

The brainstorm ideas written on post-it notes were entered into a spreadsheet and this data was content analysed and summarised. This resulted in a succinct set of representative ideas about how to conserve water around the home. Table 2 displays the number of times that each curtailment behaviour was nominated.

**Table 2: Frequency of Curtailment Behaviours.**

| Curtailment Behaviours | Occurrence |
|---|---|
| Collect and use grey water on garden (e.g. from washing machine, sink, shower/bath) | 77 |
| Only run dishwasher/clothes washer with full loads | 44 |
| Have shorter showers | 44 |
| Check and fix leaking taps | 36 |
| Use less water in kitchen (cooking, washing up, rinsing) | 32 |
| Turn off taps when brushing teeth | 29 |
| Water-wise gardening (only water at night, less watering, use a bucket) | 27 |
| Efficient car washing (with a bucket or at an efficient car wash) | 19 |
| Share showers/baths | 16 |
| Half-flush/don't flush | 13 |
| Collect rainwater to use on garden | 12 |
| Don't wash car | 7 |
| Sweep/blow pathways instead of hosing | 7 |
| Fill pool with rainwater or don't fill pool | 7 |
| Turn off taps in shower (while soaping/shampooing) | 6 |
| Monitor kids' behaviour and educate them | 5 |
| Use eco cycle on washing machine (clothes and dishes) | 2 |
| Turn off taps while shaving | 2 |
| Wash pets with a bucket | 1 |
| Compare water bills | 1 |
| Use a dishwasher (don't hand wash) | 1 |
| Hand wash (don't use the dishwasher) | 1 |
| Wax instead of shaving | 1 |
| **TOTAL CURTAILMENT BEHAVIOURS** | **390** |

*NB. Frequency counts represent the number of participants who nominated a behaviour*

Table 3 displays the number of times that each efficiency behaviour was nominated. Note that, in contrast to other Tables in the Results section which display the number of times a theme was mentioned, Tables 2 and 3 present frequencies based on the number of participants who mentioned a behaviour. Thus, a frequency of 77 means that 77 participants nominated the behaviour.

**Table 3: Frequency of Efficiency Behaviours.**

| Efficiency Behaviours | |
|---|---|
| Water tank installation | 55 |
| Low-flow taps and/or shower heads | 48 |
| Water-wise plants and/or gardens | 37 |
| Dual-flush or composting toilets | 19 |
| Water efficient washing machine | 15 |
| Shower timer | 13 |
| Grey water system | 11 |
| Water efficient appliances | 8 |
| Pool cover | 5 |
| Use hose with trigger/use soaker hose/sprinkler timers | 4 |
| Install bio-waste watering system | 2 |
| Aerators for taps | 2 |
| Bore | 2 |
| Home WaterWise Service (WaterWise plumber $20) | 2 |
| Not using sink waste disposal | 1 |
| Hot water system close to shower | 1 |
| Dishwasher | 1 |
| Off-peak hot water system | 1 |
| Reverse osmosis | 1 |
| Water chillers | 1 |
| Roof water catcher | 1 |
| Individual meters | 1 |
| Cleaning products that do not require water (Enjo products) | 1 |
| Gurney | 1 |
| Diverter for water before it gets hot | 1 |
| Atmospheric condenser (i.e. appliance that extracts water through condensation from humid air) | 1 |
| **TOTAL EFFICIENCY BEHAVIOURS** | **235** |

*NB. Frequency counts represent the number of participants who nominated a behaviour*

## 3.2. Curtailment Behaviour: Everyday Water Saving Behaviours

### 3.2.1. Instrumental Beliefs: Advantages of Curtailment Behaviour

Table 4 shows the frequency of beliefs about the advantages of curtailment behaviours. Saving money was the most frequently cited belief across all of the regions in the study.

**Table 4: Frequency of Elicited Instrumental Beliefs – Advantages of Curtailment Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| Saves money | 6 | 7 | 5 | 13 | 31 |
| Protects water for future generations | 4 | 6 | 4 | 4 | 18 |
| Greater awareness about not wasting water | 5 | 5 | 3 | 1 | 14 |
| Environmental benefits | 3 | 2 | 1 | 6 | 12 |
| Saves time and effort | 0 | 5 | 0 | 4 | 9 |
| Less supply infrastructure needed | 1 | 1 | 0 | 0 | 2 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups*

### Saves Money

Saving money was the most salient belief about the advantage of adjusting behaviour to conserve water. While most people simply said that the advantage was to *"save money on the rates bill"*, others explained how saving money rated in importance compared to parallel concerns:

> *"Mine is saving money. I know... and the environment is very important but it's saving money on a very precious resource, yes. So, a bit of both, but I think as a family, saving money. Because water costs money, you know? It costs a lot of money."*

Others took a broader perspective about what it means to save money:

> *"It comes back to money, I suppose. The best dams and superstructure, so that's all saving money which people are always interested in."*

### Protects Water for Future Generations

The next most salient belief related to protecting water for the future. Participants who expressed this belief related ongoing water conservation behaviours with a heightened awareness of the need to treat water as a precious, finite resource. This was considered important to ensure water security for future generations, as indicated by the following two quotes:

> *"I just think water is the most valuable commodity and it's too late if it comes about that we don't have it. So we have to respect it now, because it's too late when we've only got half a tank of water left we haven't got the infrastructure to get it out to everyone, it's too late."*

> *"It's kind of ensuring that there's enough water for kids in the future, for the future generations".*

### Greater Awareness about Not Wasting Water

Many participants said that an advantage of curtailment behaviours was that they had developed a keen appreciation for how wasteful some behaviours can be. For example:

> *"Ten years ago, we didn't care how much water we used. We'd never heard about water tanks and all that sort of stuff. So now we have to educate our children and everyone."*

There appeared to be a temporal aspect to these beliefs, where some participants expressed that a new way of thinking about water had emerged. For some this was a new way of relating to water that they felt was here to stay. For example:

> *"I just think it makes you think about things all the time now. We're thinking about not wasting water and appreciating what a valuable thing it is and we waste it. I'd never go back now to the way I used to do things even when they reduce the - increased our daily allowance. I didn't think that was really necessary because we'd all gotten used to managing as it was."*

> *"So you have that kind of sense of satisfaction that you're actually, you know, bringing up children to be good citizens."*

### Environmental Benefits

The next most salient instrumental belief related to the environmental benefits of saving water through conservation behaviours. For example, many participants simply stated that the advantage was that it *"helps the environment."* Other participants highlighted that the indirect benefits were that conserving water made them more vigilant with other conservation behaviours in the home, such as saving energy:

> *"It leads on to other ways of saving things around your house. For instance, that you're conserving water and then that leads on to maybe conserving our electricity and then conserving this like, okay, so we half-flush so maybe we'll turn the lights off when we leave the bedrooms because that's saving power".*

> *"There is an indirect issue on greenhouse gases - you know the amount of energy used to pump the water around and pump it up, pump it down and pump it out. Just the general environment."*

### Saves Time and Effort

A less common instrumental belief was related to saving time and effort. Participants noted that water conservation behaviours often involved reductions in effort around the home and garden, e.g.:

> *"So if you're using crystals or if you're putting the children in the bath together or if you're maximising washing you're only doing one load maybe so you're only having to do it once. The kids sit together, bang, done altogether in one go. So time saving..."*

### Less Supply Infrastructure Needed

On two occasions, participants also identified the need for less supply infrastructure as an advantage of engaging in water conservation behaviour. As one participant said: "*Well the advantages I suppose are the reduction in infrastructure...*" In highlighting this belief, one participant also mentioned that water conservation would reduce the need for recycled water to be introduced to SEQ water supplies.

## 3.2.2. Instrumental Beliefs: Disadvantages of Curtailment Behaviour

Table 5 shows the frequency of beliefs about the disadvantages of curtailment behaviours. The most frequently cited disadvantage identified by participants was that curtailment behaviours were often time consuming and inconvenient. This belief was the most frequent across all of the regions in the study.

**Table 5: Frequency of Elicited Instrumental Beliefs – Disadvantages of Curtailment Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| Time consuming and inconvenient | 11 | 5 | 8 | 13 | 37 |
| Reduction in quality of life | 8 | 4 | 8 | 7 | 27 |
| Concern for health, safety and hygiene | 12 | 4 | 2 | 6 | 24 |
| Physically demanding | 8 | 2 | 0 | 3 | 13 |
| Stress of monitoring others' behaviour | 4 | 6 | 2 | 0 | 12 |
| Use of grey water requires re-education | 4 | 0 | 0 | 5 | 9 |
| Decline in value on car and house | 3 | 0 | 4 | 0 | 7 |
| Increasing water prices | 0 | 2 | 2 | 0 | 4 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups*

### Time Consuming and Inconvenient

The most salient disadvantage of engaging in curtailment behaviours was the increased time and inconvenience associated with these types of actions. This disadvantage was related to the actual behaviour (e.g. carrying buckets from shower out to garden; putting on pool cover etc.) as well as to planning ahead to make sure resources were available to save water. Examples of how participants expressed this included:

*"You have to plan ahead to be saving water. Whether it's hosing in the evening and you usually do it some other time, or collecting the bucket of water. So you need to be organised and planning."*

*"Like the bucket washing the car takes a bit longer and using the grey water in the garden takes a bit longer than just turning the sprinklers on and leaving them go sort of thing."*

Taking the car to a car wash was also expressed as time consuming and inconvenient as well as more costly than washing the car at home.

*"The cost of cleaning your car with no water cleaning is something like $25 compared to about $3 with your bucket. So there's a significant difference."*

### Reduction in Quality of Life

Participants also expressed the belief that saving water around the home negatively impacted on their quality of life. This was evidenced in comments such as:

*"It's your quality of life. Like our house desperately needs a clean, it's just filthy."*

*"It's harder to maintain the style of gardens that people were used to."*

*"Not being able to hose things down. A lot of people get a lot of pleasure out of hosing things."*

*"Not being able to stay under that shower as long as I would like to."*

### Health, Safety and Hygiene Concerns

Many participants expressed concerns about health, safety and hygiene issues associated with water saving practices. As evident in the examples provided below, a diverse range of issues was raised by participants under this theme:

*"If you're trying to empty the bath water, and you're trying to take out big things of stuff outside and you've got a split-level home with tiles. One day somebody's going to go base over apex."*

*"With the health and safety thing, I just can't bring myself not to flush the toilet."*

*"Lots of possums and they crap all over the place and what do you do? You sit there with your little brush and sweep it up, but you always leave residue no matter what. Sometimes I do take the hose out."*

*"Hygiene is a disadvantage because when you are washing the clothes less often, they are lying around."*

*"You've got to be careful how you store water as well [with respect to mozzies]."*

### Physically Demanding

Another disadvantage of water conservation behaviours was the physical demands. For example, it was noted that carrying buckets is physically demanding and not possible for elderly or disabled people.

*"That's a disadvantage for me. I've got a shoulder problem from lifting buckets."*

*"It would be very hard for elderly people to do some of these things when we've got arthritis and all that…"*

The latter comment reflects some misunderstanding of regulations; the high level water restrictions allowed limited garden hosing concessions for pensioners.

### Stress of Monitoring Others' Behaviour

Participants also mentioned that monitoring water conservation behaviours was a source of stress for families. Participants noted that monitoring behaviour and "nagging" caused stress and conflict in families.

*"[I] yell at my teenage children for having five, 10 minute showers and bang on the thing and I go outside and turn the water off at the tap."*

*"[I] look after my mother and she has dementia so it's really difficult to get her not to turn the tap on for too long washing hands or cleaning teeth or long showers and it's hard. I feel like a police officer."*

#### Use of Grey Water Requires Re-Education

Participants noted that a disadvantage of using grey water to water the garden was a need for re-education about detergents. Particularly, the use of the wrong type of detergent was a source of concern in contaminating soil and garden areas. For example:

> *"I think you just need to be aware of what's in the grey water, don't you, before you put it on the plants, chemicals or whatever you've washed with."*

#### Decline in Value on Car and House

Some participants also identified the belief that curtailing house and car cleaning results in a reduction in their value. For example:

> *"People are essentially losing money because their cars are devaluing quicker because they're not being able to [wash them] and, as [another participant] mentioned with houses, not being able to water the gardens around your house."*

It is worth noting the mismatch between perceptions and actual water restrictions that allowed spot cleaning of cars with a bucket.

#### Increasing Water Prices

Increasing water prices was the least commonly identified belief, and was only identified in the Gold Coast and Ipswich focus groups. Participants described the belief that the government will increase the cost of water. For example:

> *"... the more we save water the less money the government will make out of it, the more inclined they will be to charge us more for the water we do use."*

### 3.2.3. Affective Beliefs: What People Like About Curtailment Behaviour

Table 6 shows the frequency of positive affective beliefs that were elicited in the focus groups. The most frequent affective belief was that curtailment behaviour cultivated positive feelings, and helped to avoid negative feelings.

**Table 6: Frequency of Elicited Affective Beliefs – What People Like About Curtailment Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| Cultivates positive feelings | 13 | 5 | 13 | 3 | 34 |
| Doing less work | 1 | 4 | 3 | 3 | 11 |
| Being self sufficient | 0 | 1 | 1 | 1 | 3 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups*

#### Cultivates Positive Feelings

Participants most frequently identified the affective belief that curtailment behaviours cultivated positive feelings. This was often framed in terms of community spirit, satisfaction and a sense of pleasure in doing the right thing. For example:

> *"It probably raises community spirit, people sort of, I don't know, react as a community more about saving water and gives them something to rally around and that sort of thing."*

> *"... just a feeling of self-satisfaction and not only self, for the community as well, because you are trying to do your part."*

> *"... it's a thing of self esteem when you look at your rates bill and you think oh, look what I've achieved."*

### Doing Less Work

The second most common positive affective belief concerned doing less work. Participants identified that they liked engaging in curtailment behaviours that reduced the need for work in the garden and around the house. Examples include:

> *"There's some things you can do actually, like not doing them, like not washing your car or using a dishwasher. It makes your life easier."*

### Being Self Sufficient

The final positive affective belief that was raised by participants was the positive feeling that was borne of being self-sufficient. For example:

> *"[It's] the fact that you'd be more self sufficient. You're looking after yourself more now."*

## 3.2.4. Affective Beliefs: What People Dislike About Curtailment Behaviour

Table 7 shows that feeling guilty for using too much water was the most frequently cited negative affective belief in relation to curtailment behaviours.

**Table 7: Frequency of Elicited Affective Beliefs – What People Dislike About Curtailment Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| Feeling guilty for using water | 6 | 2 | 3 | 3 | 14 |
| Being told what to do | 3 | 4 | 2 | 4 | 13 |
| Children don't get to play with water | 6 | 2 | 2 | 0 | 10 |
| Fairness of water restrictions | 7 | 2 | 1 | 0 | 10 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups, and not the number of people who identified the belief*

### Feeling Guilty for Using Water

Feeling guilty for using water was the most salient negative affective belief. Participants noted that they experienced guilt if they did not engage in curtailment behaviours, and having long showers was particularly noted in the examples given by participants. Quotes from participants illustrate the guilt that was expressed.

> *"Yeah that's right because I feel like I'm quite diligent with it and I'm not sort of lax and oh who cares, I just do whatever I want to do and the one time when I sort of need to break the rules it makes you feel really guilty and think should I do it or not?"*

> *"A guilty-free shower would be good."*

### Being Told What To Do

The next most common negative affective belief expressed in relation to curtailment behaviours was that participants did not like being told what to do. Participants noted that government restrictions forced them to change their behaviour, and noted that this was something they disliked. For example:

> *"I think it's being told that you have to do this. You're an adult, you're in your own home, you know, you're able to finally do what you want and then it's like no you're not allowed to do that, big smack on the hand and you feel like you've got Big Brother watching you."*

> *"Some people just resent the fact that the government is trying to tell us how to live our lifestyles in our own homes. That's a big thing. The government's going to be telling us how often to go to the toilet soon. When to do… you're only going to have your washing machine on at a certain hour. They're already telling us when you can hose your garden and when you can't. That's for a good reason, because of the evaporation side of things, but a lot of people resent the restriction to their lives."*

### Children Don't Get to Play with Water

Participants also expressed negative feelings about children no longer getting to play with water, as did previous generations. Participants spoke of fun that they had as children playing in sprinklers, and the regret that their children would not have the same luxury.

> *"One of the things I miss/regret about it all – I mean I grew up in 60s and 70s and hot summers days you got the hose out, put a sprinkler on it and the kids ran around under the sprinkler, they turned one corner of the front yard into a mud pit and all this and I really regret kids don't get to experience that."*

### Fairness of Water Restrictions

Some participants also identified a belief that water restrictions were not always fair, for example:

> *"There's that lack of fairness or something in the way that restrictions work isn't always fair."*

Others mentioned ways to improve the fairness of the system. For example, by introducing a quota system:

> *"I think we should all just have a quota and when you hit the quota that's it mate."*

Or, by introducing greater incentives to save water:

> *"Why should I when I've got to pay for the water in the first place. Whereas if they had some sort of incentive that you didn't use under a certain amount of water every month then you didn't have to pay for it or something like that."*

The comment suggesting a quota is interesting in light of the approach by the QWC of providing people with a water use target - essentially a type of quote (e.g. Target 140, Target 170).

## 3.2.5. Normative Beliefs: Individuals or Groups Who Approve of Curtailment Behaviour

Table 8 shows the range of individuals and groups that were identified as approving of curtailment behaviours. The most frequent group was government. Participants gave examples of all levels of government, ranging from local councils, to state government, the QWC specifically, and Commonwealth government at the highest level. Environmentalists were the next most frequently identified group thought to approve of curtailment behaviours. Examples of labels that were included in this group include *"greenies," "conservationists,"* and *"environmental associations."*

**Table 8: Frequency of Elicited Normative Beliefs – Individuals or Groups who Approve of Curtailment Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| All levels of Government | 10 | 6 | 1 | 4 | 21 |
| Environmentalists | 3 | 5 | 2 | 6 | 16 |
| End users and the community | 6 | 1 | 1 | 1 | 9 |
| Young people | 6 | 1 | 0 | 1 | 7 |
| Some businesses (e.g., who sell tanks; plumbers) | 3 | 1 | 0 | 2 | 6 |
| Educators conveying message | 2 | 3 | 0 | 0 | 5 |
| Rural community | 0 | 2 | 0 | 1 | 3 |
| Body corporate | 1 | 0 | 0 | 0 | 1 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups*

The end users themselves and the community at large were also identified as approving of curtailment behaviours. Participants noted a community "pulling together" to save water and the approval of neighbours and the community in engaging in conservation behaviour. Young people, and children and teenagers in particular, were also identified as approving of curtailment behaviours, particularly in relation to school education on natural resource conservation issues. Businesses that made a profit from water conservation were also identified as approving of curtailment behaviours. It is interesting to note some regional differences in the responses to this question. Brisbane participants seem to cite more groups more often than participants in the other regions.

### 3.2.6. Normative Beliefs: Individuals or Groups who Disapprove of Curtailment Behaviour

Table 9 shows the frequency of individuals and groups that were identified as disapproving of curtailment behaviours. The most frequently identified group was local government. Most participants who identified this group raised the issue that water charges are a source of revenue for the council and reductions in water use would decrease that revenue. The next most frequently identified group was rate payers, or "the people paying the bill." Participants noted that some people held that attitude that "because they're paying the higher rates and they say stuff it, I'll do whatever."

**Table 9: Frequency of Elicited Normative Beliefs – Individuals or Groups who Disapprove of Curtailment Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| Local Councils | 2 | 6 | 5 | 3 | 16 |
| Rate payers | 1 | 6 | 0 | 0 | 7 |
| Gardeners | 1 | 1 | 3 | 1 | 6 |
| Teenagers and children | 0 | 2 | 2 | 2 | 6 |
| Visitors and tourists | 0 | 5 | 0 | 0 | 5 |
| Sunshine Coast residents (communities with enough water) | 0 | 0 | 0 | 4 | 4 |
| Sceptics and ratbags | 0 | 1 | 2 | 1 | 4 |
| Businesses who retail products requiring water | 1 | 0 | 0 | 2 | 3 |
| The elderly | 1 | 0 | 0 | 2 | 3 |
| Health inspectors | 0 | 0 | 0 | 1 | 1 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups.*

Keen gardeners were also identified as disapproving of curtailment behaviours. Examples were given of "people with beautiful gardens" as well as homeowners in the Ipswich area whose land cracked due to infrequent watering.

Teenagers and children were identified as another group that would disapprove of curtailment behaviour, particularly in relation to having long showers. Visitors to the area were the next most frequent identified group. For example:

> *"We're such a large tourist orientated town a lot of people come here and when they're here they just sort of forget that there are water restrictions because it's so green."*

Participants from the Noosa focus groups also identified Sunshine Coast residents as disapproving of curtailment behaviours. For example:

> *"We on the Sunshine Coast who have 110 percent dam use have to do that now because Brisbane have – they're going to be putting in a pipeline in from our dam to theirs. So now we're on water restrictions and we're paying more for our water, we're having more restrictions against us now because we're going to have to feed Brisbane."*

"Sceptics" and "ratbags" were also mentioned by participants, with this group including those people who "never want to conform." Business who sell products that require water, such as nurseries and the horticulture industry, were also identified as groups who disapprove of curtailment behaviour. Participants identified that the elderly may disapprove of curtailment behaviours, particularly those activities that are physically demanding such as bucket watering. Finally, health inspectors were also identified as disapproving of curtailment behaviours that involved storing water that might breed mosquitoes.

### 3.2.7. Control Beliefs: Factors that Enable Curtailment Behaviour

Table 10 shows three common themes that arose from discussions of factors that enable curtailment behaviour. These themes included social marketing reminders, school education, and improvements in technology.

**Table 10: Frequency of Elicited Control Beliefs – Factors that Enable Curtailment Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| Social marketing reminders | 3 | 8 | 6 | 7 | 24 |
| Technology to improve convenience | 3 | 0 | 10 | 9 | 22 |
| School education | 1 | 6 | 2 | 9 | 18 |
| Incentives to save water | 0 | 4 | 2 | 2 | 8 |
| Business is involved in saving water | 0 | 0 | 1 | 6 | 7 |
| Becoming conditioned to be water wise | 1 | 0 | 3 | 2 | 6 |
| Feeling community pressure to be water wise | 3 | 2 | 0 | 0 | 5 |
| Only having few people in the house to manage | 1 | 0 | 1 | 3 | 5 |
| Routine | 0 | 0 | 1 | 1 | 2 |
| Community consultation | 0 | 1 | 0 | 0 | 1 |
| Having enough clothes and dishes | 0 | 0 | 0 | 1 | 1 |
| Realising precious commodity | 0 | 0 | 1 | 0 | 1 |
| Supportive family culture | 0 | 0 | 0 | 1 | 1 |
| Tailored realistic water targets | 0 | 0 | 1 | 0 | 1 |
| Tougher Government regulations | 0 | 0 | 0 | 1 | 1 |
| Urgency created by drought | 0 | 1 | 0 | 0 | 1 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups*

#### Social Marketing Reminders

Participants noted that the presence of social marketing reminders helped to facilitate curtailment behaviours. Participants gave a broad range of examples of social marketing, such as television advertisements and brochures included with rates notices. For example:

> *"Seeing ads on TV, the media helps me. Just keeps reinforcing how important it is that I'm doing what I'm doing."*
>
> *"Brochures in your council rates and your electricity rates."*
>
> *"The Life Be In It campaign worked very well for many, many years, and then they stopped. Then it blew out. The same thing will happen with water. If you've got an abundance of water, they think, we won't worry about it. We won't tell people they need to have four minutes showers and use 140 litres a day, if you don't keep the education up."*

#### Technology or Fittings

Participants mentioned that curtailment behaviours were easier to engage in if they were convenient. This was most often mentioned in relation to technologies in showers, with examples including shower timers as well as other types of infrastructure. As discussed in the introduction, this belief reflects the overlap between curtailment and efficiency actions. Examples included:

*"And I think anything that you can make permanent rather than having to carry a bucket like for the rest of your life out of a shower, anything like that that's fine for a while but you can tire of it and like with us we put a permanent hose out from the laundry through the wall so all the washing machine water goes onto the yard. So it's just permanently done and I don't have to think about it."*

*"Like, make everything easy to do so it's not so complicated for people like me. Like, instead of having just a normal bucket, just something that fits properly in the shower."*

#### School Education

School education was also commonly identified as enabling curtailment behaviours. Participants noted that education in schools provided the impetus to start and maintain curtailment behaviour within the home. Participants noted that school initiatives were important, and more could be done in this area. For example:

*"I know for me, my kids coming home from school, they're getting educated at school so they come home and tell me, and not that I'm not aware of it, but if I leave the tap running longer than it should, my son will say mum, the tap. So kids are being educated and they're passing it on to adults."*

*"They've got to start with the kids, I reckon. It's like anything, if you get the kids educated in a lot of cases the kids will educate the parents, won't they? If you bring it in at a young age, I don't think there'd be that many kids that would clean their teeth with the tap running flat-out these days."*

#### Incentives to Save Water

The next most frequently cited control belief was related to incentives. Participants frequently mentioned that incentives to save water would help to enable curtailment behaviour. Discounted rates for using under a specified quota were the most commonly cited incentive. For example:

*"Also if you save water, there should be an incentive. So not only, okay they say, look, everybody use 140 litres a day or whatever. But if you're saying 120 and over a period of time you save X amount, someone along the line should say you're a good little critter, and give you something back."*

#### Other Control Beliefs

Other control beliefs identified by participants included a belief that businesses should also be involved in saving water. Participants suggested that "*business should be doing the same, as well as what we're doing at home*" and suggested that involving businesses in water conservation resulted in a feeling that *"everyone's playing their part."*

Another common control belief was that saving water could become conditioned, particularly for those who have moved from areas without town water. For example:

*"We are on town water but I grew up in the country and we always had tank water. So you were always very aware of what you were doing with your water anyway."*

Other beliefs that were frequently identified as enabling curtailment behaviours included a feeling of community pressure to be water wise. Participants noted monitoring neighbours' behaviour, e.g. *"If your plants are looking good in the street then you know they've got a tank and they're doing the right thing."* Having fewer people in a household was also raised as a factor that enabled curtailment behaviours.

Less frequently cited control beliefs included creating routines or habits, community consultation on water saving policies, and having enough clothes or dishes to ensure loads were full before running a clothes- or dish-washer. Other beliefs that were identified only once included: realising water is a precious commodity; having a family culture supportive of water saving; having tailored and realistic water targets; tougher government regulations; and a sense of urgency created by drought.

### 3.2.8. Control Beliefs: Barriers to Curtailment Behaviour

Table 11 shows the frequency of elicited control beliefs that relate to factors that may act as barriers to curtailment behaviour. Participants most frequently identified others' lack of awareness of water using behaviour, difficulty in changing behaviour and habits, the cost and inconvenience of engaging in curtailment behaviours, and living in dwellings where water charges were shared.

**Table 11: Frequency of Elicited Control Beliefs – Factors that Undermine Curtailment Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| Visitors' lack of awareness | 4 | 8 | 6 | 0 | 19 |
| Cost and inconvenience of saving water | 0 | 7 | 2 | 4 | 13 |
| Changing behaviour and habits | 2 | 4 | 1 | 3 | 10 |
| Living in unmetered property where residents split water bill | 3 | 0 | 0 | 6 | 9 |
| Children and teenagers | 1 | 1 | 3 | 1 | 6 |
| Poor communication about current water restrictions | 0 | 5 | 0 | 0 | 5 |
| Weather (Seasons and Dam levels) | 1 | 3 | 1 | 0 | 5 |
| Feeling bad for monitoring others | 0 | 0 | 3 | 0 | 3 |
| Lack of physical ability | 1 | 0 | 0 | 2 | 3 |
| Poor aesthetics | 0 | 0 | 0 | 2 | 2 |
| Loving long showers | 0 | 1 | 1 | 0 | 2 |
| Having water intensive hobbies | 1 | 0 | 0 | 0 | 1 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups*

### Others' Lack of Awareness of Water Saving Behaviour

Participants most frequently identified that household visitors had a lack of awareness of water saving behaviour. This was framed in terms of visitors not being responsible for water usage, and therefore not concerned with how much water they were using, as well as visitors from outside SEQ who came from a non-drought affected area. Examples from participants include:

> *"We've got an investment property and that obviously gets rented out. We pay the rates. So it's no incentive to them to save water at all. It's over the top."*
>
> *"Well, one of the things is visitors that are coming out of a non-drought affected area. They are the worst because they honestly don't care."*
>
> *"You are paying for it. So then those people don't cut down. So anyone that comes into the area who isn't a permanent resident has to be reminded of the situation."*

Note that the first comment seems to reflect some lack of knowledge that water costs in certain situations can be passed on to tenants.

### Cost and Convenience of Saving Water

The next most frequently mentioned belief was about the convenience and cost of engaging in behaviours that save water. Some participants stated that it was too time-consuming and inconvenient to save water and that they lacked the money to buy resources that helped support water conservation. The beliefs relating to costs again highlight the overlap that can exist between curtailment and efficiency actions. Example comments are:

> *"The only one, like, again, time. Yes, a few of them take a bit of time."*
>
> *"We've got time, like in organised as well as doing some of the things as well as having the money up front to take advantage of rebates and that sort of thing"*

### Changing Behaviour and Habits

Changing behaviour was the next most frequently identified control belief that undermined curtailment behaviours. Participants noted resistance to behaviour change, as well as the difficulty in changing well defined habits. For example:

> *"Another difficulty I think with the ongoing behaviour is change - people don't necessarily adapt well to change."*
>
> *"You get into a routine over your lifetime and it's very hard to change."*

#### Living in an Unmetered Property where Residents Split Water Bill

Some participants noted that living in a dwelling where residents split the bill can be a factor that undermines curtailment behaviours. Examples were given of how sharing a water bill provided a disincentive to save water because any savings would be offset by a neighbour's consumption. For example:

> *"See the trouble is, we live in a unit and there's only one water tap. So there's nine units. Say there's three or four people living in another unit. The water bill is split by nine."*
>
> *"If the whole lot don't do it – when we put in the water saving shower, we tried to do it through the body corp. and they weren't interested. So we put it in, and it's not as good a wash, it really isn't, you don't feel that pressure. And you might be doing that and other units are just standing there whistling dixie, and I'm paying for it."*

#### Children and Teenagers

Having young children and teenagers within the household was raised as a factor that can undermine curtailment behaviours. Teenagers were often identified as having long showers and a group whose behaviour was difficult to change. For example:

> *"Well, teenagers have a different mindset and it's a really hard modification - you know, like, even the old - heard it for years - you know, pounding on the door and saying have you had enough in there."*

Similar statements were given with reference to younger children, e.g.:

> *"If you have a lot of kids in the house. Young kids like to play in the water generally. My daughter was a real water child. She'd turn taps on and play beneath them or whatever."*

#### Other Control Beliefs

Other control beliefs that were identified less frequently included poor communication about current water restrictions. This belief was raised only by participants within the Gold Coast region. Seasonal changes and current dam levels were also identified; participants noted that in drier months or when dam levels were high, this was a disincentive to continue to engage in curtailment behaviours.

Less frequently mentioned beliefs included feeling bad for monitoring others' behaviour and a lack of physical ability to engage in curtailment behaviours. The aesthetics of saving water was also raised as a factor that undermined engagement in curtailment behaviour. Participants gave examples of the "messy" look of having buckets around the house to collect water.

Some participants also identified that a love of long showers as well as having water intensive hobbies (e.g. crabbing and boating) undermined their engagement in curtailment behaviour. Having a home business was not mentioned in the focus groups, but could also undermine user engagement in curtailment (and efficiency) behaviour, if the home business is water-dependent.

## 3.3. Efficiency Behaviour

### 3.3.1. Instrumental Beliefs: Advantages of Efficiency Behaviour

Table 12 shows the frequency of elicited beliefs about the advantages of efficiency behaviour. Saving money was the most frequently cited belief across all regions in the study, with the exception of Ipswich. In the Ipswich focus groups, the alleviation of the need to be constantly vigilant about water saving was the most frequently cited advantage of efficiency behaviour. It is interesting to note that saving money seemed to be especially important amongst Gold Coast participants. Other frequently cited beliefs included an increase in awareness and education about water usage, flow-on benefits to health, as well as rebates for efficiency devices.

**Table 12: Frequency of Elicited Instrumental Beliefs – Advantages of Efficiency Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| Saves money in the long term | 4 | 16 | 1 | 4 | 25 |
| Alleviates need to be constantly vigilant | 3 | 9 | 7 | 4 | 23 |
| Raises awareness and education about water | 1 | 3 | 6 | 0 | 10 |
| Flow on benefits to health | 0 | 2 | 3 | 3 | 8 |
| Rebates | 2 | 2 | 0 | 3 | 7 |
| Hardier gardens | 1 | 0 | 2 | 1 | 4 |
| Improved house value | 3 | 0 | 0 | 1 | 4 |
| Encourages technical innovation and employment | 0 | 0 | 0 | 2 | 2 |
| Tanks preferable to large scale infrastructure | 0 | 2 | 0 | 0 | 2 |
| Good for the environment | 0 | 0 | 0 | 1 | 1 |
| Helps community to cope with population growth | 0 | 0 | 0 | 1 | 1 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups*

### Saves Money Long Term

The most salient belief in relation to the advantages of efficiency behaviours was saving money in the long term. Participants identified that the up front cost of installing an efficient appliance would pay off over a long term period. For example:

> *"The water-saving devices in your taps and so forth… You're rebated for some of those. It's a one-off. But once you've done it, the saving comes back to you. When it gets back to the other side, it's an ongoing rebate."*

> *"I much prefer to have paid that extra $300 now because over the years I'm going to have it it's going to save me much more money than that."*

### Alleviates Need to be Constantly Vigilant with Awareness and Behaviour

The next most salient belief in relation to the advantages of installing an efficient device or appliance was an alleviation of the need for constant monitoring of behaviour. Participants noted the advantage of a once off decision that could then be forgotten about. For example:

> *"It's long term and you don't have to think about doing it..."*

> *"You don't have to be quite as vigilant. If you know you have got a showerhead that is only letting out so much per minute then you don't have to be quite as conscious."*

### Raises Awareness and Education about Water

Participants also noted that an advantage of installing efficient appliances was that it also led to increases in awareness about water. Participants gave the following examples:

> *"I have to be educated by the media and everything else, and the council."*

> *"Our personal knowledge about things like horticulture and personal knowledge, maybe, about things like plumbing and things like that."*

### Flow on Benefits to Health

Some participants also noted a belief that efficiency behaviour has flow on benefits to health. More specifically, participants noted advantages of using and drinking tank water, rather than mains water. For example:

> *"One of your advantages is if you're drinking your tank water you won't get the fluoride they're pumping into our system now."*

> *"I don't know for sure but we wash in tank water, I've got it hooked up to the washing machine, and apparently your clothes wash better in rain water."*

The first comment reflects the concerns and debate about the introduction of fluoride to the SEQ water supply (see QWC).

### Rebates

Rebates were the next most frequently cited advantage of installing water efficient appliances and fittings. Participants mentioned rebates for washing machines as well as for rainwater tanks. For example:

> *"Well, I think that the two tanks system and the plumbing ended up being about six and a half thousand dollars. So I thought well, anything I get from that – it sort of offsets a bit. There's no way in the world it's going to compensate it."*

### Other Instrumental Beliefs

Less frequently cited advantages of efficiency behaviour included hardier gardens that didn't need watering every day and improvements in the resale value of houses that had tanks and water tolerant gardens. Some participants also identified innovation and employment opportunities that have arisen due to increased demand for water saving appliances.

Rainwater tanks were seen by some participants as preferable to more expensive large scale infrastructure projects such as desalination and purified recycled water. Environmental benefits of water saving were also noted, as were improvements in communities' ability to cope with future population growth.

## 3.3.2. Instrumental Beliefs: Disadvantages of Efficiency Behaviour

Table 13 shows the frequency of elicited disadvantages of efficiency behaviour. The most frequently cited disadvantage was the initial up front costs of installing efficient devices, followed by the amount of red tape and paperwork involved in researching, purchasing and applying for rebates for these types of appliances. Other frequent disadvantages included the reduced effectiveness of efficiency appliances, as well as the inconvenience of using and maintaining them.

### Up Front Set-Up Costs

Focus group participants most frequently identified that initial set-up costs were a disadvantage of installing efficient appliances. Participants noted the up front costs were sometimes prohibitive, despite rebates. The long pay-back period was also mentioned by some participants. Examples of how participants framed this belief include,

> *"I suppose one other disadvantage is the initial set-up costs. Like if you want to be water wise and get your front loader and get all your washers changed and your water saving showerhead and your pool cover and all that stuff, it costs a lot of money to set it up."*

> *"You may have to buy a new [machine] - you might get a subsidy but it's still costing you money to buy a new machine."*

**Table 13: Frequency of Elicited Instrumental Beliefs – Disadvantages of Efficiency Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| Up front set up costs | 6 | 8 | 5 | 8 | 27 |
| Water efficient fittings do not work as well | 6 | 4 | 3 | 11 | 24 |
| Too much red tape | 3 | 0 | 11 | 8 | 23 |
| Requires education and awareness about appropriate products, effective use and maintenance than is readily available | 0 | 3 | 7 | 5 | 15 |
| Inconvenient to use and maintain | 4 | 2 | 6 | 2 | 14 |
| Health and safety issues associated with tanks etc | 4 | 1 | 4 | 3 | 12 |
| Requires space to install | 4 | 0 | 1 | 4 | 9 |
| Increases electricity consumption and cost | 1 | 0 | 1 | 2 | 4 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups*

### Water Efficient Fittings Do Not Work as Well

The effectiveness of efficient appliances was also a frequently mentioned disadvantage. This belief was particularly relevant to showers and washing machines. Participants often suggested that low flow shower heads were less effective and that it therefore took a longer time to wash. For example:

> *"Washing your hair, it takes twice as long to get the shampoo out of it."*
>
> *"My kids hate it that I've changed everything over. Hate it. I reckon they stay in longer because there's not enough pressure. I swear they do. It's crappy. They've all got masses of hair like me. They take forever in there, because there's no damn pressure. It's a crappy little thing that they come out with, and you just go, God I wish I had the other one back."*
>
> *"The washing machine, the water saving one, takes a really long time."*

### Too Much Red Tape

The second most frequently cited disadvantage related to the amount of "red tape" surrounding the application for rebates on efficient appliances. Participants suggested that the application for rebates was often onerous. For example:

> *"And all the paperwork, six pages of paperwork, triplicates of this."*
>
> *"If there was one thing wrong it all got sent back."*

Participants also frequently mentioned significant wait times between application and rebate. For example:

> *"With the rebate which I still haven't got one back yet."*

### Requires Education and Awareness about Appropriate Products, Effective Use and Maintenance than is Readily Available

The next most frequently identified disadvantage of efficient appliances was the need for education about the appropriateness of products, their effective use, and maintenance. Participants identified the level of research that was needed in order to decide if a product would be water efficient. For example:

> *"A magazine from, like, Choice and they compared all these things and to get one that was significantly better water wise was twice the price, or one that was really comparable, like, I said saved only a couple of litres."*
>
> *"It's amazing how many opposites are on people's perception of what saves water and what doesn't save water. Like for instance, if someone says no dishwater and someone says dishwasher. I know my dishwasher uses 19 litres of water for three meals. If I filled my sink for every meal and washed up, there would be 60 litres of water. So I save 41 litres of water by using a dishwasher and staying away from the fact that it uses power."*

Other participants identified that education was also needed in order for rainwater tanks to be effectively maintained. For example:

> *"You need to be educated to the care and maintenance. It all comes back to the education thing. Okay, you have got all these water saving things [participant name] and myself and those of us who have grown up with tanks, you know what you have to do, what has to be done to keep that tank safe, even if you are not using it for drinking water."*

### Inconvenient to Use and Maintain

Participants frequently mentioned the inconvenience and maintenance requirements for efficient appliances. Examples were dominated by discussions of pool covers and rainwater tanks, for example:

> *"So with the pool cover, if you're putting it on [on]your own at the end of the day, and sort of the water goes right up over it, on my way anyway, you have trouble sort of pulling it down the pool by yourself."*
>
> *"Well a rainwater tank is inconvenient. You have to go outside to get the water, like in awful weather or something."*
>
> *"The underground water tanks are good but they need a stir, they need things in them just to keep the water flowing around."*

### Health and Safety Issues Associated with Tanks

Health and safety issues were also raised commonly by participants in discussions of the disadvantages of installing efficient appliances. This theme was dominated by examples of mosquitoes breeding in rain water tanks and the resulting negative health effects. For example:

> *"One particular suburb in Brisbane, they were having a lot of mosquito problems because the tanks weren't sealed."*
>
> *"The mosquito does breed in the tank. That's been known for a long time. So what they're doing is they're taking one problem and swapping it for another."*

### Other Instrumental Beliefs

A less frequently cited disadvantage was that rainwater tanks often require a large amount of space. Participants noted that some residents did not often have enough space on their properties and therefore purchased small, inefficient tanks.

Increases in energy use were also identified as a disadvantage of installing efficient devices. For example, one participant identified the energy cost involved in pumping water out of a rainwater tank.

Finally, the relative water saving of different appliances was also raised as a potential disadvantage.

## 3.3.3. Affective Beliefs: What People Like About Efficiency Behaviour

Table 14 shows the frequencies of elicited positive affective beliefs in relation to efficiency behaviour. The most salient beliefs included the feeling of security and freedom that came from being self sufficient, as well as feeling good about "doing my bit."

### The Security and Freedom of Being Self Sufficient

In describing what they liked about engaging in efficiency behaviours, participants most frequently cited a feeling of security and freedom in relation to being self-sufficient. This was commonly related to tank water, for example:

> *"It's just peace of mind having that emergency water there when you need it."*
>
> *"You're not feeling guilty for using town water to grow your veggies 'cause you've got a tank. 'Cause you've harvested that water so therefore you can use it."*
>
> *"With the water tank, seeing our kids playing out with the sprinkler and just seeing that they can do it now."*

**Table 14: Frequency of Elicited Affective Beliefs – What People Like about Efficiency Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| The security and freedom of being self sufficient | 9 | 10 | 2 | 5 | 26 |
| Doing my bit to help | 4 | 4 | 2 | 4 | 14 |
| Caring for future generations and environment | 1 | 2 | 1 | 2 | 6 |
| Enjoy challenge of researching and setting up efficient home | 1 | 1 | 2 | 0 | 4 |
| Aesthetics of modern products and appliances | 1 | 1 | 0 | 0 | 2 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups*

### Doing My Bit to Help

The next most salient affective belief related to "doing my bit." Participants expressed positive feelings in relation to engaging in efficiency behaviours. For example:

> *"Yeah [you] feel good that you've actually contributed."*
> *"You're happy with your actions."*
> *"I've done my little bit. It's up to everybody else to do their bit now too."*

### Other Affective Beliefs

Other affective beliefs included caring for future generations and the environment. Participants noted "feeling good" about doing something to preserve the environment and "looking after Australia's future." Others identified that the challenge of researching and setting up an efficient home was enjoyable. Enjoyment was also described in relation to the aesthetics of modern products and appliances.

## 3.3.4. Affective Beliefs: What People Dislike About Efficiency Behaviour

Table 15 shows the affective beliefs that were identified by participants when they were asked what they dislike about engaging in efficiency behaviour. Participants most frequently identified poor aesthetics and inflated prices as sources of negative feelings.

### Inflated Prices

When asked about what they disliked about efficiency behaviours, many participants noted a belief that prices of efficient appliances were inflated. This belief was relevant for a range of water efficient appliances including tanks, washing machines and showerheads. For example:

> *"Some of them are overpriced for what they are. There are some small tanks now that have come out and I cave at the price. It looks okay but there's still that cost benefit issue."*
>
> *"That bumps up the price of the front-loading washing machines - because there's more demand for them, so it bumps up the price anyway."*
>
> *"Can I just add to that about the cost? I don't mind paying the cost of what it actually is worth but with a showerhead, all they do is stick a rubber bung in the back of it to make the water flow slowly and they add $90."*

**Table 15: Frequency of Elicited Affective Beliefs – What People Dislike about Efficiency Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| Inflated prices | 2 | 2 | 4 | 7 | 15 |
| Poor aesthetics | 6 | 1 | 5 | 2 | 14 |
| Poor quality tanks | 2 | 5 | 0 | 0 | 7 |
| Compulsory water saving appliances | 0 | 2 | 0 | 0 | 2 |
| No bonus for self supply of water | 0 | 0 | 0 | 2 | 2 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups*

### Poor Aesthetics

The most salient negative affective belief was poor aesthetics. Participants noted that retrofitting with efficient appliances often detracted from the aesthetics of a property. Examples were given of the aesthetics of tanks and showerheads in particular, for example:

> *"Back to the aesthetics issue - because you're retrofitting a lot of these things it hasn't been built into the home or the actual use of the property, so you have this tank that sticks out like a proverbial."*
>
> *"They are eyesores. They are not nice to look at, no."*
>
> *"I'd hate to see all those tanks in front yards. They look ugly."*
>
> *"The aesthetics. My house was built in 1893 and we had the beautiful old shower head and everything in the bathroom and we put in this new modern fangle-dangle looking thing and it doesn't [look right]."*

### Other Affective Beliefs

The poor quality of rainwater tanks was the next most salient belief. Participants noted that some tanks were poorly made, cracked easily and were expensive to fix. The least frequently identified affective beliefs were that some efficiency appliances were compulsory (e.g. pool covers) and that there was no bonus for self-supply of water.

### 3.3.5. Normative Beliefs: Individuals or Groups who Approve of Efficiency Behaviour

Table 16 shows the range of individuals and groups that were identified as approving of efficiency behaviour. Businesses that make and sell efficient appliances were the most frequently mentioned group who would approve of efficiency behaviour. Government was also frequently mentioned, with both local government and state government identified as approving.

Less frequently mentioned groups or individuals included the end users, or those who would save money by saving water. Future generations, including children were also mentioned on three occasions. Environmentalists were also identified, although only on two occasions. Also identified twice were people who want to use extra water as well as those people who are already low water users.

**Table 16: Frequency of Elicited Normative Beliefs – Individuals or Groups who Approve of Efficiency Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| Businesses that make and sell efficient appliances | 12 | 9 | 8 | 11 | 40 |
| Government | 3 | 3 | 7 | 7 | 20 |
| The end user | 0 | 1 | 1 | 3 | 5 |
| Future generations | 0 | 0 | 2 | 1 | 3 |
| Environmentalists | 0 | 2 | 0 | 0 | 2 |
| People who want to use extra water | 1 | 1 | 0 | 0 | 2 |
| People who exist on less water resources | 0 | 0 | 1 | 0 | 1 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups*

### 3.3.6. Normative Beliefs: Individuals or Groups who Disapprove of Efficiency Behaviour

The table below shows the frequency of individuals and groups who were identified as disapproving of efficiency behaviour. The most frequently identified groups included people who are budget conscious and therefore cannot afford efficient appliances. Also mentioned frequently as disapproving of efficiency behaviour were businesses that make and sell water intensive products.

Neighbours were also identified as disapproving, particularly of the aesthetics of water tanks. The belief that local councils would disapprove was also raised by participants, with emphasis on the revenue that is raised by council through water rates.

Environmentalists and energy conscious individuals were identified as disapproving of efficiency behaviours. Participants noted that some efficient appliances (e.g., pumping water from a tank) was more energy intensive and therefore these groups were likely to disapprove of this type of solutions.

Less frequently mentioned normative influences were people concerned about health risks associated with mosquitoes in tanks, and people who were unable to install tanks because of the size of their properties.

**Table 17: Frequency of Elicited Normative Beliefs – Individuals or Groups who Disapprove of Efficiency Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| Budget conscious and those who can't afford efficient appliances | 0 | 3 | 0 | 3 | 6 |
| Businesses that make and sell water intensive products | 2 | 0 | 3 | 1 | 6 |
| Neighbours who look at water tank | 1 | 0 | 1 | 2 | 4 |
| The council (who derive revenue from water retail) | 0 | 0 | 3 | 1 | 4 |
| Environmentalists and energy conscious people | 1 | 1 | 0 | 2 | 4 |
| People concerned about health risks | 0 | 0 | 1 | 0 | 1 |
| People with small yards who can't install tanks | 0 | 0 | 1 | 0 | 1 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups*

## 3.3.7. Control Beliefs: Factors that Enable Efficiency Behaviour

Table 18 shows the most frequently mentioned beliefs in relation to factors that enable efficiency behaviour. The most common factor that enabled efficiency behaviour was having someone else to advise, organise and install appliances. Rebates and low cost services and fittings were also frequently identified as enabling efficiency behaviours.

### Having Someone Else Advise, Organise and Install Efficient Systems

The most salient control belief that enabled efficiency behaviours was a home installation and advice service. Participants frequently gave examples of the *Home WaterWise Service*. Such a service was seen to overcome the burden of researching products and finding qualified tradespeople, for example:

> *"And that water wise thing. That was fantastic really. I don't think it went far enough because it only did three taps."*
>
> *"Yeah, more of that. Ring a number half a dozen things get sorted for you. You pay whatever the cost is, you're done."*
>
> *"I think this is the model that the Feds are going to use for the insulation program. You call them; you say I want to do it. They make it happen and Bob's your uncle. So they make it happen, they schedule you in, they tell you when it's going to happen and it happens."*

**Table 18: Frequency of Elicited Control Beliefs – Factors that Enable Efficiency Behaviour.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| Home installation and advice service | 14 | 8 | 10 | 7 | 39 |
| Rebates | 5 | 5 | 3 | 4 | 17 |
| Low cost services and fittings | 5 | 4 | 1 | 0 | 10 |
| Point of sale rebates or lay by system | 3 | 5 | 0 | 0 | 8 |
| Incentives to be self sufficient | 0 | 6 | 0 | 1 | 7 |
| High quality products with better aesthetics | 3 | 0 | 0 | 0 | 3 |
| Social marketing reminders | 0 | 1 | 0 | 1 | 2 |
| Making water efficient products compulsory | 0 | 0 | 0 | 1 | 1 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups*

### Rebates

Rebates were also identified as a salient control belief. Participants noted that rebates were a factor that enabled the purchase of efficient appliances. For example:

*"The rebates, that's a very definite incentive."*

*"Well there's people like Jims Water Tanks. You need a water tank, that will cost you $2,000. That's okay, you will get half of that back from the government."*

### Point of Sale Rebates or Lay-By System

As well as discussing rebates, participants also frequently noted a belief that point of sale rebates or a lay-by system would encourage efficiency behaviour. For example:

*"I think point of sale rebates would make a huge difference."*

*"Rather than actually having to buy it and then go through the effort of filling in forms and sending it to your council and waiting for the six weeks and then banking the cheque. Take it off the price."*

One participant gave the example of Warwick City Council and suggested that a payment plan had enabled efficiency behaviour for residents in that local government area, i.e.:

*"The Shire Council, when I first moved to Warwick, they said to everybody, we will install tanks in all of our Shire. But you will pay them off in your rates. For a small nominal fee. It might take them 10 years to get the money back, but over a 10-year period, you've got this – I think they were something like 10,000 gallons."*

### Other Control Beliefs

Participants also identified a belief that incentives to be self-sufficient would help to enable efficiency behaviour. Examples included government giving incentives to "*give people credits for harvesting rainwater*." Other examples included incentives for developers not to connect to mains water, as well as neighbourhood level rainwater harvesting.

Less frequently mentioned beliefs to enable efficiency behaviour included improving the quality and aesthetics of efficient products, providing social marketing reminders, and making water efficient products compulsory.

## 3.3.8. Control Beliefs: Barriers to Efficiency Behaviour

The table below shows the frequency of elicited control beliefs that act as barriers to efficiency behaviour. Participants most frequently identified that the expense, time and effort required in setting up efficient devices undermined their ability to engage in efficiency behaviour. Other frequently cited barriers included lack of knowledge about products and maintenance, and restrictive regulations. Each of the elicited beliefs is described below and illustrative quotes are provided for the most frequently identified beliefs.

**Table 19: Frequency Elicited Control Beliefs – Factors that Undermine Efficiency Behaviours.**

| Elicited Beliefs | Frequency | | | | |
|---|---|---|---|---|---|
| | Brisbane (n=21) | Gold Coast (n=21) | Ipswich (n=21) | Noosa (n=21) | Total (N=84) |
| Expense, time and effort of set up | 5 | 10 | 3 | 7 | 25 |
| Lack of knowledge about products and maintenance | 1 | 3 | 5 | 3 | 12 |
| Restrictive regulations | 8 | 0 | 0 | 2 | 10 |
| Lack of space | 2 | 1 | 1 | 4 | 8 |
| Amount and efficiency in receiving rebates | 0 | 5 | 2 | 1 | 8 |
| Difficulty in locating quality trades person | 1 | 2 | 2 | 1 | 6 |
| Old house | 0 | 2 | 1 | 2 | 5 |
| Increasing electricity costs | 0 | 0 | 2 | 1 | 3 |
| Concerns about public liability | 0 | 0 | 0 | 1 | 1 |
| Suitable products unavailable | 0 | 0 | 0 | 1 | 1 |

*NB. Frequency counts represent the number of times a belief was mentioned in the focus groups*

### Expense, Time and Effort of Set Up

The most frequently cited control belief concerned the expense, time and effort required to set up water efficient devices. Participants noted that these factors undermined their ability to engage in efficiency behaviours. For example:

> *"Well I bought the water-saving washing machine and they recommended it all has to be done by a plumber. Now you get a quote from a plumber and you are looking at $1,200 to do it. I don't have $1,200."*

> *"With the pool cover, just taking the time to shop around and get the best deal on the cover and then you've got to cut it to size and all these things."*

> *"I guess too you've got to have the money up front because with all the rebates, like, you've got to pay it first and then you send in your receipts with your form to the government and then they send you a cheque... or sorry, they actually deposit the money back into your account."*

### Lack of Knowledge about Products and Maintenance

Lack of knowledge about products and the maintenance required was also a factor commonly associated with inhibiting efficiency behaviour. Participants noted that their level of knowledge impeded their engagement with this type of behaviour. For example:

> *"Not having the sorts of things or the knowledge of how to do it."*

> *"Not knowing how to change a washer or having the thing to do it, however you do it, yes. So the knowledge and the tools, any other things that pose a challenge to, you know, getting dual-flush toilets, getting tanks, [etc.]."*

### Restrictive Regulations

The next most frequently cited belief concerned restrictive regulations. Participants identified that regulatory requirements were a deterrent in their decision to install efficient appliances, for example:

> *"Another disadvantage I can think of is just the sheer amount of legislation if you want to do this, well you can't do this, you've got to do this."*

> *"... my wife and I are thinking about doing some renovation [and] just the sheer size [of tanks], especially on a suburban block that they take up. We're trying to renovate and work out where our house is going to go and also we've got to work in where we're going to fit two water tanks which we need by legislation and which at the moment will have to sit right in front of our little deck."*

Participants also noted that past regulation impeded their efforts to install efficient appliances, making it difficult to retrofit now. For example:

> *"There [are] a thousand physical limitations on tanks. As I said when I designed the house, I designed a spot for the water tanks but they wouldn't let me put them in, now I can't get them in."*

> *"We built a house about four years ago and we were told no, you can't use the grey water to – no, you can't do – all these water saving things that we wanted to do we were told we couldn't do it. And now they're turning round and saying well, yes, you can have a rebate for doing these things."*

## 3.4. What Behaviours have Become Habits?

The last exercise in the focus group aimed to identify habitual behaviours. Each group was asked to direct their focus to the curtailment behaviours that the group had identified in the first brainstorming exercise. Each of these ideas was read out by one of the facilitators and participants were asked to indicate if that behaviour was habitual for them.

Table 20 illustrates participants' level of agreement that behaviours were habitual. Behaviours are sorted according to the frequency of agreement that the behaviour was a habit.

Results show that there were five behaviours considered to be habits by most participants. These included checking and fixing leaking taps, turning off taps while brushing teeth, having shorter showers, only running full washing loads, and water-wise gardening. Although reuse of grey-water through manual collection from kitchen, bath and laundry was the most frequently identified curtailment behaviour, there was only a moderate level of agreement that this behaviour was a habit.

**Table 20: Participants' Level of Agreement on Habitual Behaviour.**

| Behaviour | Level of Agreement | | | |
|---|---|---|---|---|
| | All Agree | Some Agree | Not a Habit | Total |
| Check and fix leaking taps | 25 | 8 | 3 | 36 |
| Turn off taps when brushing teeth | 25 | 1 | 3 | 29 |
| Have shorter showers | 24 | 16 | 4 | 44 |
| Only run dishwasher/clothes washer with full loads | 20 | 16 | 8 | 44 |
| Water-wise gardening (e.g. only water at night, less watering, use bucket) | 19 | 4 | 4 | 27 |
| Use less water in kitchen (cooking, washing up, rinsing) | 6 | 19 | 7 | 32 |
| Efficient car washing (with a bucket or at an efficient car wash) | 4 | 8 | 7 | 19 |
| Half flush/don't flush | 4 | 8 | 1 | 13 |
| Collect and use grey water on garden (e.g., from washing machine, sink, shower/bath) | 3 | 44 | 30 | 77 |
| Sweep/blow pathways instead of hosing | 3 | 3 | 1 | 7 |
| Monitor kids behaviour and educate them | 3 | 1 | 1 | 5 |
| Share showers/baths | 2 | 8 | 6 | 16 |
| Collect rainwater to use on garden | 1 | 6 | 5 | 12 |
| Don't wash car | 1 | 5 | 1 | 7 |
| Fill pool with rainwater | 1 | 4 | 0 | 5 |
| Turn off taps while shaving | 1 | 1 | 0 | 2 |
| Turn off taps in shower (while soaping/shampooing) | 0 | 6 | 0 | 6 |
| Use ecocycle on washing machine (clothes and dishes) | 0 | 2 | 0 | 2 |

# 4. DISCUSSION AND CONCLUSION

The current report describes results obtained from focus groups conducted in SEQ to identify salient beliefs associated with household water conservation. It is clear that monetary savings associated with everyday conservation behaviours or installation of water efficient appliances was a major benefit identified by participants. In addition to financial benefits, participants highlighted the long-term and environmental benefits of these actions. These beliefs may reflect concerns with intergenerational equity and climate change resilience. An important belief was that installation of water efficient appliances has the advantage of lowering the need to monitor and be vigilant about everyday water using practices. This latter belief seems to reflect a desire on the part of residents to have more convenient ways of saving water that do not substantially impact on their lifestyle. It also raises questions about whether the water saving benefits of efficient appliances are fully realised if householders consequently believe they do not need to monitor their everyday behaviour. Certainly, past research has shown that retrofitting water saving devices resulted in significant reductions, however, this was found not to be as substantial as might be expected from the manufacturers' information (Geller, Erichson, and Buttram, 1983).

Beliefs about the disadvantages of everyday water conserving behaviours (i.e. curtailment behaviours) related mainly to their impact on lifestyle. These types of actions were perceived by some to be time consuming and inconvenient, and to impact negatively on quality of life, health and hygiene. In a similar vein, research by Allon and Sofoulis (2006) highlights the association between water and comfort, cleanliness, and pleasure. Financial considerations emerged again in relation to installing water efficient appliances, with the up-front costs of installing appliances believed to be a key disadvantage, along with the red tape that accompanies the application for any associated rebates. There was also relatively frequent mention of the functionality of water efficient appliances with some participants believing they simply do not work as well as normal appliances (e.g. water saving shower head vs normal shower head).

In addition to more cognitively-based beliefs about water conservation, there was also an attempt to tap the affective dimensions of water conservation. A sense of feeling good about water conservation was most often mentioned and seemed to be underpinned by the sense of pride and achievement that relates to individuals and communities saving water. Similarly, some participants mentioned that they had a sense of 'doing their bit' when they installed water efficient appliances. Installing water saving appliances also seemed to give many people a sense of security that came from being more self-sufficient. This belief clearly related primarily to the installation of water tanks. In contrast, some participants mentioned that water conservation could also elicit feelings of guilt when they became aware that they were engaging in non-conserving behaviours. Feelings of resentment at being told what to do and a sense of unfairness of restrictions were also mentioned. Some participants also highlighted the negative feelings associated with children not being able to enjoy and play with water anymore. These findings are similar to past research; the pleasure and comfort associated with using water were main themes emerging from the research of Allon and Sofoulis (2006).

When participants were asked who would support water conserving behaviours, it was evident that government and environmentalists most often came to mind. Government was also perceived to support the installation of water efficient appliances, and not surprisingly, businesses that make or stock these items were perceived as supportive. Participants also suggested that local councils may disapprove of water conservation behaviours because it results in a loss of revenue for them.

Social marketing reminders (e.g. advertising, feedback on rates notices) were the most often cited facilitator of everyday water conserving actions (i.e. curtailment behaviours). This finding suggests that government media and educational campaigns and information service provision by water retailers that aimed to promote water conservation in homes, have been received positively and perceived as effective by participants in the study. Other factors that participants identified as facilitating water conserving behaviours included technology that makes water conservation easier and bottom-up educational approaches whereby schools educate children about water conservation and children, in turn, encourage and remind parents of the importance of these actions.

A major way in which installation of water efficient appliances can be facilitated is the provision of services that provide advice and help with installation. Many participants mentioned the benefits of the Home WaterWise service that was previously offered by the State Government. Receiving rebates for installing appliances was also mentioned as a facilitator.

The most often mentioned barrier to everyday water conserving behaviours was the presence of others (e.g. visitors in the home or in the city) who do not conserve water. This finding suggests that knowledge that others are 'not doing their bit' may undermine the perceived effectiveness of an individual's efforts to conserve water. This finding is consistent with the Theory of Planned Behaviour, and past research showing that perceived efficacy of one's environmental actions is related to environmental behaviour (e.g. Fielding, Terry, Masser, Bordia, and Hogg, 2005; Iwata, 2004). To a lesser extent, participants also acknowledged that time and inconvenience and the difficulty of changing existing habits also acted as barriers to engaging in everyday water conserving behaviours. In relation to installing water efficient appliances, it was clearly the time, effort, and cost of installation that were the major barriers.

Results suggest that there is a range of water conserving behaviours that many participants now perceive to be habits in their homes. These include fixing leaks, turning off taps when cleaning teeth, taking shorter showers, only using dishwashers and washing machines when they have a full load, and water efficient gardening.

In conclusion, the current research identified salient and important beliefs that are associated with household water conservation in a sample of participants from across SEQ. The results suggest that some water saving practices have become a way of life. The aim of the research was to try to see household water conservation through the eyes of householders and thereby gain an understanding of the perceptions and beliefs associated with household water conservation.

The next step in the current project is to conduct a baseline survey drawing on a larger sample of households in SEQ. The survey will help to identify the key psycho-social and socio-demographic drivers of residential water conservation.

# GLOSSARY

### Curtailment Behaviour

This term refers to everyday actions that help to conserve water. In the context of water conservation, examples are only washing full loads of clothes, taking shorter showers and turning off the tap while brushing teeth .

### Efficiency Behaviour

This term refers to one-off behaviours such as installing water-saving shower heads or rainwater tanks that facilitate ongoing water savings.

### TPB

Theory of Planned Behaviour.

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