



***CITYFUTUREs**

**Water Consumption and the
Built Environment: A Social
and Behavioural Analysis**

Patrick Troy
and Bill Randolph

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	8
EXECUTIVE SUMMARY	9
Approach and Method.....	9
Summary of Quantitative Research Findings	9
Summary of Qualitative Research Findings	13
1. INTRODUCTION	16
FINDINGS: PART 1.....	21
2 QUANTITATIVE SURVEY	21
2.1 Introduction.....	21
2.2 A profile of respondents and their households	21
2.3 A Profile of Dwellings and Amenities.....	24
2.4 Water Using Facilities and Equipment Inside the Home.....	28
2.5 Water Use in and Around the Home.....	32
2.6 General Attitudes to Conservation.....	37
2.7 Water conservation in practice: How are households reducing water use?.....	41
2.8 Watering lawns and gardens	45
2.9 Buying a new washing machine	49
2.10 Swimming pools and outdoor spas	51
2.11 Attitudes to water usage, pricing and water saving in the home	54
2.12 Attitudes to changing water use and future water saving inside the home	59
2.13 Summary of Quantitative Research Findings	62
FINDINGS: PART 2.....	71
3 QUALITATIVE SURVEY.....	71
3.1 Introduction.....	71
3.2 Perceptions of major domestic uses of water.....	71
3.3 Per capita water consumption in Sydney	75
3.4 Value of the information presented on Sydney Water’s bills	77
3.5 Awareness of Water Restrictions.....	78
3.6 Differences between tenure and dwelling types	86
3.7 How might water consumption be further reduced?.....	87
3.8 Perceptions of the price of water	92
3.9 Alternative ways of encouraging reduced water consumption	96
3.10 Further proposals for encouraging domestic water conservation	99
3.11 Summary of Qualitative Research Findings	101
4. CONCLUSION.....	106
5 REFERENCES	111

APPENDICES	112
APPENDIX 1: Selection of Case Study Collector Districts (CDs) for the Telephone Survey and Final Response Rate.....	112
APPENDIX 2: Qualitative Methodology	114
APPENDIX 3: Telephone Survey Questionnaire	118
APPENDIX 4: Water Restrictions in Place During Fieldwork	150
APPENDIX 5: Example of Sydney Water Bill for Houses.....	152
APPENDIX 6: Example of Sydney Water Bill for Flats.....	153
APPENDIX 7: Selected Tabulations from the Telephone Survey	155

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EXECUTIVE SUMMARY

Approach and Method

The research on which this report is based seeks to explore the extent to which two key dimensions of Australian cities – their built form (in particular, dwelling type) and the socio-behavioural characteristics of households - influence the pattern of water consumption across the city. As such, it represents the first attempt to understand the behavioural aspects of the water consumption of households in different kinds of dwellings in Sydney during the current period when water restrictions and price rises have become the principle methods to reduce water consumption in the city.

The research incorporates both quantitative and qualitative research methods. The former involved a large-scale telephone interview survey that generated detailed information about the water consumption behaviour of a stratified random sample of 2,179 households, the dwellings they occupy, their socio-economic profile, and the range of equipment and facilities they use in their dwellings. The latter approach involved conducting 5 focus groups drawn broadly from the areas included in the survey which explored attitudes and behavioural aspects of the research in more depth. The research was undertaken during the period December 2004 and May 2005.

Summary of Quantitative Research Findings

Socio-demographic and dwelling profile

- There were clear differences between the four dwelling types (separate houses, semis, flats up to three storeys and flats four storeys and above) identified in this report in terms of their socio-demographic profile. The ‘compositional effect’ of dwelling occupancy – the differences in the types of people living in high and low density housing - is critical to understanding the differences in behaviour and attitudes of those living in houses, semis and flats. House dwellers were, on average, older and had higher household incomes and larger households than those in semis and flats. Flat dwellers were predominately renters, younger and much more mobile than other dwelling groups. The social profile of those in semis were somewhere in between.
- The number and type of water using amenities and equipment varied significantly by dwelling type. While almost everyone had the basics (a shower, laundry facilities, kitchen sinks, basin, washing machine and bath), a substantial proportion have additional facilities such as swimming pools (one in five), dishwashers (half), and multiple showers and basins.
- A significant finding is the generally much lower range and number of water using facilities in low rise flats. The higher standard of provision of water using facilities in houses means that those living in houses have much greater opportunity to use water, including external uses outside the dwelling with gardens and lawn areas.
- Both the type of person and the range of facilities available differ between dwelling types. These factors are essential in interpreting the differential behavioural and attitudinal outcomes reported in this report. They also mean that simplistic

assumptions about water consumption outcomes in different forms of the residential built environment are likely to lead to inappropriate policy outcomes.

Water use in and around the home

The research found that a wide range of water saving devices were used, with just over half the respondents using efficient shower heads, reflecting the success of Sydney Water's promotion of this facility. But the use of other water saving devices is patchy.

- While a half of all households have a dishwasher, as many as one in ten say they never use them, a figure that rises to as many as a quarter of high rise flat dwellers with a dishwasher. Around three quarters say they hand rinse dishes during washing or before putting dishes in the dishwasher, adding substantially to water use.
- While virtually everyone has a washing machine, as many as a quarter also hand wash regularly, while 14% of flat dwellers use a shared laundry, laundromat or wash their clothes at someone else's home.
- Some 16% of respondents say they had a water leak, with leaking taps, showers and toilets being the most commonly cited problems. Flats and semis were twice as likely to report leaking showers and toilets as houses.
- The recent domestic water restrictions have highlighted car washing as a significant water use in the home but almost two in five said they never washed their car or did so very infrequently and over half said they never washed their car at home.

General attitudes to conservation

- Recycling as a method of reducing household environmental impacts is universally supported and practiced by respondents, with 90% saying they recycle rubbish all or most of the time. Only 5% admit to recycling hardly ever or never at all although one in eight flat dwellers say they never or rarely recycle rubbish.
- Respondents also overwhelmingly endorsed the issue of conservation as one that is *very* important (82%) and a further 14% saying it is important. Respondents in high rise flats, males, people aged under 34 and those on highest incomes were less likely to rate conservation as a *very* important issue, although in no cases does this rating fall below 75%.
- Respondents do not perceive key public and private stakeholders as having a strong interest in conservation. The perception is that government at all levels is less interested in conservation issues than the utility companies themselves, and few consider that the private sector takes a serious interest in conservation. Sydney Water rates the highest level of perceived support for conservation, but even so, less than half (45%) say the water authority takes conservation seriously and as many as 39% believe that it does not.
- Flat dwellers, younger people and renters were more willing to trust key stakeholders' attitudes to conservation.

Water conservation in practice: How are households reducing water use?

- The findings confirm that Sydney households have taken action to reduce water use across a broad range of activities. However, this action is variable and despite the emphasis on restrictions on garden watering, only 37% of those with a garden said that they had actually reduced watering. This suggests that garden watering restrictions

have only *directly* impacted on the consumption behaviour of a minority of Sydney households.

- Almost nine in ten say they have taken one or more actions to reduce water use in some way. Overall, only 13% reported they had taken no action at all to reduce water usage in the previous year (although this rises to 20% for flat dwellers). Water use practices most likely to have changed were either those specifically targeted by the restrictions or those most easily and conveniently controlled directly by respondents with little additional effort.
- Attitudes to future water savings strongly suggest that further substantial water savings will only be generated by changing water use *inside* the home, especially in the way households use their kitchen, bathroom and washing appliances, as well as in attitudes to recycling.
- In general, respondents living in flats were less likely than those in houses to report water saving action, either over the previous twelve months or the next twelve months.

Watering lawns and gardens

- A quarter of respondents with gardens admit to watering their garden more than three times a week, including a small hard core who say they water daily, clearly in breach of prevailing water restrictions. On the other hand, a quarter says they never water their garden.
- The majority of respondents who have gardens say they had not changed their watering practices in the year before the survey. So water savings from reduced garden watering appear to have been generated by less than half of all garden owners.
- A small hard core (around 4%) of frequent garden waterers had not responded to the call for water reduction at the time of the survey.
- Of the two thirds of respondents who say they have a lawn, as many as 72% say they don't water it.
- Just under a half (47%) of all respondents with a lawn say they had not reduced garden watering in the previous year.
- Just over a half (51%) of those who say they now never water the lawn also say they reduced garden watering in the previous year. So it is possible that as many as half those who now say they never water their lawn may have stopped this practice since the restrictions were introduced.
- Water restrictions appear to have had more impact on lawn watering than on general gardening. Garden beds were watered more frequently than lawns, although the difference isn't large.
- The findings also show continued frequent garden watering by a small minority.

Buying a new washing machine

- When asked about the features they thought important should they be buying a new washing machine, water efficiency is rated as one of the two key features respondents said they would want in a new machine (the other was energy efficiency).

Swimming pools

- Overall, 20% own or have access to a swimming pool.

- The 9% of all pool users who used their pool all year were much more likely to live in higher density housing where heated pools were much more common (half the pools in high rise flats are heated).
- 90% of pool owners don't use pool covers regularly and only a few who have a cover used it regularly.

Attitudes to water usage, pricing and water saving in the home

- Barely one in five respondents said they knew how much water they used in a quarter – and the figure fell to 6% of flat dwellers.
- Only 7% overall thought they used above average amounts of water compared to the average Sydney household.
- Most respondents who said they knew how much water they used said the difference between summer and winter bills did not seem to be large enough for them to make a special effort during the summer months to conserve water.
- The concept of differential water pricing reflecting usage was widely supported.
- Half said that water pricing is fair but a fifth thought it is not. The rest had no opinion. Flat dwellers were significantly more likely not to have an opinion on this issue.
- Despite widespread support for differential pricing to reflect water consumption, and that more people said that current water prices do not encourage conservation compared with those who did, a clear majority – 60% – of respondents said they do not think water prices should be increased to encourage lower water use. There was little difference between dwelling types on this question.

Has water usage inside the home changed since water restrictions?

- Three quarters of respondents said they had changed the way they used water inside the home since the water restrictions had been in force. This ranged from 79% of those in houses to 58% for high rise flat dwellers.

How much water could you save?

- Only a quarter thought they could do a lot more or some more. These results suggest that further domestic water savings may be limited with prevailing attitudes and patterns of behaviour.

Would you use more water saving devices?

- The findings suggest that there is general support for fitting water saving devices. Almost half our sample said they would fit such devices even if they had to pay for them.

Summary of Qualitative Research Findings

- There was a general consensus among participants of the focus groups that most water used in the home is used in showers and the laundry. Few recognised that toilet flushing is a major use of water.
- Households comprised of families with children, particularly teenagers, and living in houses rather than units, were perceived to be the biggest users of water because of the number of people living in the household and the fact that teenagers have a tendency to have very long, and sometimes, frequent showers, a habit which is difficult for parents to address.
- Households comprising more informed people with greater awareness of the water shortage, a responsible community or environmental focus, a caring attitude and a willingness and ability to change their ways are perceived to be more likely to be lower water users than their counterparts with the opposite qualities.
- Participants had no idea how much water is used by the average person in Sydney per year and were amazed to find out that the average householder uses as much as 250 litres of water per day.
- Participants had no idea of the price per litre/kL of the water piped to their homes. While some have an idea of the overall cost of their quarterly water bill, this includes the fixed price for sewerage and waste water services. Few had any idea at all of the number of litres/kLs they used per quarter to be able to make the calculation of the cost of water used, even if they did know the price of a litre of water.
- Many participants were amazed at how cheap water is. This perception conflicts with the view of many participants that water should remain cheap and that increased cost is rejected as a trigger to reduce water consumption. Yet increased charges were deemed the most effective way of encouraging serious over users to comply with the water restrictions.
- The price of water was considered largely irrelevant to water conservation. Much more important was encouragement for consumers to change their behaviour and attitude. In this respect, 'carrots' rather than 'sticks' were felt to be the best approach, with subsidies for installing water saving devices and incentives for lower use preferred to just driving up prices for water, which would penalise families and poorer households unfairly.
- Participants had a broad awareness of the water restrictions in place in Sydney at the time of the research (Level 2, during April & May 2005). But few were able to confidently or accurately recall the details of mandatory restrictions. There was confusion regarding exactly what methods of watering are permitted in gardens and when.
- Despite this confusion, the existence of water restrictions appears to have permeated the water-using culture, with participants reporting their own water saving techniques as well as the actual water restrictions.
- While it is not socially acceptable to flout water restrictions, participants showed a degree of ambiguity regarding the exact nature of the restrictions and whether they should be complied with to the letter.
- The causes of the water shortage and the subsequent need for water restrictions are broadly understood, and there was general support for the current restrictions. The more politicised individuals who attribute the issue to bad management are resentful

about the situation despite the fact that they comply. While some accept the water restrictions as being in place simply because of lack of rainfall, others attribute the need for restrictions to more complex sets of issues, including: environmental, social/cultural, political, structural and managerial factors.

- While it was recognised that renters and flat dwellers had less awareness of water conservation as they don't pay water bills directly and have generally been unaffected by recent water restrictions, participants who lived in flats or were renters were generally just as aware of water conservation as house dwellers and home owners and broadly supported the need for water conservation.

- Mandatory water restrictions appear to have had a significant impact on water use amongst the focus group participants: gardens have been allowed to go dry, cars go unwashed (or go to the car wash) while windows, eaves, paths and driveways collect dust. Meanwhile, voluntary efforts have been made inside the home to only use washing machines and dishwashers when they are full, to have shorter showers (and attempt to get teenagers to do likewise), to recycle water where possible and to not delay mending dripping taps and leaks. The water restrictions appear to have put water saving on the most peoples' agenda for the first time.

- As the current water restrictions do not adversely affect the comfort and convenience of most (confirming the quantitative survey results), they were deemed easy to implement and few objected to them.

- While a minority tended to think that a brief period of rainfall will lead to the restrictions being down-graded, or that the restrictions have already been lifted, the great majority were under no illusions about the need for longer term controls on water use in the future.

- Significantly, although (or perhaps because) many have introduced their own self-imposed water saving activity, participants were at a loss as to what increased water restrictions could possibly involve. There was an inability to imagine what further water savings could be made as this was very likely to compromise both convenience and comfort.

- Perceived ways of further reducing water consumption focused on collecting rain water for their own household's use, recycling of grey water and installing dual flush cisterns. They rarely included behavioural changes like having less frequent showers or flushing the toilet less often as these initiatives would have a negative impact on their lifestyle.

- Participants who have installed low flow showers were disappointed with them in terms of power and others completely rejected the notion of less powerful showers. However, there was a level of preparedness to replace top loading washing machines with front loaders when the latter need replacing.

- Participants suggested a range of alternative ways of encouraging consumers to reduce water use that were deemed likely to be more successful and effective at saving water. The most important and popular of these initiatives was the need for education in the form of a mass media communication campaign to modify awareness, attitudes and behaviour. Other initiatives included the need for the government to support domestic water saving practices by demonstrating its own water saving practices and introducing stricter controls on commerce and industry (which are perceived to be very wasteful with water) and introducing a reward system for those who invest in

water saving initiatives and warning of the consequences of not exercising restraint when using water.

- The installation of water tanks and grey water recycling systems were supported as they involve collecting more water and optimising the use of the water that is collected. This was deemed more appropriate than simply increasing the price of water delivered by Sydney Water or expecting people to adopt water saving practices that would compromise their current levels of convenience and comfort.
- In order for the latent support that exists for water tanks and grey water recycling to be effectively mobilised, participants generally agreed that there needs to be considerable financial support from the government and/or Sydney Water for householders who install such systems. There was a perception that householders were currently penalised for having a water tank. Provision also needs to be made to ensure that grey water systems can be installed with minimal possible disruption to household activity.

1. INTRODUCTION

There is increasing public concern over the ecological sustainability of Australian cities. Part of this concern is reflected in increasing attention being paid to issues of global climate change and to the way we exploit water and energy resources.

Much of the debate is focused on aggregate measures of energy and water consumption and of the technical or economic aspects of managing demand for these resources. While this is a useful level of debate when trying to negotiate international agreements or develop urban planning interventions, it has little purchase on the actual consumption behaviour of individuals and households that is the prime source of the stresses we create in the natural systems on which our cities depend. This report presents the findings of research into the consumption of water by households and individuals in Sydney to better understand socio-demographic and behavioural drivers of water consumption. It forms part of a larger project which also looked at behavioural aspects of energy consumption in Sydney. The research on energy is the subject of a separate report (Troy and Randolph, 2006, forthcoming).

The research presented here follows on and is informed by a number of earlier studies by the researchers. This includes a pilot study of water and energy consumption in Adelaide (Troy and Holloway 2004, Troy *et al* 2003). This was followed by a more substantial research on the energy and water consumption profiles in Sydney (funded by the Australian Research Council and Landcom) which was directed at producing a spatial 'account' of water and energy consumption for the Sydney metropolitan area. The water consumption of that stage of the research has been reported in *Water Use and the Built Environment: Patterns of Water Consumption in Sydney* (Troy, *et al*, 2005). The 'account' of energy consumption from this research will be published shortly (Holloway, *et al* 2006 forthcoming). These 'accounts' were constructed from the water consumption patterns of a stratified sample of 29,000 residential addresses in Sydney using information derived from the records of Sydney Water. The research provided a profile of water and energy consumption for households and individuals in different kinds of dwellings throughout the Sydney Metropolitan Area.

The present report extends this research on Sydney's water consumption patterns through an in-depth exploration of the critical, yet under-researched, issue of the impact that different socio-economic and behavioural factors have on water consumption across urban areas. It is argued that reduced water consumption is likely to reduce the environmental stress generated by urban areas, particularly in terms of impacts on water catchments, waste water and sewage outputs. Little systematic research has been conducted to understand how different types of built form contribute to these environmental impacts, what the contribution of social and behavioural factors on these impacts are, and how they play out across the city.

Despite sustainability becoming a central concern of urban planning in recent years, until recently few estimates have been made of the *per capita* use of water or energy by dwelling type and policy is often shaped on the notion that broad brush economic,

technical or regulatory measures will be effective in reducing consumption. The objectives of this research has been to explore the way water consumption is shaped by the needs, attitudes and facilities used by different kinds of households in different types of dwellings in Sydney. It has also explored consumers' perceptions of their water use and attitudes to conservation measures.

The findings will provide service providers and environmental planners with a substantially improved understanding of the role the built environment and consumer behaviour plays in determining water consumption and its contribution to environmental stress. This includes the kinds of changes in pricing, regulation or availability of services that may be needed to induce a further reduction of water consumption by individuals living in different types of dwellings, different kinds of housing (particularly, renters *vrs* owners) and in different kinds of households.

Method

The essential questions the research aims to address are to what extent two key dimensions of urban structure - built form (in particular, dwelling type) and the socio-behavioural characteristics of households - influence the pattern of water consumption across the city. As such, it represents the first attempt to understand the behavioural aspects of water consumption in Sydney during the current period when water restrictions and price rises have become the principle methods to reduce water consumption in the city. In addition, the implications these have for environmental planners and service providers in future decision making to achieve more sustainable urban outcomes are drawn out from the findings.

The research has been undertaken by a methodology incorporating both quantitative and qualitative research methods. The former involved a large-scale telephone interview survey that generated detailed information about the water consumption behaviour of sampled households, the dwellings they occupy, their socio-economic profile, and the range of equipment and facilities they use in their dwellings. Our previous research in this area has indicated the viability of such a method and also confirmed that both dwelling type and socio-demographic factors are both likely to have a critical influence on consumption behaviour (see, for example, Troy and Holloway, 2004). The latter approach involved conducting 10 focus groups drawn broadly from the areas included in the survey.

The key major methodological advance of the research is that it has allowed, for the first time, detailed data on household characteristics, the characteristics of the dwellings they occupy and their water consumption behaviour and attitudes to be linked together and analysed. In addition, we have been able to link the responses to the survey to consumption data (measured in kilolitres of water) provided by service providers for houses only (the averaging of consumption in strata title properties precludes case-based analysis).

Telephone Survey

The quantitative data for the research was obtained through a random quota telephone survey of 2,179 addresses in a random stratified sample of 140 CDs used for the earlier research project reported above (see Appendix 1 for a description of the method used to select the 140 sample CDs). A map of the location of these CDs is given in Figure 1. The survey was conducted between January and March 2005 and was undertaken for the researchers by AC Nielsen. The 140 CDs were stratified into four categories of 35 CDs:

- Areas of Wholly Separate Houses
- Areas of Predominantly Semi Detached Dwellings
- Areas of Predominantly Flats in a block of less than 4 storeys
- Areas of Predominantly Flats in a block of 4 or more storeys

Sample quotas were set on the proportion of dwellings in each dwelling type for each of the 140 CDs. The survey attempted to achieve interviews with approximately 500 households in each dwelling category. In the event, the response from residents in high rise flats and semi-detached dwellings was lower than for those in houses and low rise flats. This, in part, reflected the more limited number of CDs with very high proportions of semi-detached dwellings in the sample, and the difficulty in obtaining responses from occupants in high rise flats. The latter may reflect the high proportion of renters and younger households in this kind of property (Bunker, Holloway and Randolph, 2005) and the prevalence of mobile phone usage among this section of the population. After 75% of the overall sample had been achieved, it was decided to concentrate on the remaining medium and high rise component of the sample in order to bring sample numbers up towards the target. Also at this stage, in order to reduce questionnaire length to encourage a higher response, a range of questions were omitted. These largely related to questions of most relevance to respondents in houses. Consequently, some of the results reported below are based on a restricted sample of 1,630 cases.

The achieved response is shown in Table 1.1¹. The quota for houses was increased in order to achieve the overall target of 2,000 responses and to allow for more detailed analysis of houses if needed and to compensate to the reduced number of responses from high rise flats. In the event, a final total of 2,179 interviews were successfully completed. In the analysis presented in the following report the data have been weighted to reflect the distribution of dwelling types and dwelling tenure in Sydney as a whole. The results therefore can be viewed as a reflection of outcomes for households across Sydney.

Table 1.1: Telephone Survey: Achieved Response

Dwelling Type	Target quota	Achieved
Separate Houses	500	821
Semi Detached Dwellings	500	446
Flats in a block of less than 4 storeys	500	554
Flats in a block of 4 or more storeys	500	358
Total response	2,000	2,179

¹ A full tabulation of response by dwelling type and Sydney region (East and West) is given in Appendix 1

This survey represents a major benchmarking exercise in its own right and has provided a database that can be drawn upon for future comparative research by researchers and by service providers and planning authorities.

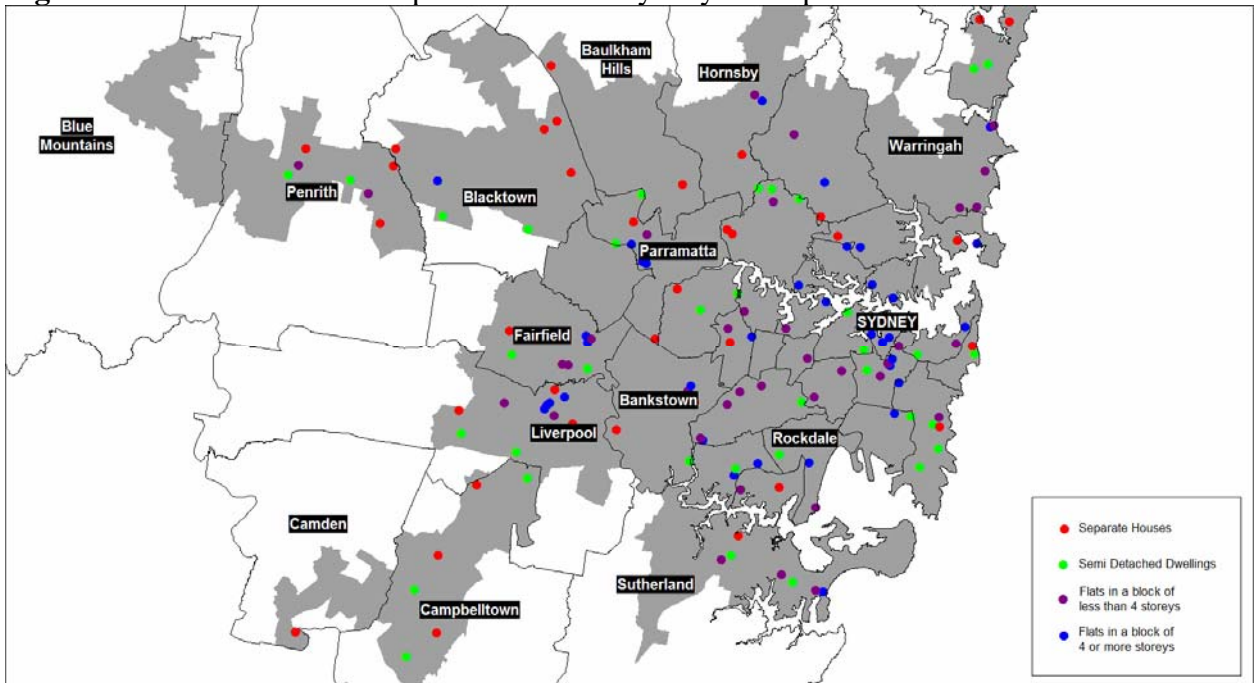
Focus Groups

The project also had an important qualitative component. This was undertaken through a series of six targeted focus groups that explored the behavioural aspects of water consumption among key types of households, defined by occupancy of types of dwelling (separate houses, attached houses, and flats) and household/life stage type (e.g. families, young singles, older people). The focus groups were undertaken in April and May 2005. Participants were recruited by AC Nielsen by telephone and the groups were conducted by SMS Research for the research team. (A more detailed overview of the qualitative research methodology is given in Appendix 2.)

The aim of this qualitative component of the project was to explore the attitudes of consumers to their use of water in much more detail, whether their residential position (location and type of dwelling) influences their consumption behaviour, whether they are aware of conservation programs and policies, whether they are susceptible to more sustainable consumption practices, and their attitudes to more sustainable alternative practices (e.g. travel to work behaviour). In addition, the focus groups allowed testing of attitudes to pricing strategies to assess attitudes to the kinds of measures that could to be employed to encourage households to reduce consumption of these resources. In this way, the data recorded in the household survey can be better interpreted and more substantive conclusions drawn.

It should be noted that during the period during which the fieldwork for the research was undertaken, between November 2004 and April 2005, Level 2 water restrictions were introduced in Sydney in response to a worsening water supply problem following prolonged drought conditions in NSW. Respondents were therefore likely to be well aware of water conservation issues. Responses to the water component of the research need to be interpreted in the light of the heightened awareness of the water conservation situation prevailing at that time.

Figure 1.1: Distribution of sampled CDs in the Sydney Metropolitan Area



FINDINGS: PART 1

2 QUANTITATIVE SURVEY

2.1 Introduction

This chapter describes the key findings from the survey of 2,179 households across Sydney on their water consumption behaviour and attitudes to water use and conservation. To assist in presentation, detailed cross tabulation have been appended in Appendix 3, while the main body of the report only includes graphics to illustrate more significant findings. To simplify the descriptions, flats of four or more storeys are referred to as ‘high rise’ and flats in blocks up to three storeys are referred to as ‘low rise’. Semi-detached and other attached row or terraced housing (including villas and town houses) are referred to generically as ‘semi-detached’ housing (or ‘semis’).

The first part of this section sets out the basic characteristics of respondents, their households and the accommodation they occupy, using the weighted data, with specific attention to differences between dwelling type. The second part describes the facilities and characteristics of the dwellings in some detail. These data were collected to allow better understanding of the differences in attitudes and behaviour with respect to water consumption. Clearly, the presence or absence of certain facilities in a home will greatly determine both the overall use of these services and attitudes towards them. Homes with multiple water facilities are more likely to use more water than those with few such facilities.

The third section focuses on water use and attitudes. This includes discussion of the frequency of use of key water using facilities in and around the home. Variations in other characteristics of the sample are discussed where these are considered relevant.

2.2 A profile of respondents and their households

Data were gathered on the respondents themselves, the households to which they belong and the property they occupy. This information is important in understanding the relationship between consumers, the homes they occupy and their water consumption behaviour and attitudes. This section therefore provides the basic information for interpreting the main survey results as well as setting the socio-demographic context for the qualitative findings in Part 2 of this report. Data are summarised in Table 2.1. As we argue below, the differential socio-demographic profile of the dwelling sub-groups focused on in this report – the “compositional effect” – critically affects these outcomes.

2.2.1 Demographic characteristics

Number of People in Household

Two in five respondents' households (19%) were lone persons, while a third (33%) had two people in the dwelling. Three in ten had four or more people in the household. However, there was a substantial difference between dwelling types in terms of household size. While 40% of households in separate houses had four or more persons, the proportion fell to just 10% for those in flats. Households in flats were most likely to only have only one person (39% of low rise flats and 32% of high rise flats). On average, households contained 2.59 persons, ranging from 2.86 persons for households in separate houses to 2.37 persons for those in semis and 1.97 persons for those in flats.

Age of Respondent

A quarter of respondents (25%) were aged between 18 and 34 while 41% were 35 – 54 years old and a third (34%) were older than 55 years. Two out of five (41%) respondents living in flats were 18 – 34 years (rising to 45% for those in high rise flats), compared to 18% of those in houses.

Gender of Respondent

There was a slight bias towards women in the profile of respondents, with 57% being female and 43% being male. This is likely to reflect the survey methodology whereby calls were made at a range of times during the day with women more likely than men to be at home during the day time.

Employment Status of Respondent

Approximately half of respondents in all dwellings worked full-time, with 5% unemployed and just over a quarter (26%) not in the labour force. The highest rate of full-time employment occurred in low rise flats, where three in five respondents worked full-time, compared with separate houses where only 46% of respondents were engaged in full-time employment. As a result, respondents in low rise flats have the lowest proportion not in the labour force (19%), but also the highest rate of unemployment 8%. Separate houses had the highest rate of respondents not in the labour force 29%, but the lowest rate of unemployment (4%).

Gross household annual income

Respondents were asked to assess their total gross household income. As many as 16% did not know or refused the question. Of those who did answer, the some 44% of households' incomes fell below \$52,000 p.a. and 56% were above that figure. This is in line with known Sydney household income medians at this time.

Not surprisingly, household income was higher for households in separate houses compared to those in semis and flats, with 60% of the former having incomes over \$52,000 compared to 52% and 49% of the latter two groups respectively.

- 17% of households in flats, 18% of those in semis and 12% of households in separate houses earned less than \$20,800 annually (the average is 15%).

- 29% of respondents' households had incomes broadly in the middle of the income scale (\$41,601 - \$78,000). This did not vary greatly between houses (29%) and flats (30%), although the figure was lower for households in semis (23%).
- A fifth of households (21%) had household incomes above \$104,000. This figure ranged from 25% of households in separate houses (25%) to 17% of households in semis and 15% of households in flats. The figure for high rise flats was 20%.

Table 2.1: Socio-demographic profiles of dwelling types

	Separate Houses	Semis	All Flats	Low rise flats	High rise flats	Total
Household size						
1	13%	20%	36%	39%	32%	19%
2	29%	40%	40%	38%	46%	33%
3	18%	21%	14%	15%	13%	17%
4 plus	40%	18%	10%	9%	9%	30%
Average size	2.86	2.37	1.97	**	**	2.59
Age of respondent						
18-34	18%	32%	41%	41%	45%	25%
35-54	44%	38%	32%	35%	24%	41%
Over 55	37%	39%	26%	24%	29%	34%
Employment status of respondent						
Employed full-time	46%	50%	56%	58%	54%	49%
Employed part-time	16%	17%	12%	12%	11%	15%
Unemployed	4%	5%	7%	8%	6%	5%
Not in labour force	29%	22%	21%	19%	24%	26%
Other	4%	6%	4%	3%	4%	4%
Household income						
Up to \$31,200	18%	27%	24%	25%	22%	20%
\$31,201 - \$52,000	17%	16%	22%	24%	17%	17%
\$52,001 to \$78,000	16%	13%	15%	15%	16%	15%
\$78,001 - \$104,000	12%	19%	15%	16%	14%	14%
More than \$104,001	20%	16%	13%	11%	17%	18%
Housing tenure						
Owned outright	49%	35%	25%	22%	26%	42%
Buyer	31%	23%	13%	14%	11%	25%
Private renter	12%	36%	55%	57%	54%	25%
Public renter	5%	5%	6%	5%	9%	5%
Other/Don't know	3%	2%	1%	2%	0%	2%
Year respondent moved in						
2004-5	6%	20%	26%	23%	32%	13%
2002-3	11%	24%	29%	29%	29%	17%
2001-2	16%	15%	14%	16%	11%	15%
1996-99	14%	12%	11%	12%	10%	13%
Pre-1996	51%	28%	20%	21%	18%	41%
Base (100%)	1395	248	536	334	185	2179

2.2.2 Summary

Overall, respondents living in houses had larger households, they were older and were also likely to have higher household incomes than other households. They were more likely not to be in the labour force (i.e. at home or retired) but they had the lowest unemployment rate for those in the labour force. They were the least mobile and also much more likely to be home owners or buyers.

Respondents in low rise flats were the most likely to be working, but were also the most likely to be unemployed and to have lower incomes than households in other dwelling types. They included the largest proportion of single person households, which helps explain their lower income levels. They were generally younger than respondents in houses or semis, but compared to those in high rise flats, the proportions aged 35 to 55 was significantly larger.

Respondents in high rise flats were the youngest group but have relatively higher incomes, especially in relation to those in low rise flats. At the same time, the proportion over 55 years was higher than those in low rise flats. These findings indicate both a large youthful market but also an older 'empty nester' and higher income market in this sector. They were also the most mobile, with 61% having moved into their current home within two years of the survey.

The profile of respondents living in semi-detached housing lay somewhere between those in houses and those in flats, suggesting a more diverse sector.

2.3 A Profile of Dwellings and Amenities

2.3.1 Tenure, turnover, property age and type

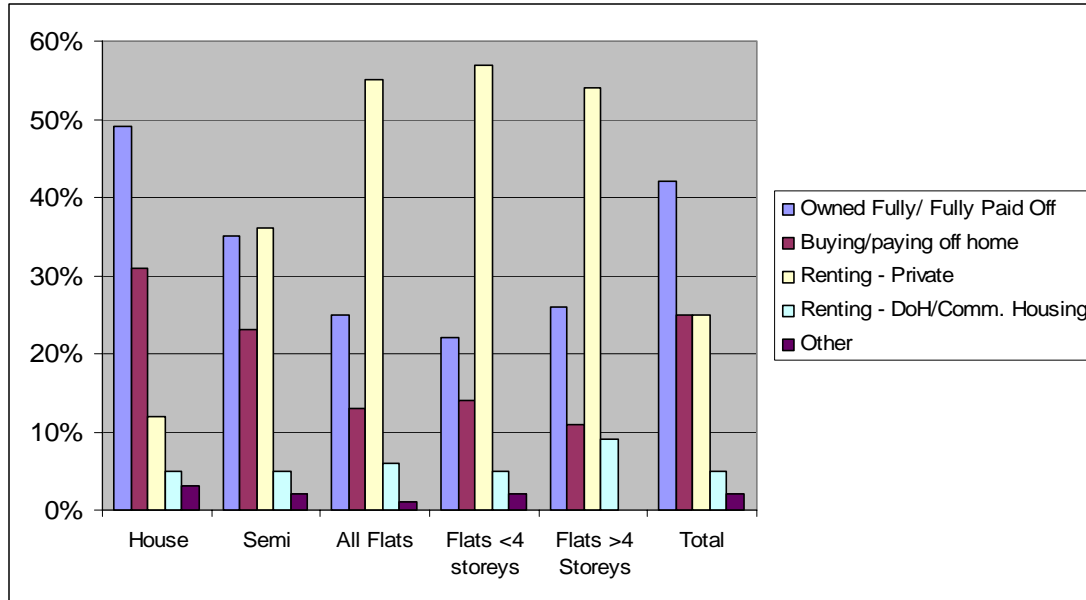
Overall, two out of five (42%) respondents were outright owners of their homes with a further 25% in the process paying off a mortgage (Figure 2.1). Another quarter were renting privately and five percent rented from the NSW Department of Housing.

The main difference between dwelling types was in the proportion of dwellings rented. While 81% of houses were owned or being bought, the proportion fell to 58% for semi-detached houses and to just 38% for flats. Over half the flats (55%) were rented privately.

Residential turnover rates reflected property type and tenure. Overall, two in five households had been living in their homes since before 1996, while 13% had moved within the year before the survey (i.e. during 2004) and 30% in the previous three years (2002 to 2004). But while 17% of respondents living in houses had moved in the previous three years, the proportion increased to 44% for semi-detached houses and to 55% for all flats. As many as 61% of respondents in high rise flats had moved within the previous three years. At the other end of the scale, 51% of house dwellers had lived in their current home since before 1996, compared to 20% for flat dwellers.

Respondents were asked to assess the age of their home. While 10% said they did not know, the remaining 90% provided a date. While 17% of the dwellings were constructed in the period between 1991 and 2005 (and just 3% were built after 2002),

Figure 2.1: Tenure of property by dwelling type



Base: 2179

12% pre-date 1945 and 13% were built between the Second World War and 1960 – broadly corresponding to the fibro belt of Sydney. A third (35%) were built in the period 1961 to 1980. Semis and high rise flats were generally the most recently constructed, with 26% of the former and 31% of the latter having being built since 1991. Low rise flats were most likely to have been built between 1961 and 1980 (38%). Semis are more likely to have been built before 1945 or since 1980.

Turning to the type of construction, 54% of dwellings were full brick, while 25% were brick veneer. Approximately one in ten were fibro (9%) and 5% were weatherboard. A small minority were said to be built of concrete (4%) or some other or mixed materials (3%). Flats were predominantly built of brick (84%) or concrete (14%), with almost two in five high rise flats being of concrete construction and nine in ten low rise flats being built of full brick. On the other hand, well under half of all houses were full brick (40%), while 14% were of fibro construction, 7% of weatherboard and a third (34%) were brick veneer. Three quarters of semis were full brick.

2.3.2 Alternative sources of water

All respondents say they are connected to Sydney Water supplies. At the same time, respondents were asked whether they had access to a water supply other than that provided by Sydney Water through the reticulated water supply. Few households had access to additional or alternatives to Sydney Water: 4% had a rainwater tank, 3% used grey water in some way and 1% used bore water. A further 2% had access to another

source of water, including a private dam or spring water. Only 3% of flats reported access to water sources other than piped water from Sydney Water.

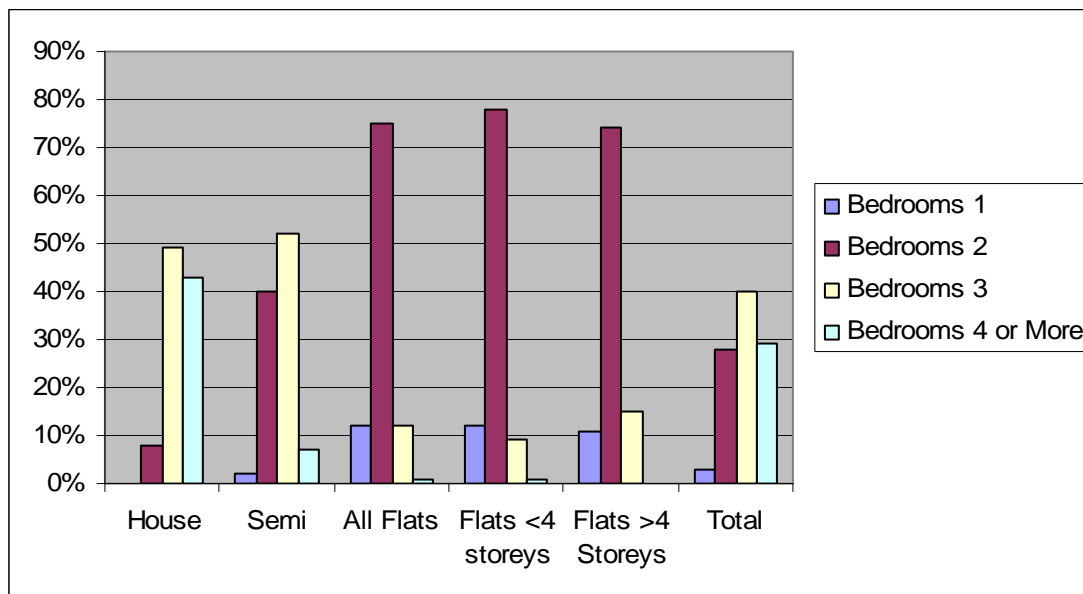
2.3.3 Dwelling size and amenity

Details of the interior room and amenity characteristics of each dwelling were obtained (Table 2.2). The results indicate a wide range of dwelling profiles. The limited size of flats compared to houses is evident from the results, with, for example, only 13% of flats having 3 or more bedrooms compared to 92% of separate houses (Figure 2.2).

Other key differences between dwelling types include the following:

- While 99% of houses had separate laundries, one in five (20%) flats did not and 17% of flats had a shared laundry.
- Half (51%) of houses had two or more bathrooms compared to 34% of high rise flats and only 12% of low rise flats (42% of all dwellings had 2 or more bathrooms).
- A fifth of houses (21%) had two or more toilets compared to 15% of semis and 5% of all flats (17% of all dwellings have 2 or more toilets).

Figure 2.2: Number of bedrooms per dwelling by dwelling type



Base: 2179

Table 2.2: Dwelling size and amenity characteristics

	Separate Houses	Semis	All Flats	Low rise flats	High rise flats	Total
Kitchens						
1	97%	99%	100%	100%	100%	98%
2 or More	3%	1%	0%	0%	0%	2%
Living Rooms						
0	0%	0%	1%	2%	1%	0%
1	60%	86%	95%	96%	95%	72%
2 or More	40%	13%	4%	2%	4%	28%
Bathrooms						
1	49%	61%	80%	88%	66%	58%
2 or More	51%	39%	20%	12%	34%	42%
Separate Toilets						
0	28%	32%	70%	70%	74%	39%
1	50%	52%	25%	28%	20%	44%
2 or More	21%	15%	5%	2%	5%	17%
Bedrooms						
1	0%	2%	12%	12%	11%	3%
2	8%	40%	75%	78%	74%	28%
3	49%	52%	12%	9%	15%	40%
4 or More	43%	7%	1%	1%	0%	29%
Other Rooms						
0	41%	59%	81%	83%	83%	53%
1	36%	34%	17%	15%	16%	31%
2	17%	6%	2%	2%	1%	12%
3 or More	6%	1%	0%	1%	0%	4%
Laundries						
Yes	99%	94%	80%	79%	82%	94%
No	1%	6%	20%	21%	18%	6%
Base (100%)	1395	248	536	334	185	2179
Shared/Common Laundries						
Yes			17%	16%	17%	17%
No			83%	83%	83%	83%
Base (100%)	0	0	518	333	185	518

2.3.4 Summary

As a broad generalisation, houses are owned or are being purchased while flats are mainly rented. Semis have a more balanced tenure profile. Houses have a more stable occupancy profile with half house dwellers having lived in their homes since before 1996. In contrast, six in ten high rise flat dwellers had moved into their current homes during the last three years. Again, semis were in between these extremes. This differential tenure and occupational pattern will have a significant impact on attitudes to water consumption and perceptions of use. Flat dwellers and many of those in semis will be in strata title arrangements, where individual water billing is much less common. This issue is compounded for renters, who are liable for only part of the water bill at best. As

a result, renters in strata title property may have little direct understanding of how much water they use or how much it costs.

Only one in ten respondents reported they had access to alternatives to Sydney Water for water supply, the main ones being a rain water tank or recycle water of some kind. These were nearly all house dwellers. So there is little alternative to using the reticulated water supply for the vast majority of water consumers at the present time.

As for the physical characteristics of the four dwelling types, it is clear that flats have, on average, lower levels of space and amenity compared to houses, with semi-detached property somewhere in between. This applies to a range of key water using facilities, such as multiple bathrooms, toilets and the presence of separate laundries. Low rise flats, given their greater age and often poorer quality, have the lowest standards of all the dwelling types identified here.

This means that those living in houses have much greater opportunity to use water, including external uses outside the dwelling with gardens and lawn areas. Despite having more facilities to use water, it is the case that on a *per capita* basis, residents in houses in Sydney do not use substantially more water than those living in flats (Troy, Randolph and Holloway, 2005). This might imply that there will be little real difference in the behavioural and attitudinal outcomes of respondents in different dwelling types. In fact, as we outline below, this is not the case.

2.4 Water Using Facilities and Equipment Inside the Home

2.4.1 Water using facilities by dwelling type

The details of a wide range of additional facilities and equipment that might influence water and energy usage were requested from respondents (Table 2.3). These are all areas of the home where water is used on a regular basis, or major pieces of water using equipment. The presence of these facilities will also have an important impact on the capacity of a household to use water, or will influence the way it uses water. For example, use of a dishwashing machine means that water used for washing dishes will be much more closely related to the water efficiency of the machine used. Households undertaking dish washing by hand in a sink may well have very different washing methods, making the control of water use very much more difficult to determine and highly dependent on the individual's approach to dish washing. For those seeking to influence water consumption behaviour, these issues may become very important, especially when attempting to encourage households to reduce water use within the home (as opposed to external use in gardens, for example). The behavioural aspects of the use of these facilities are explored in a later section of this section of the report and in depth in the qualitative section below. For now, we describe the basic presence of water using facilities. Again, there were a number of potentially significant variations between dwelling types in the presence of such facilities.

Swimming Pools

Overall, 20% of respondents owned or had use of a swimming pool in their property. Almost a quarter (24%) of those living in a separate house had a swimming pool as did 29% of respondents in high rise flats. This compares to just 9% of households in semi-detached housing and 5% of households in low rise flats.

Spas (Indoor and Outdoor)

Almost one in ten (9%) had an indoor spa and 4% had an outdoor spa. Access to an outdoor spa was highest in high rise flats (6%) and lowest in low rise flats (0%).

Toilets

The use of dual flush toilets was reported by half the sample (51%), ranging from 64% of those in separate houses to 46% of those in low rise flats.

Dishwashers

Half of all dwellings (49%) had a dishwasher. A clear majority (57%) of respondents in separate houses reported having a dishwasher as did 51% of respondents in high rise flats, compared to one in five (20%) of those in low rise flats.

Washing Machines

Overall, 82% of households had a top loading washing machine while only 16% had a front loader. Residents in semis and high rise flats were approximately twice as likely as those in houses to have front loading machines (25%, 23% and 13% respectively).

Showers

Almost all respondents (99%) reported having at least one shower and 43% had two or more (Figure 2.3). Over half (54%) of all separate houses had two or more showers compared to 20% of all flats and just 13% for low rise flats.

Baths

In all, 88% of all dwellings had 1 or more baths, while 12% had none (and 16% of high rise flats).

Washing Basin

Almost all dwellings had washing basin (96%), with 50% of separate houses having two or more compared to 15% of low rise flats.

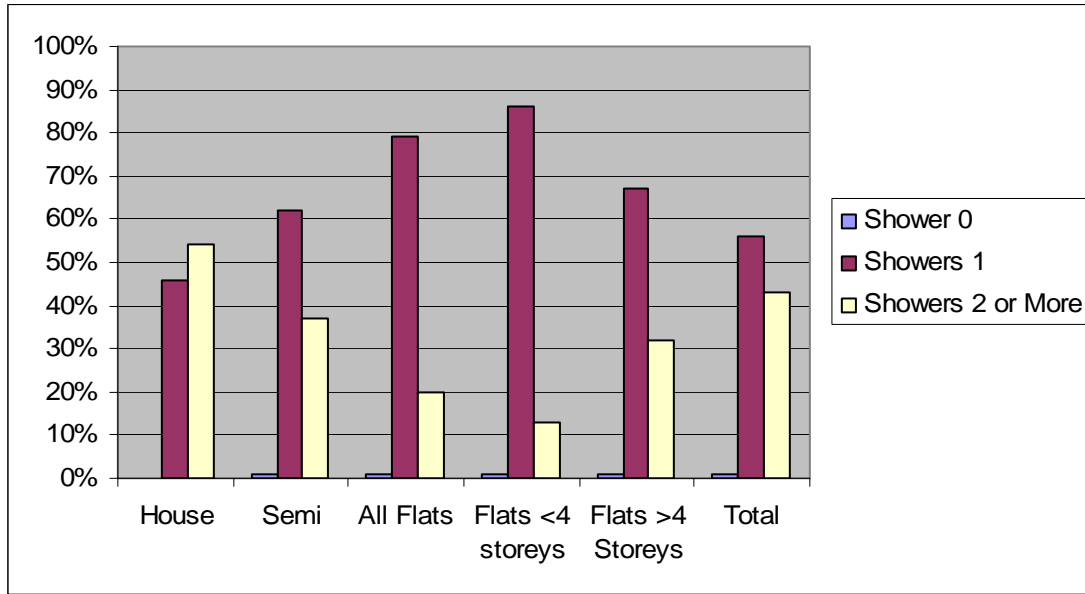
Laundry Sink

Similarly, 94% of all dwellings had a laundry sink, with as many as 84% of flats having at least one.

Kitchen Sink

Virtually all dwellings had a kitchen sink, while a third of had two or more. Over a third of separate houses (36%) and semis (35%) owned two or more kitchen sinks compared with 25% of all flats.

Figure 2.3: Numbers of showers per dwelling by dwelling type



Base: 2179

2.4.2 Summary

These findings indicate that many Sydney homes have high levels of water using facilities. While virtually all have the basics (shower, laundry and kitchen sinks, basin, washing machine, bath), a substantial proportion have additional facilities such as swimming pools (one in five), dishwashers (half), and multiple showers and basins. One area where water efficiency could be improved is in promoting the use of front as opposed to top loading washing machines, where the predominance of the less water efficient top loaders by four in ten households has been a tradition that has been slow to change. In addition, with only between half and two thirds of dwellings having dual flush toilets, there is some way to go before water efficiency can be maximised in domestic toilet use.

The main finding in terms of differentials between dwelling types is, again, the generally much lower presence of water using facilities in low rise flats. This reinforces the impression of a generally lower standard of provision in these homes as opposed to other dwelling types, especially when compared to houses and, to a lesser extent, high rise flats.

Table 2.3: Water using facilities by dwelling type

	Separate Houses	Semis	All Flats	Low rise flats	High rise flats	Total
Showers						
0	0%	1%	1%	1%	1%	1%
1	46%	62%	79%	86%	67%	56%
2 or More	54%	37%	20%	13%	32%	43%
Baths						
0	11%	12%	13%	11%	16%	12%
1	79%	85%	84%	86%	82%	81%
2 or More	10%	3%	3%	3%	2%	7%
Single Flush Toilets						
Yes	50%	52%	53%	56%	48%	51%
No	50%	48%	47%	44%	52%	49%
Dual Flush Toilets						
Yes	64%	55%	49%	46%	54%	51%
No	36%	45%	51%	54%	46%	49%
Indoor Spa Bath						
Yes	12%	6%	5%	2%	7%	9%
No	88%	94%	95%	98%	93%	91%
Outdoor Spa Bath						
Yes	5%	5%	2%	0%	6%	4%
No	95%	95%	98%	100%	94%	96%
Swimming Pool						
Yes	24%	9%	14%	5%	29%	20%
No	76%	91%	86%	95%	71%	80%
Kitchen Sink						
0	0%	1%	0%	0%	0%	0%
1	64%	64%	75%	77%	70%	67%
2 or More	36%	35%	25%	23%	29%	33%
Washing Basin						
0	3%	7%	7%	6%	7%	5%
1	47%	50%	72%	79%	61%	54%
2 or More	50%	43%	21%	15%	32%	42%
Laundry Sink						
0	2%	5%	16%	17%	15%	6%
1	90%	93%	82%	82%	84%	88%
2 or More	8%	2%	2%	2%	1%	6%
Base (100%)	1395	248	536	334	185	2179

2.5 Water Use in and Around the Home

2.5.1 Introduction

This section of the report focuses in detail on behaviour and attitudes towards the use of water in the home. At the time of the research, water was a major news item and a strongly debated topic in the Sydney media. Water conservation had also been the focus of a strong advertising campaign by Sydney Water in the period preceding the research. Due to ongoing drought conditions at the time, Level 2 water restrictions had recently been imposed across the study area (see Appendix 4 for a definition of these). So it is to be expected that respondents would display a heightened awareness of the issues involved and might also be expected to report behaviour towards water use that reflected this heightened concern. This will also have had an impact on both reported use and attitudes. In many ways, the research took place at a time when few respondents could have been unaware of water conservation as a key issue facing Sydney. The responses discussed in the following section therefore need to be interpreted in the light of the conditions prevailing at the time.

The first part of this section continues with a description of the use of water efficient fittings and use of water in and around the home. This is followed by a description of the range of actions respondents have taken or intend to take to reduce water use, including attitudes to the issue of efficiency. Awareness of water use and attitudes to water pricing are then discussed.

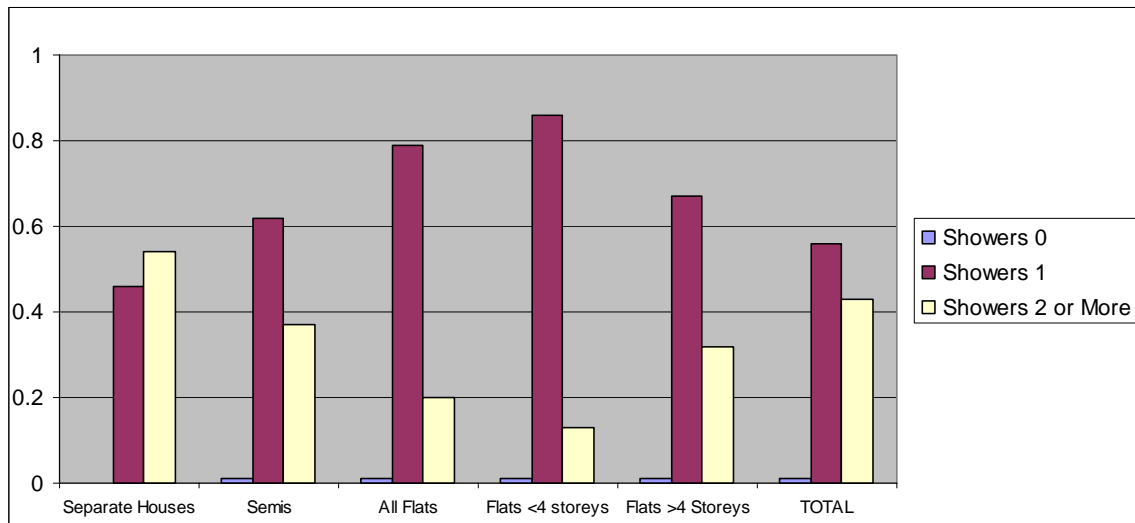
2.5.2 Water efficiency measure

A number of questions sought to establish the range of water saving devices used in the home and the way respondents used water in domestic tasks. The findings indicate a wide range of water saving devices are used, but only in the case of efficient shower heads does the use of such fittings account for more than half of all respondents. Use of other water saving devices is patchy.

Water Efficient Shower Heads

Just over half of all dwellings had at least one water efficient shower head (55%). Use of these fittings was highest in houses, with 62% reporting at least one water efficient shower head (Figure 2.4). Flats had the lowest usage of these fittings at 40%, although 10% of flat dwellers didn't know whether they had such a fitting or not.

Figure 2.4: Number of showers by dwelling type



Base = 2179

Bathroom Flow Taps

Three out of ten (29%) households had flow controls on the bathroom taps. Separate houses were the most likely to have bathroom tap flow controls, with 34% having one or more. Flats were the least likely to have flow controls, with 81% of flat dwellers saying they had none installed.

Kitchen Flow Taps

A third (36%) of respondents reported having flow controllers on kitchen taps. Again, separate houses were the most likely to these fittings (45% having at least one). Almost a third of all semis had one or more flow controls (32%). Flats were least likely to have flow controls, with three quarters reporting none were fitted (74%).

Laundry Flow Taps

The vast majority of all dwellings did not have flow controls installed on laundry taps (86%). Separate houses were most likely to have these fittings (14%) followed by semis (11%), high rise flats (10%) and lastly low rise flats (8%).

2.5.3 Washing dishes and clothes

Respondents were asked about the use of water for washing dishes and clothes. There was a noticeable difference in expressed behaviour between respondents who lived in flats and those living in houses, with, again, respondents living in semi-detached homes in between. It is highly likely that a clear 'compositional effect', i.e. the particular profile of flat dwellers compared to house dwellers, as reflected in the demographic profiles reported above, may in large part account for much of these differences. Put simply, houses are much more likely to house families and larger households, while flat dwellers, especially those in high rise flats, are much more likely to be younger, childless, and, possibly less likely to spend time at home. Water usage for washing dishes and clothes reflects this profile. Flat dwellers were less likely to use water saving devices or be less aware of these than are respondents in semis and houses.

2.5.4 *Water efficiency in the kitchen*

Dishwasher Usage per Week

Of the 48% of all respondents who said they had a dishwasher, as many as 11% said they never used it. But this proportion rises to 26% for high rise flat dwellers with a dishwasher. A further 17% of respondents used it once a week or less than once a week. The latter figure ranged from 14% of house dwellers to 27% of all flat dwellers. On the other hand, 31% of respondents with dishwashers said they use their dishwasher five or more times a week, ranging from 36% for house dwellers to 43% of all flat dwellers.

Use of Economy Setting on Dishwasher

Of those respondents with a dishwasher, the majority said they used the economy setting (67%) and only 8% reported to not have an economy setting on the machine (8% don't know). Respondents in flats were least likely to report using their dishwasher's economy setting (57%), with a fifth saying they didn't use it (22%), but 13% didn't know if they did or not. Younger respondents (under 35 yrs) and private renters were less likely to say they used economy settings.

Frequency of Hand Washing Dishes

Overall, one in ten respondents (10%) reported never washing a load of dishes by hand (12% among house dwellers and 6% for flats dwellers). On the other hand, 37% of respondents said they hand wash the dishes at least once a day. Given the reported differences in the ownership or use of dish washing machines, there was perhaps surprisingly little variation between respondents in different dwelling types in the number of times they report washing dishes by hand (although this does not account for the amount of dish washing undertaken). Respondents in eastern Sydney were almost twice as likely to say they never wash dishes by hand (12%) compared to those in western Sydney (6%).

Rinse dishes when washing them

Most respondents rinsed dishes when washing them – 23% before hand, 29% afterwards and 20% before and after – while 27% said they never rinse their dishes. Flat dwellers were marginally more likely to rinse.

Fill sink or use running water for hand washing dishes

Of those who said they hand wash dishes, 83% generally used a plugged sink for rinsing dishes and 16% used running water. Flat dwellers were twice as likely to use a running tap to rinse dishes (23%) as were those in separate houses (12%). Again, this may relate to the smaller number of items washed, and possibly more limited amount of cooking many flat dwellers undertake compared with those living in houses.

2.5.5 *Water efficiency in the laundry*

Methods for Washing Clothes

Almost all respondents (96%) used a washing machine at home, while 23% reported hand washing clothes at home. Only 2% used a shared laundry and 3% either used a laundromat, do their washing at a friend or relatives home or in another location. Some

9% of flat dwellers used a shared laundry, and 3% used a laundromat and 2% washed at a relative's or friend's home (virtually no one living in a house used these methods).

Frequency of Washing Clothes

On average, respondents washing by hand did so 2.2 times per week, those washing by machine did 3.9 washes per week and those using other washing methods did so 2.0 times per week. Overall, however, when all methods of washing are aggregated, the average respondent reported washing clothes by one or other means an average of 4.2 times per week.

Frequency of Machine Washing at Home

Half (49%) used their washing machine at home four or more times a week, ranging from 57% for those living in separate houses to 30% for flat dwellers. A similar proportion overall used the washing machine two or three times a week (40%), while 10% used it only once.

Use of Economy Setting on Washing Machine

A substantial majority (81%) said they used the economy setting on their washing machines, with 12% saying they didn't and 6% saying they didn't have such a setting (3% don't know). There was little variation across the dwelling types in this response, with the exception of respondents in high rise flats, 77% of whom said they use an economy setting.

2.5.6 Other household uses of water

Plumbing Leaks

Leaking pipes and fittings can be a persistent use of water within the home which often goes unaccounted for. When asked if they knew of any leaks in their water pipes or fittings, the clear majority (84%) said there were no leaks within their dwelling, with houses marginally less likely to report leaks than semis or flats. Of the minority with a leak, the most common leak reported was that of dripping taps (7%), followed by leaking/dripping showers (3%) and leaking/dripping toilets (3%). An additional 4% report leaking water pipes and other leaks. Flats and semis were twice as likely to report leaking showers and toilets than houses, while 'other' leaks were most likely to occur in houses, possibly relating to leaks outside the dwelling.

Frequency of Washing Vehicles

Overall, 86% of respondents' households owned at least one car: 43% owned one, 32% owned 2 and 11% owned three or more. Car ownership was highest among house dwellers, and as many as 24% of flat dwellers did not own a car (29% of high rise dwellers). In all, a total of 3,095 cars were owned by the respondents, giving an average among car owners of 1.7 cars.

Car washing at home was restricted at the time of the survey to only washing using a water and bucket. Consequently, this should have been reflected in the responses to questions about car washing. Overall, 20% of respondents with a vehicle said they never washed it at all, while 18% said they only do so every six months or less. At the other

extreme 6% washed their vehicle weekly while a further 10% washed every fortnight. The frequency of washing second or subsequent vehicle was lower. For second vehicles, the proportion owners who said they never washed it increased to 27%. Only 13% washed a second car every fortnight or more frequently. There was little significant difference between respondent in different dwelling types in terms of vehicle washing.

Have car washing habits changed as a result of car washing restrictions? In all, 30% of car owners who washed their car say they had reduced the number of times they washed it in the previous year, but that leaves seven in ten who had not. So restrictions on car washing at home appear to have had some impact on the overall number of times people wash their cars for a minority of owners. The most frequent car washers were least likely to have reduced the number of times they wash their car: only 22% of those who say they washed their car once a week say they had reduced the number of time they washed their car over the previous year. The figure for those washing every two months or less frequently is 34%. So less frequent car washers were more likely to have reduced washing frequency.

But while domestic car washing will have had an impact on some car owners, we found that, at the time of the survey, half of all car owners (54%) said they did not wash their cars at home. The percentage never washing at home rises to 64% for flat dwellers, clearly indicating a widespread use of commercial car washing services among this group. So for flat dwellers, domestic water restrictions have had less impact as they are much more likely to externalise their water use for car washing compared with house dwellers.

2.5.7 Summary

Both the use of water saving devices and water use practices in the home are highly variable. While half of those surveyed said they had at least one water efficient shower head, only a third reported having reducer fittings on taps in the kitchen or bathroom and few have them fitted in the laundry. Flats generally reported having fewer of these kinds of fittings than other kinds of property.

A perhaps surprising finding is that one in ten of those who have a dishwasher (about half of the sample) say they never use them, a figure that increases to a quarter for high rise flat dwellers. This means that all dish washing for these households is done by hand. This may simply reflect the fact that they eat fewer meals at home or they do not cook at home regularly. In other words, the water use related to meals and eating is effectively displaced to outside the home for these people. More positively, two thirds of dishwasher owners used economy settings, although it is not clear if this is all the time.

On the other hand one in ten respondents said they never washed dishes by hand, especially those in eastern Sydney, while a third washed by hand daily. Rinsing of dishes while washing them was common with three quarters either rinsing before, during or after washing their dishes, although a clear majority rinsed in a plugged sink rather than under

running water. Flat dwellers were twice as likely to rinse under running water, which may reflect the fact that they wash fewer items compared to larger households in houses.

On average, a Sydney household did around four washes of clothes a week. Nearly all used their own washing machine while a quarter also washed by hand. Very few use laundromats or shared laundries and virtually all those who did lived in flats. A majority used the economy setting while using their washing machines. Leaks are often thought of as major cause of water loss. Our findings showed that only a small minority reported leaks around the home, with dripping taps being the main problem. Proper maintenance would help address the losses for this source.

Finally, car washing has also been thought of as a major user of water in the home. Half those with a car said they never washed it at home and almost two in five said they never or rarely washed their car at all. So at best, the car washing restrictions had directly impacted on only half of all car owners. On the positive side, we inferred that a proportion of these may have reduced car washing frequency as a result of the water restrictions. Perhaps the most interesting findings is that the most frequent car washers were the least likely to have changed their car washing habits in the previous year during which car washing restrictions had been introduced. Again, there was clear evidence that flat dwellers were most likely to externalise water use for car washing as only a minority washed their cars at home.

2.6 General Attitudes to Conservation

2.6.1 Introduction

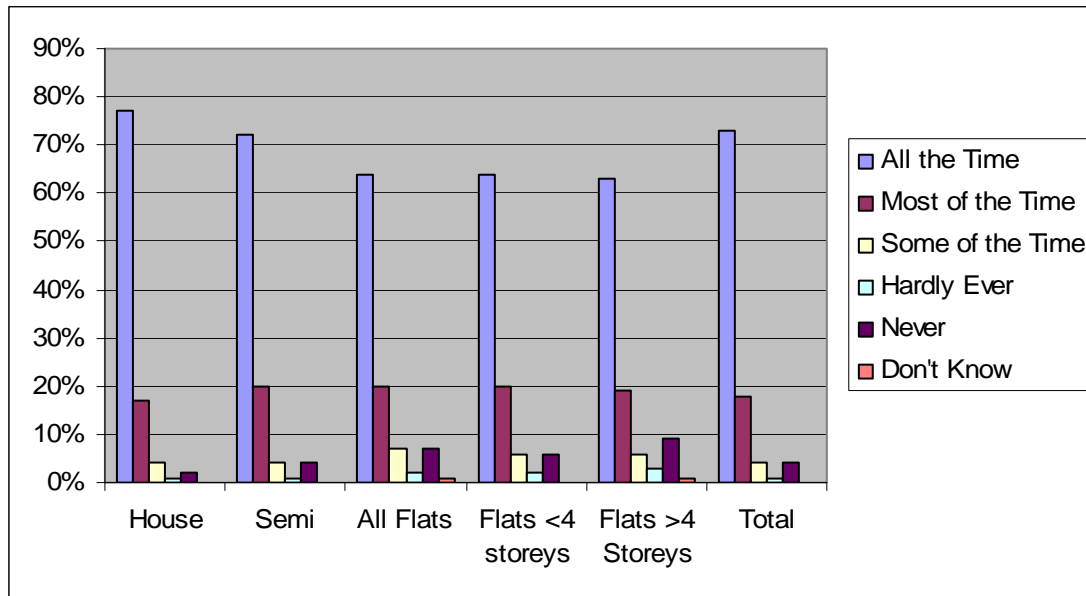
One of the objectives of the survey was to explore the attitudes of respondents towards conservation and environmental issues in general as attitudes to these general issues may influence water use. The responses to a number of general questions on conservation attitudes suggest broad support for such sentiments. There were differences between respondents in different dwelling types. The findings on general attitudes usefully inform the interpretation of the discussion of attitudes toward water conservation that are the focus of the remainder of this paper of the report. They will also provide a context for interpreting the findings from the qualitative research reported in Part 2.

2.6.2 Do you generally recycle waste and rubbish?

When asked if they generally recycle waste and rubbish, three quarters (73%) of respondents said they do all the time, with another 18% saying most of the time (Figure 2.5). Only 5% admitted to recycling hardly ever or never at all.

The highest percentages responding positively to this question were those living in separate houses (77%) and semis (72%), while a lower proportion of those in flats (64%) saying they flats generally recycle waste and rubbish. As many as 12% of respondents in high rise flats said they hardly ever or never recycle (compared to only 3% of house residents).

Figure 2.5: Attitudes to recycling of waste and rubbish by dwelling type



Base: 2179

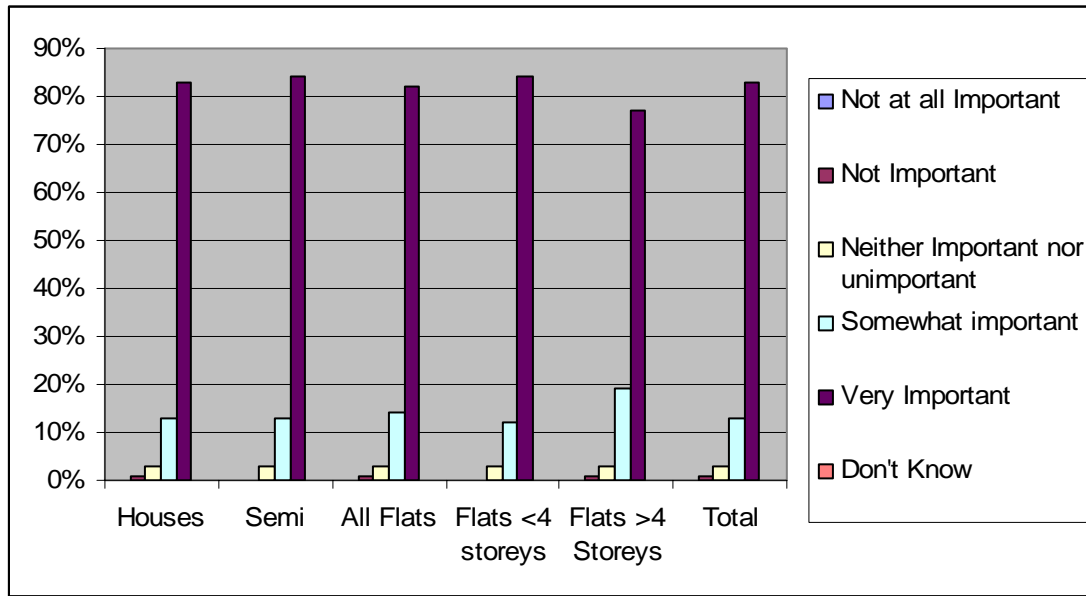
2.6.3 How important do you think that it is to conserve water and energy?

Respondents were asked how important they rated the issue of conservation on a five-point scale. There was overwhelming confirmation of the importance in which this issue is held. Some 82% said it was very important and a further 14% rated it as somewhat important (Figure 2.6). Only 1% of respondents said it was not important. While there was little overall difference between the main dwelling groupings, respondents living in high rise flats were marginally less likely to rate conservation as very important (77%) compared to those in low rise flats (84%). Disaggregating the data also shows that males, people aged under 34 and those on highest incomes were less likely to rate conservation as a *very* important issue, although in no cases does this rating fall below 75%.

2.6.4 Do you think conservation is being taken seriously enough?

Respondents were asked whether they thought a range of key stakeholders, central to developing conservation policies, were considered to be seriously taking these issues seriously (Table 2.4). The response shows that respondents did not perceive these stakeholders as having a strong interest in conservation overall. The perception was that government was less interested in conservation issues than the utility companies themselves, and few considered that the private sector takes a serious interest in conservation.

Figure 2.6: How important is conservation rated by dwelling type



Base 2179

- **Federal government**

Overall, only just over a quarter (27%) thought federal government took conservation seriously, with a clear majority saying it did not (63%) while 11% had no opinion (Figure 2.7).

- **State Government**

State government fared little better, with just 28% considering it took conservation seriously, and 61% saying it did not. (11% had no opinion).

- **Local Government**

Local government received a marginally higher recognition as having a serious regard for conservation issues, at 30%, although again, the majority thought it did not (56%). (17% had no opinion).

- **Local Business**

By far the worse rating for their attitude to conservation was local business, Just 19% considered this sector took conservation seriously, while 53% said it did not. However, many did not have a view on this, with 28% recording 'don't know' to this question.

- **Water Authority**

The best result was recorded by Sydney Water, with 45% saying the water authority took conservation seriously (Figure 2.7). Nevertheless, despite the heightened publicity and debate on water issues current at the time of the survey, as many as 39% believed that Sydney Water did not take conservation seriously (15% had no opinion).

- **Electricity Companies**

Marginally more respondents believed that electricity companies did not take conservation seriously than those who did, with 41% saying no and 37% saying yes. However, a fifth (22%) did not have an opinion.

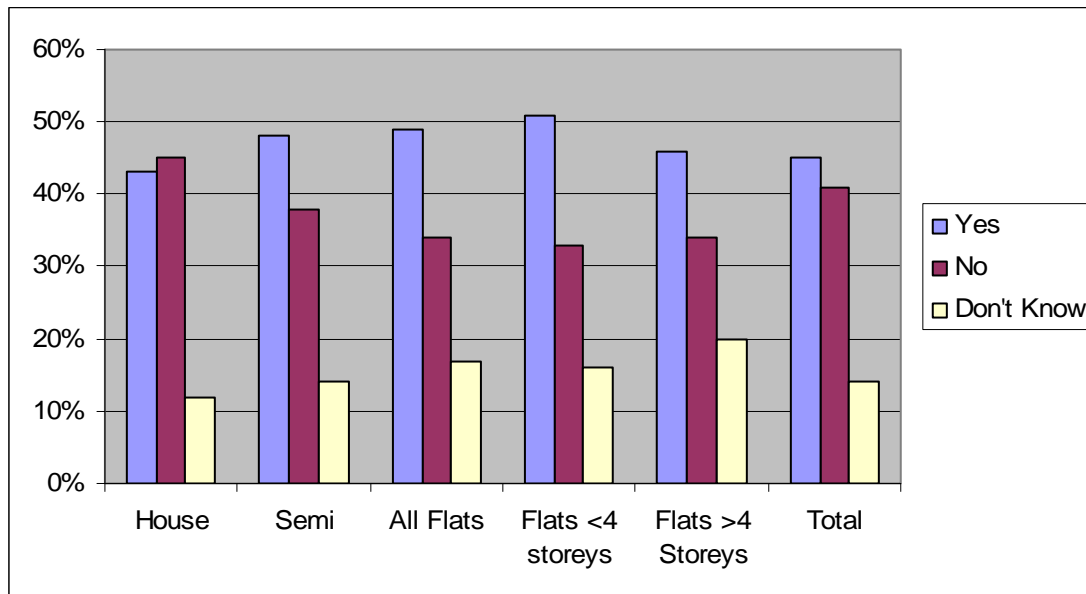
Generally speaking, respondents living in flats, particularly those in low rise flats, were more willing to trust these key actors in terms of their attitudes to conservation, with a consistently higher proportion of flat dwellers saying they think these six stakeholders took conservation of energy and water seriously. House dwellers were more sceptical of the behaviour of these stakeholders. On the other hand, younger respondents and those who are renting were also generally more likely to rate all these stakeholders as taking conservation seriously.

Table 2.4: Do key agencies take conservation seriously?

	Federal government	State government	Local government	Local business	Water authorities	Energy companies
Yes	585	607	649	416	1009	812
	27%	28%	30%	19%	46%	37%
No	1363	1330	1166	1148	849	893
	63%	61%	54%	53%	39%	41%
Don't know	231	242	364	615	321	474
	11%	11%	17%	28%	15%	22%

Base: 2197

Figure 2.7: Does the Water Authority take water conservation seriously?



Base: 2172

2.6.4 Summary

Conservation is a widely supported sentiment in Sydney. Almost all respondents said this was a very important issue. There is no doubt that, at the time of the survey at least, most people in Sydney would be responsive to policies to encourage greater conservation in resource uses. Most have adopted recycling as a common practice in their own home, assisted by council waste collection practices which now allow recycling in most areas. Without such support for this behaviour, however, it is possible many fewer would comply with recycling. A small minority, concentrated in flats, do not regularly recycle, however, this is possibly a reflection of the greater difficulty these households have in actually undertaking this activity.

Despite council recycling programs and water restrictions, many households are sceptical about the attitude of government towards these issues. Only a minority think government at any level takes conservation seriously. The figures are better for energy and water utilities, but even so, less than half responded positively to the suggestion for these two stakeholders. The best result is for Sydney Water, of whom almost half say they believe does take conservation seriously, noticeably more than the proportion who think it does not. Nevertheless, despite water restrictions and a strong government media campaign to encourage water saving, two in five do not think Sydney Water is serious on this issue. The same goes for the energy utilities, again despite the options to buy 'green' electricity. Clearly, the general population has significant reservations about how serious these key utilities take the task of delivering 'green' policies. Most tellingly, few thought local businesses took the idea of conservation seriously, an indictment of the failure of the local business community to engage in these debates.

2.7 Water conservation in practice: How are households reducing water use?

2.7.1 Actions taken to reduce water use over the last year

Section 2.5 dealt with current practices of water use, as reported by respondents. We also wanted to find out whether respondents had changed their use of water use in the recent past, particularly if they have taken steps to reduce consumption, and also whether they intended to change their use patterns in the future.

A number of questions were asked to establish whether respondents had taken actions to reduce water consumption over the last year and a following set explored their likely change in water use in the forthcoming year (Figure 2.8). In this way, some indication of changing water consumption behaviour can be assessed. Again, it might be expected that respondents would report significant changes to water use practices in the previous twelve months following the imposition of water restrictions. To a large extent, the results confirm that Sydney households had taken action to reduce water use across a broad range of activities. These actions were highly variable and dependent on the type of activity and the respondents' capacity to have direct control over the amount of water used. The results also suggest Sydney residents have some way to go before attitudes to

water conservation lead to widespread and substantial changes in behaviour to achieve further water reduction gains through changed practice.

The most common actions to reduce water use over the previous twelve months reported were that of reducing garden watering and taking shorter showers, both reported by 29% of all respondents. Reduced garden watering is hardly surprising given the penalties for exceeded permitted watering currently prevailing. But when these results are restricted to those respondents with a front, back or communal garden, the proportion only increases to 37% overall. These overall figures therefore suggest that garden watering restrictions have only directly impacted on the consumption behaviour of less than two in five households.

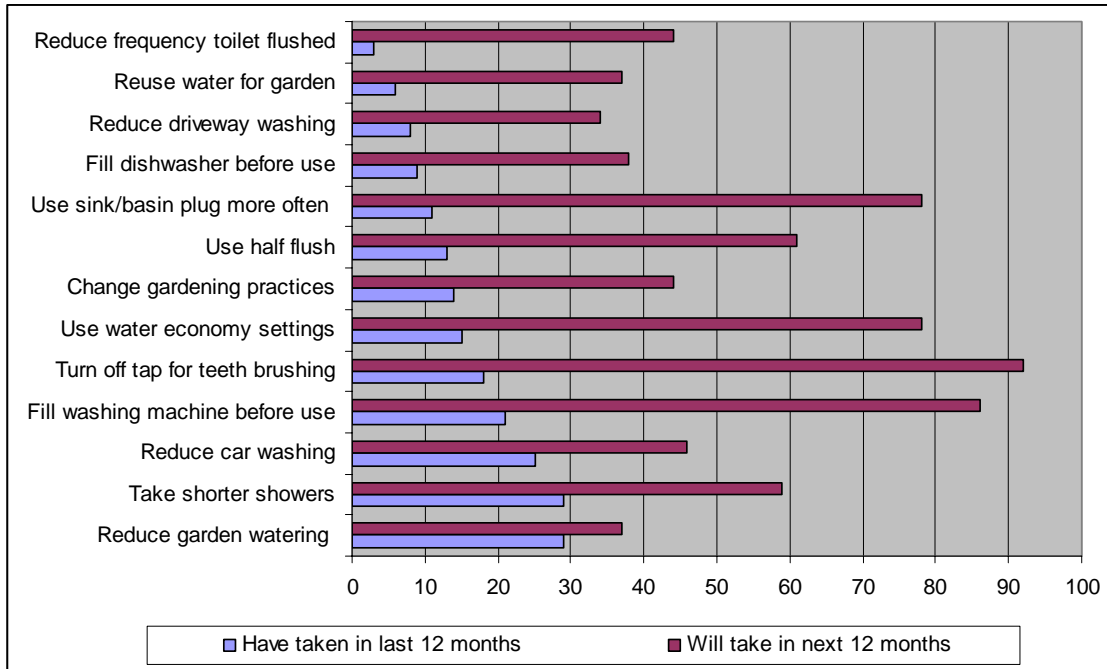
The fact that a similar proportion of respondents also reported consciously trying to reduce water usage in showers suggests attitudes to water use more generally have been altered. Showering is perhaps the type of large scale water use that people can most easily modify without difficulty or the need for new equipment or modifications to the home. It is therefore not surprising that this features as an area where reduced use has been reported. Significantly, there was little variation across the dwelling types in the proportions reporting reduced shower times, suggesting broader change in behaviour and attitudes among the population, albeit a minority.

The restrictions also appear to have resulted in an overall reduction in the frequency of car washing for a sizeable minority, with 25% of all respondents saying they have taken this line of action (or 29% of those with a vehicle). Respondents in houses were more likely to report this action (31%) compared with those in flats (18%), the latter figure reflecting lower car ownership.

Smaller proportions of respondents report reducing water use for teeth cleaning (18%), greater use of economy settings on washing machines and dishwashers (15%), changing garden practices (14%) greater use of half flushing toilets (13%), and using basin of sink plugs more often (11%).

Beyond this, changed practices fall to single figures: filling the dishwasher before use (9%), reduced driveway or courtyard hosing down (8%), reusing water for use on the garden (6%) and reducing the times the toilet is flushed after use (3%). The lack of obvious action to reuse 'grey water' is perhaps surprising, but for most households this is both costly and impractical. But in addition, 38% of respondents reported a wide range of other actions to reduce water use around the home and property, suggesting a broader effort to see where water use can be cut down.

Figure 2.8: Actions taken in last 12 months to reduce water consumption and actions likely to take in the next 12 months to reduce water consumption



2.7.2 Actions likely to be taken to reduce water use over the next year

There was some indication that there is greater potential or at least willingness on behalf of consumers to change their water use practices in the future. Respondents were asked what measures they would be likely to undertake in the next 12 months to reduce water usage. While there is a considerable difference between a speculative answer to a telephone interviewer’s question and real intentions or outcomes, the results nevertheless indicated both a widespread willingness to contemplate changed behaviour, as well as giving a clear indication of the relative priorities respondents’ placed on various conservation practices.

The most common conservation practice respondents say they will adopt during the year is to turn off the tap while brushing teeth (Figure 2.8). No fewer than 92% said they would do this more regularly. While this may be considered as a largely symbolic gesture, it nevertheless will save water and shows that the conservation message has been taken on board by almost everyone. This action is followed most commonly by a range of actions which also take place inside the home: ensuring the washing machine is full before use (86%), the greater use of water economy settings and using a plug more frequently in sinks or basins (both 78%), using the half flush for the toilet (61%), and again, short shower times (59%).

Thereafter, efforts to reduce external water use in the garden, paved areas or for cars take a lower profile overall. Action to reduce the frequency of toilet flushing and also to ensure dishwashers are full before use are also less frequently quoted as potential targets for the next year. Indeed, as many as 53% of respondents say they will not reduce toilet

flushing and 52% say they will not contemplate recycling shower or other household water for garden use. While the former is clearly a matter of preference, the latter is much more likely to be a simple reflection of the difficulties households have in actually doing this on a practical and convenient basis (especially for flat dwellers).

2.7.3 Summary

So overall, these results can be taken as a positive indication that Sydney residents are changing their attitudes and behaviour toward water use, with increased take up of a wide range of water conservation practices. As many as 87% have taken one or more actions to reduce water use in some way.

Nevertheless, it is worth noting that specific water restrictions (especially garden watering and car washing) themselves appear to have only had a direct impact on a minority of residents' reported behaviour on water use. Water use practices most likely to have changed are either those specifically targeted by the restrictions, especially those that take place outside the home, or those most easily and conveniently controlled directly by respondents with little additional effort.

In addition, 13% reported they have taken no action at all to reduce water usage in the previous year, ranging from 6% for respondents living in houses, 10% for those in semis and as many as 20% of flat dwellers. Flat dwellers seem to be less willing or able to further respond to the need to reduce water consumption.

Looking to the future, respondents who have already taken action to meet mandatory restrictions, or were unable to due to lack of garden or vehicle, may well be willing to focus on other areas to reduce water use in the future, especially those inside the home. While the responses to likely action in the future appear highly optimistic given the actual behaviour recorded over the previous twelve months, the findings suggest strong support for further action.

Changes to external water use appear to be lower down the priority listing compared with actions already taken in the last year, reflecting the fact that many households have already reduced water use in this area and there is limited capacity to extend this activity. In other words, the scope for further substantial reduction in water use outside the home is becoming limited. Despite NSW Government proposals to legalise the use of grey water for garden watering, these results suggest that at the current time, and without a significant educational campaign or subsidies to encourage the use of grey water systems, it is unlikely that many will take up the opportunity. The most likely water conservation behaviour in the immediate future is increasingly focusing on a range of activities *inside* the home, especially in the way households use their kitchen, bathroom and washing appliances. It is here that the next major change in water use behaviour could be focused.

It is also worth noting that in general, respondents living in flats are again less likely than those in houses to report water saving action, either over the previous twelve months or in the next twelve months. Clearly, many flat dwellers have only partial awareness of the

costs or amount of water they use and therefore may not perceive water conservation to be a particular issue or one they have much relationship to. But it is also likely to be much more difficult for flat residents to adopt conservation practices that require access to external areas or modifications to equipment and facilities.

2.8 Watering lawns and gardens

2.8.1 Introduction

Given the nature of the water restrictions in Sydney prevailing at the present time, it is in the area of external water use that the greatest amount of reduction in water use can be expected. Indeed, recent claims that water restrictions have led to significant reductions in consumption in Sydney have been attributed largely to the reduction of garden and lawn watering. We did not specifically ask questions about behaviour with respect to complying with the restrictions, as we would expect few people who were not complying with the restrictions to actually admit to this. We did ask about the frequency of watering gardens and lawn as well as how this watering is done. As we discussed in the preceding section, we asked if watering of gardens had been reduced in the previous year. We also asked whether respondents had pot plants and how many – these are often more frequently watered than gardens themselves. Given the external water use restrictions, the findings are of interest.

2.8.1 Numbers and type of garden beds

There is certainly a major potential for water conservation with respect to garden use, given the high proportion of respondents who have gardens. Overall, 84% of respondents said they live in a dwelling with its own garden of some kind. The presence of a garden fell with higher density: from 93% for those living in houses to 52% for those in high rise flats. Overall, 40% of flats dwellers said their property does not have a garden of some kind.

Nine out of ten (89%) separate houses had front and back garden beds as did over half of all semis (54%). These were the two most common garden types for dwellings and overall two thirds (64%) of dwellings had both a front and back garden bed. Dwellings least likely to have front and back garden beds were flats (only 5% have both). On the other hand, one in five (21%) flats had a balcony and 44% had a communal garden. Half (48%) of the high rise flats in the sample did not have a garden compared with only 7% of houses and 15% of semis. While only 9% of dwellings overall had a courtyard, the proportion increased to a third (34%) for semi-detached houses.

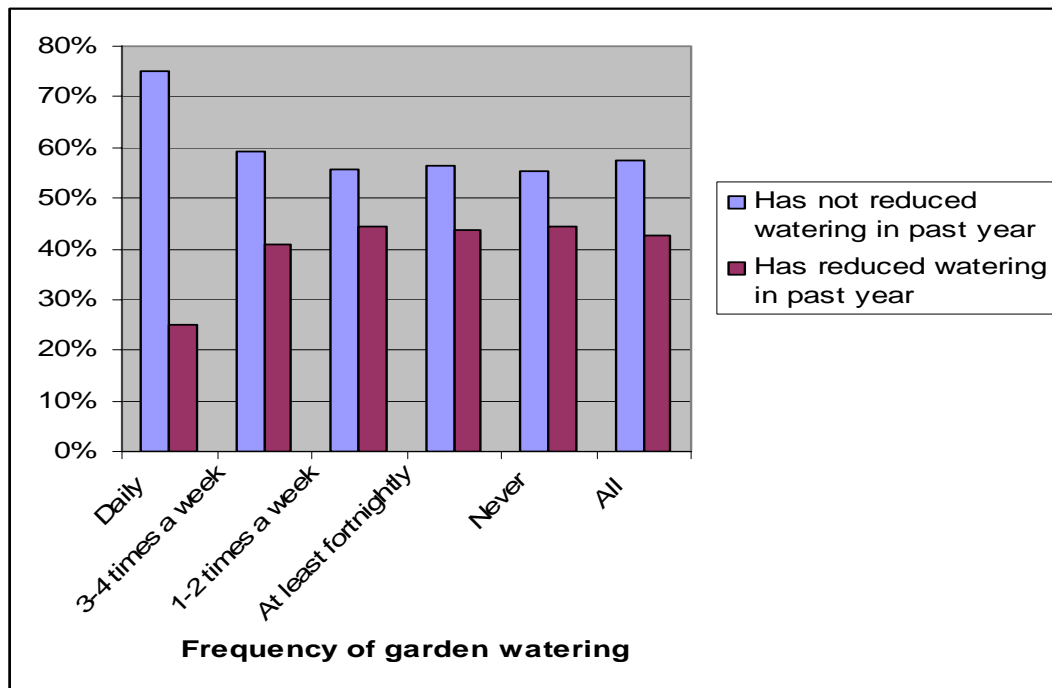
In addition, some 11% of respondents lived in properties with communal gardens, 9% had courtyard beds and 7% had a garden on their balcony. Communal gardens were more common in eastern Sydney than in the western suburbs, and for those renting privately. Two thirds of respondents (64%) had front and back garden beds.

Outdoor pot plants were common: 85% of all respondents report having one or more outdoor pot plants, 47% have between 1 and 10, 22% have between 11 and 20 and 16% have over 20. House dwellers were more likely than flat dwellers to have pot plants (87% and 71% respectively) and more likely to have more pot plants (41% of houses have more than 11 pots, compared to 37% for semis and 20% of flats).

When asked how frequently respondents with garden beds (excluding lawns) water them, a surprising 25% said they do so 3 to 4 times a week or more frequently, clearly in breach of current water restrictions in Sydney (this might include recycled water). A further 37% watered once or twice a week, broadly in line with permitted watering under the water restrictions. About one in ten (11%) watered their garden beds fortnightly. But a quarter (24%) said they never water their gardens. The latter proportion increases for flats (where 36% said the gardens around their building were never watered).

Whether never watering is an action that has increased since the imposition of restrictions, or whether it represents long standing practices is worth exploring. Restrictions were introduced in the year before the survey. When asked whether they had changed their garden watering practices during the previous year to reduce watering, 43% of respondents with gardens said they had and 56% had not. In other words, the majority of respondents who had gardens said they had not changed their watering practices during the year before the survey. So water savings from reduced garden watering appear to have been generated by less than half of all garden owners.

Figure 2.9: Frequency of garden watering by whether watering has been reduced in preceding year



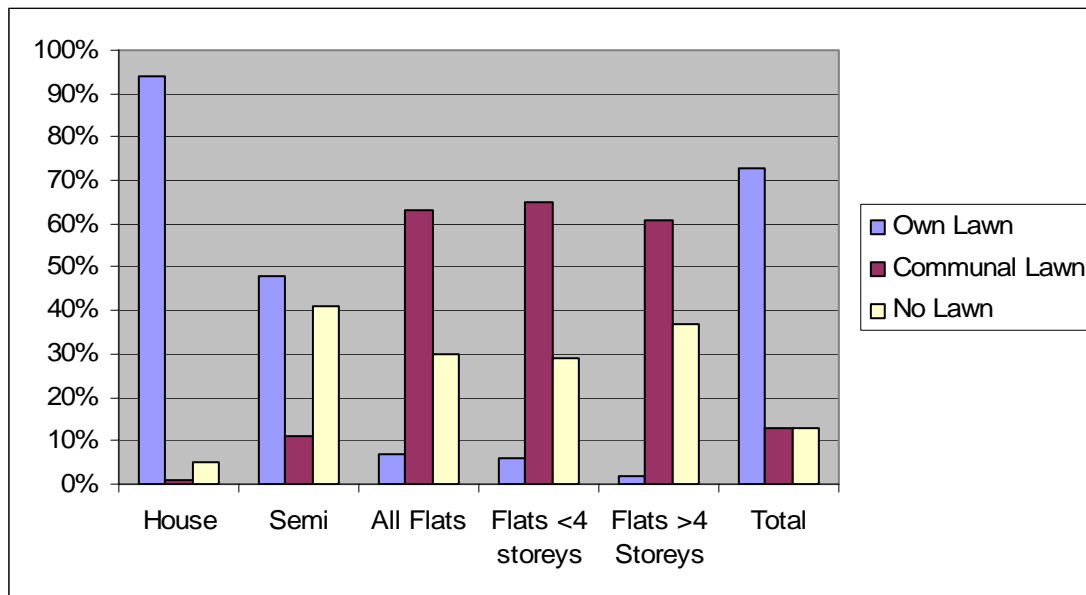
When frequency of garden watering reported by respondents is taken into account, the data show that for most cases, a similar proportion had reduced watering: between 41% and 45% for those who water 3 to 4 times a week or less frequently (Figure 2.9). Even among those who said they now never water their garden, the proportion who had reduced watering (presumably ceasing to do so) was only 45%. So a clear majority never watered their garden beds even before the restrictions.

But at the other extreme, among the 4% who admitted they watered their gardens beds daily, despite the restrictions, only 25% said they had reduced watering in the previous year: 75% had not. There appears to be a small hard core among the heaviest garden waterers who, at the time of the survey, had not responded to the call for water reduction. But it should be noted that we were unable to establish the extent to which this continued frequent watering involved potable or recycled water.

2.8.3 Lawns

Just under two thirds of respondents (62%) had their own lawn and 11% had a communal lawn, while another 11% had no lawn at all in their garden area (the rest don't have a garden at all). Nearly all (94%) separate houses had their own lawn, but only 3% of all flats had one (Figure 2.10). Two out of five semis had no lawn at all, while almost two thirds (65%) of all flats shared a communal lawn.

Figure 2.10: Dwellings with a lawn by dwelling type



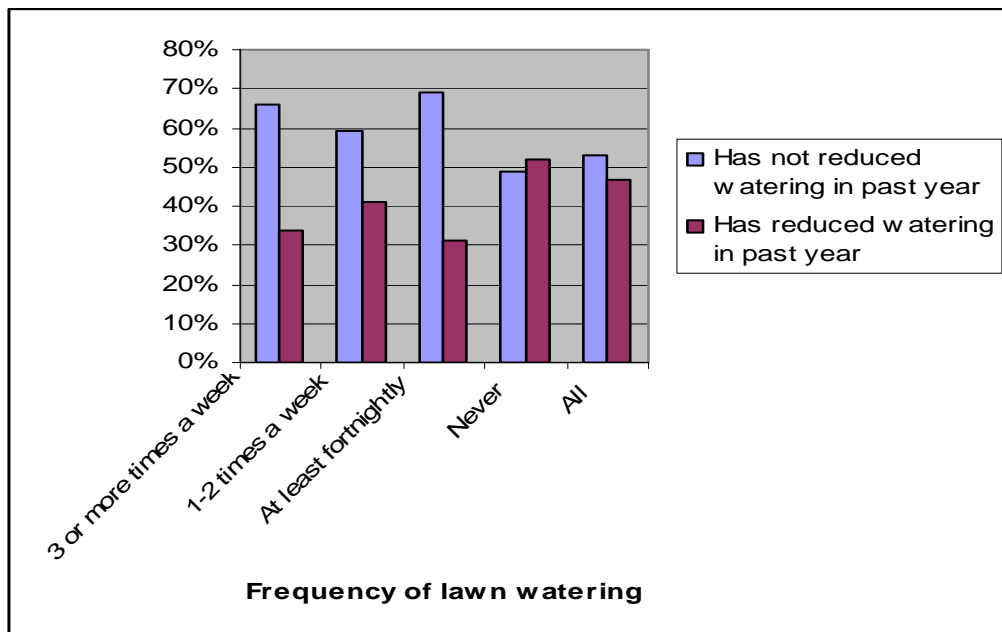
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Of the respondents who lived in a property with a lawn for which they had responsibility, as many as 72% said they never watered the lawn. Of the others, 7% watered the lawn fortnightly, 15% watered it once or twice a week (approximately the maximum permitted under water restrictions), while another 6% watered their lawn more often than that.

The proportion of lawn owners who never watered their lawn is therefore substantial. Have the restrictions made a difference to this proportion? Just under a half (47%) of all respondents with a lawn said they had not reduced garden watering in the previous year (Figure 2.11). However, just over a half (51%) of those who said they now never water the lawn also say they reduced garden watering in the previous year. So it is possible that as many as half those who now say they never water their lawn may have stopped this practice in the period the restrictions had come in.

But again, for frequent waterers, old habits die hard. Only a third of those still claiming to water their lawn 3 to 4 times a week or more frequently also said they have reduced garden watering in the previous year. So a small hard core group of lawn waterers appear to have proved relatively impervious to requests for water saving.

Figure 2.11: Frequency of lawn watering by whether watering has been reduced in preceding year



2.8.4 Summary

Overall, water restrictions appear to have had more impact on lawn watering than for general watering of garden beds. Garden beds are watered more heavily than lawns. But the difference isn't huge. These findings show both a continued use of more frequent garden watering by a small minority, with a more general reduction of use among the many. The proportion who appear never to have watered their garden at all and who have not changed watering practices in the year before the survey is substantial: perhaps between a quarter and a third of those with gardens. Water restriction will have had little significance for them.

2.9 Buying a new washing machine

2.9.1 Introduction

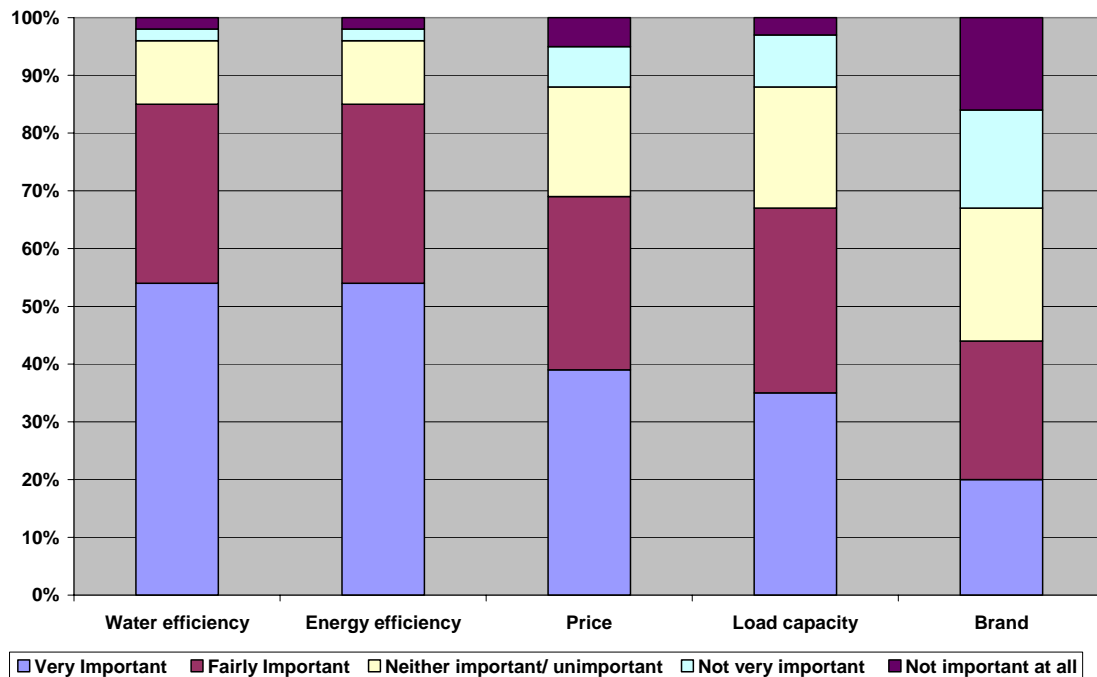
Washing machines, a significant user of water in any home, are now sold with a substantial emphasis on their efficiency in the use of water. Respondents were asked to rank a range of features to say which were the most important if they were considering buying a new washing machine. The results show a high level of recognition of the importance of buying a water efficient machine. The factors were:

- Price
- Water efficiency
- Energy efficiency
- The size of the load
- Brand

2.9.2 Ranking of features

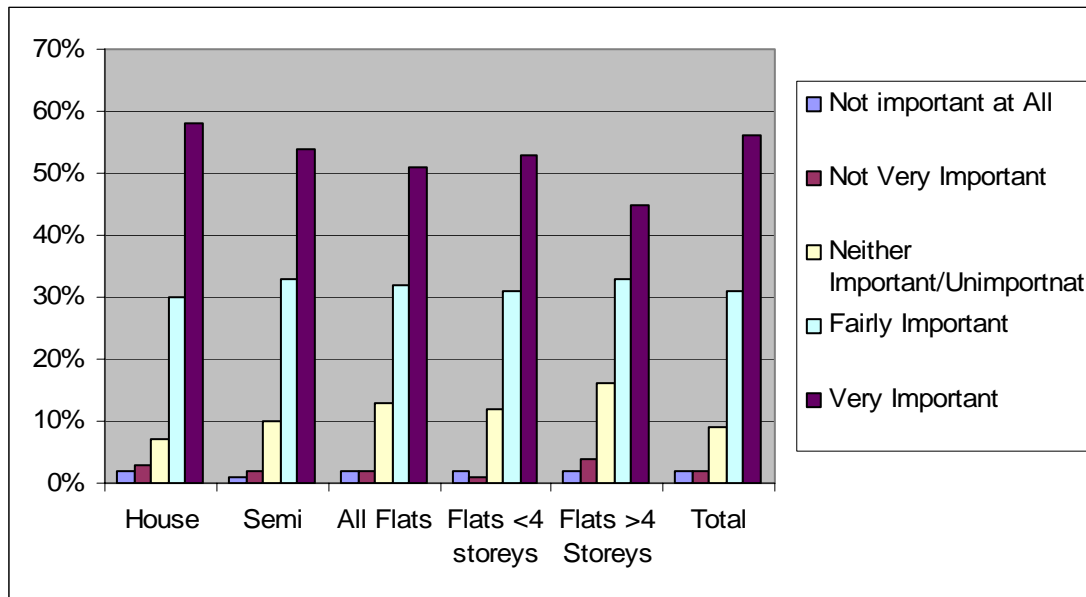
Overall, water and energy efficiency were ranked highest of these five factors, with 86% of respondents saying that they would be a very important or an important factor in guiding their choice of a new machine (and 56% saying it was a *very* important feature). Only 4% thought these were an unimportant feature (Figure 2.12). Price and load capacity were considered important by approximately two thirds of respondents (69% each), while brand was only rated as significant by less than half (46%).

Figure 2.12: Ratings of key features of a new washing machine



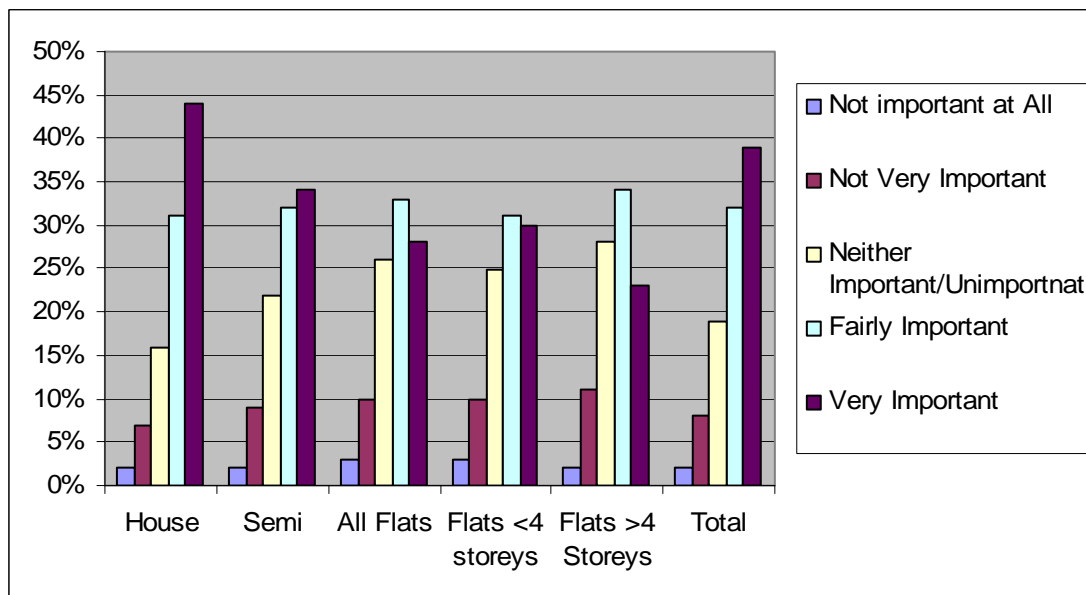
There was a variation in response by dwelling type. While 58% of those living in houses thought water efficiency was *very* important (as do 53% of those in semis and 54% in low rise flats), the proportion fell to 45% for those in high rise flats and a much higher proportion of high rise flat dwellers had no specific view, with 16% saying they thought it was neither important or unimportant (Figure 2.13).

Figure 2.13: Importance of water efficiency when buying a washing machine by dwelling type



Base 2179

Figure 2.14: Importance of load size when buying a washing machine by dwelling type



Base 2179

As for the capacity of the washing machine, load size was considered very important by 44% of house dwellers, but only 23% of high rise flat dwellers had this view. The difference is likely to reflect the larger average household size of households living in houses as opposed to flats (Figure 2.14).

2.9.3 Summary

Overall, water efficiency was rated as a key feature respondents say they look for in a washing machine. Almost nine in ten said it was important and well over half said it was very important. Few said they did not consider water efficiency to be important. This factor outranked price and capacity and brand name. On this evidence, there would be little scope for machines with poor water saving characteristics to be sold in Sydney. In reality, such considerations may well be tempered by price, knowledge and availability, rather than being overriding determinants of choice. Respondents in flats were less likely to cite this as a very important feature, but many also had no view, suggesting a lack of knowledge about this issue among some flat dwellers.

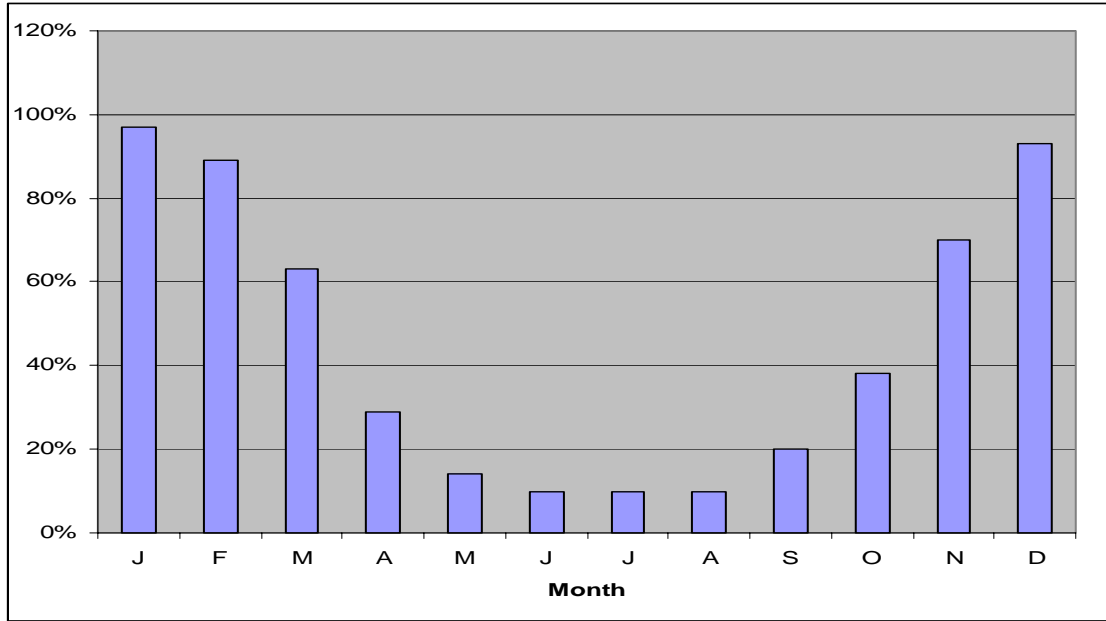
2.10 Swimming pools and outdoor spas

As noted above, 20% of respondents said they own or have access to a swimming pool in their property, the vast majority of these being house dwellers and those in high rise flats. A number of questions established how respondents used their pools.

2.10.1 When do you use your pool?

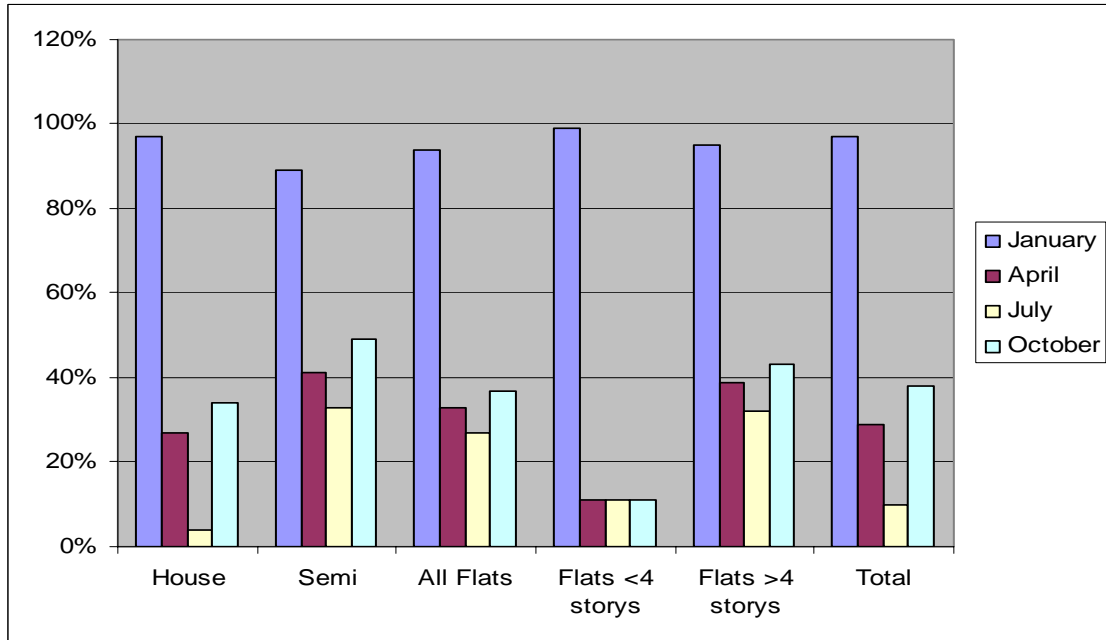
Pool use, not surprisingly, was highly seasonal. The percentage of pool owners/users who said they use their pool reaches 98% in January but falls to 10% from June to August (Figure 2.15). One in ten (9%) said they use their pool all year round. The main variation was in the number of respondents in semi-detached houses and flats who said they used their pool in the winter (27% and 33%) compared with those living in houses (4%) (Figure 2.16). The difference can be attributed to the greater proportion of heated and/or indoor pools for the latter kinds of development. While 20% of pools in houses and 21% of pools in low rise flats were heated, the figure for semi-detached housing was 42% and for high rise flats 54% (the figure for all respondents with pools is 29%: Figure 2.17). Clearly, all-year pool use will have an impact on water consumption, but it also has a significant implication for energy use in residential complexes with heated pools.

Figure 2.15: Proportion of pool owners/users using their pool by month



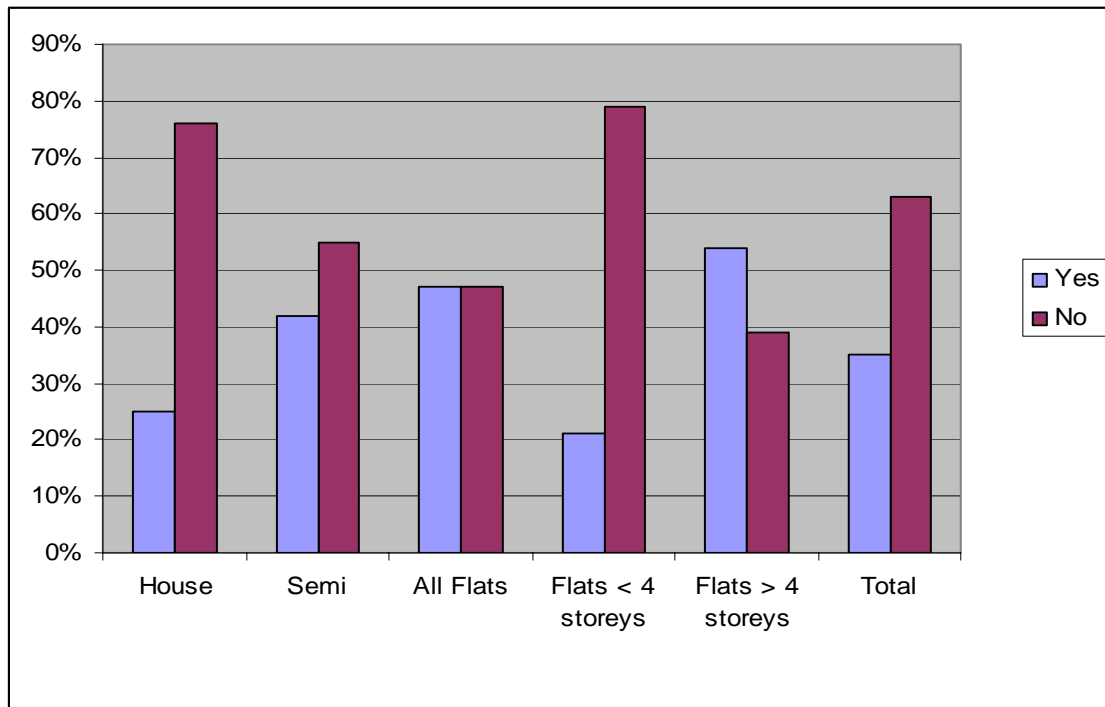
Base = 430

Figure 2.16: Use of pool by season and dwelling type



Base: 430

Figure 2.17: Is your pool heated?



Base = 430

2.10.3 Are pool covers used?

Pool covers reduce evaporation of pool water and therefore are of significant value in reducing the need to top pools up in the summer months. Over half (56%) respondents with pools said they don't have a pool cover, while a further quarter (27%) said they never use the pool cover they have. Of the remainder, 3% said they only used the cover sometimes or hardly ever, 3% used it quite often and only 9% said they always used the cover. So only one in eight pool owners regularly used a pool cover to reduce evaporation while four in five didn't have a cover or didn't use the one they have. Even among those who did have a cover, the majority used it infrequently.

2.10.4 Outdoor Spas

Use of an outdoor spa, where present, is slightly less markedly seasonal, with 98% of those with a spa using it in the summer, 51% in autumn, 33% in winter and 59% in spring. Again, higher use in colder weather was related to the greater proportion of spas that were heated, and usage was also higher in higher density dwellings.

2.10.5 Summary

Pool use was concentrated into five months of the year: November to March. For the rest of the year, pools were only used by a minority of pool owners. The 9% of all pool users who used the pool all year were much more likely to be in higher density housing, where

heated pools were much more common (half the pools in high rise flats were heated). These will have continued water use for their pools all year round. More worrying is the fact that 90% of pool owners didn't use pool covers regularly and few who had a cover actually use it.

2.11 Attitudes to water usage, pricing and water saving in the home

2.11.1 Awareness of water use

A key element of the survey was to explore the awareness of the use of water among respondents. This is a critical issue, for if water users are unaware of the amount of water they are using, then pricing controls are pretty much meaningless. Attitudes toward current and alternative pricing approaches were also the focus of a number of related questions. The aim here was to find out how much support there was for differential pricing and other conservation methods, including the restrictions prevailing at the time of the survey. This set of questions was asked of a sub-sample of respondents representing 75% of the total (see Endnote 1).

In fact, only one in five (19%) of all respondents said they knew how much water they use in a quarter. The highest level of awareness – 23% – was among those in houses followed by 22% for those in semi-detached homes. The rate of awareness drops significantly for flat dwellers: only 6% knew how much water they used in a quarter.

Despite the low level of awareness of actual water uses, most respondents thought they used about average or below average amounts of water, compared to other water users like themselves in Sydney. While 38% thought they use around average amounts of water compared with similar households, almost half think they use below average (48%). Only 7% thought they were above average users, while 7% did not know.

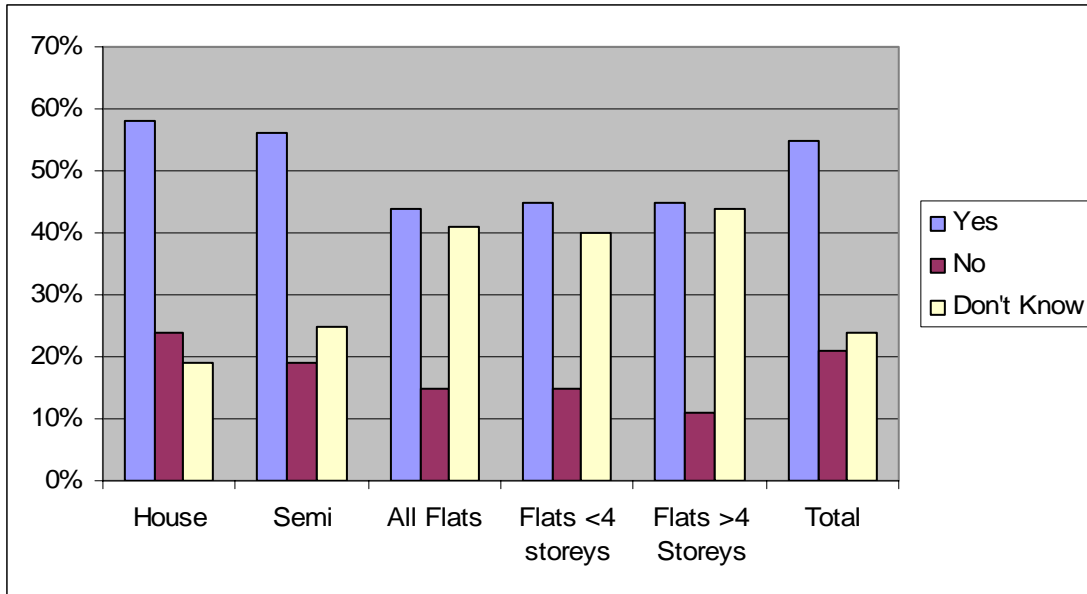
Quite clearly, many consumers are unaware both of how much water they actually use and of how their usage compares with other similar households. Most do not believe they are using above average amounts of water, although obviously, many must be. Few are willing to admit using higher than average amounts.

The 19% of respondents who knew what their last water bill was were asked if the difference between their winter and summer bills make it worthwhile considering introducing water saving devices or practices during the summer months. Just under a third (31%) thought they were. But a majority (61%) did not think this was worthwhile (and 9% did not know). This is perhaps surprising given the analysis of seasonal water trends that show a clear summer-winter variation in water use (Troy, *et al*, 2005). These variations were not found to be substantial. It is possible that for most people, the difference in water usage between seasons is not fully reflected in their bill, given the proportion accounting for fees and infrastructure costs hide the 'raw' costs of water consumed.

2.11.2 Is current water pricing fair?

Despite the high level of uncertainty over actual levels of water use, views on water pricing were more clearly defined. Just over half (55%) of all respondents thought that the current pricing of water was fair, with 21% saying it was not. But a quarter simply didn't know (Figure 2.18). Three out of five respondents in houses (58%) thought that the current pricing of water was fair as did 56% of those in semis and 44% of residents in flats. Two out of five flat dwellers didn't have a view on this issue.

Figure 2.18: Is current water pricing fair by dwelling type?



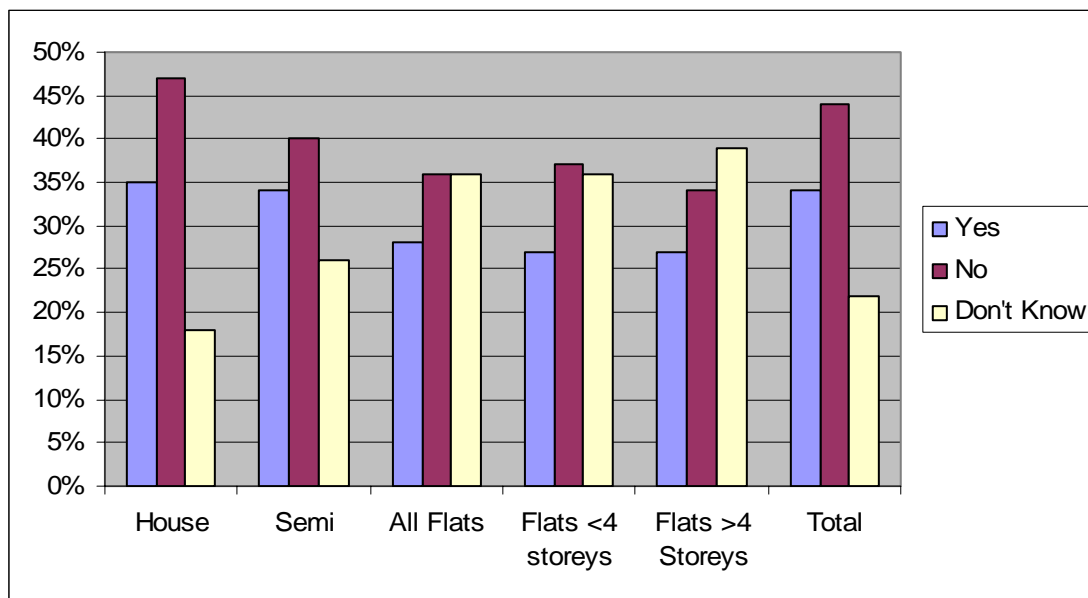
Base 1805

2.11.3 Does Water Pricing Encourage Conservation?

More pertinently to this research project, respondents were asked if they thought current water pricing encouraged the conservation of water. On balance, water charging was thought not to encourage conservation: 44% thought that it did not compared with 34% who thought it did. The rest did not know (Figure 2.19).

Interestingly, respondents in houses were most likely to think that current water pricing did not encourage conservation (47%). These are the people most likely to know what water costs and to use water in the garden, of course. Once again, those living in flats were most likely to not have a view on this matter, especially those in high rise flats.

Figure 2.19: Does Water Pricing Encourage Conservation?

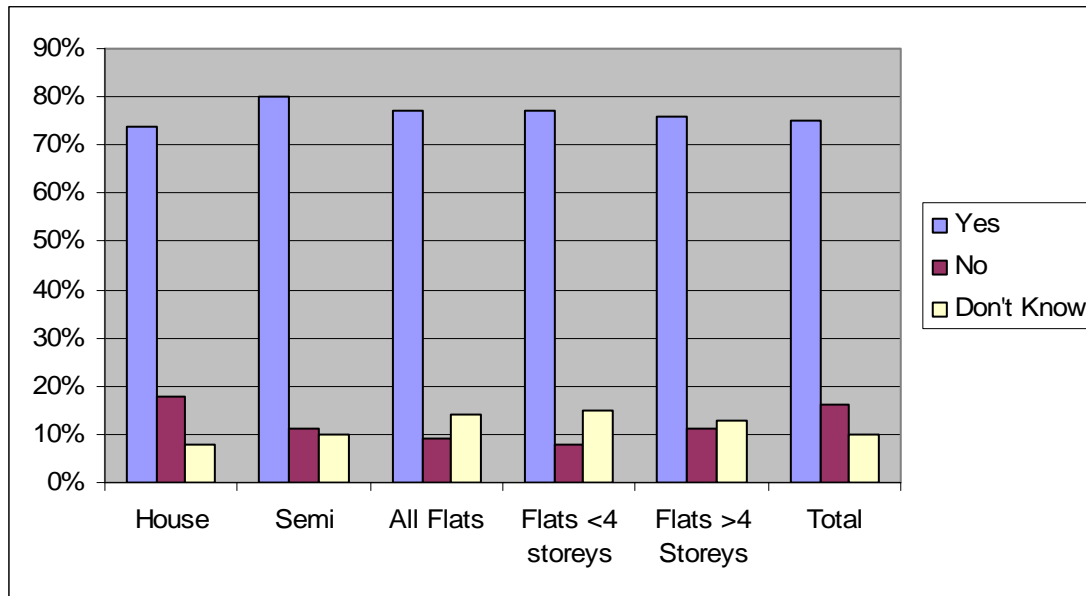


Base 1805

2.11.4 Extra charges for high water usage?

The concept of differential water pricing reflecting usage was widely supported. Three quarters (75%) of all respondents thought that an additional fee should be charged for consumers who use well above average amounts of water (Figure 2.20). Only 16% did not support this proposition. Respondents in houses were less enthusiastic than those in higher density homes: 18% rejected the proposition, compared to 11% of those in semis and just 7% of those in flats. Clearly, people in houses, who are more likely to have higher water usage largely because of their larger household size, feel more sensitive to this issue. Nevertheless, this still leaves a clear majority in favour of the notion of higher users being charged a differential rate.

Figure 2.20: Should additional charges be made for high water use?



Base 1805

2.11.5 Discounted charges for low water usage?

On the other hand, 71% of all respondents thought that charges should also be discounted for households who use well below average amounts of water. A fifth (22%) did not, but only 8% did not have a view on this. In this case, respondents in high rise flats were the least likely to support such a proposition (64%), but again, the majority were in favour.

2.11.6 Should water prices be increased to encourage people to use less water

Despite widespread support for differential pricing to reflect water consumption, and that more people say that current water prices do not encourage conservation compared with those who did, a clear majority – 60% – of respondents said they do not think water prices should be increased to encourage lower water use. Only 30% supported this proposition, while 10% didn't have a view. This paradoxical result may be explained by the perception that most people feel that they themselves should not pay more to meet conservation objectives that they feel is primarily caused by others.

There was not a great deal of difference between dwelling types on this question. House dwellers were less inclined to support increased water prices compared to respondents in medium and higher density housing, although the latter were more likely not to have a view. Again, this result is no doubt a reflection of actual water use and payment arrangements.

Respondents supporting the proposition that water prices should rise to encourage people to use less water were asked a supplementary question to find out how much prices should rise. Not surprisingly, perhaps, the answer was generally not a great deal: 40% say up to five percent more and a further 31% say between five and ten percent more,

while 17% say between ten and twenty percent and 13% were happy for water charges to go up over twenty percent to encourage lower water use. These findings suggest that pricing policies to encourage lower water use would only have minority support among domestic water users and that even among those in favour, the price raises supported are relatively modest, with seven in ten supporting rises below ten percent.

2.11.7 Should water prices be increased generally to pay for improved conservation policies and practices?

The question on whether water price should increase to encourage lower water use was followed up by a question which asked whether respondents favoured increases in water prices to pay for more general conservation policies. Again a majority (52%) did not agree with price increases to fund general policies to improve water conservation, although the majority was lower than for the previous question. In this case, almost two in five (37%) agreed with the proposition, and 12% did not have a view. As with the previous question, respondents living in houses were significantly more likely to support this proposition, with only 34% agreeing, compared with 46% for those living in semi-detached houses and 43% for those living in flats.

Those who were in favour of increased charges to pay for improved conservation policies and practices supported even more modest price increases for this purpose compared to charging to encourage lower use: 51% saying prices should rise by up to five percent more and a further 29% saying between five and ten percent, leaving just 20% supporting price rises above ten percent.

Overall, then there is only minority *positive* support for increasing water charges either to encourage lower water use or to fund conservation policies. Interestingly, while fewer people support the former proposition, these respondents were supportive of larger price increases than the somewhat larger minority who supported more general increases to fund conservation policies.

2.11.8 Summary

Pricing policies have been long promoted as a way of regulating user demand for water. Recent changes to the pricing structure of water in Sydney have included additional charges for high end users in an attempt to both increase the revenue stream of Sydney Water and to send a price signal to those who use well above average amount of water. The extent to which these users respond to this signal will naturally impact on that potential revenue stream.

If water users do not respond to pricing signals because they have little real idea how much water they are using or how much it costs, then pricing policies that attempt to encourage conservation will fail. The fact that so few people are aware of the amount of water they use or the amount they are charged for water strongly suggests that pricing policies, *on their own*, are unlikely to have a desired impact on water use for most households, or would have to be punitive to make a difference. Effective pricing policies

to encourage conservation will require a consistent and long term educational program to raise awareness of use levels, relative costs and the actual amount used in differing water uses in the home, then pricing policies may. People need to know much more about how much water they use and which activities use the most water in their home to make a substantial difference. In fact, only a minority supported the idea of raising water prices specifically to reduce demand and those who did signalled that only modest increases would be acceptable – below 10%.

2.12 Attitudes to changing water use and future water saving inside the home

2.12.1 Introduction

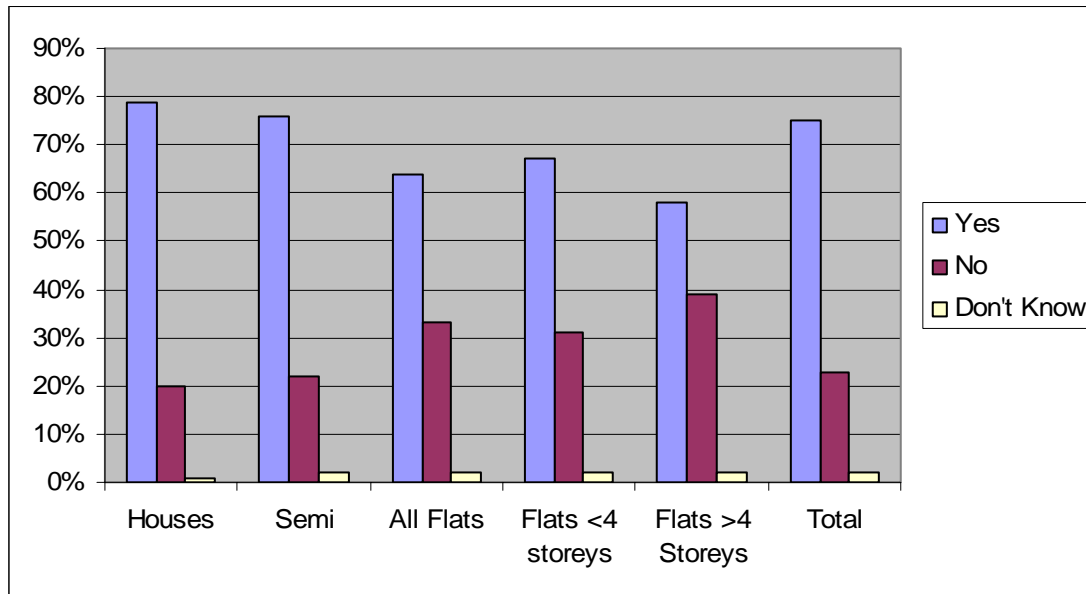
A final set of questions explored a range of attitudes towards changing water use. Given the impact of external water use restrictions, we wanted to find out if this has had a noticeable impact on use within the home. As noted above, this is the next key area where water saving will need to be developed if water reductions are to be driven further. Respondents were also asked how much more water they could save. Clearly, willingness on the part of consumers to contemplate more water savings will determine the success or failure of future conservation efforts. Finally, the use of subsidies to encourage take up of new water saving devices has already become an accepted policy option in Sydney, for example, with Sydney Water's offer of subsidized fittings of water efficient shower heads. We wanted to know if there was general support for the adoption of new devices, and if so, whether subsidization would make a difference.

2.12.2 Has water usage inside the home changed since water restrictions?

At the time of the survey Level 2 water restrictions were in place. We assumed that those who could would have reduced their external water use in line with the restrictions (few non-compliers are likely to have admitted it). We wanted to see if the awareness of water restrictions had had any effect on water use inside the home, to which restrictions did not apply.

The good news is that the clear majority of respondents (75%) say they had changed the way they used water inside the home since the water restrictions had been in force (Figure 2.21). About a quarter (23%) had not (and 2% did not know). Once again there was a clear differential between respondents in houses and those in higher density housing. While 79% of those in houses and 75% of those in semi-detached homes had changed their internal water use patterns, only 67% of respondent living in a low rise flat said they had. The proportion fell to 58% for high rise flat dwellers. So the level of inaction on *internal* water conservation doubled from one in five for houses to two in five for high rise flats.

Figure 2.21: Have you changed your water use inside your home since water restrictions came in?



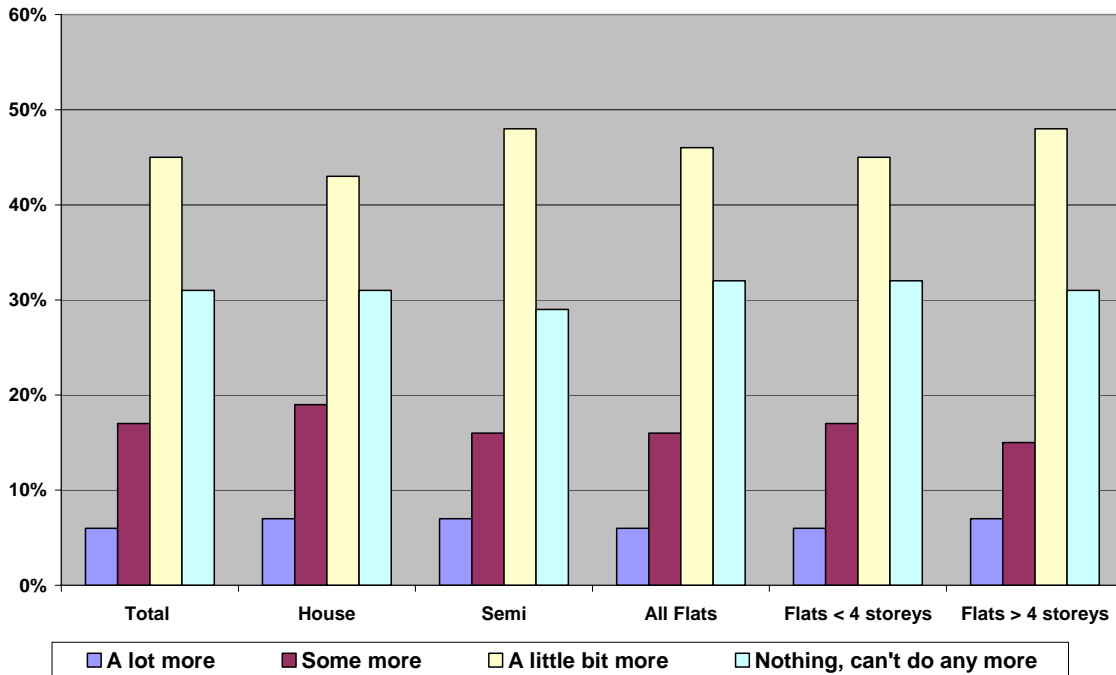
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2.12.3 How much water could you save?

But how much further do respondents think they can go in saving water? The answer is not a great deal. When asked how much they felt they could do to save water, only 7% thought they could do a lot more, while just 18% thought they could do some more (Figure 2.22). On the other hand, 31% said they thought there was nothing more they could do to save water and a further 44% would only do a little. These results suggest that further domestic water savings may be limited with prevailing attitudes and patterns of behaviour.

Perhaps surprisingly, given previous findings, there was no substantial difference in the proportions answering this question between those living in houses, semi-detached houses or flats, both high and low rise. Attitudes to the ability to save water does not, therefore, seem to be related to current levels of water use, which varies significantly between households in different dwelling types (Troy, *et al*, 2005).

Figure 2.22: Thinking about how your household uses water, how much do you feel that your household could do to save water?



2.12.4 Would you use more water saving devices?

Finally, respondents were asked if they would be prepared to use water saving devices under different levels of subsidy. The results show that support by government for such devices could be critical in promoting more general acceptance and take up.

To the question would you use more water and energy saving devices if you had to pay for them, 48% said yes and 41% said no (11% don't know). This finding suggests that there is willingness for a sizeable minority to buy such devices regardless of whether they are subsidised. While we did not specify what kind of devices, this nevertheless indicates a broad support for adopting such innovations where possible.

If the water and energy devices were to be subsidised at half price, then many more would consider their take-up: 77% would use more of these devices and only 17% would still refuse. If they were provided for free, the support rises to 86%, with 10% rejecting the offer.

While the answers to this question offered no guide as to the type and cost of any water or energy conservation devices respondents might have been think off when answering it, the results show a strong latent support for conservation technologies in the home. This support increases substantially if the products are in part subsidised. Indeed, only a relatively marginal additional take-up appears to be achieved by fully subsidising such devices. Respondents seem content with paying for some or all of these devices themselves.

2.12.5 Summary

The results suggest that most people have at least contemplated changing their use of water inside the home in the recent period of water restrictions. This is a positive finding, and one that suggests there is more opportunity to deliver savings from reduced water use within the home although flat dwellers proved somewhat less susceptible to such changes.

Unfortunately, when respondents were asked how much further they think they can go in saving water, the answer was not a great deal. Only a quarter thought they could do a lot more or some more. These results suggest that further domestic water savings may be limited with prevailing attitudes and patterns of behaviour. But there was no significant difference in attitudes to future savings across the sample.

Would subsidising water saving devices affect water saving practices? The findings here suggest that firstly, there is general support for fitting water saving devices among many people: almost half our sample said they would fit such devices even if they had to pay for them. But secondly, the willingness to fit these devices rose to three quarters if the price was subsidised by a half and potential take up increases to just under nine in ten for freely fitted devices. These results show that support by government for such devices could be critical in promoting more general acceptance and take up.

2.13 Summary of Quantitative Research Findings

Socio-demographic and dwelling profile

There were noticeable differences between the four dwelling groups identified in this report in terms of their socio-demographic structure. This 'compositional effect' is critical in understanding the differences in behaviour and attitudes between those living in houses, semis and flats. House dwellers were, on average, older and had higher household incomes and larger households than the other groupings. At the other extreme, respondents living in flats were characterised by high proportions of younger people and single person households. Respondents in semis were somewhere in between these two groups. But there were also key differences within the flat market. Respondents living in low rise flats were more likely to be middle aged (35 – 55) compared to those in high rise flats, who were particularly likely to be either younger or over 55 compared to low rise flat dwellers. And low rise flat dwellers also had the lowest overall incomes of all the dwelling groups, despite having the highest employment rate.

Looking at housing characteristics, home ownership was highest among house dwellers – by a large margin. Over four in every five house dwellers own or are buying their home compared with just a third of flat dwellers. The dominant flat tenure is rental. Respondents in houses were also much more stable than those in semis or flats. While 17% of respondents living in houses had moved in the previous three years, the proportion increased to 44% for semi-detached houses and to 55% for all flats. As many as 61% of respondents in high rise flats had moved within the last three years. At the

other end of the scale, 51% of house dwellers had lived in their current home since before 1996, compared to 20% for flat dwellers.

As well as the 'compositional effect' of the differential socio-demographic profiles of the different dwelling categories, we would argue that tenure and mobility are also critical in terms of the behaviour of water users. Tenants and those living in strata title properties may have little direct connection with the amounts of water used or the cost of water. Tenants who move repeatedly from home to home may care about conservation as an issue, but their transience and lack of control over the dwellings they live in may mean that have little actual connection with water use and conservation practices, especially if it is compounded by being a tenant in a strata unit.

The level of water using amenities and equipment also varied significantly by dwelling type. While almost everyone had the basics (shower, laundry and kitchen sinks, basin, washing machine, bath), a substantial proportion have additional facilities such as swimming pools (one in five), dishwashers (half), and multiple showers and basins. The use of the less efficient top loading washing machines by four in five households reflects a tradition that has been slow to change. High rise flats score better on this measure, with a higher percentage with front loaders, reflecting the more recent development of this sector and its income profile. Promoting water efficient front loading washing machines is a policy initiative that could lead to better water consumption outcomes. In addition, with only between half and two thirds of dwellings having dual flush toilets, there is some way to go before water efficiency can be maximised in domestic toilets.

A significant finding is the generally much lower range and number of water using facilities in low rise flats. This reinforces the impression of a generally lower standard of provision in these homes as opposed to other dwelling types, especially when compared with houses and, to a lesser extent, high rise flats. This is related to both the standard of building and the socio-economic position of households who live in low rise flats in Sydney.

The higher standard of provision of water using facilities in houses means that those living in houses have much greater opportunity to use water, including external uses outside the dwelling with gardens and lawn areas. Despite having more facilities to use water, it is the case that on a *per capita* basis, residents in houses in Sydney do not use substantially more water than those living in flats (Troy, Randolph and Holloway, 2005). This might imply that there will be little real difference in the behavioural and attitudinal outcomes of respondents in different dwelling types. In fact, as the findings reported here clearly indicate, this is not the case.

Water use in and around the home

As far as the use of water efficient fittings is concerned, the research found that a wide range of water saving devices are used, but only in the case of efficient shower heads does the use of such fittings account for more than half of all respondents. Use of other water saving devices is patchy. Over half (55%) of respondents say they have at least one water efficient shower fitted, in part a testimony to the success of the Sydney Water

campaign and program to fit these at a subsidised costs to consumers. But again, houses are the principle users of these, with three quarters of house dwellers compared to 40% of those in flats saying they use them. The use of flow controllers in kitchens and bathrooms is much lower, with approximately a third reporting having these fitted, and again, with flat dwellers reporting a lower use than house dwellers. Flow controllers on laundry taps is even lower, with 85% saying they are not fitted. Clearly, there is along way to go in terms of getting these fittings widely accepted by consumers and fitted.

In the kitchen, a surprising finding is that as many as one in ten of those with dishwashers say they never use them, a figure that rises to as many as a quarter of high rise flat dwellers with a dishwasher. Flat dwellers are also much more likely to use their dishwasher one a week or less. So many households with dishwashers, especially those in flats, simply do not use them much. Smaller households and less frequent home meals among flat dwellers may explain this finding. Some of the answer can also be found in the fact that flat dwellers are twice as likely as house dwellers to wash their dishes by hand under a running tap. Over the entire sample, while one in ten said they never wash dishes by hand, as many as 37% wash dishes by hand on a daily basis. And as many as three quarters rinse their dishes before or after washing dishes by hand. There is, therefore, a substantial use of water for dish washing which is not regulated by the efficiency of dish washing machines.

In the laundry, while virtually everyone uses a washing machine, as many as a quarter also hand wash regularly. Few use shared laundries or laundromats, other than flat dwellers: 14% of people in flats used a shared laundry, a laundromat or washed their clothes in someone else's home. On average, Sydney households washed four loads of washing a week, with house dwellers washing the most frequently.

Water efficient washing machines and dishwashers offer an opportunity by which water saving technologies can be introduced into the home, thereby increasing the potential for water savings. These findings confirm that a large proportion of households also wash dishes and clothes with traditional methods using hand washing, and in the case of dishes, under running water. Here there is much less scope for generating water savings through technological fixes. Any changes in the practice of hand washing dishes and clothes will need a much greater awareness of the behavioural aspects of water use before additional savings can be made.

Leaking water pipes and fitting can also be a potential use of water. Some 16% of respondents say they had a water leak, with leaking taps, showers and toilets being the most commonly cited problems. Flats and semis were twice as likely to report leaking showers and toilets than houses. While it is impossible to quantify this problem, again, targeted educational campaigns or support to encourage these problems to be fixed would assist in wider water conservation. The higher rate of leakage in flats may also be due to the fact that water usage is not measured individually and flat owners are unaware of the precise levels of water used in strata charges. There is also a much higher probability that flats are rented and tenants either do not report leakages or landlords are reluctant to fix leakages promptly.

The recent restrictions have highlighted car washing as a significant water use in the home. With each respondent's household owning an average of 1.7 cars, this might be thought of a major issue. In fact, we found that almost two in five said they never washed their car or did so very infrequently. And over half said they never washed their car at home. Of those who do wash, 30% said they had reduced the frequency of washing in the previous year, but the small minority of most frequent washers were the least likely to have reduce the times they washed their car. Flat dwellers were much more likely to wash their car at a garage or car wash. Domestic water restrictions have therefore had less impact on these people and they are much more likely to have externalised their water use for car washing compared with house dwellers.

General attitudes to conservation

Recycling as a method of reducing household environmental impacts is universally supported and practiced by respondents, with 90% saying they recycle rubbish all or most of the time. Only 5% admit to recycling hardly ever or never at all. However, one in eight flat dwellers say they never or rarely recycle rubbish. It is possible that this is simply too difficult for them to do so, as it may involve carrying such rubbish down to waste bins. Consideration needs to be given as to how rubbish recycling, which is easily undertaken in houses, can be better facilitated in high rise flats. On the other hand, this result may in part reflect the attitudes of the residents attracted to high rise flats, which is characterised by high proportions of young, transient renters.

Respondents also overwhelmingly endorsed the issue of conservation as one that is *very* important, with 82% saying it is very important and a further 14% saying it is important. Disaggregating the data shows that respondents in high rise flats, males, people aged under 34 and those on highest incomes were less likely to rate conservation as a *very* important issue, although in no cases does this rating fall below 75%.

Tellingly, respondents do not perceive key public and private stakeholders as having a strong interest in conservation. The perception is that government at all levels is less interested in conservation issues than the utility companies themselves, and few consider that the private sector takes a serious interest in conservation. Sydney Water rates the highest level of perceived support for conservation, but even so, less than half (45%) say the water authority takes conservation seriously and as many as 39% believe that it does not. Few consider local private enterprise take these issues seriously, a reflection of the perceived absence of the Sydney business community in current debates on this issue.

Flat dwellers, younger people and renters are more willing to trust these key stakeholders' attitudes to conservation. However, to an extent, this may reflect a view from a proportion of this group that someone else should be responsible for conservation. This interpretation is supported by the fact that the use of water saving devices is greatest among house dwellers, although they are also more likely to be heavy users of water using amenities and equipment (washing machines, dishwashers, showers, etc).

Our conclusion here is that the “compositional effect” of the different demographic profiles of the dwelling groups is in large part likely to be responsible for some of these differences: houses have larger older more stable households while flats are more likely to be younger, smaller and childless, especially those in high rise flats. They have spent less time in their current accommodation than those in houses, and it is possible they may also spend less time at home than those who live in houses (given their higher economic activity rates). Nevertheless, there seems to be both a reluctance or ignorance among a minority of flat dwellers to using such devices, even if fitted. This suggests some targeting publicity at this group might prove useful.

Water conservation in practice: How are households reducing water use?

The findings confirm that Sydney households have taken action to reduce water use across a broad range of activities. These actions were highly variable and dependent on the type of activity and the respondents’ capacity to have direct control over the amount of water used. Actions included reducing garden watering or taking shorter showers, both reported by three in ten respondents. But the results also show that only 37% of those with a garden said that they had reduced watering. These overall figures suggest that garden watering restrictions have only *directly* impacted on the consumption behaviour of less than two in five households. On the other hand, the restrictions also appear to have resulted in a reduction in the frequency of car washing for a sizeable minority.

Nevertheless, overall these results can be taken as a positive indication that Sydney residents are changing their attitudes and behaviour toward water use, with increased take up of water conservation practices. Almost nine in ten say they have taken one or more actions to reduce water use in some way. Water use practices most likely to have changed are either those specifically targeted by the restrictions or those most easily and conveniently controlled directly by respondents with little additional effort. Nevertheless, 13% reported they had taken no action at all to reduce water usage in the previous year (rising to 20% of flat dwellers). The results suggest that some Sydney residents have a way to go before attitudes to water conservation lead to widespread and substantial changes in behaviour to achieve further water reduction gains through changed practice.

What of the future? There is some indication that there is a willingness by consumers to change their water use practices in the future. Those most frequently cited changes focus on uses within the home rather than outside: turning water off when brushing teeth, filling the washing machine before use, using water economy settings, putting plugs into sinks when washing hands and dishes, using the half flush on the toilet (where fitted) and cutting showering times. These are the ‘low hanging fruit’ of water conservation in the home. We can all say we could do these things with little additional effort and they would have little impact on our preferred life styles. It is also clear that other, perhaps more significant, changes, are less well supported. Relatively few suggest flushing the toilet fewer times or recycling water from bathrooms or washing. Both these are significant uses of water in the home. And recycling water, other than by hand, is a much more difficult exercise to contemplate, especially for flat dwellers.

Changes to external water use appear to be lower down the future action list compared with actions already taken in the last year, reflecting the fact that many households have already reduced water use in this area and there is limited capacity to extend this activity. In other words, further substantial reduction in water use outside the home is unlikely with current practices and attitudes. Policies to generate the next major change in water use behaviour will need to target activities inside the home, especially in the way households use their kitchen, bathroom and washing appliances.

In general, respondents living in flats are again less likely than those in houses to report water saving action, either over the previous twelve months or the next twelve months. While flat dwellers may have less direct pressure to reduce water use, as noted above, it is also likely to be more difficult for them to adopt conservation practices that require access to external areas or modifications to equipment and facilities.

Watering lawns and gardens

A surprising quarter of respondents with gardens admit to watering their garden more than three times a week, including a small hard core who say they water daily, clearly in breach of prevailing water restrictions. On the other hand, a quarter says they never water their garden.

Also surprising was the finding that the majority of respondents who have gardens say they have not changed their watering practices during the year before the survey. So water savings from reduced garden watering appear to have been generated by less than half of all garden owners. There was also evidence that a small hard core (around 4%) among the heaviest garden waterers, at the time of the survey, had not responded to the call for water reduction.

Turning to lawns, of the two thirds of respondents who say they have a lawn, as many as 72% say they don't water them. The proportion of lawn owners who never water their lawn is therefore substantial. Have the restrictions made a difference to this proportion? Just under a half (47%) of all respondents with a lawn say they had not reduced garden watering in the previous year. Just over a half (51%) of those who say they now never water the lawn also say they reduced garden watering in the previous year. So it is possible that as many as half those who now say they never water their lawn may have stopped this practice in the period the restrictions had come in.

Overall, then, water restrictions appear to have had more impact on lawn watering than for general garden watering. Garden beds are watered more frequently than lawns, although the difference isn't huge. The findings also show both a continued use of more frequent garden watering by a small minority, contrasting with a more general reduction of use among the many.

Buying a new washing machine

When asked about the features they thought important, should they be buying a new washing machine, water efficiency is rated as one of the two key features respondents said they would want in a new machine (the other was energy efficiency). Almost nine in

ten said it was important and well over half said it was very important. Few said they did not consider water efficiency to be important.

This factor outranked price, load capacity and brand name. On this evidence, there would be little scope for machines with poor water saving characteristics to be sold in Sydney. In reality, such considerations may well be tempered by price, knowledge and availability, rather than being overriding determinants of choice.

Respondents in flats were less likely to cite this as a very important feature, but many also had no view, suggesting a level of lack of knowledge about this issue among some flat dwellers.

Swimming pools

One in five respondents own or have access to a swimming pool. Pool use is concentrated into five months of the year: November to March. For the rest of the year, pools are only used by a minority of pool owners. The 9% of all pool users who use the pool all year are much more likely to be in higher density housing, where heated pools are much more common (half the pools in high rise flats are heated). These will have continued water use for their pools all year round. More worrying is the fact that 90% of pool owners don't use pool covers regularly and few who have a cover actually use it. Awareness campaigns and other incentives to use pool covers are therefore needed.

Attitudes to water usage, pricing and water saving in the home

Pricing policies have been long promoted as a way of regulating user demand for water. Recent changes to the pricing structure of water in Sydney have included additional charges for high end users in an attempt to both increase the revenue stream of Sydney Water and to send a price signal to those who use well above average amount of water. The extent to which these users respond to this signal will naturally impact on that potential revenue stream. If water users do not respond to pricing signals because they have little real idea how much water they are using or how much it costs, then pricing policies that attempt to encourage conservation will fail.

In fact, we found that barely one in five respondents said they knew how much water they use in a quarter – and the figure fell to just 6% of flat dwellers. Even so, only 7% overall thought they used above average amounts of water compared to the average Sydney household. Clearly, the great majority of Sydney water consumers do not understand how much water they use and many underestimate their use compared to others.

It is also assumed that there is a significant difference between summer and winter water consumption. Those who said they knew what their water bills said were also asked whether the differences between their summer and winter water bills would make it worth their while using water saving devices during the summer time. Under a third thought it would be worth considering this. For most, then, the difference in summer and winter bills does not seem to be large enough to make a special effort during the summer months to conserve water.

It is possible that for most people, the difference in water usage between seasons is not fully reflected in the variations in their water bills, given the proportion accounting for fees and infrastructure costs hide the 'raw' costs of water consumed. Also, with many households actually using little water outside the home (especially flat dwellers), then actual seasonal water variations may be relatively minimal for many households.

As for the fairness of water pricing, half say it is and a fifth think it is not. Tellingly, a quarter had no opinion – they clearly had no way of knowing whether pricing policies are fair or not. Lack of an opinion on the fairness of water pricing was greatest among flat dwellers.

Does current water pricing encourage conservation? While respondents thought, on balance, that it did, a third did not and a quarter, again, did not know. Again, flat dwellers were significantly more likely not to have an opinion.

The concept of differential water pricing reflecting usage was widely supported. Three quarters thought that an additional fee should be charged for consumers who use well above average amounts of water. In this case, people living in houses, who are more likely to have higher water usage, felt more sensitive to this issue and were more likely not to support the proposition. A similar proportion supported reduced tariffs for those using well below the average amount of water.

A clear majority are therefore in favour of differential water charges to reward consistently lower users and to penalise consistently higher users. The fact that few actually see themselves as above average users might well affect the implementation of such a policy, however.

Despite widespread support for differential pricing to reflect water consumption, and that more people say that current water prices do not encourage conservation compared to those who did, a clear majority – 60% – of respondents say they do not think water prices should be increased to encourage lower water use. There was little difference between dwelling types on this question.

Respondents supporting the proposition that water prices should rise to encourage people to use less water were asked a supplementary question to find out how much prices should rise. The answer was generally not a great deal, with seven in ten supporting rises below ten percent.

These findings suggest that pricing policies to encourage lower water use only have minority support among domestic water users and that even among those in favour, the price raises supported are relatively modest, with seven in ten supporting rises below ten percent.

Has water usage inside the home changed since water restrictions?

Three quarters of respondents said they had changed the way they used water inside the home since the water restrictions had been in force. This ranged from 79% of those in houses to 58% for high rise flat dwellers. So the level of *inaction* on internal water usage doubled from one in five for houses to two in five for high rise flats.

How much water could you save?

When respondents were asked how much further they think they can go in saving water, the answer was not a great deal. Only a quarter thought they could do a lot more or some more. These results suggest that further domestic water savings may be limited with prevailing attitudes and patterns of behaviour. But there was no significant difference in attitudes to future savings across the sample.

Attitudes to the capacity of consumers to save more water appear to be similar across the population, regardless of current levels of water use. This suggests a general campaign explaining how further savings could be made would be beneficial across the range of consumers.

Would you use more water saving devices?

Would subsidising water saving devices affect water saving practices? There is already a program to provide discounted water efficient shower fittings in Sydney. The findings here suggest that there is general support for fitting water saving devices among many people. Almost half our sample said they would fit such devices even if they had to pay for them.

The willingness to fit these devices rose to three quarters if the price was subsidised by a half and potential take up increases to just under nine in ten for freely fitted devices. These results show that support by government for such devices could be critical in promoting more general acceptance and take up.

While the answers to this question offered no guide as to the type and cost of any water or energy conservation devices respondents might have been think off when answering it, the results show a strong latent support for conservation technologies in the home. This support increases substantially if the products are in part subsidized. Indeed, only a relatively marginal additional take-up appears to be achieved by fully subsidising such devices. Respondents seem content with paying for some or all of these devices themselves.

FINDINGS: PART 2

3 QUALITATIVE SURVEY

3.1 Introduction

The primary aim of the qualitative research was to gain a deeper understanding of consumer attitudes towards water use and their perceptions of a range of water saving initiatives. In order to fulfil the primary aim of the research, a number of secondary objectives were addressed in the qualitative research component of this project. These fell under five broad topic areas:

- Identifying perceptions of water use:
- Determining perceptions of prevailing water restrictions in Sydney:
- Exploring options for further water conservation:
- Ascertaining perceptions of the price of water and its impact on water saving:
- Exploring consumers' attitudes to reducing water use:

As noted above, six focus groups were undertaken between April and June 2005 in a range of locations across Sydney. Appendix 2 sets out the methodological details of this part of the research.

3.2 Perceptions of major domestic uses of water

An initial set of questions asked for comments about current water use in the participants' households. These were then compared to the results of a survey conducted by the ABS in 2000-1 which sought to document water use around the home². While the latter were somewhat out of date at the time of this research, they nevertheless represent the best overall estimate of domestic water use available. The recently imposed water restrictions will have had an impact on responses to this set of questions, but nevertheless, the findings are revealing.

3.2.1 The single greatest perceived use of water in individual households

Participants were initially asked to indicate what they considered to be the single biggest user of water in their own household. Two areas of use stand out. Almost half of the participants (47%) singled out the bathroom (especially the shower) as being the place where most water was used in their homes (Table 3.1 col. 2). Households with teenagers were particularly likely to locate the greatest use in the bathroom, with the length of time spent by teens in the shower being seen as a major source of water consumption.

The second greatest single user of water in the household (identified by 40% of participants) was perceived to be the laundry, (i.e. the automatic washing machine). Washing machines, particularly top loaders, were felt to use large amounts of water. This

² Source Actew/AGL 2003; Day, P. 2003. ABS Water Account, Cat No. 4610.0. 2000-01

was particularly the case in households with young children where washing is done on a daily basis. In terms of reducing washing frequency, while some participants acknowledged that not all the children’s clothes they wash at the end of the day are actually dirty, it was easier to wash all the clothes worn that day rather than separate the dirty from the clean.

It was thought that disproportionately large amounts of water are used in the garden by very small numbers of people, notably those who are passionate gardeners. Overall, just 7% of participants said that external uses including watering the garden represented the largest use of water in their home. With the water restriction only recently having been introduced, this finding is not surprising. Only a small number identified either the kitchen or toilet as the largest use of water. The kitchen was deemed to be a low user of water with dishwashers known to be relatively water efficient as long as they were filled before use, a practice most claim to have adopted. Increased propensity to eat out or to eat take-away meals at home and the subsequent lack of use of water required for preparing, cooking or cleaning up after meals was also felt to contribute to low water use in the kitchen.

Table 3.1: Estimates of household water usage, and ABS 2000-1 NSW Survey results

	Perceived single biggest use	Overall Own Use (All)	Overall Own use (Flats)	ABS Survey 2000-1
External use (garden, etc)	7%	9%	4%	25%
Toilets	2%	14%	19%	23%
Bathrooms (showers, hand basin & bath)	47%	37%	36%	26%
Laundry	40%	24%	26%	16%
Kitchen (including drinking & dishwashing)	4%	15%	15%	10%

3.2.2 *Estimated proportions of water used in participants’ household*

Having identified the main user of water in their own households, participants were then asked to estimate what proportion of water was used in each water using ‘zone’ in their own household, ensuring that 100% of their water use was divided up between the five zones. This was a difficult task for the majority of participants as most consumers have little, if any, concept of the amount of water used by different water devices in households.

“I have no concept of what uses how much” (Group 8)

Despite this, all respondents persisted and the aggregated results are shown in Table 3.1 (col. 2). Again, the results from this exercise confirm that the major users of water were perceived to be the bathroom (especially the shower) and the laundry. This broad pattern was consistent amongst all the groups.

Kitchens and toilets were felt to use much the same amount of water. This reflected the fact that most have no idea how much water goes down the drain each time the toilet is flushed: specifically, they don't know and have not considered what volume of water is held in a typical cistern.

The low figure for external use reflects both apparently high levels of compliance with water restrictions and the response of flat dwellers, many of whom have no plants to water. Although flat dwellers perceived external use to account for only a small minority of total use for them, the overall perceived pattern of water use of flat dwellers was not dissimilar to the overall result (Table 3.1 col. 3).

3.2.3 Reactions to ABS data on domestic water use

Having estimated how water use in their own households is spread over various domestic uses, participants were shown the average proportions of water use for NSW households as reported by the ABS for 2000-1 (Table 3.1 col.4). Participants were extremely surprised, particularly by the high percentage for external use, given what they perceive to be the apparently high levels of compliance with water restrictions. Although most have witnessed many blatant cases of non-compliance and no enforcement, the general feeling is that most householders are no longer hosing hard surfaces, cars or gardens outside the permitted periods.

“My neighbour hoses the balcony for ages every evening” (Group 6)

“I’ve seen peoples’ sprinklers left on” (Group 6)

“Those figures must be old because of the garden statistics” (Group10)

Leaving aside the external water use figure, the low figure for water use in laundries also seemed to be hard to accept. It appears that consumers tended to over-estimate the volume of water used by washing machines (as well as under-estimating the amount used to flush toilets). Some felt that the low figures for kitchen and bathroom use may be explained by the fact that awareness of the shortage of water has made householders more conscientious in the way they use water. Most did not question the fact that almost one quarter of the water used in the average NSW household is flushed down the toilet, but it did bring it home to them just how much water is used each time the toilet is flushed, although some simply think some people go to the toilet more frequently than they realise.

“I’m oblivious when I flush the toilet” (Group 9)

Another perceived explanation for the disproportionately high amount of water flushed down the toilet was that there must be a lot of faulty toilets (indeed, some with dual flush cisterns complained that the half flush button doesn't work). They remained surprised upon being informed of just how much toilets use (between 3 and 9 litres depending on cistern size and availability of dual flush).

“The figure for toilets amazes me” (Group 6)

Despite being informed as to the importance of toilets as a main water use in the home, only a negligible number of participants said they would be willing to minimise toilet flushing. Concerns about the appearance and smell of unflushed urine were the main reasons cited for not being willing to reduce flushing.

“I hate it when the kids don’t flush the loo!” (Group 9)

Some parents of children complained of the smell when a teenager fails to flush (even when it’s only urine), while parents of very young children seemed happier not to flush every time their children use the toilet.

3.2.4 Types of Households Perceived to be the Biggest Users of Water

Participants unanimously nominate households with children as those likely to be the biggest users of water. Children of all ages were felt to treat all resources as if they are infinite and to be more concerned with their own, immediate needs rather than anything else. There was some debate as to whether families with teenage children were likely to use more water than those with younger children. Most agreed that teenagers were the culprits, due to their love of long and/or frequent showers. However, parents of younger children tended to think that the volume of washing necessary with young children in the house renders households with young families the likely highest water users.

Participants were encouraged to imagine two identical dwellings and household structures, one being a high water user and the other low. They were asked to identify the types of household they were thinking of and the factors which might influence the volume of water used by these different households and the results are summarised in Table 3.2.

Respondents who were flat dwellers clearly identified house dwellers as higher users of water than themselves. This reflects the fact that many units have no grounds to water or pools to top up and it was thought that in cases where water used for maintaining high water using facilities such as communal gardens or swimming pools the costs were evenly split between all units in the block. While some flat dwellers said they washed their cars regularly using multiple buckets of water, others had no interest in keeping their car clean, so car washing didn’t emerge as a particularly big user of water amongst households in this sample.

“I don’t think units can waste that much” (Group 6)

Within blocks of flats there were recognised to be a combination of both heavy and light users of water. There was clearly a feeling that the restraint that good citizens observe regarding water use is likely to be being cancelled out by the excesses of more selfish residents. Furthermore, it is difficult to do anything about this as water use in flats was simply split between all users.

“It’s hard to pin down the identity of high users in blocks of units” (Group 6)

Table 3.2: Water use in two imaginary households

HIGH WATER USING HOUSEHOLD	LOWER WATER USING HOUSEHOLD
Families with teenage children	No children
Families with young children who get away with playing with / waste water	Children trained to be careful with water
Larger households, e.g. multiple occupancy flats with partners staying over a lot	Smaller households
Occupants predominantly young & active – need multiple showers due to sporting activities	Older occupants – greater tendency to be careful with resources in general & only see need 1 shower / bath per day
Occupants home all day / work from home	Occupants who are out a lot, e.g. at work / childcare / socializing / sporting (often the case with unit dwellers): “ <i>I am never home during the week</i> ” (Group 8)
Large and / or beautiful garden to up-keep & occupant values garden highly	No garden / native garden / happy to let garden dry up
Occupants not brought up to be careful with water	Occupants brought up to be careful with water
Those who have always had water ‘on tap’, i.e. most urban dwellers with no experience of living with tank water	Those with experience of living with tank water only, i.e. those who have lived in the country / overseas where water is restricted
The self-interested who do not care about water shortage	Community minded people who feel they should share responsibility for being careful about water
Less well educated occupants who have a micro view of the world and may be oblivious to bigger picture	Better educated occupants who take a macro view and understand the consequences of being wasteful with water in a dry country
Renters who don’t have to pay & don’t care	Owners who don’t like to see money going down the drain on principle even if dollar value is small
Occupant has chronic medical condition necessitating more frequent than average number of visits to toilet	Occupants healthy

3.3 Per capita water consumption in Sydney

3.3.1 Estimated consumption

Participants were asked to estimate the amount of water used by a typical Sydney resident in a year in their home. This proved to be an extremely difficult task for participants even when presented with a range from which to choose. This reflected the fact that people have little or no idea either of how much water they use overall or of how much water is used by particular devices. The only guide most have is the amount of water they drink per day, in terms of litres, as this is a tangible action and a litre is a familiar unit of measurement. By contrast, much water use is invisible and this is exacerbated by the fact that a kilolitre is an unfamiliar and meaningless unit of measurement for most, even when they are told that 1kilolitre is equal to 1000 litres. As a result, some were simply unable to estimate the amount of water used by the average person in Sydney per year. Estimates that were made are best described as guesstimates. Most of those hazarding a guess put the figure at between 100 and 200 kLs per year. Estimates ranged from 15 to 540 kLs.

3.3.2 *Actual consumption*

When told that a reliable estimate is that on average Sydney-siders used 92 kL of water per year, most saw this as a meaningless figure. But when this was converted to an average daily use figure, the fact that the average person in Sydney uses around 250 litres per day was met with disbelief and outrage. This reaction reflected both shock at how high the figure is and the implications it had for water management.

“That’s horrifying, especially when so little is actually drunk” (Group 6)

“The lack of grey water recycling is insane” (Group 7)

Many felt that the figure was so high that it must include water used by the average person in non-domestic settings, i.e. when at work, out socially, etc., as well as commercial and industrial use of water being averaged out across the population. Furthermore, the enormity of the figure suggested to some that leaks in the pipes before reaching dwellings account for at least some of the water.

Some flat dwellers found it hard to equate 250 litres a day to their own use that they rationalised it to mean that they were using less than average-which is counterproductive to encouraging saving.

“There must be a lot of people that are using stacks more than us” (Group 8)

“It makes me think I am using nowhere near the average so it makes me feel the opposite about saving water” (Group 8)

Some tried to make sense of the figure by translating 250 litres into meaningful uses of water, such as 20-30 flushes per day. On reflection, a minority acknowledged that the figure was probably accurate.

“That’s normal when you calculate it out”

“I’m surprised it’s not more”

3.3.3 *Estimated amount of water used in participants own households*

Having become aware that the average person in Sydney used 250 litres per day, participants who were home owners were asked to estimate how much water they used in their own households per quarter in terms of both volume and cost. The overwhelming finding here was that most had no idea of how many litres of water they used per quarter and no confidence in trying to work it out. Those willing to estimate made guesses which ranged from 35 kLs to 100’s of kLs.

“I wouldn’t have a clue” (Group 9)

The main reason why estimating the volume of water used was felt to be so hard is that few look at the amount consumed as they are primarily interested in the overall price they have to pay. While many are interested in comparing consumption levels with that of

previous quarters, as facilitated by the graph on the bill, details such as number of kLs are ignored in favour of whether any fluctuation had occurred and, if so, in what direction. In other words, they are more interested in how much water they have used in relative rather than absolute terms.

The increased meaningfulness of comparative rather than absolute use of water was illustrated when participants compared their bills with each other during the group. Some admitted to being embarrassed if their bill was significantly higher than someone with the same size of household or their bill was higher than someone with a smaller household. So, only comparative amounts have meaning because the enormous volumes reported on the bill are beyond comprehension.

Estimating how much people pay for water per quarter was seen as an easier task to undertake although few attempted it and there was more general interest in how much water costs them than in how much water they use. Because water bills are relatively low compared with other bills such as electricity, the actual amount paid does not seem to be remembered – it is just something one pays because one has to and it is a reasonable amount for something so important.

The situation was more difficult for flat dwellers. In particular, unit owners had no way of knowing or estimating how much water they use per quarter as water use is not shown on their water bill. While the water bill shows sewerage and water connection costs, the amount of water used is hidden in body corporate fees and evenly split between all unit owners in each block. The system of evenly splitting the bill for water used across all the units in a block was not felt to be fair, especially given the fact that use is so variable between each flat due to the influencing factors listed above.

“We all have to pay if one person is wasting water” (Group 6)

Furthermore, dividing the bill evenly can be seen as a disincentive to save water depending on one’s mindset regarding fairness and how zealous one is about saving water in the face of adversity.

3.4 Value of the information presented on Sydney Water’s bills

Sydney Water’s bills are felt to provide consumers with all the information in which they are interested. In particular, how much water the household has used since the last bill and compared with the corresponding quarter the previous year, and how much this is going to cost the householder.

The fact that the graph on the water bill depicting relative consumption is displayed prominently and is easy to understand is a key strength of the bill’s layout as is the fact that use is reported in litres per day which means considerably more than kL per quarter, despite the fact that few actually make a real connection between this figure and actual water use. As well as rendering the amount of water used more meaningful, comparisons with previous quarters have the benefit of demonstrating the impact of, for example, repairing a leaking toilet cistern

or tap. Nevertheless, it appears that comparative information tends to be in the ‘nice to know’ category rather than triggering endeavours to reduce water consumption if an increase has occurred. At best, this may trigger a family discussion as to the possible cause of an increase.

Another point raised was that knowing that one’s own water use has decreased did not necessarily mean that water consumption generally had become more efficient. Clearly, consumers were looking for further information to be provided on their bills to enable them to compare their household’s use of water with that of the Sydney average. It is important that this information is clear and succinct as clutter on the bill was not welcome; indeed respondents seemed to value the fact that a ‘less is more’ approach appears to have been adopted for the layout of the bill.

3.5 Awareness of Water Restrictions

Reassuringly, all participants were aware of the existence of water restrictions in Sydney. It is telling that at the time of the fieldwork (April / May 2005) a minority was under the impression that the water restrictions had been lifted. This reflects the lack of mass media communication to reinforce the need for, nature and currency of, water restrictions in place in Sydney.

In order to gain an accurate idea of how well known the nature of the restrictions were, participants were asked to record, individually in writing, what they would say to someone new to Sydney in relation to what the current water restrictions prohibit them from doing. While they confidently reiterated the broad nature of the water restrictions, for many there was considerably uncertainty regarding the exact details as well as confusion due to misinterpretation by a few.

Table 3.3 outlines the restrictions with which they were broadly familiar and the exact specifications with which many were only vaguely aware of or had misconstrued. Perceptions were consistent across dwelling type and household structure although flat dwellers were vaguer than house dwellers about specific days and times when it is permissible to water gardens.

In addition to being able to list the actual water restrictions, however inaccurately, many mixed up additional water saving techniques as actual restrictions. This reflected one of two things: a belief that these additional techniques were mandatory restrictions or the introduction of water restrictions encouraged some to apply their own water saving methods with as much rigour as if they were mandatory, and they become confused with actual water restrictions which can be enforced. In other cases, the conditions attached to the restrictions meant some uses of water had simply been abandoned. For some, not being able to wash the car with a hose equated to not being able to wash the car at all, as it is too hard without a hose.

Table 3.3: Perceptions of the nature of prevailing water restrictions

BROAD GENERAL AWARENESS OF WATER RESTRICTIONS	UNCERTAINTY & CONFUSION REGARDING SPECIFIC DETAILS
No hosing of hard surfaces such as driveways, patios, eaves, roof tiles or windows	Is it ok to use a gurney ³ ?
Watering of gardens restricted to specific days and times	Is it ok to use a hose at all or just with a watering can? On which days & at what times is one allowed to water one's garden?
No fixed sprinklers to be used at any time	Is it ok for timed sprinkler systems to be used at specified times?
Drip irrigation systems can be used	Drip irrigation is a fixed watering system so is it ok to use?
No washing car with hose	Am I only allowed to wash my car (with buckets of water) when it is parked on grass?
No filling of new or renovated swimming pools	Is council permission required for topping up existing pools as well as filling new / renovated existing ones?

3.5.1 Source of awareness of water restrictions

Across all dwelling types and household structures, participants recalled becoming informed about the water restrictions as a result of exposure to at least one of the following:

- Television commercials;
- Radio commercials;
- Press advertisements;
- Posters, e.g. “How much water are you using?”, Tips on saving water (domestically) displayed in workplace;
- Brochures;
- Information on the back of the water bill (which was actually missed by most participants);
- The internet, e.g. triggered by a dispute with a neighbour about car washing restrictions;
- Word of mouth recommendation, e.g. relatives encouraging each other to save water.

Most information about the water restrictions was felt to have accompanied the introduction of the restrictions themselves, followed by a significant decline in the knowledge of the restrictions, in spite of the easily accessible information that had been available since they were introduced.

“It’s been a while since we have seen the ad” (Group 6)

This led to some believing that the water restrictions were no longer in place.

³ High pressure water hose.

“I actually thought the restrictions had been lifted (Group 6)

Thus, there was strong support for a continuing mass media communication campaign reminding the community of:

- Why the restrictions are needed;
- The current situation regarding the water supply (specifically the Warragamba Dam level) and which enforceable restrictions are in place;
- How the future is looking in terms of water supply and demand;
- The likely consequences of not restricting water use;
- How much water is used by individual household fixtures / fittings / devices.

3.5.2 Attitudes towards the water restrictions

An important determinant of attitudes towards restrictions was the level of understanding as to *why* they had been introduced. The table below and overleaf outlines the diverse range of beliefs as to what has led to the water restrictions being implemented in Sydney.

Table 3.4: Summary of participants’ understanding of why water restrictions had been introduced

	ENVIRONMENTAL	SOCIAL AND CULTURAL	POLITICAL	STRUCTURAL	MANAGERIAL
MAJOR CAUSE	Low rainfall (especially over catchment area) resulting in low level of dam which is exacerbated by evaporation	Population increase	Policy of building high density housing	Physical barriers to extending catchment area	Bad management of water supply in general and “fiddling” with Murray Darling river system in particular
OTHER CAUSES	Protection of national park leading to water pipeline being diverted from best route	Lack of water saving mentality amongst urban dwellers	Lack of strategic plan being in place in the event of a drought	Difficulty in capturing run off	No encouragement to recycle water
	Inability to extend catchment area by building new dams due to negative impact on environment	<i>“A lot of people don’t do the right thing” (Group 7)</i>	Incompetence on government’s part	Water captured in QLD and Northern NSW for cotton fields restricts supply to Sydney	Previous discouragement from collecting rain water from tanks – water tanks illegal

Water restrictions were clearly perceived to be required because of a water shortages which, in turn, were felt to have been contributed to by human as well as climatic issues. Across all dwelling types and household structures, a combination of political and environmental causes were put forward, with more informed participants adopting a bigger picture approach to why water restrictions were necessary. Some with very strong views on more politically oriented causes of the water shortage offered overly simplistic solutions.

Thus, while some quote lack of rainfall as the obvious and only reason for water restrictions being necessary, others consider a broader, more complex range of issues as well as adopting a retrospective approach to understanding the problem.

“It’s the immigration policy – Sydney is taking 1000 more people a week and we don’t have the infrastructure to cope with it” (Group 10)

3.5.3 *Perceived efficacy of water restrictions*

Participants believed that water restrictions were making a difference as they claim to be complying with them and were confident that this is also the case for most people.

“It has become socially unacceptable to hose paths and driveways” (Group 6)

All were aware of neighbours who continually flouted the restrictions, particularly those with a long standing habit of cleaning driveways and footpaths with a hose. It was thought that language difficulties, especially for older people, may be partly responsible for this situation.

“It’s not getting through to the [minority groups]” (Group 7)

Other reasons for non-compliance included people simply not caring about them and basic self-interest. Some participants reported examples of covert activities by neighbours in order to hide water use, such as people shutting their car in the garage so they could wash their cars using a hose – the soapy water running under the closed garage door and down the driveway gave the game away to others on the street!

All participants were aware that the restrictions were mandatory and that fines could be applied if a householder was caught not complying with the restrictions. However, none had seen or heard of evidence of the restrictions being enforced.

“It’s hard to enforce – they can only fine people if they’re caught in the act” (Group 8)

Similarly, it was believed that people could only report non-compliance restrictions if the perpetrator was caught in the act by the relevant authorities. While this limited opportunities to penalize non-compliance (and hopefully, subsequently increase compliance), the main barrier to such reporting was reluctance to “dob” on people even if they were known to be doing the wrong thing, especially neighbours.

3.5.4 *Impact of water restrictions on general water use*

The existence of water restrictions raised the level of consciousness about water use generally. So, while only specific tasks were prohibited or restricted, many participants said they had become much more careful about the amount of water they used generally.

It was also recognised that the restrictions had more of a significant impact on some people’s lifestyles than others. In particular, the restrictions impacted on house dwellers

more than flat dwellers due to external uses of water being more relevant for house dwellers.

“I haven’t watered the plants and some exotics have died” (Group 5)

“I only water the plants when they’re dying” (Group 9)

“I take the care to the car wash instead of the kids washing the car” Group 5)

Both flat and house dwellers supplemented the mandatory restrictions with numerous water saving initiatives of their own. Some of the more common behaviours were to be expected while a few conscientious individuals demonstrated genuine and proactive commitment to conserving water.

A summary of the range of water saving initiatives mentioned as having been used by participants, broadly reflecting the general ease of implementation and frequency of mention, is presented in Figure 3.1

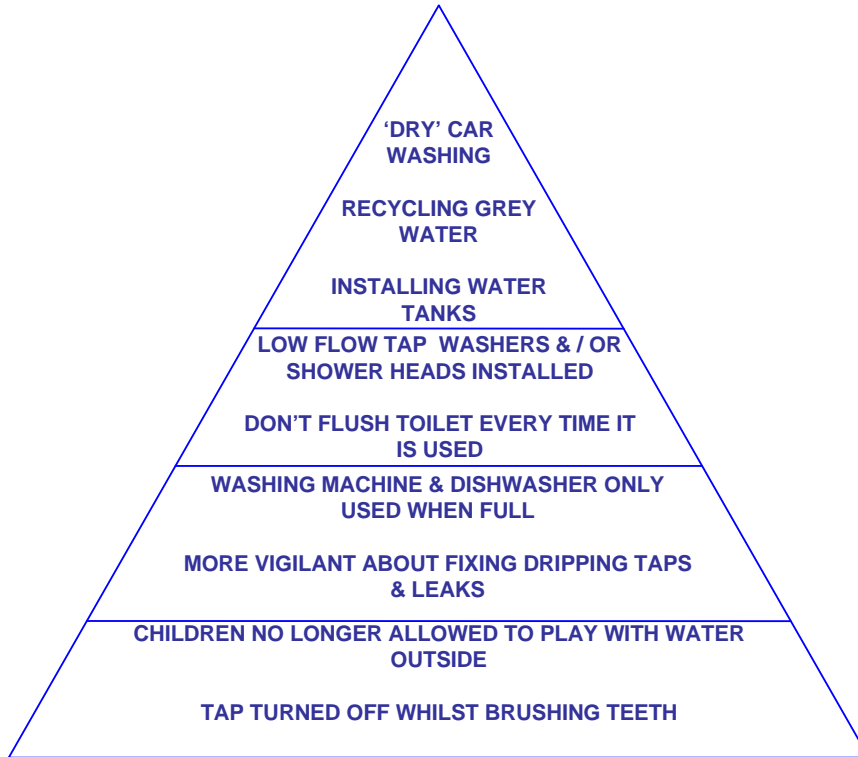
“I use an Enjo glove to wash the car – you just wet it with a little bit of water wipe the car and it removes the dust in a minute” (Group 8)

“I’m surprised at the impact on old people – they’re not as stuck in their ways as we would have thought. My grandparents do things like collecting water and watering their roses with it” (Group 8)

Of course, those involving water tanks and recycling of grey water are almost exclusively restricted to house dwellers (although a minority of garden apartment occupants said they recycled grey water).

“I pump out the bath onto the lawn using a thing you put on the end of the hose that my dad bought me” (Group 8)

Figure 3.1: Summary of additional water saving initiatives used by respondents



3.5.5 Perceived ease of implementing water restrictions

A key finding, which reflects the results of the quantitative survey reported in the previous section, is that the impact of water restrictions had been differentially felt between the dwelling type sub-groups. Most particularly, unit dwellers claimed not to have been significantly inconvenienced by the water restrictions. This reflected the lack of impact of the restrictions on their overall comfort level. It is clear that there was considerable variation in the perceived ease of implementing the mandatory water restrictions according to personality type – those who care about appearances or are passionate about gardening particularly – and those who are willing and able to comply with restrictions.

Overall, participants thought that Sydney-siders were not felt to have a water saving mentality especially those with ingrained water using practices. Furthermore, it was felt that there would always be recalcitrants from all backgrounds who have no intention of adjusting.

Participants were asked how easy or difficult it was to comply with the water restrictions. For some the restrictions presented no problem while for others they were inconvenient. Table 3.5 summarises the aspects of the prevailing water restrictions that participants felt were more difficult to comply with or those that deterred compliance. It is telling that during this exercise, participants described the degree of difficulty of implementing both

mandatory and self-initiated restrictions, reflecting the ambiguity about exactly what the mandatory restrictions were noted above.

Table 3.5: Perceived difficulties in implementing water restrictions and other water saving strategies

WHAT IS DIFFICULT & WHY
Inability to wash car (hosing restriction equates to ban due to difficulty washing car with buckets of water)
Washing car with bucket is too time consuming and thought to use more water than hose
Passionate gardeners feeling torn between complying with restrictions and nurturing their beloved garden
Remembering on which days garden watering is permitted
Lack of certainty regarding which types of watering systems are permitted
Difficult for shift workers to comply with watering days / times
The house-proud are unable to meet their need for high standards of cleanliness due to ban on hosing hard surfaces such as driveways and eaves (sweeping clearly doesn't achieve the desired effect and cobweb brushes don't appear to be a consideration)
Problem of having to scrub areas around barbecues to remove grease
Changing old habits , particularly for older people
Having shorter showers or fewer baths. While a long shower is a luxury many are not prepared to sacrifice , it is claimed to be particularly difficult to shorten the excessively long showers teenagers insist on having
Having showers with low flow shower heads – unsatisfying due to insufficient pressure– some talked of having to run round the shower to chase the water!
Denying young children freedom to play with water in garden
Training toddlers to flush once only & turn taps off
Maintaining pool level without a water tank
Installing water saving front loading washing machine in rented flat or if plumbing is not in the right position

While, it was generally felt to be easy to comply with the water restrictions, a number of factors lead to many householders to experience considerable frustration. For example, when a compliant person witnessed non-compliance this presented difficulties at an emotional level and was perceived to undermine their restrained water use and subsequent contribution to water saving. This includes witnessing both domestic and industrial (e.g. building) non-compliance / water wasting practices.

“A lot of people don't do the right thing, so the people that do have to do more” (Group 7)

“My neighbour was hosing his balcony for 5-10 minutes. As long as they don't get seen or found out, they don't care” (Group 6)

In addition, while participants were trying to follow instructions to be careful with water use, some reported seeing substantial flows of water in the street from non-domestic users or from broken water mains and car washes that made them question value of their own actions. Some of the rules were also not felt to be compatible with saving water. For example, the use of inflatable pools which had to be emptied on a daily basis for safety reasons, and the use of buckets of water for car washing, which some felt used more water than a hose.

While there were a significant number of apparent difficulties, most were minor complaints. But the prospect of further restrictions instilled more serious trepidation as most, regardless of dwelling type or household structure did not see how they could restrict their water use further without radically compromising their comfort or convenience. The prospect of limits being placed on the frequency/length of showering and clothes laundering left most participants extremely disturbed.

3.5.6 Future direction for water restriction

With the exception of one or two participants, it was overwhelmingly thought that water restrictions would be increased rather than decreased in the future. This was because the water shortage was showing no signs of abating due to demand greatly exceeding supply as a result of population growth and urban development. Facing the thought of increased water restrictions prompted a diversity of views regarding the causes and consequences of reduced water supply.

“Restrictions should not exist; they should have been more prepared” (Group 10)

“I heard the dam was going up at one point and they said restrictions may be relaxed. Why would you relax it? Relaxed restrictions made me annoyed because we were so desperate for so long, so why go back to that?” (Group 8)

“We must encourage each other to do the right thing at a community level” (Group 7)

As well as eliciting emotional reactions, pragmatic approaches were also proffered as means of supplementing increased water restrictions.

“They need to promote better ways of using water” (Group 7)

“They need to capture the roof run-off as subsidies on water tanks are nothing” (Group 7)

But while further restrictions were thought likely, the great majority were unable to comprehend what any additional water restrictions could possibly comprise. This reflected the fact that, as far as they were concerned, participants’ current water use was as minimal as they were prepared to make it without compromising their desired level of comfort and convenience.

“How much more restrictive can it get?” (Group 8)

“I just can’t think of anything else I could possibly do except shorter showers which I won’t do” (Group 8)

As indicated above, some feared the introduction of restrictions on showering and laundering clothes – a small proportion were aware of, and mentioned, restrictions on frequency of using washing machines due to having family members in regional areas within NSW where higher restriction levels have been in place for some time, e.g. Wauchope.

Restrictions which more overtly affected people's comfort level and daily routine were deemed likely to have impacted on everyone including those on whom the water restrictions had impacted less keenly, such as recalcitrants and unit dwellers.

"If you get limited to one shower per day, unit dwellers will start to pay attention too"
(Group 8)

Finally, there was an element of fear that if people were unable or unwilling to further reduce their water consumption, then the ultimate water restriction would be implemented.

"I'm always afraid we will come to the point that the government will just come and turn it off" (Group 6)

3.6 Differences between tenure and dwelling types

Prior to the commencement of the research it was hypothesised that differences would exist between the perceptions of:

- Renters compared to those who had purchased or were purchasing their home;
- Those living in houses compared to those living in units.

As a result, one of the groups discussing water comprised renters and two were flat dwellers.

The differences between these groups were not as significant as might be expected. For example, flat dwellers suggested very similar ways of saving water to their house dwelling counterparts and some had already put a number of the same water saving initiatives into place as house dwellers. This includes pumping out bath water onto the garden, not washing their cars, installation of low flow shower heads and taps, having shorter showers during the week, only putting the dishwasher and washing machine on when full and generally being as conscious as possible not to waste water.

Triggers to save water were driven more by a concern for the environment and / or a sense of shared community responsibility than by efforts to save money, with renters and flat dwellers expressing very similar attitudes and adopting similar water saving behaviour as their house dwelling counterparts.

"The drought has made a difference" (Group 8)

"It has become socially unacceptable to hose paths and driveways" (Group 6)

"My parents pay their bills and it's not that much" (Group 8)

"I am conscious that you shouldn't use more than you need even though you don't pay"
(Group 7)

While variations in attitudes and behaviour to water use influenced by tenure or dwelling type has been indicated in various places in this report, the responses from the focus groups are summarised below in order to highlight the issue.

Overall, as expected, there was less incentive for renters and/or unit dwellers to conserve water because they did not pay their own bills for water use (hidden in body corporate bill for unit owners). There was some feeling that it would make a difference if each unit had to pay for the water they used individually. Flat dwellers were also perceived to have generally fewer opportunities to use water:

- Units have smaller hot water systems which limits the potential for excessively long showers,
- There are fewer or no outside areas to maintain,
- They tend to be home less often, so they use less water in their homes.

The fact that unit dwellers were home less often acts as a disincentive to modify their homes to make them more water friendly or to adopt water friendly practices when they were at home. It was not thought to be cost effective to buy water saving devices. And they can also afford to indulge in excessive water use when they are at home because they are not there much.

In addition it was thought to be more difficult for unit dwellers to make modifications as they were more restricted (e.g. by space) than house dwellers and were much more likely to be renting. For example, one respondent was unable to replace her top loader with a front loader as the plumbing was not in the right position and she cannot move it because she was renting.

Flat dwellers were also much less persuaded of the likelihood of installing water tanks or getting their properties re-plumbed to recycle grey water due to the structural difficulties of undertaking such measures and not feeling ownership of gardens surrounding the block that may benefit from being watered with tank water. The fact that many of this group were renters also clearly obviated them from seriously considering such investments.

Flat dwellers also appeared to be more likely than house dwellers to think the restrictions had been lifted at the time of the fieldwork. This reflected the fact that the restrictions had not greatly inconvenienced them.

3.7 How might water consumption be further reduced?

Participants were asked to come up with additional techniques which could be implemented in order to reduce domestic water use further. The inventory of water saving measures included techniques includes some that had already been implemented and have therefore been listed earlier in this report. The findings are reported below in order of the main water uses used in section 3.1 above namely:

- External Uses;
- Toilets;
- Bathroom;
- Laundry; and
- Kitchen.

The only measures mentioned that did not fit into these categories were an increased vigilance in checking for leaking taps and replacing washers in those found to be dripping, although not all know how to change a washer and are not sufficiently motivated to pay plumber's rates or arrange for Sydney Water to fix them up (a service offered along with low flow shower heads being made available for \$20).

3.7.1 Reducing external uses of water

Ideas for further reducing external water use can be categorised into ways of facilitating the following without utilising piped water (Table 3.9):

Table 3.6: Ideas for further reducing external water use: Garden watering, cleaning of patios and car washing

GARDEN WATERING	PATIO CLEANING	CAR WASHING
Recycling grey water	Collection of grey water in drums to clean patio	Using commercial car washes
Installation of garden articulation systems		Not washing the car at all
Collection of grey water in drums to water garden		Collection of grey water in drums to wash car
Buying drought resistant / native plants		Using minimal water using techniques, i.e. <i>Enjo</i> glove
Keeping the grass high		
Avoid watering grass at all		
Putting in bores where possible		
Installing water tanks		
Using recycled water		

The most frequently suggested techniques involved the collection of water in tanks and recycling of grey water. Ideas for reducing water in the external use category were more forthcoming from house dwellers, but even some flat dwellers suggested collecting rain water in tanks from the roof of unit blocks. While water saving techniques was based on restricting water use, consumer generated measures also allowed them to regain the freedom to use water as and when they choose.

“With recycled water you can use it whenever you like” (Group 10)

The greater emphasis on extending the means of capturing water, thereby reducing the volume of run off water being wasted down storm drains and on reuse of piped water over behavioural modifications reflected a strong reluctance to further restrict their use of piped water.

3.7.2 Reducing the amount of water used in toilets

While some participants mentioned the possibility of not flushing every time the toilet was used, there was considerable resistance to this. As Table 3.7 shows, views were expressed for and against reducing water use via the toilet.

Table 3.7: Drivers and barriers to reducing water use in the toilet

DRIVERS FOR REDUCING AMOUNT OF WATER FLUSHED DOWN TOILET	BARRIERS TO REDUCING AMOUNT OF WATER FLUSHED DOWN TOILET
Many demonstrate some commitment to replacing single flush cisterns with dual flush cisterns. <i>“I really want the 2 flushes” (group 10)</i>	They are unlikely to actually purchase a dual flush cistern unless renovating bathroom or in receipt of government rebate for so doing. The value of dual flush cisterns is lost if the half flush button stops working as few make the effort to get them repaired
Some are prepared to flush the toilet only when necessary by following the adage ‘If it’s yellow, let it mellow. If it’s brown flush it down!’ Those who seem most likely to follow this through are: <ul style="list-style-type: none"> • parents of young children • those with multiple toilets • those concerned about environmental issues 	Most insist on the toilet being flushed every time it is used. Typically these are: <ul style="list-style-type: none"> • women • the house proud • those with a single toilet • those with teenage children
A few said they might check their cistern for leaks.	Many would be oblivious as to whether their cistern leaked and were unmotivated to check to see if it is
The idea of collecting grey water for flushing the toilet was mooted	Many are clearly not to put in the time and effort to reuse grey water
Many considered the idea of fitting a brick or similar weight in the cistern to reduce the amount of water per flush. The fact that this is both easy to do and involves very little, if any, cost renders this likely to be one of the most popular water saving initiatives.	
Increased awareness of how much water is flushed down the toilet with every flush appears to be a key motivator to at least think about minimizing this use of water – toilet flushing is so habitual that it is done without thinking and many are horrified when informed of the amount of water involved.	

3.7.3 Reducing the amount of water used in the bathroom

Trying to introduce water-saving initiatives in the bathroom was difficult with householders appearing perplexed by the large volume of water used in showers but being unwilling to sacrifice the luxury of daily long warm showers (Table 3.8). While the bathroom tended to be viewed as predominantly a functional room, it emerges as a retreat for indulgence, pampering, luxury, escape, relaxation and even reward.

The drivers and barriers to saving water in the bathroom are summarised in Table 3.8 below. Overall, perceptions among group participants on the barriers to further reductions in this area of household water consumption outweigh the potential drivers for change. The significance of the bathroom as a place to treat oneself is greatest when the occupants of a dwelling are hard pushed to afford or have access to alternatives outside the home: the time poor, those with young children and those with little money. Some participants without bathroom heaters reported running hot water in the bath or shower for considerable periods of time in order to warm up the bathroom to the desired comfort level!

Table 3.8: Drivers and barriers to reducing water use in the bathroom

DRIVERS FOR REDUCING AMOUNT OF WATER USED IN SHOWERS	BARRIERS TO REDUCING AMOUNT OF WATER USED IN SHOWERS
Some who have not yet installed low-flow shower heads are prepared to do so.	Low flow shower heads (particularly those provided for \$20 by Sydney Water) have been a big disappointment to many who have had them installed. So, with the exception of those who have purchased such devices independently of the Sydney Water offer, many users do not advocate the installation of low flow showers. Although satisfaction with low flow showers clearly varies, they are perceived to be undesirable by non-users.
Participants will aim to spend less time in the shower with some suggesting that they may have to start timing their showers in order to contain the length of time spent showering	The shower remains an important sanctuary of relaxation and indulgence for some – a luxury they are not prepared to give up.
ABC TVs ‘New Inventors’ program recently featured a water conservation friendly invention which enables the water temperature in a shower to remain constant even when it is switched on and off during a person’s shower, thereby enabling activities such as shaving, lathering etc to be undertaken without water running down the drain or compromising the comfort level and convenience sought by householders.	Unless new ‘gadgets’ are sufficiently supported to enable them to see the light of day, endorsed as a genuine water saving device opportunities such as this are lost as is the perception in the community that the authorities are genuinely committed to reducing domestic water use and doing so in a way that makes it more palatable for consumers
There is some, albeit limited, acknowledgement that by reducing the number of bathrooms in a house, thereby limiting access to showers, some may do without a shower they may have had if there was one more conveniently located, e.g. near a swimming pool	In recognition of its water saving properties, there also needs to be an incentive to purchase such gadgets, such as discounted prices, reduced water bills, rebates etc.
Participants recognised that in order to encourage children to take shorter showers an element of fun would need to be involved. A funny sounding alarm or something similar might be enough to alert absent minded children to the realization that it is time to get out of the shower without parents having to supervise or nag.	More generally, there is not felt to be any link between increasingly high numbers of bathrooms in houses and high water consumption. This reflects the fact that, superficially at least, bathrooms are viewed as purely functional – only used when they need to be.
Some may be persuaded to learn from more zealous partners or others to collect the water run whilst waiting for it to reach the desired temperature – claimed to be a bucket full by some who already practice this water saving method. It was even suggested that both hot and cold water pipes be insulated so that the time spent running water to achieve the desired temperature is reduced.	Successfully encouraging teenagers to have shorter and / or less frequent showers is seen as one of the most difficult tasks facing parents, water shortage or no water shortage! Parents of teenagers hold out little or no hope of modifying the behaviour of what they see as the biggest users of water in their household: teenagers themselves!
It is recognised, albeit reluctantly, that it may become necessary to reduce the number of showers or baths taken in order to save water.	Many are not prepared to inconvenience themselves to the extent of collecting water run whilst waiting for the shower to reach the required temperature. This is deemed too extreme for many, even if their partner already does this and the bucket remains in the bathroom for easy access.
	The notion of reducing the frequency with which showers or baths are taken is complete anathema to many – particularly those who routinely have 2 showers a day.

3.7.4 Reducing the amount of water used in the laundry

As indicated earlier washing machines were considered to be very high users of water. Indeed, many considered the washing machine to be the biggest user of water in their homes. It is perhaps just as well that the laundry is a relatively minor contributor to domestic water consumption because there was felt to be little scope for reducing water use related to washing clothes.

With most participants already limiting the frequency with which they use their washing machine by waiting until it is full before use, further reducing the number of times the washing machine may be used was not considered possible. Those who used their washing machine before it was full saw that they may have to modify their behaviour in recognition of the continued water shortage. One or two participants who have relatives living in areas where higher level water restrictions are in place informed fellow group participants that some are only permitted to use their washing machines on Sundays. Such a restriction was met with a combination disbelief and scorn. It was generally thought not possible to keep up with the volume of washing created by a family if only permitted to do it on a single day, while young singles and couples will simply do a full weeks worth of washing on the designated day which defeats the purpose of the restriction as the washing machine would be used with the same frequency. Furthermore, as it was not deemed possible to enforce such a restriction, non-compliance would be rife.

Although few saw immediate opportunities to save water in the laundry, replacing a old or broken down washing machine with a front loader emerged as one of the few potential means of reducing the amount of water used in the laundry.

3.7.5 Reducing the amount of water used in the kitchen

With the exception of those who love cooking and spend a lot of time in the kitchen preparing food and clearing up after meals (and using water in the process), the kitchen was not identified as a particularly high user of water. It was not surprising then, that the number of water saving initiatives considered by participants that focus on the kitchen sink or dishwasher was limited. The following were suggested:

- Clean vegetables and rinse dishes in a sink of water rather than under a running tap;
- Avoid rinsing dishes (especially as excessively as this is done by some with tea and coffee cups) prior to placing in dishwasher;
- Ensure dishwasher is full before putting it on;
- Avoid using the dishwasher. This suggestion, by a minority, reflects conflicting views on whether manual or automatic methods of washing dishes are heavier on water consumption;
- Recycling drinking water left in glass by pouring it in the kettle or on plants.

3.8 Perceptions of the price of water

Judging by the response of participants to being asked to estimate how much the water piped to their house costs discussed above, by far the majority of participants had no idea of the price of water. This supports the findings of the quantitative survey discussed in section 2 above. Few, if any, had ever thought about it and some clearly felt uncomfortable at being seen to be unaware of the price of such a common and important commodity.

Unit owners were particularly oblivious to the cost of water as their water use costs are absorbed into body corporate fees which include higher cost items such as pool, lift, and garden maintenance, building insurance, administration.

“I go to body corporate meetings and it’s never raised as an issue about water, ever”
(Group 6)

While one group participant correctly answered the question, estimates of the price per litre ranged from 0.1c to more than \$1. The information that the price of 10 litres of water (piped to Sydney households) was 1c was met with incredulity by respondents across all dwelling and household types.

“That is ridiculously cheap!” (Group 6)
“Surprisingly cheap” (Group 8)

This supports the point made above that the only parts of the water bill that consumers note was the bottom line overall cost and the graph showing comparative usage. According to some, the only householders who would find water expensive were heavy users. Moreover, the low cost of water was seen as a disincentive to properly manage water use.

Because water is essential to life and we live in a developed country, access to clean water is taken for granted. As a result it was very hard for consumers to determine whether or not they were getting value for money for the water piped to their dwelling. For a minority, the fact that water is a necessity deems its low price good value and they seemed to be happy to pay what they do. Lack of competition was felt to compound the fact that consumers have nothing with which they can compare the price of water in order to see if it is being fairly priced.

“I don’t understand what its worth anyway” (Group 10)

One participant questioned the logic of the way the water bill was structured pointing out that the fact that the fixed price for both the supply of water to the house and for sewerage was higher than that for water used did not encourage water saving.

Those who adopted a politically oriented view of the causes of the water shortage were often the same people who held the view that Sydney Water did not offer value for money. This was not so much because the price charged was too high; on the contrary, the low cost was felt to be prohibiting extensions and improvements to water catchment and infrastructure systems. The fact that Sydney Water contributes to State government revenues from its income was also seen by some as limiting Sydney Water's capacity to invest in extensions and improvements of its systems.

Some thought that the price of water had been increased on the introduction of water restrictions in further compounding their disbelief at the low price of this resource

The increasing scarcity and low price of water led some to the view that the price of water should be increased immediately in the belief that it would lead to greater care in water use. This view was further rationalised by suggesting that revenue raised from a price increase could fund solutions to Sydney's water shortage.

"They should raise the price and use the extra revenue to build dams" (Group 8)

Some (notably non-water-bill paying unit renters) seem to be under the impression that significant price increases would lead to an increase in the amount of available water for consumers.

"Wouldn't you rather pay five times as much and have more to use?" (Group 8)

It was also felt that if the general public became aware that water was so cheap they would be less restrained in their use of water. Others thought that increasing the price due to scarcity would be seen as little more than a knee jerk reaction.

Significantly, there was a strongly held view that there was only a tenuous link between water price and consumption and that price was not a motivator to save water. It was generally agreed that it was unlikely that increasing the price on its own would lead to decreased use.

"I don't care it it's 1c a litre, you still want to cut down" (group 9)

Price was generally felt to be irrelevant to conservation. The prevailing view was that water was a necessity which, if scarce, all consumers must use carefully. In other words, the issue water conservation was not a pricing issue, but a behavioural and educational one.

3.8.1 Comparison between piped, cask and bottled water

Following the discussion of the price of piped water, participants were told the approximate prices of cask and bottled water (approximately 65c and \$10 per litre respectively). The majority of participants were taken aback at the enormous price difference between piped water and water sold in containers. To some extent, this reflected the different way in which participants viewed tap and bottled water.

“One is a product and one is a service” (Group 10)

As well as being the cheapest source of water, piped water was also acknowledged by some to be the most tested and highest quality.

“I can’t see why we buy bottled water” (Group 5)

While some deduce this themselves, others speak from having been informed by leaflets distributed by Sydney Water which state that its water is the most tested. In addition, piped water has been proven to be the best for children’s teeth. The shift away from children drinking piped water in favour of bottled, spring or filtered water, after the cryptosporidium scare some years ago, was said by some participants to have led to an increased incidence of dental problems among children.

The water contamination scare has led to a number of respondents boiling and/or filtering all their drinking water from the tap, while some reportedly continuing to drink only bottled water. Whether or not people perceived a need to treat piped water prior to drinking depended largely on where they live as the quality of piped water is considered to vary across Sydney. A minority deemed bottled spring or bottled water the highest quality on the basis that it tasted better than its piped counterpart. But not all agreed.

3.8.2 Perceived impact of increase in price of water

Pricing water to encourage more careful use was a proposal that polarised the participants, with arguments for and against. Both perspectives were supported by a range of reasons, summarised in Table 3.9.

Despite the generally negative attitude to using pricing as a conservation measure, there was support for some increase in the price of water. Hitting the ‘hip-pocket’ was endorsed as one of the most reliable ways of affecting change. The introduction of any price increase would need to be handled extremely carefully if it was to be accepted. Particularly, it would need to:

- i) Minimise the extent to which it is seen as a revenue raising exercise for Sydney Water and the State Government, rather than to fund improved water catchment and recycling;
- ii) Be seen as fair for all, particularly households with large families and those who are forced to live on a very tight budget;
- iii) Lead to calls for individual metres for units.

Table 3.9: Perspective on water pricing

PRO-PRICE INCREASE	ANTI-PRICE INCREASE
<p><i>“For something that is such a big issue and for something so scarce, why not increase the price of it?” (Group 8)</i></p>	<p>Likely to generate anger as a price increase would constitute penalising consumers for the water shortage which is seen as resulting partly from bad management of resources. Additionally, affordable water is seen as a basic right</p>
<p>It was claimed that a 25-50% increase would be enough to restrain water use amongst those on a very tight budget. The issue is affordability rather than the size or nature of increase. <i>“If water cost over \$100 per quarter it would encourage people to be more careful.” (Group 8)</i></p>	<p>Won’t make a difference to those who don’t care about the water shortage. By contrast, a reward system for those who continue to use low water is deemed more of a successful motivator. ‘The carrot’, rather than ‘the stick’, consistently emerged as more likely to be a successful trigger to reduce water use.</p>
<p>There is considerable support for the introduction of surcharges for heavy users. Indeed, some think such a penalty is already in place.</p>	<p>Unless increases are substantial (75% +) the price of water is deemed <i>“such a small amount”</i> (group 6) that it is unlikely to impact on water usage <i>“People will just pay for it” (Group 8)</i> The failure of several increases to the price of cigarettes and petrol to bring about behaviour change is cited as an example of other, sometimes deeper-seated, reasons than price often being more influential in what people do.</p>
<p>Those who are being careful with water resent that they are effectively subsidising those who are heavy users as a result of wastefulness. <i>“My neighbour uses so much more than me and she would only pay \$10 more. It drives us crazy and we wonder why we try so hard” (Group 10)</i></p>	<p>Some feel that the introduction of a surcharge would unfairly penalize some high users. <i>“It’s a blunt instrument and who decides on appropriate use?” (Group7)</i> Establishing the size of every household to ensure that they are charged according to pre-established rates for different types and sizes of household is deemed impossible and open to abuse.</p>
<p>There was a general recognition that capturing, cleaning and testing water costs money and by virtually all majority acknowledged the need to pay for water.</p>	<p>A minority think that consumers should not have to pay for water at all as it is a necessity for life and clearly deemed a right for those living in developed countries</p>
<p>There is some support for a graduated payment scheme so that the rate per litre increases each time a household reaches one of a series of pre-set thresholds. <i>“If the bill was huge it would be an issue. It’s not like electricity or gas” (Group 8)</i></p>	<p>Increasing an already tiny cost seems pointless. Indeed, focusing on price <i>per se</i>, is missing the point altogether – responsibility with a rapidly dwindling resource and concern for consequences in the future are claimed to be the key motivators for householders (already) being careful with water. Hence the consistency across dwelling types and bill payer status.</p>
	<p>Some feel that price increases would unfairly penalize large families who, by virtue of their size, use more water than average, but may not necessarily be wasteful.</p>
	<p>Cost is clearly not felt to be a motivator in being careful with water use. Behaviour modification is deemed much more effective with the introduction and subsequent increase in seatbelt use being cited as an example of how it is possible to successfully encourage by far the majority of the population to change their routine without financially penalizing them for non-compliance. The first step in such behaviour modification is identified as altering attitudes to water availability and necessity</p>

3.9 Alternative ways of encouraging reduced water consumption

Subsequent to discussing the notion of fostering more restrained use of water by increasing its price, participants suggested a large number of ways to encourage Sydney-siders to use less water.

These can be categorised as follows and are presented in order according to how successful they were deemed likely to be accepted or how important they are.

- Strategies to modify awareness, attitudes and behaviour;
- Government demonstration of sound water saving activities;
- Reward system for those who invest in water saving initiatives; and
- Warning of the consequences of not exercising restraint when using water.

3.9.1 Strategies to modify awareness, attitudes and behaviour

A range of potential initiatives were put forward to encourage changing consumer behaviour:

- Change the wasteful attitude towards water with which Australians have been familiar for many generations with a culture of using water with restraint because we are a dry nation;
- Frequent reminders of the continuing nature of the water shortage and prevailing restrictions;
- Informing people in a tangible, meaningful way of just how much water they use in everyday tasks in the home (flushing toilets, taking showers, etc);
- Alerting high users that they are using more than average via the water bill; Widely promote the numerous water saving tips currently hidden in places like Sydney Water's website;
- Encourage householders to seek out and repair small leaks;
- Target recalcitrants;
- Support water saving at home by encouraging water saving behaviour in the workplace more generally.

In addition, a number of other potential strategies or proposals in relation to the ways water conservation could be better encouraged were subject to more lengthy discussion.

3.9.2 Government demonstration of sound water saving activities

There was some concern that, while most householders are doing their bit to conserve water, this was not being matched by local government, industry and other stakeholders who were accused of high profile water wasting.

“It makes it hard when private people are trying so hard” (Group10)

This finding supports the finding of the quantitative survey that government and business were not perceived to be taking water conservation seriously enough. Participants expected both candour regarding responsibility for contributing factors to the water shortage and effective action from the authorities. Otherwise ‘the authorities’ would be guilty of expecting cooperation from householders on to whom they appear to have shifted the burden of responsibility.

The following served to undermine the efforts of householders, dishearten them and increase cynical attitudes towards the efficacy of ‘bureaucracy’:

- Sydney water taking excessively long periods to attend to burst water mains while thousands of litres of water are being lost down storm water drains;
- Failure to capture water running into drains particularly storm water drains;
- Leaks and blockages in the infrastructure.

While householders can monitor water consumption in their own home, they talk of having no control over the above and other macro elements of the water supply infrastructure. Additional means of demonstrating government support for water saving would be to communicate pro-active measures that have been, or are being, undertaken to make the community more aware of government contributions to water conservation. This could comprise a range of initiatives and includes:

- Ensuring community awareness of modifications to building codes so newly built homes are water ‘friendly’;
- Taking responsibility for ensuring broader consumer understanding of current debates on issues such as accessing and using bore water, desalination and extending the catchment area via building dams.

Even the way Sydney Water’s Bills are designed could be reviewed in order to present the information in such a way that it is more consistent with promoting a water saving mentality. As one participant observed, the amount charged for actual water use (over which householders can exert some control) is dwarfed by the fixed amounts charged for sewerage service and connection to the water service (over which they have no control).

To demonstrate the seriousness of the government commitment to saving water some respondents thought that more extreme measures may also need to be taken:

- Mandatory installation of water tanks;
- Mandatory grey water recycling; and
- No further State government income from Sydney Water – this payment could be used to fund water saving measures.

3.9.3 Reward householders who install water saving devices

Of those participants who felt able to invest in water saving initiatives (e.g. installing a dual flush cistern or recycling grey water) said they were willing to do so, but not without financial support, the provision of which would demonstrate genuine commitment on the part of those providing rebates, subsidies etc.

There was felt to be a need to reinforce the commitment of those who have already installed water tanks, or have worked out their own system for recycling grey water from the laundry or bathroom onto gardens. This could be done in a range of ways including:

- Removal of the ‘excess charge’ from Sydney Water to those who install water tanks;
- Rewards for low water usage (inverse of surcharge for high water users);
- Paying a rebate to those installing water efficient systems

3.9.4 Warning of the consequences of not exercising restraint in water use

While there was unanimous support for the adoption of the ‘carrot not the stick’ approach to encourage further water saving initiatives by householders, Sydney-siders were thought to need a ‘wake-up call’ to alert them to the fact that residents cannot continue using water as if it is available in abundance. Suggested reality checks included:

- Warnings of the nature of the next level water restrictions so they have some idea of the implications of not using water carefully. Without even being able to imagine what higher level restrictions could possibly involve, they were anticipated to be very difficult to live with;
- Continuous advertising to remind the community that Sydney is running out of water.

Such warnings must be handled carefully and delivered in a context of candour, explanation and being “solutions focused”.

3.9.5 Ranking of specified ways of encouraging people to use less water

At the end of each group, all respondents were given a slip of paper listing six different ways in which people can be encouraged to use less water. They were asked to read them and rank them to indicate which they think are likely to be the most effective ways curtailing domestic water use. The overall ranking derived from this exercise is shown in Table 3.10.

Table 3.10: Ranking of six water reduction methods

POSITION	WATER USE REDUCTION METHOD
1 st	Higher Prices for Excessive Water Users
2 nd	Stronger Education Campaigns
3 rd	Mandatory Restrictions Backed by Fines
4 th	Lower Prices for Lower Water Users
5 th	High Prices For All Households
6 th	Voluntary Restrictions

The order in which these ways of encouraging people to use less water were ranked suggests that while the price of water remains an unknown for virtually all water users, participants thought that the only obvious way to penalise excessive users is through differential pricing. Precisely who those deemed to be ‘excessive’ users are was not clear, however. That aside, there was recognition that targeting big users should not lead to unfair penalising of large families. Participants were adamant that it was the ‘carrot’ rather than the ‘stick’ approach which should be adopted for the majority of Sydney-siders who are making an effort. The stick approach was perceived to be the only effective means of getting through to the non-compliant and wasteful.

Secondly, there was widespread recognition of the need to learn more about how to save water on a continuous basis in an easily accessible format. In other words, a mass and on-going communication campaign was needed with a pragmatic approach to enabling householders to become smart users of water in the domestic setting.

There was support for increasing the degree of enforcement of restrictions. A number of participants had witnessed non-compliance but few, if any, were aware of such behaviour being penalised. Those who still appear to be flouting the restrictions were seen as irresponsible, selfish and uncaring and needing to be treated with severity if behaviour change is to be brought about.

Participants generally believe efforts to save water should be rewarded and that such rewards will give people the incentive to persevere with water saving techniques. Examples of rewards were limited to such things as reduced rates per litre and vouchers for car washes;

Not surprisingly, there was little support for increasing the price of water for *all* households. Increasing cost was largely rejected as a motivator to reduce water use for the majority of ‘ordinary’ users. While higher costs might be the only thing to restrain excessive water users, it was not felt to be fair to penalize all householders, especially when many have been going to great lengths to conserve water.

3.10 Further proposals for encouraging domestic water conservation

Two proposals for encouraging water conservation or re-use were the subject of more prolonged discussion in several of the groups. These issues – water tanks and domestic grey water recycling – have been more widely debated in the media and the group discussions reflected the interest participants had in working out how these approaches could be implemented in their own homes.

3.10.1 Installation of water tanks

Consideration of installing water tanks is not new with many having at least considered doing so since the issue of water use and conservation has been on the agenda.

“I’ve got room for a tank” (Group 9)

Furthermore, at least one participant in each group of house dwellers had already installed a tank or system of barrels for collecting rain water. The concept of water tanks is particularly familiar and popular amongst those brought up on rural properties, those who regularly visit rural properties with only tank water and those who have spent time in developing countries. Tanks were identified as a tangible incentive to be careful with water use.

There was general recognition of water tanks as a good idea and familiarity with tanks prompted a number of participant to identify their main benefits:

- They can capture a large volume of water;
- They are environmentally friendly; and
- Dirty water can be filtered out and drinking water obtained.

“It’s easy” (Group 10)

“Do it!” (Group 10)

Thus water tanks have both conceptual and practical strengths.

Participants identified a range of potential barriers to implementing water tanks in existing homes. To some, aesthetics can be a barrier with a few convinced that neighbours would complain about the negative impact of the water tanks on property desirability. But as one participant observed, the wide range of different types of water tanks needs to be appreciated if people are going to be encouraged to get them.

The main barrier to more widespread installation of water tanks was cost. While most are unable to put an actual dollar figure on the price of a water tanks, they are perceived to be expensive to purchase and install. In addition, Sydney Water was said to charge an excess to those with a water tank with a volume of over 1000 litres with the rebates available only meeting a small proportion of the costs.

“Our series of tanks cost \$5000 and the rebate was \$500 and it makes hardly any difference to the bill” (Group 7)

The best perceived solution to this situation was for the government to provide a substantial rebate to those people who purchase a water tank and for Sydney Water to abolish the excess charged to those with larger tanks.

3.10.3 Recycling grey water

As mentioned earlier, a number of respondents were already recycling grey water from washing machines and baths to gardens and toilets. More generally, participants recognised of the value of recycling *per se*.

“It’s good to recycle water. With the final rinse, who cares if it goes into the toilet to do its thing?”(Group 5)

But a number of hurdles needed to be overcome before the majority can be expected to come on board with this initiative. Although the issues are not insurmountable for most, for some it is all too hard. Participants thought there needed to be more overt encouragement to recycle grey water. Most were not aware of any encouragement to undertake this type of recycling at all, which sends the message that householders were not expected to bother putting into action this initiative.

Once the above has been taken care of the following barriers need to be addressed:

- Some apparent lack of understanding of what grey water recycling actually is or involves. For example, a minority wonder if it involves installing water tanks in addition to the recycling infrastructure;
- Feeling that having one's home re-plumbed is an extreme measure involving too much effort, too time consuming, and/or too expensive.

In addition, support was needed to encourage take up of this kind of technology. Participants argued that installing grey water recycling systems would become more viable if the cost was shared between the householder and Sydney Water and/or the State Government. Discounts to householders' water services should also be forthcoming in recognition of the contribution they were making to saving water by installing such a system in their home. Some participants felt that having one's existing home re-plumbed for grey water recycling was not worth the investment unless the householder was planning to stay in that home for several years.

3.11 Summary of Qualitative Research Findings

The majority of household water was thought to be used in showers and the laundry. Householders were surprised to learn that so much is actually used in toilets and found it hard to believe that washing machines took up such a small proportion of total household water use.

Households comprised of families with children, particularly teenagers, and living in houses rather than units, were perceived to be the biggest users of water by virtue of the number of people living in the household and the fact that teenagers have a tendency to have very long, and sometimes, frequent showers, a habit which is difficult for parents to address. The fact that houses have external areas to maintain is perceived to make them higher water users than unit dwellers.

Households comprising better educated people with greater awareness of the water shortage, a responsible, community / environmental focus, a caring attitude and the willingness and ability to change their ways are perceived to be more likely to be lower water users than their counterparts with the opposite qualities. Earlier research by the authors (Troy, et al, 2005) has shown that dwellings in areas of higher socio-economic status in Sydney are associated with higher average water consumption.

Participants in the focus groups have no idea how much water was used by the average person in Sydney per year. They reluctantly made wild guesses of consumption ranging from 15 – 540 kLs per year. The actual figure of 92 kLs is meaningless as a kilolitre is a meaningless unit of measurement to them.

Participants were staggered to find that the average householder uses as much as 250 litres of water per day. The figure is so great that it was hard for them to believe and they rationalised it to include all the uses a household makes of water when outside the home as well as that used in commercial and industrial activities. They were unable to even guess how much water they use in their own home and certainly don't recall the figure from their water bills.

The information provided on Sydney Water's bills was endorsed as meaningful. The only thing most were interested in is how much they actually have to pay which is clearly stated on the front page of the bill. It was a bonus that a graph showing how this quarter's water use compares with both the previous quarter and the same time the year before – a contrast they all look at with interest. Additional information is completely missed by most, including that relating to restrictions, water saving hints as well as the conversion rate from litres to kilolitres – it was only information reported in litres that is studied and understood.

Householders demonstrated broad awareness of the water restrictions in place in Sydney at the time of the research (Level 2, during April & May 2005). Having not heard any media coverage reinforcing the existence of the restrictions, some were under the impression that the restrictions had been lifted. Few were able to confidently or accurately recall the details of mandatory restrictions, for example. There was considerable confusion regarding exactly what methods of watering are permitted in gardens and when.

The existence of water restrictions appears to have permeated the water-using culture of many Sydney-siders, with many reporting their own water saving techniques alongside actual water restrictions.

While it was not socially acceptable to flout the water restrictions, participants showed a degree of ambiguity regarding the exact nature of the restrictions and whether they need to be complied with to the letter.

Most found out about the water restrictions through electronic advertising. Other sources include print media and word of mouth. Lack of current media coverage and advertising of the water restrictions has led some to believe that they no longer matter. Reminders were clearly needed and many householders expect to be kept up to date.

The causes of the water shortage and the subsequent need for water restrictions were broadly understood, so there was widespread support for the current restrictions, although more politicised individuals who attribute the issue to bad management are resentful about the situation despite the fact that they do comply. Some accept a more simplistic

understanding of the need for water restrictions because of lack of rainfall, but others attribute the need for restrictions to more complex set of issues, including: environmental, social / cultural, political, structural and managerial factors. Quite a number attribute the restrictions to population increase. If these types of householders are to be expected to support and comply with restrictions with wholehearted conviction, some acknowledgement of the limitations of the infrastructure and evidence of government action on water saving (beyond encouraging householders to cut down on their use) needs to be demonstrated.

The compliance with water restrictions was perceived to be inconsistent, with the majority complying with mandatory restrictions and making additional efforts to collect more and / or use less water while a significant minority continue to hose driveways, [covertly] wash their cars with hoses and water their gardens when they want to. Significantly, few perceived there to be any effective enforcement of the water restrictions and householders are generally not prepared to report neighbours for non-compliance.

Mandatory water restrictions appear to have had a significant impact on water use amongst the focus group participants: gardens have been allowed to die, cars go unwashed (or go to the car wash) while windows, eaves, paths and driveways collect dust. Meanwhile, voluntary efforts are continuously made inside the home to only use washing machines and dishwashers when they are full, to have shorter showers (and attempt to get teenagers to do likewise), to recycle water where possible and to not delay mending dripping taps and leaks. The water restrictions appear to have put water saving on the most peoples' agenda for the first time.

As the current water restrictions do not adversely affect the comfort and convenience of most, they are deemed easy to implement and to have become part of life. This is despite the fact that Sydney is not thought to have a water saving culture. Although some restrictions may be easy to implement, a significant minority either do not find them easy or are not prepared to implement them. The hardest restriction for many is not being able to wash their car with a hose, which is equivalent to not being allowed to wash the car at all at home, as there is widespread reluctance to wash cars with buckets of water.

While some participants tend to think that a brief period of rainfall will lead to the restrictions being down-graded, or that the restrictions have already been lifted, the majority are under no illusions about the need for an increase of the controls on water use in the future. The need is acknowledged due to continued lack of rainfall as well as other mitigating circumstances combined with the refusal of recalcitrants to stop wasting water.

Significantly, perhaps because many have introduced their own self imposed water saving practices, participants are at a loss as to what increased water restrictions could possibly involve. This reflects the fact that they feel that they have already minimised their water use to a level which is still reasonably convenient and with which they are still comfortable. There is an inability to imagine what further water savings could be made as this is very likely to compromise both convenience and comfort.

Perceived ways of further reducing water consumption focus on creating backyard catchments to collect water for household use, recycling of grey water and installing dual flush cisterns. They rarely include behavioural changes like having shorter or less frequent showers or flushing the toilet less often as these initiatives would have a negative impact on their lifestyle in terms of both convenience and comfort.

Participants who have installed low flow showers are disappointed with them in terms of power (particularly the showers available from Sydney Water for \$20) and others completely reject the notion of less powerful showers. There is a level of preparedness to replace defunct top loading washing machines with front loaders. However, they will need to come down in price before this practice becomes more widespread.

Participants have no idea of the price per litre / kL of the water they use. While some have an idea of cost of their quarterly water bill, this includes fixed prices for sewerage and water service. Additionally, they have no idea of the number of litres / kLs they use per quarter to be able to make a calculation if they did know what the water use component of their bill is. Upon being informed that they are charged 0.1c per litre (or 1c per 10 litres) for the water piped to their homes, they are staggered at how cheap it is. The fact that this is deemed “*ridiculously*” cheap, particularly given the water shortage is hard to reconcile with the fact that many think water should be cheap, if not free, and that increased cost is rejected as a trigger to reduce water consumption. Participants who comply with the water restrictions feel strongly that they use the amount of water that they need to (to meet needs for convenience and comfort) and continue to practice water saving behaviour on environmental grounds.

Few expect or care about seeing reductions in their water bill as a result of water saving behaviour unless they have taken the step of installing a water tank or grey water recycling system. However, hitting the hip pocket is deemed the most effective way of encouraging recalcitrants to comply with the water restrictions. To be successful this would need to involve a significant surcharge or increase on the rate per litre to be charged for water used above a certain threshold. Conversely, with the ‘carrot’ deemed more effective than the “stick”, it is felt that those exhibiting good water conservation practices should be rewarded in some way (such as reduced water charges).

When piped water is compared with cask and bottled water, piped water emerges as offering the best value as it is the cheapest, most tested and highest quality. However, this is not a meaningful basis on which to make a comparison as it doesn’t take all the factors into consideration. Most significantly, piped water is seen as a *service* while cask and bottled water are considered to be a *product*.

The issue of introducing an across the board price increase is a polarizing one with numerous arguments for and against, e.g. logical to make something so important and scarce more expensive to discourage waste *vrs.* this would penalize large families who may not be wasteful.

Participants suggested that a range of alternative ways of encouraging consumers to *reduce* water consumption were deemed likely to be far more successful and effective at saving water. The most important and popular of these initiatives is the need for education in the form of a mass media communication campaign to modify awareness, attitudes and behaviour. Other initiatives include: the need for the government to support domestic water saving practices by demonstrating its own water saving practices and introducing stricter controls on commerce and industry which is seen to be very wasteful with water; introducing a reward system for those who invest in water saving initiatives and warning of the consequences of not exercising restraint when using water.

The installation of water tanks and grey water recycling systems into households is widely supported as it involves collecting more water and optimising the use of the water that is collected. These are deemed more appropriate than increasing the price of water delivered by Sydney water or expecting people to adopt water saving practices that would compromise their current levels of convenience and comfort. It is clearly important for compliance that there is community support for any further water saving initiatives that are introduced. Again, this confirms that measures to add water use (or re-use) capacity in the home rather than attempts to change behaviour are likely to gain greater public support in the short term. Once installed, such measures may well, in turn, have a longer term impact on water use behaviour.

But such measures will come with a price to government. In order for the latent support that exists for water tanks and grey water recycling to be effectively mobilised, there needs to be considerable financial support from the government or Sydney Water for householders who install such systems. This includes not penalizing householders for having a water tank. Provision also needs to be made to ensure that grey water systems can be installed with minimal possible disruption to household activity or it will become something that 'is a good idea, but not for me' Much greater subsidies for retrofitting such technologies are clearly needed to stimulate take up and acceptance.

4. CONCLUSIONS

Much has been written in recent years about the problems facing Sydney in terms of water demand and supply. With Sydney having undergone its third hottest summer on record in 2005/6 and a return to drought condition across much of NSW in mid-2006 (Sydney Morning Herald, 23 May 2006), the pressure remains high on finding a working solution to Sydney's water supply problems. A substantial literature has been generated both in the industry and in the media on how this issue can be best tackled. What is clear from all this debate is that there is no shortage of technological 'fixes' for this problem, ranging from, at the macro scale, major desalination plants (now deferred to some time in the future) and more dams, to tapping underground water supplies, recycling waste water, and at the micro or domestic scale, installing water tanks and water efficient fittings within the home (now enshrined in the BASIX framework).

This report has focused on a rather more neglected aspect of water use, the perceptions and behaviour of domestic water users. This is not to say demand management has been ignored in Sydney. The domestic water restrictions introduced during 2003 have undoubtedly made an impact on domestic water use outside the home for household users, and BASIX promises to embed some of these gains into the housing stock, albeit over a longer time span. But, as we have shown in this report, current water use restrictions have only impacted directly on the minority of Sydney-siders who used water in their gardens to any great extent or washed their cars at home. Perhaps more importantly, again confirmed in this report, while directly affecting only a minority, the current restrictions have sent a message, understood by the vast majority of Sydney households, that water conservation is an issue that we all have to deal with.

The main conclusion from this research is that while the restrictions and water saving campaigns of the past two years or so have been widely understood and implemented, these have so far only really restricted use outside the home. The next frontier for water conservation is to tackle water use *inside* the home. If the findings of this report are correct, then this is going to be a much more difficult job that will entail changing people's fundamental attitudes and will impact on their lifestyle and deeply held assumptions about access to and use of water inside their own homes. Households will willingly go only so far to pay for the required improvements or compromise on their comfort. Few households believe they can do much more than they already have to save more water – they don't know where the additional savings will come from. The positive news is that it is not necessarily an impossible task, given the latent support for water saving shown by those who participated in the research. But success will require an on-going government commitment and expenditure to educate and encourage the wider adoption of water conservation practices in the home.

While current water demand management measures have not solved the problem, they have nevertheless made a substantial start in changing perceptions on water use. So far so good, then. But while we may have the technology to 'fix' the water problem (cost and political will aside) and the population understands what the problem is, as this report has also shown, there are some real barriers to building on the recent gains in both water use

and perceptions of domestic water users. Moreover, we would also argue that, again backed by the findings of this report, the next major task for our water planners is to find ways to bring the gains from reduced external domestic water use firmly into the home. While technology can help, the major barrier to this next step is not an essentially technical one, but one that lies firmly within the minds of consumers.

There are a number of additional key findings from the analysis of the survey and focus group data gathered during this research that can be usefully summarised by way of a conclusion.

First, the good news. Nine in ten respondents to our survey said they had taken at least some action to reduce water use in the year before the survey (i.e. from approximately mid-2004), with reduced garden watering, taking shorter showers and reduced car washing the most frequently cited action. A similar proportion said they would try to do more to save water over the next year and three quarters said they had also changed the way they use water inside their homes regardless of the current external restrictions. Respondents also overwhelmingly endorse conservation as a *very* important issue for them. So there is plenty of support for water conservation among the Sydney population. But other findings suggest that the picture is not simple and there will need to be much more considered thought and policy development if the promise of this general awareness and support for more water conservation is to be made effective.

The second point is that what kind of home you live in and whether you own or rent your home not only influences overall water consumption levels, but also how you think about water use. This is important in terms of the general debates on the environmental benefits to be gained from shifting residential demand from low density to higher density housing. Households in houses consume more than those in flats on average because they tend to be larger, although it is clear that the influences of household dynamics introduces a degree of 'social' control in houses that leads to reduced consumption simply because facilities are more likely to be shared. They are also more likely to achieve economies of scale that cannot be achieved by smaller households that tend to live in flats. This point was noted in the IPART study of water consumption in Sydney in 2003 (IPART 2004).

But in addition, previous research by the authors has indicated that on a *per capita* basis whether you live in a house or a flat appears to have relatively little impact on individual water use on average (Troy, *et al*, 2005). The research reported here helps explain why this might be the case. Housing tenure provides part of the answer. Owners were more likely to have direct control over their homes and are in a position to undertake refitting their homes or buying new appliances that can assist in lowering overall potable water use. Tenants, on the other hand have little or no control over these aspects of their home and also do not necessarily see the water bill. Tenants are often young and transient, with little obvious regard to practical conservation methods around the home, even if, as we have seen, there is an overwhelming general support for conservation. Perhaps most importantly, at the present time, landlords have little interest or incentive in equipping their flats to maximize water conservation. It is simply not something they are concerned about.

But the real problem lies with these who live in flats. Flat dwellers are unlikely to have much idea about their actual water use as the water rates are often paid as part of the service charge payment. The findings also point to a noticeably lower compliance rates among high rise flat dwellers on recycling or use of water saving devices and generally. But the combination of strata title management and private rental is even more important in the flat market. A quarter of Sydney residents are tenants and 35% of the housing stock is in medium or higher density, most of it under strata management arrangements and over half of all flats are owned by investors (Bunker, Holloway and Randolph, 2005). It may therefore be of little use to promote water saving measures generally among tenants, especially those in flats – they don't have any say in the standard of equipment and fittings they have in their homes – without also targeting body corporates, landlords and strata managers.

The complexity of the management and ownership of the flat sector therefore means that a much more specific educational and information program needs to be targeted to those involved rather than just leaving it up to consumers themselves. With a majority of flats in Sydney owned by investors, messages targeted to tenants will have little or no impact – they have minimal control over how they consume water. This is a serious issue. With 70% of the housing in the next thirty years set to be higher density, it may no longer be such a simple matter to encourage water saving among consumers. By 2025 it is possible that 45% of Sydney resident will live in strata managed property (Randolph, 2006 forthcoming). But without effective strategies to promote water saving among this population, the battle for water demand management will effectively be lost. The recently announced review of the implementation of the next level of BASIX for flat dwellings, due to commence in July 2006, suggests government has shied away from a commitment to rolling back water consumption for higher density housing. If the second round of BASIX excludes flats, then other measures will need to be implemented to encourage water conservation in this important and expanding sector. Flats therefore pose a significant problem for water demand managers in Sydney.

The third overall conclusion concerns water pricing. The research shows that a policy of simply increasing water prices is unlikely to be an effective method of managing domestic water demand, certainly in the short to medium term. Quite simply, so few water consumers understand what water costs or how much they use that simple economic solutions to managing water consumption are unlikely to work. Most people think they use below the average amount of water (clearly a statistical impossibility) and few think they should pay more in order to conserve water. The minority who would consider paying more don't want to pay much more. In other words, most of us think the water consumption problem is caused by someone else and we should not have to pay for a solution. That's not to say that people who use substantial amounts of water should not be charged more, a proposition most support. So long as it isn't them. And there is widespread support for encouraging lower water use by charging less, an approach Sydney Water has not yet been willing to embrace.

Related to this is a general misunderstanding where water is used in the home compared to the reality. Water use in bathrooms and toilets appears to be over-estimated, while that used in the kitchen and laundry is under-estimated. This is an all the more interesting finding in that it is in the latter that mechanical washing has replaced much of the traditional manual effort. More effort is therefore needed to educate householders into understanding just what kinds of activity use water in their home and how much it is costing them. Without this, effective domestic water management by households will prove difficult. People may want to conserve water, and as we have shown are willing to do so in a number of areas, but spending less time in the shower, for example, may only have a marginal, impact given other water uses. We all need to be much more aware of how much water we use in and around the home.

Fourthly, while BASIX is chipping away at the margins of the housing stock (approximately the 2% of stock is added new each year), it is clear that it will be many years before the benefits of BASIX filters down to the even a bare majority of the population. Unless BASIX is applied to existing housing, the vast majority of households will continue to live in homes with poor water conservation outcomes. If any real impact on domestic water conservation is to be achieved, then a major effort will be needed to support the refitting of the existing housing stock to encourage water efficiency: rainwater tanks, grey water technology, water efficient tap and other water fittings which, as the research has shown, with the exception of shower heads, have not been widely installed. This will cost government money. As we have shown, households would be much more willing to implement these kinds of changes if at least half the cost was covered. The newly announced (April 2006) relaxation of the restrictions of grey water use around the home in NSW (Sydney Morning Herald, 27 February, 2006) should be backed by a strong subsidy program. Alternatively, a rapid escalation of the introduction of water recycling across the city is warranted, if this proves more cost effective. There is certainly support for such activity, but not if consumers have to shoulder the full cost themselves. The cash-back scheme for old inefficient washing machines will also help to push the purchase of 4 and 5 star rated machines (currently only accounting for a mere 5% of the market). But again, this is long term prospect. A quicker response among household users could be stimulated by a Domestic Water Saving Fund to provide subsidies that would encourage the widespread adoption of water re-use and water saving methods among the 98% of the housing stock unaffected by BASIX.

Finally, even within the period that had elapsed between the introduction of the water use restrictions in Sydney in 2003 and the undertaking of the fieldwork on which this report is based in 2005, the findings suggest that many householders in Sydney did not have a firm grasp of the details of how these were being implemented, or indeed, if they still applied. As time goes on, it is highly likely that many have simply began to forget the necessity for water saving, despite occasional reminders from news releases or other publicity. It seems likely that for water conservation to be seriously pushed to the next level, a concerted and on-going water savings education program needs to be firmly pursued, including a major effort to educate school children for a lifetime of active water conservation. The current *Water for Life* campaign in NSW is one example of how the

message might be reiterated on a repeated basis. More imaginative campaigns, for example, involving communities in collective action, might also be pursued.

In conclusion, it is only by persuading Sydney water consumers that it is in their interest to change the way they use water *inside* their homes that further substantial gains can be made, even if it impinges on their convenience or challenges long standing attitudes. This must be backed by a substantial subsidy program and a long term campaign to encourage installation of water saving technology for existing homes linked to a differential and incentive pricing system (for example, rewarding those who consistently use less water). Government must also persist with the implementation of more exacting water conservation standards in new higher density housing and encouraging landlords, strata managers and body corporates to take up water conservation practices for the properties they own and manage. Only then can significant additional water savings be delivered.

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APPENDICES

APPENDIX 1: Selection of Case Study Collector Districts (CDs) for the Telephone Survey and Final Response Rate

Stage 1

A central aim of this research was to establish the socio-behavioural drivers of water and energy consumption of households in different types of dwellings and areas. A practical solution to ensuring sufficient samples of dwelling types were included in the analysis was achieved by targeting CDs with predominantly similar dwelling types.

Initially, all CDs in the Sydney Statistical Division (SD) were ranked by the proportion of dwellings in the 4 dwelling categories used by ABS to report the census of population and dwellings. These are:

- Areas of Wholly Separate Houses
- Areas of Predominantly Semi Detached Dwellings
- Areas of Predominantly Flats in a block of less than 4 storeys
- Areas of Predominantly Flats in a block of 4 or more storeys

Thresholds were set for CD selection in each of four strata to ensure sufficient numbers of CDs would be available to include in the subsequent analysis. CDs for the 'separate house' stratum were selected if 99 per cent or more of the dwellings were of this form. As the proportion of dwellings that are semi-detached is lower than for separate houses and they are more widely distributed than separate houses, the threshold for semi detached CDs in this stratum was set where at least 50 per cent or more of the dwellings in the CD were of this form. The thresholds for CDs in the stratum in which flats in a block of less than 4 storeys were the predominant form was 70 per cent, while the 'cut-off' point for CDs in the stratum where the predominant form of dwelling was in flats in a block of 4 or more storeys was 50 per cent. A total of 1,577 CDs were selected by these means.

Stage 2

The second stage of the selection process was undertaken to ensure that the choice of CDs for the study broadly reflected the socio-economic profile of the dwelling types across Sydney. A factor analysis was undertaken on each of the four sub-groups of CDs to identify factors that described the socio-economic composition within each sub-group. The analysis was based on a number of socio-economic variables from the 2001 Census. (For further information about the factor analysis see Troy, *et al*, 2005).

After the factor analysis was run on CDs in each of the four strata, 35 CDs from each were selected as case study areas on the basis of the proportion of variance explained by each factor and its geographical distribution. Five factors explained 60-70% of the variance within each dwelling type stratum. For the four strata, 9 CDs were selected that scored highly on Factor 1, 8 from Factor 2, 7 from Factor 3, 6 from factor 4, and 5 from Factor 5. These 35 CDs were also chosen to reflect the range of locations across the

Metropolitan Sydney area. Consequently, the 35 selected CDs for each dwelling area stratum not only had high scores for each factor within the sub-group, but were also distributed across four broad sub-regions (Inner Sydney, Northern Sydney, Inner West and Southern Sydney, and Western Sydney). In this way, the CDs selected for the analysis can be taken to reflect the main sub-market segments of each of the four dwelling type strata. It should be stressed at the outset that the 140 CDs are not a simple random sample but constitute a stratified sample drawn from the total for Sydney.

Table A1.1: Final Response Rate by Dwelling Type and Sydney Region

TYPE OF DWELLING	TOTAL	REGION	
		Eastern Sydney	Western Sydney
Separate house	821 38%	326 25%	495 56%
Dwelling/non-dwelling combined eg, top-shop flats	7 0%	3 0%	4 0%
Semi-detached/terrace/house/villa/townhouse/Duplex	431 20%	289 22%	142 16%
Granny flat" (flat attached to larger house)"	8 0%	6 0%	2 0%
Flats or units in a building (1 or 2 storey)	199 9%	136 10%	63 7%
Flats or units in a building (3 storeys)	355 16%	242 19%	113 13%
Flats or units in a building (4 or more storeys)	358 16%	294 23%	64 7%
TOTAL RESPONDENTS	2179 100%	1296 100%	883 100%

APPENDIX 2: Qualitative Methodology

Overview

The purpose of the qualitative stage was to establish an in-depth understanding of residents' perceptions of the use of water and energy as well as response to water and energy saving methods.

A total of ten discussion groups (comprising 5-8 respondents) plus 1 mini-group (comprising 3 respondents) were conducted to explore the rational considerations and the emotional variables affecting water and energy consumption. Due to the volume of issues to be discussed on both energy and water use and conservation, it was deemed necessary to split the sample so that half of the groups discussed energy and half discussed water. Each group lasted between 1.5 and 2 hours and was audio and DVD recorded for analysis purposes.

The fieldwork was conducted between 18 April and 5 May 2005 during which time Level 2 water restrictions were in place in Sydney.

Group discussions were the most appropriate qualitative technique for this research as it permitted dynamic discussion of both the relevant issues and of potential initiatives.

The group discussion technique had a number of benefits for the project:

- Participants were provided with a relaxed and friendly atmosphere, in which they were able discuss their attitudes and opinions in their own terms;
- It permitted the group moderator to focus the attention of participants on those specific areas of interest in the study objectives which required detailed probing;
- It also allowed them to reveal those aspects of water / energy use which were of interest and importance to them as well as coverage of the issues on the discussion guide;
- It permitted a deeper and more thorough exploration of attitudes and reactions than traditional question and answer techniques do; and
- Being an extremely flexible technique it allowed for the input of stimulus material, such as actual proportions of water and energy use, to be introduced in the most appropriate manner for each group.
- Using discussion guides developed for both the energy and water groups the majority of each group was spent discussing attitudes, experiences and beliefs regarding either water or energy use as per the research objectives.

Additionally, on a number of occasions throughout each group, participants were asked to record in writing what proportions they thought their household's energy or water consumption was in certain areas of the house, such as the laundry.

Having been asked to bring their energy or water bill (depending on which group they were attending) to the group, participants were instructed not to look at their bill until

after they had recorded their written estimate of the volume of water or energy used in their household and the perceived cost of water or energy per unit.

In this context, the bills were used in a variety of ways in the groups, including:

- Being of interest during discussion of household consumption figures / averages – participants compared and contrasted each other’s consumption figures and attempted to explain them;
- Identifying the most and least meaningful information presented on the bills;
- Illustrating discussion of pricing issues.

Important Caveat

Due to the nature of the study, participants were asked to undertake an unusually large number of numerically oriented tasks such as estimating what proportion of total water consumed in their household they attributed to specific devices etc. Their estimates were then compared with ABS statistics for average household use.

While participants’ answers to this and other similar tasks have been averaged out and presented in tables throughout this document, it must be stressed that the figures must be treated with **extreme caution** due to the qualitative nature of the method particularly the small numbers involved. A total of 75 residents participated in the qualitative study.

Findings were generally consistent across all dwelling types and household structures. Where differences occurred, these are noted.

Table A2.1

	DISCUSSED WATER	DISCUSSED ENERGY	TOTAL
House dwellers	28	23	51
Flat Dwellers	14	11	25
TOTAL	42	34	76
Young Singles / Couples	8	6	14
Families	27	21	48
Empty Nesters	7	7	14
TOTAL	42	34	76

Recruitment

In accordance with the collection districts (CDs) used for the telephone survey, respondents were recruited from a number of different areas of Sydney (see Troy et al 2005 for a detailed list of the CDs). Recruitment was conducted by AC Nielsen.

Initially, it was assumed that all participants would be recruited from the list of those who had, at the end of the telephone survey, indicated their willingness to participate in subsequent stages of this research.

However, due to difficulties in achieving the sample size for the telephone survey, particularly flat dwellers; it became necessary to supplement this recruitment method with traditional methods of recruitment. Thus, two different recruitment methods were used as follows:

1. **Survey Respondents** - Participants in seven of the ten groups were respondents from the Energy & Water Use telephone survey conducted by AC Nielsen. Having agreed, at the end of the interview to participate in further stages of research on the topic, they were subsequently approached for participation in one of the focus groups according to their dwelling type, household structure and location. This method proved fruitful for house dwellers but there was a low response rate from flat dwellers. As a result the second recruitment method was implemented for the remaining three groups.

2. **Data Base Respondents** - People on AC Nielsen's data base of consumers were screened using a recruitment questionnaire to ensure that they met the criteria required for participation in the groups. In this way, in addition to the checklist of questions used to determine which group they should go into depending on household structure, dwelling type and location, potential respondents were screened to ensure that:

- Neither they, nor immediate members of their family worked for any energy or water authority or supplier.
- They were the person in the household responsible for paying the energy or water bill (home owners only).
- They had not participated in a market research group discussion in the last six months.

Once they had agreed to attend one of the groups, respondents were asked to bring their water / energy bill with them to the group and promised a small cash payment (\$60) to cover any expenses incurred in attending the group such as babysitting and / or travel.

It was envisaged that participants in each group would be drawn from particular CDs clustered in a particular area and a geographical spread of venues in which to hold the groups was booked accordingly. However, it proved too difficult to find people who fitted the criteria for dwelling type, household structure and CD. The suburbs from which group participants were drawn for each group are shown in Table A2.2.

Sample Configuration

The groups were configured according to:

1. Dwelling type:
 - house (including free standing, semi's and townhouses);
 - flat (including low and high rise).
2. Household structure defined using AC Nielsen's definitions:
 - young singles and couples (maximum of 2 people living in the household both aged less than 35 years of age);
 - families (minimum of 3 people with at least 1 aged 17 years or less);

- empty nesters (1 or 2 people aged 55 years or more).

The specification of the 11 groups is set out in Table A2.3.

Table A2.2:

GROUP	SUBURBS FROM WHICH RESPONDENTS WERE DRAWN
1	BANKSTOWN; DRUMMOYNE; SUMMER HILL; HARBORD; NORTH RYDE
2	MILLER; HORNINGSEA PARK; GLENFIELD; MILPERRA; WARWICK FARM
3	BANKSTOWN; NORTH STRATHFIELD; STANMORE; SUMMER HILL
4	KAREELA; SOTH COOGEE; NORTHMEAD; CHESTER HILL
5	ASQUITH; WEST RYDE; LINDFIELD; EAST LINDFIELD; NORTHBRIDGE; NAREMBURN; LANE COVE; BELROSE; BEROWRA
6	DUWICH HILL; MORTDALE; ARNCLIFFE; KOGARAH; PENSHURST; MIRANDA; LAKENBA; BEXLEY; CRONULLA
7	QUEENSCLIFFE; DOVER HEIGHTS; MILPERRA; EARLWOOD; BEXLEY; GLADESVILLE; MORTDALE; BALMAIN
8	NORTH SYDNEY; NAREMBURN; MCMAHONS POINT; CROWS NEST; BROOKVALE; ST LEONARDS; MCMAHONS POINT; GLADESVILLE; NORTH SYDNEY
9	GLENFIELD; ST ANDREWS; NORTHMEAD; MOOREBANK; MORTDALE; BOSSLEY PARK
10	NORTHMEAD; CAMDEN SOUTH; TREGEAR; KILLARA; PENNANT HILLS; MILLER; STANHOPE GARDENS
11	MANLY VALE; CHATSWOOK; PENRITH

Table A2.3:

GROUP	TOPIC	DWELLING TYPE	HOUSEHOLD STRUCTURE	TENURE	VENUE
1	Energy	Flat	Young singles / couples	N/A	Sydney CBD
2	Energy	House	Families	N/A	Liverpool
3	Energy	Flat	Families	N/A	Sydney CBD
4	Energy	House	<u>Empty Nesters</u>	N/A	Hurstville
5	Energy	House	Families	N/A	North Sydney
6	Water	Flat	Families	Owners/Purchasers	Hurstville
7	Water	House	Families	Owners/Purchasers	Sydney CBD
8	Water	Flat	Young singles / couples	Renters	North Sydney
9	Water	House	Families	Owners/Purchasers	Liverpool
10	Water	House	<u>Empty Nesters</u>	Owners/Purchasers	Parramatta
11 (mini Group)	Water	House	Families	N/A	North Sydney

APPENDIX 3: Telephone Survey Questionnaire



FINAL VERSION

Study ID	1981-RS		Resp. No.		
Interviewer No.			Interview Length		
No. Of Queries			Reference No.		

ACNielsen

Name of respondent: _____

Name of company: _____

Telephone No.: _____

Interviewer no.: _____

Date of interview: _____

Time began: _____

Time ended: _____

Good(..) I'm (...) from ACNielsen Market Research Company. We are conducting a survey for the Australian National University and the University of New South Wales on electricity, gas and water (you may have received a letter about it in the last couple of days?). We would like to speak to the person who normally pays the water,(will not apply to tenants) electricity and gas bills.

Firstly I would like to ask some questions about your home.

But please be assured that the information and opinions you provide will be used only for research purposes. While we'd prefer that you answered all the questions, if there is anything that you'd prefer not to answer, that's fine, just let me know.

Q1	I just need to let you know that my supervisor may listen in on a part of this call to check my work. Is that ok with you? [Single Answer]	Code	Route
	Yes	1	
	No	2	CLOSE

The aim of this questionnaire is to find out about the uses of water and energy in your home...

Q2	Is this your main home?[Single Answer]	Code	Route
	Yes	1	
	No	2	CLOSE

Q3	<u>IF DWELLING AND SHOP/BUSINESS COMBINED, OBTAIN ONLY WATER & ENERGY CONSUMPTION INFORMATION FOR HOME, NOT BUSINESS.</u>	Code	Route
	<u>DO NOT INTERVIEW "Mobile or improvised dwelling"</u>		
	Now thinking about this home (your main one)		
	What sort of building is it? (READ OUT) [Single Answer]		
	Separate house	1	
	Dwelling/non-dwelling combined eg, shop houses	2	
	Semi-detached/ terrace/ house/ villa unit/ town house/ duplex	3	
	"Granny flat" (flat attached to larger house)	4	
	Flats or units in a building (1 or 2 storey)	5	
	Flats or units in a building (3 storeys)	6	
	Flats or units in a building (4 or more storeys)	7	
	Mobile or improvised dwelling	8	CLOSE

Q4	Do you have a second home or a holiday home?[Single Answer]	Code	Route
	Yes	1	
	No	2	
	Don't Know	3	

Q5 How many days a year do you spend at your second/holiday home?

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Q6 How many days a year is your main home unoccupied for a full 24 hours (including short breaks)?

PROBE This is only to work out how much water and energy you do **not** use throughout the year.

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Q7	<u>IF RENTING ASK: "Is that a Department of Housing rental or private?"</u>	Code	Route
	Is your home fully owned, being paid off or rented by any of the usual residents of this household? [Single Answer]		
	Owned fully/ fully paid off	1	
	Buying/ paying off home	2	
	Renting- Private	3	
	Renting- Public/ Dept. of Housing/ Community Housing	4	
	Other (PLEASE SPECIFY)	5	

Q8	What year did you move in? [Single Answer] PROBE If unsure, ask 'When do you think it was?'	Code	Route
	2005	14	
	2004	01	
	2003	02	
	2002	03	
	2001	04	
	2000	05	
	1999	06	
	1998	07	
	1997	08	
	1996	09	
	1995	10	
	1994	11	
	1993 or before	12	Q10
	Don't know	13	Q10

Q9	What month of that year did you move in?[Single Answer]	Code	Route
	January	01	
	February	02	
	March	03	
	April	04	
	May	05	
	June	06	
	July	07	
	August	08	
	September	09	
	October	10	
	November	11	
	December	12	
	Don't Know	13	
	Refused	14	

Q10	Do you know or can you estimate when your home was built? [Single Answer]	Code	Route
	Pre 1945	1	
	1945-1960	2	
	1961-1980	3	
	1981-1990	4	
	1991-2001	5	
	2002 til present	6	
	Don't know	7	

Q11	What is the home mostly made of?[Single Answer]	Code	Route
	Full Brick	1	
	Brick Veneer	2	
	Weatherboard	3	
	Fibro	4	
	Concrete	5	
	Other	6	
	DK (DO NOT READ OUT)	7	

Q12	I'm now going to read out a list rooms, could you please tell me how many of each you have in your home?		
(R1)	Kitchens		
(R2)	Bathrooms		
(R3)	Toilets (separate from bathroom)		
(R4)	Living Rooms		
(R5)	Bedrooms		
(R6)	Laundry		
(R7)	Shared/common laundry (only ask for units/flats)		
(R8)	Other		

Q13 Can you tell me how many of the following features you have in your home?
PROBE This is so we can get a picture of the energy and water uses in your home.

- (R1) Swimming Pools
- (R2) Outdoor Spas
- (R3) Showers
- (R4) Baths
- (R5) Indoor Spa Bath
- (R6) Standard Baths
- (R7) Single Flush Toilets
- (R8) Dual flush Toilets
- (R9) Composting Toilet
- (R10) Dishwasher
- (R11) Front loader washing machine
- (R12) Top loader washing machine
- (R13) Clothes dryer
- (R15) Laundry sink
- (R16) Kitchen sink
- (R17) Washing basin (excluding the laundry and kitchens sinks, ie. bathroom).
- (R18) Gas Stove/ Cooktop
- (R19) Electric Stove/ Cooktop
- (R20) Mixed Stove/ Cooktop
- (R21) Solid Fuel Stove/ Cooktop
- (R22) Gas Oven
- (R23) Electric Oven
- (R24) Solid Fuel Oven
- (R25) Microwave
- (R26) Electric Frying Pans/Electric Wok
- (R27) Hot Water system
- (R28) Combined freezer /refridgerator
- (R29) Refrigerator
- (R30) Freezer

Q13	Can you tell me how many of the following features you have in your home? PROBE This is so we can get a picture of the energy and water uses in your home.		
(R31)	Waterbed		
(R32)	Personal Computer		

Q14	Which of the following utilities do you have connected to your home? [Multiple Answer]	Code	Route
	Mains Electricity	01	
	Mains gas	02	
	Bottle gas (check that this is outdoor and not portable)	03	
	Oil feed heating	04	
	Solar panels (for electricity)	05	
	Solar panels (for water heating only)	06	
	Wind power	07	
	Other (Specify)	11	

Q15	Is your home connected to the sewerage system or do you have your own onsite system? [Single Answer]	Code	Route
	Mains Sewerage	1	
	On-Site system (Specify the type)	2	

Q16	Is your home connected to mains water?[Single Answer]	Code	Route
	Yes	1	
	No	2	

Q17	Do you have any of the following alternative water supplies? [Multiple Answer]	Code	Route
	Rainwater tank	1	Q18
	Bore water	2	
	Private dam or spring	3	
	Greywater system	4	Q19
	Other water supply (please specify)	5	

Q18 Ask if code 1 selected at Q17
 Thinking about your rainwater tank, what is the tank capacity in litres? (Allow for Don't know option)

Q19 <u>Ask if Code 4 selected at Q17</u> <u>Read out</u> And is your greywater system....? [Single Answer]	Code	Route
A professionally installed greywater treatment device (by plumber)	1	
A 'self-installed" treatment device (that treats greywater, not just filtering out lint)	2	
A professionally installed diversion device (by plumber)	3	
Or a 'self-installed' diversion (not treated-includes all other methods, eg. Hose from the washing machine, etc)	4	

Q20 <u>ONLY ASK IF Q17 = CODES 1-4.</u> <u>Ask for each separately for each code.</u> What does your household use water from the ..(Code 1-4) for?[Multiple Answer]	Code	Route
Washing clothes	1	
Bathing	2	
Toilet flushing	3	
Food preparation/ Drinking water	4	
Outside uses including garden watering	5	
Other	6	

Q21a	Ask if code 1 selected at Q13 During what months does your household use the pool? Please circles [Multiple Answer]		
Q21b	Ask if code 2 selected at Q13 During what months does your household use the outdoor spa? Please tick [Multiple Answer]		
		Q21a	Q21b
		Pool	Spa
January		01	01
February		02	02
March		03	03
April		04	04
May		05	05
June		06	06
July		07	07
August		08	08
September		09	09
October		10	10
November		11	11
December		12	12

Q22	How often do you use a pool cover?[Single Answer]	Code	Route
	Always	1	
	Quite often	2	
	Sometimes	3	
	Hardly ever	4	
	Never (ask if this doesn't mean they don't have one)	5	
	Don't have one	6	
	Don't know	7	

Q23	Is your pool heated?[Single Answer]	Code	Route
	Yes	1	
	No	2	
	Don't Know	3	

Q24	What is the energy source?[Single Answer]	Code	Route
	Electricity	1	
	Gas	2	
	Solar	3	
	Don't Know	4	

Q25	<u>CHECK THAT ANSWER IS THE SAME OR LESS THAN Q13 (Code 3)</u> <u>Allow for Don't Know option</u> How many of your showers have a water efficient showerhead? [Single Answer]	Code	Route
	One	1	
	Two	2	
	Three	3	
	Four	4	
	Other (Specify)	5	
	None	6	
	Don't know	7	

Q26	<u>CHECK THAT ANSWER IS SAME OR LESS THAN Q13 code 13</u> How many of the following taps for your sinks have a flow controller/ aerator?		
(R1)	Bathroom hand- basin taps		
(R2)	Kitchen sink taps		
(R3)	Laundry sink taps		

Q27	<u>ASK THIS QUESTION IF ANSWERED YES TO Q13FROM CODE 18-26</u> Which is the main method used for cooking in your household? [Single Answer]	Code	Route
	Gas Stove/ Cooktop	1	
	Electric Stove/ Cooktop	2	
	Mixed Stove/ Cooktop	3	
	Solid Fuel Stove/ Cooktop	4	
	Gas Oven	5	
	Electric Oven	6	
	Solid Fuel Oven	7	
	Microwave	8	

Q27	ASK THIS QUESTION IF ANSWERED YES TO Q13 FROM CODE 18-26 Which is the main method used for cooking in your household? [Single Answer]	Code	Route
	Electric Frying Pans	9	

Q28	Record number and allow for a Don't know option On average how many times a week does your household use the dishwasher?[Single Answer]	Code	Route
	Once	01	
	Twice	02	
	Three times	03	
	Four times	04	
	Five times	05	
	Six times	06	
	Seven times	07	
	Other (Specify)	08	
	Less than once	09	
	No times	10	Q31
	Don't know	11	

Q29	Dishwasher Only ask if code 10 selected at Q13 else skip to Q31 How often does your household rinse the dishes before putting them in the dishwasher? [Single Answer]	Code	Route
	Always	1	
	Quite often	2	
	Sometimes	3	
	Hardly ever	4	
	Never	5	
	Don't know	6	

Q30	ONLY ASK IF Q13 EQUALS CODE 9 - DISHWASHER <u>Read out answers to make sure No isn't used as Don't have one.</u> Do you use the economy setting of your dishwasher? [Single Answer] PROBE If respondent says no, clarify if their dishwasher has an economy setting or not.	Code	Route
	Yes	1	
	No	2	
	Doesn't have one	3	
	Don't know	4	

Q31	Hand-washing dishes ASK ALL <u>Record number and allow for Don't Know option</u> On average how many times per week does your household wash a load of dishes by hand? [Single Answer]	Code	Route
	Once	1	
	2 - 3 times	2	
	4 - 5 times	3	
	6 - 7 times	4	
	More than 7 times	5	
	Never	6	Q34

Q32	When your household washes the dishes by hand, are the dishes usually rinsed? [Single Answer] PROBE Probe for most accurate response	Code	Route
	No, Never	1	
	Yes, Before Only	2	
	Yes, After Only	3	
	Yes, Before & After	4	
	Don't know	5	

Q33	When your household washes the dishes by hand do you usually wash them in a plugged sink or do you usually wash them under running water in an unplugged sink?[Single Answer] PROBE Interviewer note: If it is not a plug but they use a large bowl or bucket to trap water this is the same thing.	Code	Route	
		Plugged sink	1	
		Running water	2	
		Don't know	3	

Q34	ASK ALL Read out Which of the following methods for washing clothes does your household use?[Multiple Answer]	Code	Route	
		Hand wash at home	1	
		Machine wash at home	2	
		Machine wash in a shared laundry (within the block)	3	
		At a laundromat	4	
		At a friend's/ relatives home	5	
		Other	6	
		Don't know	7	

Q35	Only ask for those codes selected at Q34																
	On average, how many loads per week... of hand washing at home, of machine washing at home, of machine wash in shared laundry, at laundromat etc.... does your household do ?																
(R1)	Hand wash at home																

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(R2)	Machine wash at home																

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Q35 Only ask for those codes selected at Q34

On average, how many loads per week... of hand washing at home, of machine washing at home, of machine wash in shared laundry, at laundromat etc.... does your household do ?

--	--	--	--	--	--	--	--	--	--

(R3) Machine wash in a shared laundry (within the block)

--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--

(R4) At a laundromat

--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--

(R5) At a friend's/relatives home

--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--

(R6) Other

--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--

(R7) Don't know

--	--	--	--	--	--	--	--	--	--

Q35 Only ask for those codes selected at Q34
 On average, how many loads per week... of hand washing at home, of machine washing at home, of machine wash in shared laundry, at laundromat etc.... does your household do ?

Q36 Only ask if Q13 = code 10 or 11 Washing Machine	Code	Route
Do you use the economy setting or make adjustments to water level of your washing machine? [Single Answer] PROBE If respondent says no, clarify if their washing machine has adjustable settings or not.		
Yes	1	
No	2	
Doesn't have one	3	
Don't know	4	

Q37a ASK ALL
ASK IF HOUSEHOLD HAS MAINS ELECTRICITY
Ask if Q14 = code 1
 What is the name of the electricity supplier to this dwelling? [Multiple Answer]

Q37b Ask if code 2 selected at Q14
 What is the name of the gas supplier to this dwelling?[Multiple Answer]

	Q37a	Q37b
	Electricity	Gas
Energy Australia	1	1
AGL	2	2
Intergral Energy	3	3
Don't know/ Can't recall/ Unsure	4	4
Other name given (Specify)	5	5

Q38a Next I have some questions about room heating and cooling.
ASK ALL
 Which of the following kinds of room heating/cooling do you have? (PROMPT IF NECESSARY)[Multiple Answer]

Q38b Which kind of heating do you use **most often?**[Single Answer]

Q38c Which kind of cooling do you use **most often**?[Single Answer]

	Q38a	Q38b	Q38c
	Have	Heating used most often	Cooling used most often
Reverse cycle air conditioning (heating and cooling)	01	01	01
Electric heaters (not air conditioning)	02	02	02
Gas heating	03	03	03
Oil heating	04	04	04
Wood or Solid Fuel heating (inc. Coal)	05	05	05
Kerosene heating	06	06	06
Ducted air heating and cooling (ie central heating in multi-dwelling unit)	07	07	07
Other heating (Specify)	08	08	08
Electric air conditioning (stand alone cooling only)	09	09	09
Electric fans	10	10	10
Water evaporation cooling	11	11	11
No heating or cooling	12	12	12

Q39	CHECK THAT ANSWER IS LESS THAN TOTAL NUMBER OF ROOM AT Q12	Code	Route
	<u>ASK IF CODE 1, 7 OR 9, 11 SELECTED AT Q38</u>		
	How many rooms in your home are air-conditioned?[Single Answer]		
	One	01	
	Two	02	
	Three	03	
	Four	04	
	Five	05	
	Six	06	
	Seven	07	
	Eight	08	
	Nine	09	
	Ten	10	
	Other (Specify)	11	
	Don't know	12	

Q40	Do you have roof or building insulation?[Single Answer]	Code	Route
	Yes	1	
	No	2	
	Don't Know	3	

Q41	<u>ASK IF Q13 =CODE 22</u> <u>Read off list</u> What type of hot water system do you have?[Multiple Answer]	Code	Route
	Your own hot water tank	1	
	Your own instant (Gas)	2	
	Communal	3	
	Other (Specify)	4	
	No/ Don't Know	5	

Q42	<u>ASK IF Q41 = More than one response selected</u> What is the main energy source in your home for hot water? [Single Answer]	Code	Route
	Electric	1	
	Gas	2	
	Solar only	3	
	Solar- Electric boosted	4	
	Solar- Gas boosted	5	
	Wood, solid fuel	6	
	Other (Specify)	7	
	Don't know	8	

Q43	<u>ASK IF RESPONDENT ANSWERED Q42 CODE 1 OR 4.</u> Is your hot water system an off-peak system or a standard electric? [Single Answer] PROBE (INTERVIEWER NOTE: IF NECESSARY DEFINE 'OFF-PEAK' AS WATER IS ONLY HEATED AT NIGHT. IF OFF-PEAK WILL BE INDICATED ON ELECTRICITY BILL)	Code	Route
	Off-peak	1	
	Standard electric	2	

Q43	<u>ASK IF RESPONDENT ANSWERED Q42 CODE 1 OR 4.</u> Is your hot water system an off-peak system or a standard electric? [Single Answer] PROBE (INTERVIEWER NOTE: IF NECESSARY DEFINE 'OFF-PEAK' AS WATER IS ONLY HEATED AT NIGHT. IF OFF-PEAK WILL BE INDICATED ON ELECTRICITY BILL) Don't Know	Code 3	Route
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Q44	Now I have some questions about your garden and outdoor areas. Does your home have any of the following garden areas? (Please note that we are not talking about <i>lawns</i> only <i>gardens</i> or <i>garden beds</i>)[Multiple Answer] No garden A communal garden you share with other households A balcony garden (not shared) A courtyard garden bed (not shared) A front and /or back garden bed (not shared)	Code 1 2 3 4 5	Route Q50
-----	---	---	----------------------------------

Q45	Do you have a lawn?[Single Answer] Own lawn Communal lawn No lawn	Code 1 2 3	Route
-----	--	---------------------------------	-------

Q46	How many outdoor pot plants do you have?[Single Answer] None 1-10 11-20 21 or more Don't know	Code 1 2 3 4 5	Route
-----	--	---	-------

Q47a	<u>If answer Q44 = Code 2-5</u> <u>(if garden, code 2 in Q44 , ask only for garden they are responsible for. ie, if they are not responsible for watering shared garden, only ask for their private garden)</u> Just thinking about your own garden beds (not your lawn), On average how often do you water your garden? [Multiple Answer]		
Q47b	<u>If answered Q45 = Code 1-2</u>		

(if communal lawn code 2 in Q45 , ask only for lawn they are responsible for. ie, if they are not responsible for watering shared lawn, only ask for their private lawn)

On average how often do you water your lawn?[Multiple Answer]

	Q47a	Q47b
	Garden	Lawn
Daily	1	1
3-4 times/ week	2	2
1-2 times/ week	3	3
Fortnightly	4	4
Never	5	5
Don't know	6	6

Q48	What method(s) of watering do you generally use? [Multiple Answer]	Code	Route
	Watering can/bucket	1	
	Handheld hose (with trigger)	2	
	Handheld Hose (without trigger)	3	
	Spray gun	4	
	Other (Specify)	5	

Q49	<u>(Interviewer Note: they do not have to be using it at the moment. We are interested in whether or not they have one not if they are complying with regulations.)</u>	Code	Route
	Do you <u>have</u> any of the following types of fixed watering system? [Multiple Answer]		
	Lawn pop- up sprinklers	1	
	Drip	2	
	Spray	3	
	Automatic sprinkler	4	
	Other No fixed system	5	

Q50	General Now I'd like to ask whether your home plumbing has any leaks. Do you have any of the following? (either inside or outside) [Multiple Answer]	Code	Route
	A leaking or dripping shower	1	
	A leaking toilet or toilet cistern	2	
	Leaking or dripping taps	3	
	A leaking hot water system	4	
	Leaking pipes	5	
	A leaking pool	6	
	A leaking outdoor spa	7	
	Any other leaks (Specify)	8	

Q51a	Now I have some questions about motor vehicles usually kept at you home. How many registered cars are usually kept at your home?[Multiple Answer]		
Q51b	How many registered motorbikes are usually kept at your home? [Multiple Answer]		
Q51c	How many other registered vehicles are usually kept at your home?[Multiple Answer]		
	Q51a	Q51b	Q51c
	Registered Car	Registered Bikes	Registered vehicles
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
More than 5	6	6	6

Q52a For each vehicle can you please tell me: How often is this vehicle washed? [Multiple Answer]		
Q52b How often is this vehicle washed at home? [Multiple Answer]		
	Q52a	Q52b
	Washed Frequency	Washed at home frequency
Weekly	1	1
Fortnightly	2	2
Monthly	3	3
Every second month	4	4
Six monthly	5	5
Never	6	6
Don't Know	7	7

So that we can get an idea how different members of a household use appliances and the need of different types of families we would like to ask a few questions about the people in your household. Please remember that his research is confidential and any research would be conducted in aggregated form only. Could we please start with yourself, and then we can discuss the other members of your household next.

Q53	How many people are in your household?[Single Answer]	Code	Route
	1	01	
	2	02	
	3	03	
	4	04	
	5	05	
	6	06	
	7	07	
	8	08	
	10	09	
	More than 10 (PLEASE SPECIFY)	10	

Q54	<u>RECORD IF OBVIOUS</u> What is your/ (person number 1,2,3 etc) gender? [Single Answer]	Code	Route
	Male	1	
	Female	2	

Q55	What is your/ (person number 1,2,3 etc) age? [Single Answer]	Code	Route
	Under 12yrs	1	
	12-17	2	
	18-34	3	
	35-54	4	
	55 and over years old	5	

Q56	What is your/ (person number 1,2,3 etc) employment status? [Single Answer]	Code	Route
	Employed full-time	1	
	Employed part-time	2	
	Unemployed	3	
	Not in the labour force	4	
	Don't know	5	
	Other	6	

Q57	<u>ASK IF Q56 = CODE 1 or 2</u> <u>Don't Know is accepted</u> What is the postcode of your (person 1 etc) work address? PROBE If don't know, then ask in which suburb is it?																
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Q58 **ASK IF Q56Q56 = CODE 1&2**
 What is the main form of transport (person 1, etc) uses for the following types of journey? [Single Answer]

	Private car/ vehicle	Public transport	Walk/ cycle	Not applicable
(R1) Work	1	2	3	4
(R2) Recreation	1	2	3	4
(R3) Shopping	1	2	3	4
(R4) Education	1	2	3	4

Q59 **ONLY ASK ABOUT APPLIANCES THE HOUSEHOLD HAS FROM Q13**
ASK FOR UP TO 2 PERSONS ONLY
 Still thinking about (person 1, etc) on average how often do you / they use the following facilities or appliances per week:

(R1) Shower		
(R2) Bath		
(R3) Spa bath		
(R4) Clothes Dryer		

Q60 **Ask of the Respondent only**
ASK FOR UP TO 2 PERSONS ONLY
 How often do you flush the toilet per day? (If respondent has dual flush toilet Code 8 in Q14), How many of those would be half flushes?

(R1) Toilet (full flush)		
(R2) Toilet (half-flush)		

Q61 ASK OF RESPONDENT ONLY

Thinking about yesterday, approximately how many times did you use the bathroom hand-basin, please include all uses such as hand washing, teeth brushing, shaving etc?

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Q62a Now thinking again about your household as a whole, which actions have you taken in the **last year** to reduce your water consumption?
 Anything else? (PROBE TWICE ONLY) (PROBE TO CAPTURE THREE THINGS... DO NOT READ OUT) (ANSWER IN TABLE)[Multiple Answer]

Q62b Which of the following actions would you be likely to do in the next 12 months?[Multiple Answer]

	Q62a			Q62b		
	Yes	No	Don't Know	Yes	No	Don't Know
(R1) Take shorter showers	1	2	3	1	2	3
(R2) Wait until the dishwasher is full before use	1	2	3	1	2	3
(R3) Wait for a full load before using washing machine	1	2	3	1	2	3
(R4) use the economy setting on your dishwasher/ washing machine	1	2	3	1	2	3
(R5) Use the half flush on the toilet instead of full flush	1	2	3	1	2	3
(R6) Always turn off the tap when brushing teeth	1	2	3	1	2	3
(R7) Reduce no.of times car is washed	1	2	3	1	2	3
(R8) Reduce no. of times garden is watered	1	2	3	1	2	3
(R9) Reduce no. of times yards/ driveways washed	1	2	3	1	2	3
(R10) Change gardening practices to reduce water use (eg. more mulch, plant indigenous plants)	1	2	3	1	2	3
(R11) Other (Specify)	1	2	3	1	2	3
(R12) Use a plug more often when using sinks and basins?	1	2	3	1	2	3

(R13)	Reuse water from shower or washing machines on gardens	1	2	3	1	2	3
(R14)	Not flush the toilet every time it is used	1	2	3	1	2	3
(R15)	No actions taken	1	2	3	1	2	3

Q63 Using a scale of 1 to 5, where 1 means "not important" and 5 means "very important", how important would you consider the following elements to be when buying a new washing machine? [Single Answer]

	Not important at all	Not very important	Neither important/unimportant	Fairly Important	Very Important
(R1) Price	1	2	3	4	5
(R2) Water efficiency	1	2	3	4	5
(R3) Energy efficiency	1	2	3	4	5
(R4) The size of the load	1	2	3	4	5
(R5) Brand	1	2	3	4	5
(R6) Other	1	2	3	4	5

Q64a Which actions have you taken in the last year to reduce your energy consumption? (PROBE TO CAPTURE THREE THINGS... DO NOT READ OUT) (ANSWER IN TABLE) [Single Answer]

Q64b Which of the following actions would you be likely to do in the next 12 months? [Single Answer]

	Q64a			Q64b		
	Yes	No	Don't Know	Yes	No	Don't Know
(R1) Turn off lights in unused rooms	1	2	3	1	2	3
(R2) Reduce heating in unused rooms	1	2	3	1	2	3
(R3) Reduce room cooling in hot weather	1	2	3	1	2	3
(R4) Turn off stand-by buttons on electrical equipment (eg. TV, computer, video, stereo)	1	2	3	1	2	3
(R5) Use of energy efficient compact fluorescent light globes	1	2	3	1	2	3
(R6) Purchase of energy efficient appliances	1	2	3	1	2	3
(R7) Other (PLEASE SPECIFY)	1	2	3	1	2	3
(R8) None of the above	1	2	3	1	2	3

Q65 Utilities				
Please rotate through Q64 - Q71 for water, then electricity then gas.				
<u>ONLY ASK Q65 - Q74 IF UTILITY ATTACHED TO HOUSE</u>				
Do you know how much water/electricity/gas you use in a quarter?[Single Answer]				
		Yes	No	Don't know/ Not Applicable
(R1)	Water	1	2	3
(R2)	Electricity	1	2	3
(R3)	Gas	1	2	3

Q66 <u>ASK ONLY HOUSEHOLD THAT HAS UTILITIES.</u>							
On a scale of 1 to 5, where 1 means very low and 5 means very high, how do you believe your (water/ electricity/ Gas) usage compares to other Sydney households like yours? [Single Answer]							
		Very low	Low	Average	High	Very high	Can't say
(R1)	Water	1	2	3	4	5	6
(R2)	Electricity	1	2	3	4	5	6
(R3)	Gas	1	2	3	4	5	6

Q67 <u>ONLY ASK IF CODE 1,2 OR 10 SELECTED AT Q14</u>				
Do you feel that the current pricing of water/electricity/gas is fair? Please tick [Single Answer]				
		Yes	No	Don't know
(R1)	Water	1	2	3
(R2)	Electricity	1	2	3
(R3)	Gas	1	2	3

Q68 <u>ONLY ASK IF CODE 1,2 OR 10 SELECTED AT Q14</u>				
Do you think current prices of water/electricity/gas encourage conservation? [Single Answer]				
		Yes	No	Don't know
(R1)	Water	1	2	3
(R2)	Electricity	1	2	3
(R3)	Gas	1	2	3

Q69 ONLY ASK IF CODE 1,2 OR 10 SELECTED AT Q14 Should people who use an amount of water/ energy well above average have to pay an additional fee (or rate) for their water/ energy? [Single Answer]			
	Yes	No	Don't know
(R1) Water	1	2	3
(R2) Electricity	1	2	3
(R3) Gas	1	2	3

Q70 ONLY ASK IF CODE 1,2 OR 10 SELECTED AT Q14 Do you think people who use well below average amounts of water/energy should pay a discounted fee or rate? [Single Answer]			
	Yes	No	Don't know
(R1) Water	1	2	3
(R2) Electricity	1	2	3
(R3) Gas	1	2	3

Q71 Do you think the prices of water/ energy should be increased to encourage people to use less?[Single Answer]			
	Yes	No	Don't know
(R1) Water	1	2	3
(R2) Electricity	1	2	3
(R3) Gas	1	2	3

Q72 Ask if code 1 (yes) selected at Q71 By how much?[Single Answer]					
	5%	10%	15%	20%	More than 20%
(R1) Water	1	2	3	4	5
(R2) Electricity	1	2	3	4	5
(R3) Gas	1	2	3	4	5

Q73 Do you think prices should be increased generally to pay for improved conservation policies and practices? [Single Answer]				
		Yes	No	Don't know
(R1)	Water	1	2	3
(R2)	Electricity	1	2	3
(R3)	Gas	1	2	3

Q74 Ask if code 1 (yes) selected at Q73 By how much? [Single Answer]						
		5%	10%	15%	20%	More than 20%
(R1)	Water	1	2	3	4	5
(R2)	Electricity	1	2	3	4	5
(R3)	Gas	1	2	3	4	5

Q75 Have you changed your water use inside your home since the water restrictions have come in? [Single Answer]		Code	Route
	Yes	1	
	No	2	
	Don't know	3	

Q76 Thinking about how your household uses water, how much do you feel that your household could do to save water? [Single Answer]		Code	Route
	A lot more	1	
	Some more	2	
	A little bit more	3	
	Nothing, can't do any more	4	

Q77 Read Out Would you use more water and energy saving devices if.....? (READ OUT)[Single Answer]				
		Yes	No	Don't know
(R1)	If you had to pay for them	1	2	3
(R2)	If they were subsidised at half price	1	2	3
(R3)	If they were provided for free	1	2	3

Q78	If answered Yes in Q65 Is the difference between your summer and winter water bill worth you looking into water savings during the summer months? [Single Answer]	Code	Route
	Yes	1	
	No	2	
	Don't know	3	

SECTION 6 GENERAL ATTITUDES TO CONSERVATION

Q79	Do you generally recycle waste and rubbish?[Single Answer]	Code	Route
	All the time	1	
	Most of the time	2	
	Some of the time	3	
	Hardly ever	4	
	Never	5	
	Don't know	6	

Q80	On a scale of 1 to 5 where 1 is not at all important and 5 is very important...How important do you think it is to conserve water and energy?[Single Answer]	Code	Route
	Not at all important	1	
	Not important	2	
	Neither important nor unimportant	3	
	Somewhat important	4	
	Very important	5	
	Don't know	6	

Q81	Do you think water/ energy conservation is being taken seriously enough by: [Single Answer]			
		Yes	No	Don't know
(R1)	Federal government	1	2	3
(R2)	State government	1	2	3
(R3)	Local government	1	2	3

(R4)	Local business	1	2	3
(R5)	Water authorities	1	2	3
(R6)	Energy companies	1	2	3

Q82	Finally from the following options, could you please chose the income bracket which best describes the total annual income of your household, before taxes last year?[Single Answer]	Code	Route
	Less than \$10,400	01	
	\$10,400 to \$20,800	02	
	\$20,801 to \$31,200	03	
	\$30,201 to \$41,600	04	
	\$41,601 to \$52,000	05	
	\$52,001 to \$78,000	06	
	\$78,001 to \$104,000	07	
	\$104,001 to \$156,000	08	
	More than \$156,000	09	
	Don't know	10	

Q83	To be followed by Re-contact Confirmation if code 1 <u>Do not read out codes</u> Would you mind if we re-contacted you again in the future to invite you to participate in any similar research? [Single Answer]	Code	Route
	Yes	1	
	No	2	

We will retain your name and contact details for approximately **[PERIOD OF TIME]**. They will only be used to contact you to invite you to participate in research. If at any time you change your mind, you will be able to contact us to request that **[WE TAKE YOUR NAME AND CONTACT DETAILS OFF OUR LIST/WE NOTE THAT YOU DO NOT WISH TO BE RE-CONTACTED]**

Q84	If code 1=Yes, ask ACNielsen Panel Invite 4, others go to Close Do you have an e-mail address where we could send you an invitation to participate in an online panel where you will be rewarded for completing surveys?[Single Answer]	Code	Route
	Yes	1	
	No	2	

Q85 Set a second e-mail address box as a check against the first box. Addresses must be identical to continue.

**GO TO CLOSE AFTERWARDS
RECORD E-MAIL ADDRESS**

SPELL E-MAIL BACK TO RESPONDENT AND RE-TYPE CONFIRMATION ADDRESS AS YOU DO IT

Could you please spell that e-mail address for me?

Can I reconfirm that exact address with you as....?

(R1) E-MAIL

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

(R2) CONFIRMATION E-MAIL

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Q86 Thank you for your help. Just in case you missed it my name is **[INSERT NAME]** and I'm calling from ACNielsen.
In case my Supervisor needs to check my work, may I please have your first or last name and confirm your phone number.

As this is market research, it is carried out in compliance with the Privacy Act and the information you provided will be used only for research purposes.
Once this project is completed your contact details will be removed from your responses **[GIVE INDICATION WHEN DE-IDENTIFICATION WILL OCCUR]**. Under the Privacy Act you have the right to request access to the information you have provided.
If you have any queries, you can call the Market Research Society's free survey line on 1300 364 830 or ACNielsen's Privacy Line on 1800 021 717.

If respondent expresses concerns of anonymity

Your answers will be combined with those of other participants to **[PURPOSE OF THE RESEARCH]**

(R1) FIRST NAME

(R2) LAST NAME

(R3) PHONE NUMBER

APPENDIX 4: Water Restrictions in Place During Fieldwork

Level Two mandatory water restrictions were applying in Sydney, the Illawarra and the Blue Mountains at the time of the research. The following sets out what these are.

LEVEL TWO WATER RESTRICTIONS

The following mandatory restrictions applied to all Sydney Water customers including residents, businesses, local councils and government agencies.

No hosing of lawns and gardens EXCEPT hand-held hosing BEFORE 10.00 AM and AFTER 4.00 PM on Wednesday, Fridays and Sundays.

No filling of NEW or RENOVATED pools greater than 10,000L except with a [permit](#) from Sydney Water.

No sprinklers or watering systems AT ANY TIME

No hosing of hard surfaces including vehicles AT ANY TIME

Hard surfaces include paths, driveways, floors and buildings. Vehicles include cars, trucks, trailers, caravans, motorcycles and boats.

[Drip irrigation](#), bore water, [grey water](#), [recycled water](#) and water used for fire fighting and related activities are excluded from the restrictions.

Fines of \$220 apply for customers found to be in breach of the mandatory water restrictions

[Exemptions](#) may apply for some water use. Customers seeking exemptions should apply via this site. All exemptions granted during Level one restrictions will continue to apply. All exemptions are subject to change, following regular reviews as the drought progresses.

The following are still permitted at anytime:

- Using a bucket or watering can to wash and rinse vehicles or water lawns and gardens.
- Topping up any existing swimming pool.
- Filling a pool less than 10,000L capacity.
- Using water from a rainwater tank, as long as it is not connected to a Sydney Water main.

- Using a hose with a trigger nozzle or high pressure cleaning device to clean boat bilges and boat trailer brakes and wheels.
- Using a hose to flush boat engines.
- Cleaning garbage bins using a hose fitted with a trigger nozzle or with an on/off switch. This should be done within an official bin wash area or on grass.
- Using [drip irrigation](#) with special low pressure drip devices that release water slowly, in drips, at or below ground level near plant roots.
- Alterations that require substantial changes to the shape of the pool, or major additions to the structure around the pool, are classified as **renovation**. Building plans must be approved by Council and Sydney Water for this type of work. Activities such as retiling or resurfacing the pool are classified as maintenance and do not require a permit.
- **Note:** A sprinkler is an attachment to a garden hose or fixed pipe that can be left unattended to emit water over a given area. Sprinklers are not permitted at any time. **Hoses must not be left unattended at any time.**
- A **watering system** is a fixed or permanent system having either single or multiple watering zones and is controlled by a manual tap, electronic or mechanical timer. Watering systems (other than drip irrigation systems) are not permitted at any time.

APPENDIX 5: Example of Sydney Water Bill for Houses

Sydney WATER Proud Sponsors of **ZOO** Telephone Payments ☎ (See over) Account Balance ☎ **1300 362 093**
 General Enquiries ☎ **13 20 92**
 8.30am to 5.30pm (Mon-Fri)

Last bill	Payments	Balance	This bill	Total amount due
\$209.35	\$209.35	\$0.00	\$177.95	\$177.95

Please pay by **01/03/05**

Account for residential property

Charges - GST free	1 Jan 05 - 31 Mar 05	\$
Water service		19.40
Sewerage service		86.66

Usage charge - GST free	9 Nov 04 - 7 Feb 05	
Water	71 kilolitres at \$1.0130 per kilolitre	See over for details 71.92

Other charges and credits

Credit	-0.03
--------	-------

Your average daily usage **Total amount due \$177.95**

Category	Usage (Litres)
This bill	788
Last bill	962
Same time last year	1080

1000 litres = 1 kilolitre

How much water did you use?

SYDNEY WATER CORPORATION - ABN 49 778 325 038 **TAX INVOICE** *Continued overleaf* Date of issue 5 February 2005

APPENDIX 6: Example of Sydney Water Bill for Flats

Last bill	Payments	Balance	This bill	Total amount due
\$3075.30	\$3075.30	\$0.00	\$3069.25	\$3069.25

Please pay by

23/03/05

Account number

478210

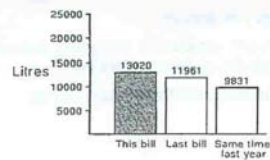
Account for flats

Charges - GST free		1 Jan 05 - 31 Mar 05	\$
Water service			3
Sewerage service			14

Usage charge - GST free		24 Nov 04 - 28 Feb 05	
Water	1250 kilolitres at \$1.0130 per kilolitre	<i>See over for details</i>	1266.25

Other charges and credits			
Credit			-0.02

Your average daily usage	Total amount due	\$3069.25
--------------------------	-------------------------	------------------



1000 litres
=
1 kilolitre

How much water did you use?

Account for flats

Water Meter Details

Meter Reading Period: 24 Nov 04 - 28 Feb 05

This Reading	Last Reading	Consumption (kLs)	
332	263	69	69-85
431	371	60	60-75
315	272	43	43-56
291	228	63	63-80
382	291	91	91-20
286	247	39	39-50
297	247	50	50-65
470	395	75	75-95
339	299	40	40-50
376	320	56	56-70
257	242	15	15-20
712	559	153	154-95
370	324	46	46-55
500	378	122	123-55
595	423	172	174-20
303	258	45	45-60
630	528	111	112-40

Charge: 17

Customer Information

- * Pensioners with a Pensioner Concession Card or a Veterans' Affairs Gold Card (TPI / TTI, War Widow / Widower, or EDA) may be entitled to a concession.
- * Visit www.sydneywater.com.au to view the Quarterly Drinking Water Quality report.
- * Interest may be charged on overdue amounts at the current rate of 9% per annum.
- * For customers in financial difficulty, Sydney Water may provide payment assistance including deferred payment, instalment options and hardship relief. Conditions apply. Call 13 20 92 for details.
- * For TTY services (hearing impaired customers only), please phone the **National Relay Service** on 13 36 77 and quote 13 20 90.

APPENDIX 7: Selected Tabulations from the Telephone Survey

Question 7 – Is your home fully owned, being paid off or rented by any of the usual residents of this household?

	Owned Fully/ Fully Paid Off	Buying/paying off home	Renting - Private	Renting - DoH/Comm. Housing	Other	Total
Separate Houses						
Count	687	427	162	71	45	1392
%	49%	31%	12%	5%	3%	100%
Semis						
Count	87	56	89	12	4	248
%	35%	23%	36%	5%	2%	101%
All Flats						
Count	132	68	297	34	5	536
%	25%	13%	55%	6%	1%	100%
Flats <4 storeys						
Count	74	47	189	18	5	333
%	22%	14%	57%	5%	2%	100%
Flats >4 Storeys						
Count	49	20	100	16	0	185
%	26%	11%	54%	9%	0%	100%
TOTAL						
Count	906	551	548	117	54	2176
%	42%	25%	25%	5%	2%	100%

Question 8 – What year did you move in?

	2004 - 2005	2002 -2003	2000 - 2001	1996 - 1999	Pre 1996	Don't Know	TOTAL
Separate Houses							
Count	88	155	219	195	718	19	1394
%	6%	11%	16%	14%	51%	1%	99%
Semis							
Count	49	59	38	30	70	3	249
%	20%	24%	15%	12%	28%	1%	100%
All Flats							
Count	138	156	72	60	107	3	536
%	26%	29%	14%	11%	20%	0%	100%
Flats <4 storeys							
Count	76	96	52	38	69	1	332
%	23%	29%	16%	12%	21%	0%	101%
Flats >4 Storeys							
Count	59	53	21	18	33	1	185
%	32%	29%	11%	10%	18%	1%	101%
TOTAL							
Count	275	370	329	285	895	25	2179
%	13%	17%	15%	13%	41%	1%	100%

Question 10 – Do you know or can you estimate when your home was built?

	Pre 1945	1945-1960	1961-1980	1981-1990	1991-2001	2002 til present	Total
Separate Houses							
Count	191	246	509	147	157	43	1293
%	15%	19%	39%	11%	12%	3%	100%
Semis							
Count	43	8	52	59	56	6	224
%	19%	4%	23%	26%	25%	3%	100%
All Flats							
Count	28	30	194	80	95	19	446
%	6%	7%	43%	18%	21%	4%	100%
Flats <4 storeys							
Count	23	20	125	53	47	5	273
%	8%	7%	46%	19%	17%	2%	100%
Flats >4 Storeys							
Count	5	10	58	24	45	14	156
%	3%	6%	37%	15%	29%	9%	100%
TOTAL							
Count	262	284	755	286	308	68	1963
%	13%	14%	38%	15%	16%	3%	100%

Question 11 – What is the home mostly made of?

	Full Brick	Brick Veneer	Weatherboard	Fibro	Concrete	Other	Don't Know	Total
Separate Houses								
Count	552	479	98	199	2	60	5	1395
%	40%	34%	7%	14%	0%	4%	0%	99%
Semis								
Count	186	46	2	2	6	4	3	249
%	75%	18%	1%	1%	2%	2%	1%	100%
All Flats								
Count	430	17	2	1	76	3	7	536
%	80%	3%	0%	0%	14%	1%	1%	99%
Flats <4 storeys								
Count	297	9	0	0	23	1	3	333
%	89%	3%	0%	0%	7%	0%	1%	100%
Flats >4 Storeys								
Count	122	3	2	1	53	2	4	187
%	66%	1%	1%	0%	29%	1%	2%	100%
TOTAL								
Count	1168	542	102	202	84	67	15	2180
%	54%	25%	5%	9%	4%	3%	1%	100%

Question 12 – How many rooms of each you have in your home?

	Separate Bedrooms				
	1	2	3	4 or More	Total
Separate Houses					
Count	5	105	681	616	1407
%	0%	8%	49%	43%	99%
Semis					
Count	4	99	129	17	249
%	2%	40%	52%	7%	99%
All Flats					
Count	66	401	65	3	535
%	12%	75%	12%	1%	100%
Flats <4 storeys					
Count	40	261	31	2	334
%	12%	78%	9%	1%	100%
Flats >4 Storeys					
Count	21	136	28	0	185
%	11%	74%	15%	0%	100%
TOTAL					
Count	75	605	875	636	2191
%	3%	28%	42%	29%	100%

	Kitchens				Living Rooms			
	0	1	2 or More	Total	0	1	2 or More	Total
Separate Houses								
Count	2	1356	37	1395	0	838	557	1395
%	0%	97%	3%	100%	0%	60%	40%	100%
Semis								
Count	1	246	2	249	1	215	32	248
%	0%	99%	1%	100%	0%	86%	13%	99%
All Flats								
Count	0	533	2	535	7	508	21	536
%	0%	100%	0%	100%	1%	95%	4%	100%
Flats <4 storeys								
Count	0	332	1	333	5	321	7	333
%	0%	100%	0%	100%	2%	96%	2%	100%
Flats >4 Storeys								
Count	0	185	0	185	2	175	7	184
%	0%	100%	0%	100%	1%	95%	4%	0%
TOTAL								
Count	3	2135	41	2179	1	1561	610	2179
%	0%	98%	2%	100%	0%	72%	28%	100%

Question 14 – Which of the following utilities do you have connected to your home?

	Mains Electricity	Mains Gas	Bottle Gas	Solar Panels for water Heating Only	Oil Feed Heating	Solar Panels for Electricity	Wind Power	Other
Separate Houses								
Count	1383	639	88	60	23	8	10	14
%	99%	46%	6%	4%	2%	1%	1%	1%
Semis								
Count	247	100	15	5	5	0	0	1
%	99%	40%	6%	2%	2%	0%	0%	0%
All Flats								
Count	528	170	16	4	10	1	1	4
%	99%	32%	3%	1%	2%	0%	0%	1%
Flats <4 storeys								
Count	331	82	8	2	6	1	0	0
%	99%	25%	2%	1%	2%	0%	0%	0%
Flats >4 Storeys								
Count	179	84	7	2	5	1	1	4
%	97%	45%	4%	1%	2%	0%	0%	2%
Total								
Count	2158	909	119	69	38	9	11	19
%	99%	42%	5%	3%	2%	0%	1%	1%

Question 44 – Does your home have any of the following garden areas?

	Communal	Balcony	Courtyard	Front and/or back	No Garden
Separate Houses					
Count	9	35	99	1239	101
%	1%	3%	7%	89%	7%
Semis					
Count	30	9	84	135	38
%	12%	4%	34%	54%	15%
All Flats					
Count	234	110	21	28	211
%	44%	20%	4%	5%	39%
Flats <4 storeys					
Count	157	74	15	20	116
%	47%	22%	4%	6%	35%
Flats >4 Storeys					
Count	73	36	5	2	89
%	40%	19%	2%	1%	48%
TOTAL					
Count	273	154	204	1402	350
%	13%	7%	9%	64%	16%

Question 45 – Do you have a lawn?

	Own Lawn	Communal Lawn	No Lawn	TOTAL
Separate Houses				
Count	1219	14	61	1294
%	94%	1%	5%	100%
Semis				
Count	101	23	86	210
%	48%	11%	41%	100%
All Flats				
Count	21	206	98	325
%	7%	63%	30%	100%
Flats <4 storeys				
Count	14	141	62	217
%	6%	65%	29%	100%
Flats >4 Storeys				
Count	2	59	36	97
%	2%	61%	37%	100%
TOTAL				
Count	1341	243	245	1829
%	73%	13%	13%	100%

Question 51a – How many registered cars are usually kept at your home?

Question 51a Number of Vehicles (Cars)					
	Zero	One	Two	Three or More	TOTAL
Separate Houses					
Count	150	493	539	213	1395
%	11%	35%	39%	15%	100%
Semis					
Count	38	137	66	7	248
%	15%	55%	27%	3%	100%
All Flats					
Count	127	313	88	8	536
%	24%	58%	16%	2%	100%
Flats <4 storeys					
Count	72	203	54	4	333
%	22%	61%	16%	1%	100%
Flats >4 Storeys					
Count	53	100	30	2	185
%	29%	54%	16%	1%	100%
TOTAL					
Count	315	943	693	228	2179
%	14%	43%	32%	10%	100%

Question 51b – How many registered motorbikes are usually kept at your home?

	Zero	One	Two	Three or More	TOTAL
Separate Houses					
Count	1347	39	5	3	1394
%	97%	3%	0%	0%	100%
Semis					
Count	242	6	0	0	248
%	97%	3%	0%	0%	100%
All Flats					
Count	523	12	2	0	537
%	97%	2%	1%	0%	100%
Flats <4 storeys					
Count	322	10	2	0	334
%	97%	3%	1%	0%	101%
Flats >4 Storeys					
Count	183	2	0	0	185
%	99%	1%	0%	0%	100%
TOTAL					
Count	2112	57	7	3	2179
%	97%	3%	0%	0%	100%

Question 53 – How many people are in your household?

	One	Two	Three	Four or More	Total
Separate Houses					
Count	176	406	248	565	1395
%	13%	29%	18%	40%	100%
Semis					
Count	50	100	53	44	247
%	20%	40%	21%	18%	99%
All Flats					
Count	195	214	75	52	536
%	36%	40%	14%	10%	100%
Flats <4 storeys					
Count	129	125	50	30	334
%	39%	38%	15%	9%	101%
Flats >4 Storeys					
Count	60	85	23	17	185
%	32%	46%	13%	9%	100%
TOTAL					
Count	421	720	376	661	2178
%	19%	33%	17%	30%	100%

Question 55 –Age of respondent

	12-17 years	18-34 years	35-54 years	Greater 55years	Refused	TOTAL
Separate Houses						
Count	2	247	619	519	7	1394
%	0%	18%	44%	37%	0%	99%
Semis						
Count	2	79	94	73	0	248
%	1%	32%	38%	29%	0%	100%
All Flats						
Count	4	221	170	139	2	536
%	1%	41%	32%	26%	0%	100%
Flats <4 storeys						
Count	1	135	116	80	1	333
%	0%	41%	35%	24%	0%	100%
Flats >4 Storeys						
Count	3	83	45	54	1	186
%	1%	45%	24%	29%	1%	100%
TOTAL						
Count	8	547	883	731	9	2178
%	0%	25%	41%	34%	0%	100%

Question 56 –Employment status of respondent

Question 56 - Employment Status (Person 1)								
	Employed Full-time	Employed Part-time	Unemployed	Not in Labour Force	Don't know	Other	Refused	TOTAL
Separate Houses								
Count	647	221	61	404	0	51	11	1395
%	46%	16%	4%	29%	0%	4%	1%	100%
Semis								
Count	123	43	12	56	0	14	0	248
%	50%	17%	5%	22%	0%	6%	0%	100%
All Flats								
Count	301	63	38	112	0	21	0	535
%	56%	12%	7%	21%	0%	4%	0%	100%
Flats <4 storeys								
Count	195	40	26	62	0	11	0	334
%	58%	12%	8%	19%	0%	3%	0%	100%
Flats >4 Storeys								
Count	100	20	12	45	0	8	0	185
%	54%	11%	6%	24%	0%	4%	0%	99%
TOTAL								
Count	1071	327	111	572	0	86	11	2178
%	49%	15%	5%	26%	0%	4%	1%	100%

Question 58 – What is the main form of transport uses for the following types of journey (respondent)?

Question 58 - Main form of Transport (Person 1)					
	Private Car/Vehicle	Public Transport	Walk/Cycle	Not Applicable	TOTAL
Work					
Count	959	323	66	51	1399
%	69%	23%	5%	4%	101%
Recreation					
Count	1672	297	163	47	2179
%	77%	14%	7%	2%	100%
Shopping					
Count	1749	130	258	42	2179
%	80%	6%	12%	2%	100%
Education					
Count	452	116	50	1561	2179
%	21%	5%	2%	72%	100%
TOTAL					
Count	4380	750	487	140	5757
%	76%	13%	8%	2%	100%

Question 58 – What is the main form of transport uses for the following types of journey (second named household member)?

	Private Car/Vehicle	Public Transport	Walk/Cycle	Not Applicable	TOTAL
Work					
Count	825	217	68	29	1139
%	72%	19%	6%	3%	100%
Recreation					
Count	1376	215	107	60	1758
%	78%	12%	6%	3%	99%
Shopping					
Count	1325	95	158	180	1758
%	75%	5%	9%	11%	100%
Education					
Count	362	119	57	1220	1758
%	21%	7%	3%	69%	100%
TOTAL					
Count	3526	527	333	269	4655
%	76%	11%	7%	6%	100%

Question 79 – Do you generally recycle waste and rubbish?

	All the Time	Most of the Time	Some of the Time	Hardly Ever	Never	Don't Know	TOTAL
Separate Houses							
Count	1074	231	51	8	31	0	1395
%	77%	17%	4%	1%	2%	0%	100%
Semis							
Count	178	49	9	4	9	0	249
%	72%	20%	4%	1%	4%	0%	100%
All Flats							
Count	343	106	35	11	38	3	536
%	64%	20%	7%	2%	7%	1%	100%
Flats <4 storeys							
Count	214	68	21	7	21	2	333
%	64%	20%	6%	2%	6%	0%	100%
Flats >4 Storeys							
Count	117	35	11	5	16	2	186
%	63%	19%	6%	3%	9%	1%	100%
TOTAL							
Count	1595	386	95	23	78	3	2180
%	73%	18%	4%	1%	4%	0%	100%

Q81 – Do you think water/energy conservation is being taken seriously enough by the Federal Government?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	355	898	142	1395
%	25%	64%	10%	99%
Semis				
Count	70	153	26	249
%	28%	62%	10%	100%
All Flats				
Count	153	326	57	536
%	28%	61%	11%	100%
Flats <4 storeys				
Count	101	197	35	333
%	30%	59%	10%	99%
Flats >4 Storeys				
Count	51	112	22	185
%	27%	61%	12%	100%
TOTAL				
Count	578	1377	225	2180
%	27%	63%	10%	100%

Q81 – Do you think water/energy conservation is being taken seriously enough by the State government?

Question 81 - Respondents perception on how serious State Government takes water/energy conservation				
	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	355	891	149	1395
%	25%	64%	11%	100%
Semis				
Count	70	145	34	249
%	28%	58%	14%	100%
All Flats				
Count	163	317	55	535
%	30%	59%	10%	99%
Flats <4 storeys				
Count	112	189	33	334
%	33%	57%	10%	100%
Flats >4 Storeys				
Count	51	112	23	186
%	27%	60%	12%	99%
TOTAL				
Count	588	1353	238	2179
%	27%	62%	11%	100%

Q81 – Do you think water/energy conservation is being taken seriously enough by Local Government?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	387	814	193	1394
%	28%	58%	14%	100%
Semis				
Count	78	128	43	249
%	31%	51%	17%	99%
All Flats				
Count	165	269	102	536
%	31%	50%	19%	100%
Flats <4 storeys				
Count	111	161	61	333
%	33%	48%	18%	99%
Flats >4 Storeys				
Count	50	94	41	185
%	27%	51%	22%	100%
TOTAL				
Count	630	1211	338	2179
%	29%	56%	16%	100%

Q81 – Do you think water/energy conservation is being taken seriously enough by Local Business?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	284	734	376	1394
%	20%	53%	27%	100%
Semis				
Count	45	135	68	248
%	18%	54%	28%	100%
All Flats				
Count	101	280	155	536
%	19%	52%	29%	100%
Flats <4 storeys				
Count	68	172	94	334
%	20%	51%	28%	99%
Flats >4 Storeys				
Count	32	97	57	186
%	17%	52%	31%	100%
TOTAL				
Count	430	1149	599	2178
%	20%	53%	28%	100%

Q81 – Do you think water/energy conservation is being taken seriously enough by the Water Authority?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	605	624	166	1395
%	43%	45%	12%	100%
Semis				
Count	119	94	36	249
%	48%	38%	14%	100%
All Flats				
Count	261	182	93	536
%	49%	34%	17%	100%
Flats <4 storeys				
Count	171	110	53	334
%	51%	33%	16%	100%
Flats >4 Storeys				
Count	85	63	38	186
%	46%	34%	20%	100%
TOTAL				
Count	985	900	295	2180
%	45%	41%	14%	100%

Question 82 – Total annual income of your household, before tax?

	Less than \$10, 400	\$10,400 - \$20, 800	\$20, 801 - \$31, 200	\$31, 201 - \$41, 600	\$41, 601 - \$52, 000	\$52, 001 - \$78, 000	\$78, 001 - \$104, 000	\$104, 001 - \$156, 000	More than \$156, 000	Don't Know	TOTAL
Separate Houses											
Count	50	105	83	108	118	221	173	168	114	255	1395
%	4%	8%	6%	8%	8%	16%	12%	12%	8%	18%	100%
Semis											
Count	11	29	27	21	20	32	47	28	11	22	248
%	5%	12%	11%	8%	8%	13%	19%	11%	4%	9%	100%
All Flats											
Count	35	49	43	55	60	81	80	48	22	63	536
%	7%	9%	8%	10%	11%	15%	15%	9%	4%	12%	100%
Flats <4 storeys											
Count	21	30	32	36	43	49	51	27	9	34	332
%	6%	9%	10%	11%	13%	15%	15%	8%	3%	10%	100%
Flats >4 Storeys											
Count	13	17	11	16	16	30	26	21	11	25	186
%	7%	9%	6%	9%	8%	16%	14%	11%	6%	14%	100%
TOTAL											
Count	96	183	153	184	198	334	300	244	147	340	2179
%	4%	8%	7%	8%	9%	15%	14%	11%	7%	16%	100%

Question 17 - Do you have any of the following alternative water supplies?

	Rainwater Tank	Bore Water	Private Dam or Spring	Grey water System	None of These	Other Water Supply	TOTAL
Separate Houses							
Count	81	5	0	63	1212	43	1404
%	6%	0%	0%	4%	87%	3%	100%
Semis							
Count	5	1	0	2	238	3	249
%	2%	0%	0%	1%	96%	1%	100%
All Flats							
Count	2	11	3	2	517	3	538
%	0%	2%	0%	0%	96%	1%	99%
Flats <4 storeys							
Count	1	6	0	0	325	2	334
%	0%	2%	0%	0%	97%	1%	100%
Flats >4 Storeys							
Count	1	6	1	2	177	1	188
%	0%	3%	1%	1%	96%	1%	102%
TOTAL							
Count	88	17	3	67	1967	49	2191
%	4%	1%	0%	3%	90%	2%	100%

Question 21a – During what months does your household use the pool?

	Dec, Jan, Feb - Summer	Mar, Apr, May - Autumn	June, July, Aug - Winter	Sept, Oct, Nov - Spring
Separate Houses				
Count	335	219	15	243
%	100%	65%	5%	72%
Semis				
Count	21	14	7	16
%	94%	63%	30%	71%
All Flats				
Count	71	40	20	41
%	97%	54%	27%	56%
Flats <4 storeys				
Count	15	5	1	6
%	96%	31%	6%	34%
Flats >4 Storeys				
Count	53	32	17	34
%	97%	60%	31%	62%
Total				
Count	427	273	42	300
%	99%	64%	10%	70%

Question 25 – How many of your showers have a water efficient shower head?

	One	Two	Three	Four	Other	None	Don't Know	TOTAL
Separate Houses								
Count	492	290	67	8	2	485	52	1396
%	35%	21%	5%	1%	0%	35%	4%	101%
Semis								
Count	96	37	3	0	0	92	21	249
%	39%	15%	1%	0%	0%	37%	8%	100%
All Flats								
Count	179	33	1	0	0	268	54	535
%	33%	6%	0%	0%	0%	50%	10%	99%
Flats <4 storeys								
Count	118	10	0	0	0	180	25	333
%	35%	3%	0%	0%	0%	54%	8%	100%
Flats >4 Storeys								
Count	53	20	1	0	0	83	28	185
%	29%	11%	1%	0%	0%	45%	15%	101%
TOTAL								
Count	767	360	71	8	2	845	127	2180
%	35%	17%	3%	0%	0%	39%	6%	100%

Question 26 - How many of the following taps for your sinks have a flow controller/aerator?

Bathroom

Question 26 - Number of Taps with Flow Controllers (Bathroom)						
	One	Two	Three	Four or More	None	TOTAL
Separate Houses						
Count	215	170	52	38	921	1396
%	15%	12%	4%	3%	66%	100%
Semis						
Count	35	18	7	1	188	249
%	14%	7%	3%	0%	75%	99%
All Flats						
Count	62	30	3	0	434	529
%	12%	6%	1%	0%	81%	100%
Flats <4 storeys						
Count	37	16	3	2	275	333
%	11%	5%	1%	1%	83%	101%
Flats >4 Storeys						
Count	21	12	4	0	147	184
%	11%	7%	2%	0%	79%	99%
TOTAL						
Count	312	218	62	39	1543	2174
%	14%	10%	3%	2%	71%	100%

Kitchen

Question 26 - Number of Taps with Flow Controllers (Kitchen)						
	One	Two	Three	Four or More	None	TOTAL
Separate Houses						
Count	591	45	2	0	757	1395
%	42%	3%	0%	0%	54%	99%
Semis						
Count	71	10	0	1	167	249
%	28%	4%	0%	0%	67%	99%
All Flats						
Count	130	9	0	0	396	535
%	24%	2%	0%	0%	74%	100%
Flats <4 storeys						
Count	80	3	0	0	396	479
%	24%	1%	0%	0%	74%	99%
Flats >4 Storeys						
Count	49	3	0	0	132	184
%	26%	2%	0%	0%	72%	100%
TOTAL						
Count	792	64	2	1	1320	2179
%	36%	3%	0%	0%	61%	100%

Laundry

Question 26 - Number of Taps with Flow Controllers (Laundry)						
	One	Two	Three	Four or More	None	TOTAL
Separate Houses						
Count	197	18	3	0	1196	1414
%	14%	1%	0%	0%	84%	99%
Semis						
Count	28	4	0	1	216	249
%	11%	1%	0%	0%	87%	99%
All Flats						
Count	48	4	0	0	484	536
%	9%	1%	0%	0%	90%	100%
Flats <4 storeys						
Count	26	1	0	0	306	333
%	8%	0%	0%	0%	92%	100%
Flats >4 Storeys						
Count	19	2	0	0	164	185
%	10%	1%	0%	0%	88%	99%
TOTAL						
Count	273	26	3	1	1896	2199
%	12%	1%	0%	0%	86%	100%

Question 28 – On average how many times a week does your household use the dishwasher?

	One	Two	Three	four	Five	Six	Seven	Les than Once	Other	Never	TOTAL
Separate Houses											
Count	56	81	137	104	67	28	160	57	30	70	790
%	7%	10%	17%	13%	9%	4%	20%	7%	4%	9%	100%
Semis											
Count	15	15	16	12	4	3	12	7	5	11	100
%	15%	15%	16%	12%	4%	3%	12%	7%	5%	10%	99%
All Flats											
Count	22	23	25	18	5	3	14	23	2	31	166
%	13%	14%	15%	11%	3%	2%	8%	14%	1%	18%	99%
Flats <4 storeys											
Count	9	13	10	8	3	0	6	11	1	6	67
%	13%	19%	15%	12%	5%	0%	9%	16%	1%	8%	98%
Flats >4 Storeys											
Count	13	8	13	8	2	3	8	12	2	24	93
%	14%	9%	14%	9%	2%	3%	8%	12%	2%	25%	98%
TOTAL											
Count	93	119	178	134	76	34	186	87	37	112	1056
%	9%	11%	17%	13%	7%	3%	18%	8%	4%	11%	100%

Question 30 – Do you use the economy setting on your Dishwasher?

	Yes	No	Doesn't Have One	Don't Know	TOTAL
Separate Houses					
Count	545	126	69	50	790
%	69%	16%	9%	6%	100%
Semis					
Count	70	18	7	7	102
%	69%	18%	7%	7%	101%
All Flats					
Count	97	36	13	22	168
%	58%	21%	8%	13%	100%
Flats <4 storeys					
Count	45	11	5	7	68
%	66%	16%	8%	10%	100%
Flats >4 Storeys					
Count	48	23	8	14	93
%	52%	25%	8%	15%	100%
TOTAL					
Count	712	180	89	79	1060
%	67%	17%	8%	7%	100%

Question 31 – On average how many times per week does your household wash a load of dishes by hand?

	Once	2-3 Times	4-5 Times	6-7 Times	>7 Times	Never	Don't know	TOTAL
Separate Houses								
Count	114	170	83	325	539	163	0	1394
%	8%	12%	6%	23%	39%	12%	0%	100%
Semis								
Count	13	30	29	68	84	24	0	248
%	5%	12%	12%	28%	34%	10%	0%	101%
All Flats								
Count	30	79	55	146	190	66	2	568
%	6%	15%	10%	27%	35%	6%	0%	99%
Flats <4 storeys								
Count	15	54	34	95	119	15	1	333
%	5%	16%	10%	28%	36%	5%	0%	100%
Flats >4 Storeys								
Count	14	23	16	51	66	15	1	186
%	7%	12%	9%	27%	36%	8%	0%	99%
TOTAL								
Count	157	279	167	539	813	253	2	2210
%	7%	13%	8%	24%	37%	11%	0%	100%

Question 33 – When your household washes the dishes by hand do you usually wash them in a plugged sink or do you usually wash them under running water in an unplugged sink?

	Plugged Sink	Running Water	Don't Know	TOTAL
Separate Houses				
Count	1060	153	19	1232
%	86%	12%	2%	100%
Semis				
Count	187	37	1	225
%	83%	16%	0%	99%
All Flats				
Count	382	116	5	503
%	76%	23%	1%	100%
Flats <4 storeys				
Count	248	68	2	318
%	78%	21%	1%	100%
Flats >4 Storeys				
Count	124	44	3	171
%	73%	26%	2%	101%
TOTAL				
Count	1629	306	25	1960
%	83%	16%	1%	100%

Question 34 – Which of the following methods for washing clothes does your household use?

	Hand Wash at Home	Machine Wash at Home	Machine Wash in a Shared Laundry (within block)	Laundromat	Friends Relatives Home	Other
Separate Houses						
Count	330	1383	2	6	4	5
%	24%	99%	0%	0%	0%	0%
Semis						
Count	48	245	1	2	1	0
%	19%	99%	0%	1%	0%	0%
All Flats						
Count	126	465	49	15	12	6
%	23%	87%	9%	3%	2%	1%
Flats <4 storeys						
Count	78	289	30	12	8	2
%	23%	87%	9%	4%	3%	1%
Flats >4 Storeys						
Count	45	162	18	2	4	3
%	24%	87%	10%	1%	2%	2%
Total						
Count	504	2093	52	23	17	11
%	23%	96%	2%	1%	1%	1%

Question 35 – On average, how many loads per week...of hand washing at home, machine washing at home, or machine washing in a shared Laundromat etc...does your household do?

Question 35b - Time per Week - Machine wash at home						
	Zero	One	Two	Three	Four or More	TOTAL
Separate Houses						
Count	15	93	218	272	796	1394
%	1%	7%	16%	19%	57%	100%
Semis						
Count	5	34	58	48	104	249
%	2%	14%	23%	19%	42%	100%
All Flats						
Count	77	89	114	114	146	540
%	14%	17%	21%	21%	26%	99%
Flats <4 storeys						
Count	47	50	71	71	94	333
%	14%	15%	21%	21%	28%	99%
Flats >4 Storeys						
Count	26	36	41	38	45	186
%	14%	20%	22%	21%	24%	101%
TOTAL						
Count	97	216	390	434	1046	2183
%	4%	10%	18%	20%	48%	100%

Question 35a/b/c - Time per Week - Wash at Home						
	Zero	One	Two	Three	Four or More	TOTAL
Separate Houses						
Count	228	78	173	264	651	1394
%	16%	6%	12%	19%	47%	100%
Semis						
Count	43	30	51	52	73	249
%	17%	12%	20%	21%	29%	99%
All Flats						
Count	89	91	115	125	116	536
%	17%	17%	22%	23%	22%	101%
Flats <4 storeys						
Count	59	54	70	75	74	332
%	18%	16%	21%	23%	22%	100%
Flats >4 Storeys						
Count	26	36	42	44	38	186
%	14%	19%	23%	24%	21%	101%
TOTAL						
Count	360	199	339	441	840	2179
%	17%	9%	16%	20%	39%	100%

Question 50 – Does your home plumbing have any leaks?

Question 50 - Plumbing Leaks									
	A leaking or Dripping Shower	A Leaking or Dripping toilet/cistern	Leaking or Dripping taps	Leaking Hot water System	Leaking Pipes	A leaking Pool	A leaking Outdoor Spa	No Leaks	Any Other Leaks
Separate Houses									
Count	25	26	80	7	6	2	2	1202	75
%	2%	2%	6%	0%	0%	0%	0%	86%	5%
Semis									
Count	13	10	24	1	4	0	0	205	3
%	5%	4%	9%	1%	1%	0%	0%	83%	1%
All Flats									
Count	21	23	41	2	7	0	0	442	13
%	4%	4%	8%	0%	1%	0%	0%	82%	3%
Flats <4 storeys									
Count	16	16	25	2	4	0	0	271	10
%	5%	5%	8%	1%	1%	0%	0%	81%	3%
Flats >4 Storeys									
Count	5	7	14	0	2	0	0	154	4
%	3%	4%	8%	0%	1%	0%	0%	83%	2%
Total									
Count	59	59	145	10	17	2	2	1849	91
%	3%	3%	7%	0%	1%	0%	0%	85%	4%

Question 52 - How often is this vehicle washed?

Question 52a - Frequency of Washing Vehicle (1st)								
	Weekly	Fortnightly	Monthly	Every Second Month	Six Monthly	Never	Don't Know	TOTAL
Separate Houses								
Count	75	123	306	242	224	252	26	1248
%	6%	10%	24%	19%	18%	20%	2%	99%
Semis								
Count	13	20	45	50	38	43	4	213
%	6%	9%	21%	24%	18%	20%	2%	100%
All Flats								
Count	24	44	91	92	81	71	9	412
%	6%	11%	22%	22%	20%	17%	2%	100%
Flats <4 storeys								
Count	15	28	54	59	51	50	6	263
%	6%	11%	21%	22%	19%	19%	2%	100%
Flats >4 Storeys								
Count	8	15	35	29	25	17	3	132
%	6%	11%	27%	22%	19%	13%	2%	100%
TOTAL								
Count	112	187	442	384	343	366	39	1873
%	6%	10%	24%	21%	18%	20%	2%	100%

Question 52a - Frequency of Washing Vehicle (2nd)								
	Weekly	Fortnightly	Monthly	Every Second Month	Six Monthly	Never	Don't Know	TOTAL
Separate Houses								
Count	28	70	201	122	131	213	20	785
%	4%	9%	26%	16%	17%	27%	3%	102%
Semis								
Count	8	5	22	17	10	16	5	83
%	9%	6%	26%	20%	13%	19%	6%	99%
All Flats								
Count	8	13	18	14	21	31	6	111
%	7%	12%	16%	12%	19%	28%	6%	100%
Flats <4 storeys								
Count	5	7	12	7	13	23	4	71
%	7%	10%	17%	10%	18%	32%	6%	100%
Flats >4 Storeys								
Count	1	6	5	7	6	6	1	32
%	3%	18%	16%	20%	19%	19%	4%	99%
TOTAL								
Count	44	88	241	153	162	260	31	979
%	4%	9%	25%	16%	17%	27%	3%	100%

Question 52b - Frequency of Washing Vehicle (1st at Home)								
	Weekly	Fortnightly	Monthly	Every Second Month	Six Monthly	Never	Don't Know	TOTAL
Separate Houses								
Count	43	71	173	166	168	612	15	1248
%	3%	6%	14%	13%	13%	49%	1%	99%
Semis								
Count	7	10	21	30	24	116	3	211
%	3%	5%	10%	14%	12%	55%	1%	100%
All Flats								
Count	13	18	36	29	47	263	7	413
%	3%	4%	9%	7%	11%	64%	2%	100%
Flats <4 storeys								
Count	10	12	21	17	31	170	3	264
%	4%	4%	8%	6%	12%	65%	1%	100%
Flats >4 Storeys								
Count	2	6	14	10	14	82	5	133
%	2%	4%	11%	7%	11%	62%	4%	101%
TOTAL								
Count	63	99	230	225	239	991	25	1872
%	3%	5%	12%	12%	13%	53%	1%	100%

Question 62a – Which actions has the household taken in the last year to reduce water consumption?

	Take Shorter Showers	Full Dishwasher before use	Full load before washing machine use	Economy setting on washing machine/ dishwasher	Use half flush on toilet	Always turn off tap while brushing teeth	Reduce no. times car washed	Reduce no. times garden watered	Reduce No. times yards/ driveway washed	Change gardening practices	use plug more often when using sinks/ basin	Reuse water from shower or washing on gardens	Not flush toilet every time it is used	Other	No actions taken
Separate Houses															
Count	381	137	280	190	207	226	433	647	143	259	119	109	47	610	81
%	27%	10%	20%	14%	15%	16%	31%	46%	10%	19%	9%	8%	3%	44%	6%
Semis															
Count	70	28	54	43	33	40	64	89	24	55	25	22	8	86	27
%	28%	11%	22%	17%	13%	16%	26%	36%	10%	22%	10%	9%	3%	35%	11%
All Flats															
Count	165	43	121	82	64	109	100	50	22	35	70	21	15	187	106
%	31%	8%	23%	15%	12%	20%	19%	9%	4%	6%	13%	4%	3%	35%	20%
Flats <4 storeys															
Count	109	23	82	50	41	69	68	30	10	20	46	14	10	121	56
%	33%	7%	24%	15%	12%	21%	20%	9%	3%	6%	14%	4%	3%	36%	17%
Flats >4 Storeys															
Count	46	18	32	29	20	36	26	14	7	10	21	6	5	59	48
%	25%	9%	17%	15%	11%	19%	14%	7%	4%	5%	12%	3%	3%	32%	26%
TOTAL															
Count	616	208	455	315	304	375	597	786	189	349	214	152	70	883	214
%	28%	10%	21%	14%	14%	17%	27%	36%	9%	16%	10%	7%	3%	41%	10%

Question 62b - Wait until the dishwasher is full before use

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	633	387	239	1259
%	50%	31%	19%	100%
Semis				
Count	86	91	44	221
%	39%	41%	20%	100%
All Flats				
Count	129	232	133	494
%	26%	47%	27%	100%
Flats <4 storeys				
Count	62	153	96	311
%	20%	49%	31%	100%
Flats >4 Storeys				
Count	62	71	35	168
%	37%	42%	21%	100%
TOTAL				
Count	848	710	416	1974
%	43%	36%	21%	100%

Question 62b - Use half flush on the toilet instead of full flush

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	805	266	117	1188
%	68%	22%	10%	100%
Semis				
Count	129	69	17	215
%	60%	32%	8%	100%
All Flats				
Count	266	148	59	473
%	56%	31%	12%	99%
Flats <4 storeys				
Count	159	91	43	293
%	54%	31%	15%	100%
Flats >4 Storeys				
Count	98	51	15	164
%	60%	31%	9%	100%
TOTAL				
Count	1200	483	193	1876
%	64%	26%	10%	100%

Question 62b - Reduce number of times the car is washed

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	516	385	61	962
%	54%	40%	6%	100%
Semis				
Count	94	76	15	185
%	51%	41%	8%	100%
All Flats				
Count	173	197	65	435
%	40%	45%	15%	100%
Flats <4 storeys				
Count	112	116	38	266
%	42%	44%	14%	100%
Flats >4 Storeys				
Count	54	77	28	159
%	34%	49%	18%	101%
TOTAL				
Count	783	658	141	1582
%	49%	42%	9%	100%

Question 62b - Reduce no. of times that the garden is watered

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	433	263	51	747
%	58%	35%	7%	100%
Semis				
Count	83	63	13	159
%	52%	40%	8%	100%
All Flats				
Count	105	253	128	486
%	22%	52%	26%	100%
Flats <4 storeys				
Count	70	150	84	304
%	23%	49%	28%	100%
Flats >4 Storeys				
Count	31	98	43	172
%	18%	57%	25%	100%
TOTAL				
Count	621	579	192	1392
%	45%	42%	14%	100%

Question 62b - Reduce no. of times yards/driveways washed

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	640	417	195	1252
%	51%	33%	16%	100%
Semis				
Count	96	96	32	224
%	43%	43%	14%	100%
All Flats				
Count	87	276	151	514
%	17%	54%	29%	100%
Flats <4 storeys				
Count	59	168	96	323
%	18%	52%	30%	100%
Flats >4 Storeys				
Count	22	103	53	178
%	12%	58%	30%	100%
TOTAL				
Count	823	789	378	1990
%	41%	40%	19%	100%

Question 62b - Change gardening practices to reduce water use

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	781	277	77	1135
%	69%	24%	7%	100%
Semis				
Count	117	61	16	194
%	60%	31%	8%	99%
All Flats				
Count	101	266	134	501
%	20%	53%	27%	100%
Flats <4 storeys				
Count	68	160	85	313
%	22%	51%	27%	100%
Flats >4 Storeys				
Count	25	102	48	175
%	14%	58%	27%	99%
TOTAL				
Count	999	604	227	1830
%	55%	33%	12%	100%

Question 62b - Use the plug more often when using sinks and basins

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	1024	207	45	1276
%	80%	16%	3%	99%
Semis				
Count	182	36	5	223
%	82%	16%	2%	100%
All Flats				
Count	345	100	21	466
%	74%	21%	5%	100%
Flats <4 storeys				
Count	220	56	11	287
%	77%	19%	4%	100%
Flats >4 Storeys				
Count	113	42	9	164
%	69%	25%	5%	99%
TOTAL				
Count	1551	343	71	1965
%	79%	17%	4%	100%

Question 62b - Reuse water from shower or washing machines on gardens

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	667	558	60	1285
%	52%	43%	5%	100%
Semis				
Count	94	120	13	227
%	42%	53%	6%	101%
All Flats				
Count	113	310	93	516
%	22%	60%	18%	100%
Flats <4 storeys				
Count	70	193	56	319
%	22%	61%	17%	100%
Flats >4 Storeys				
Count	37	110	33	180
%	20%	61%	18%	99%
TOTAL				
Count	874	988	166	2028
%	43%	49%	8%	100%

Question 63 – How important would you consider water efficiency to be when buying a new washing machine?

	Not important at All	Not Very Important	Neither Important/Unimportant	Fairly Important	Very Important	TOTAL
Separate Houses						
Count	28	35	101	422	808	1394
%	2%	3%	7%	30%	58%	100%
Semis						
Count	3	5	25	82	133	248
%	1%	2%	10%	33%	54%	100%
All Flats						
Count	10	12	71	172	271	536
%	2%	2%	13%	32%	51%	100%
Flats <4 storeys						
Count	7	5	40	105	177	334
%	2%	1%	12%	31%	53%	99%
Flats >4 storeys						
Count	3	7	30	62	84	186
%	2%	4%	16%	33%	45%	100%
TOTAL						
Count	41	52	197	676	1212	2178
%	2%	2%	9%	31%	56%	100%

Question 63 – How important would you consider size of the load to be when buying a new washing machine?

	Not important at All	Not Very Important	Neither Important/Unimportant	Fairly Important	Very Important	TOTAL
Separate Houses						
Count	32	91	225	434	613	1395
%	2%	7%	16%	31%	44%	100%
Semis						
Count	6	23	55	80	85	249
%	2%	9%	22%	32%	34%	99%
All Flats						
Count	14	55	140	176	151	536
%	3%	10%	26%	33%	28%	100%
Flats <4 storeys						
Count	10	34	84	105	102	335
%	3%	10%	25%	31%	30%	99%
Flats >4 Storeys						
Count	5	21	53	63	44	186
%	2%	11%	28%	34%	23%	98%
TOTAL						
Count	52	169	420	690	849	2180
%	2%	8%	19%	32%	39%	100%

Question 65 – Do you know how much water you use in a quarter?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	308	836	172	1316
%	23%	64%	13%	100%
Semis				
Count	27	80	17	124
%	21%	65%	14%	100%
All Flats				
Count	25	253	88	366
%	7%	69%	24%	100%
Flats <4 storeys				
Count	18	183	64	265
%	7%	69%	24%	100%
Flats >4 Storeys				
Count	4	60	24	88
%	5%	68%	28%	101%
TOTAL				
Count	360	1169	277	1806
%	20%	65%	15%	100%

Question 67 – Do you feel that the current pricing of water is fair?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	760	309	246	1315
%	58%	24%	19%	101%
Semis				
Count	69	24	31	124
%	56%	19%	25%	100%
All Flats				
Count	162	53	151	366
%	44%	15%	41%	100%
Flats <4 storeys				
Count	119	40	106	265
%	45%	15%	40%	100%
Flats >4 Storeys				
Count	40	10	39	89
%	45%	11%	44%	100%
TOTAL				
Count	991	386	428	1805
%	55%	21%	24%	100%

Question 68 – Do you think that the current prices of water/electricity/gas encourage conservation?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	462	617	236	1315
%	35%	47%	18%	100%
Semis				
Count	42	50	32	124
%	34%	40%	26%	100%
All Flats				
Count	103	131	132	366
%	28%	36%	36%	100%
Flats <4 storeys				
Count	72	98	94	264
%	27%	37%	36%	100%
Flats >4 Storeys				
Count	24	30	35	89
%	27%	34%	39%	100%
TOTAL				
Count	607	798	400	1805
%	34%	44%	22%	100%

Question 69 – Should people who use and amount of water/energy well above average have to pay additional fee (or rate) for their water/energy?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	967	237	110	1314
%	74%	18%	8%	100%
Semis				
Count	99	13	12	124
%	80%	11%	10%	101%
All Flats				
Count	281	32	53	366
%	77%	9%	14%	100%
Flats <4 storeys				
Count	205	20	40	265
%	77%	8%	15%	100%
Flats >4 Storeys				
Count	67	10	12	89
%	76%	11%	13%	100%
TOTAL				
Count	1347	282	175	1804
%	75%	16%	10%	100%

Question 70 – Do you think people who use well below average amounts of water should pay discounted fee or rate?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	932	300	83	1315
%	71%	23%	6%	100%
Semis				
Count	93	22	10	125
%	75%	17%	8%	100%
All Flats				
Count	250	71	45	366
%	68%	19%	12%	99%
Flats <4 storeys				
Count	182	49	33	264
%	69%	19%	12%	100%
Flats >4 Storeys				
Count	57	21	11	89
%	64%	24%	12%	100%
TOTAL				
Count	1275	393	138	1806
%	71%	22%	8%	100%

Q71 – Do you think that prices of water should be increased to encourage people to use less?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	377	842	95	1314
%	29%	64%	7%	100%
Semis				
Count	44	64	16	124
%	35%	52%	13%	100%
All Flats				
Count	120	182	64	366
%	33%	50%	18%	101%
Flats <4 storeys				
Count	83	133	49	265
%	31%	50%	19%	100%
Flats >4 Storeys				
Count	33	41	14	88
%	38%	47%	16%	101%
TOTAL				
Count	541	1088	175	1804
%	30%	60%	10%	100%

Q73 – Do you think prices should be increased generally to pay for improved water conservation policies and practices?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	444	739	131	1314
%	34%	56%	10%	100%
Semis				
Count	57	50	17	124
%	46%	40%	14%	100%
All Flats				
Count	158	143	65	366
%	43%	39%	18%	100%
Flats <4 storeys				
Count	114	103	47	264
%	43%	39%	18%	100%
Flats >4 Storeys				
Count	39	33	17	89
%	44%	37%	19%	100%
TOTAL				
Count	659	932	213	1804
%	37%	52%	12%	100%

Question 74 – By how much should water prices be increased to encourage conservation?

	5%	10%	15%	20%	More than 20%	TOTAL
Separate Houses						
Count	226	128	17	40	33	444
%	51%	29%	4%	9%	7%	100%
Semis						
Count	29	14	4	6	5	58
%	51%	24%	6%	10%	9%	100%
All Flats						
Count	79	47	8	11	13	158
%	50%	30%	5%	7%	8%	100%
Flats <4 storeys						
Count	57	37	4	9	8	115
%	50%	32%	3%	8%	7%	100%
Flats >4 Storeys						
Count	20	10	2	1	5	38
%	52%	27%	5%	3%	14%	101%
TOTAL						
Count	334	189	29	57	51	660
%	51%	29%	4%	9%	8%	100%

Question 75 – Have you changed your water use inside your home since the water restrictions have come in?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	1100	276	19	1395
%	79%	20%	1%	100%
Semis				
Count	188	55	5	248
%	76%	22%	2%	100%
All Flats				
Count	344	179	13	536
%	64%	33%	2%	99%
Flats <4 storeys				
Count	223	103	8	334
%	67%	31%	2%	100%
Flats >4 Storeys				
Count	108	72	5	185
%	58%	39%	2%	99%
TOTAL				
Count	1632	510	37	2179
%	75%	23%	2%	100%

Question 76 – Thinking about how your household uses water, how much do you feel that your household could do to save water?

	A lot More	Some More	A little Bit More	Nothing, Can't do anymore	TOTAL
Separate Houses					
Count	93	266	598	438	1395
%	7%	19%	43%	31%	100%
Semis					
Count	18	41	120	69	248
%	7%	17%	48%	28%	100%
All Flats					
Count	33	88	248	167	536
%	6%	16%	46%	31%	99%
Flats <4 storeys					
Count	19	57	150	108	334
%	6%	17%	45%	32%	100%
Flats >4 Storeys					
Count	13	29	89	54	185
%	7%	16%	48%	29%	100%
TOTAL					
Count	144	395	966	674	2179
%	7%	18%	44%	31%	100%

Question 77 – Would you use more water if you had to pay for them?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	674	590	130	1394
%	48%	42%	9%	99%
Semis				
Count	121	96	31	248
%	49%	39%	12%	100%
All Flats				
Count	251	219	66	536
%	47%	41%	12%	100%
Flats <4 storeys				
Count	163	130	40	333
%	49%	39%	12%	100%
Flats >4 Storeys				
Count	79	80	26	185
%	43%	43%	14%	100%
TOTAL				
Count	1046	905	227	2178
%	48%	42%	10%	100%

Question 77 – Would you use more water if y were subsidised at half price?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	1072	240	82	1394
%	77%	17%	6%	100%
Semis				
Count	193	40	15	248
%	78%	16%	6%	100%
All Flats				
Count	415	88	33	536
%	77%	16%	6%	99%
Flats <4 storeys				
Count	262	50	20	332
%	79%	15%	6%	100%
Flats >4 Storeys				
Count	139	35	11	185
%	75%	19%	6%	100%
TOTAL				
Count	1680	368	130	2178
%	77%	17%	6%	100%

Question 77 – Would you use more water if they were provided for free?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	1213	133	49	1395
%	87%	10%	4%	101%
Semis				
Count	216	24	8	248
%	87%	10%	3%	100%
All Flats				
Count	459	55	21	535
%	86%	10%	4%	100%
Flats <4 storeys				
Count	292	30	11	333
%	88%	9%	3%	100%
Flats >4 Storeys				
Count	153	24	9	186
%	82%	13%	5%	100%
TOTAL				
Count	1888	212	78	2178
%	87%	10%	4%	100%

Q78 – Is the difference between your summer and winter water bill worth you looking into water saving during the summer months?

	Yes	No	Don't Know	TOTAL
Separate Houses				
Count	90	192	26	308
%	29%	62%	8%	99%
Semis				
Count	10	13	3	26
%	39%	50%	11%	100%
All Flats				
Count	10	13	2	25
%	40%	52%	8%	100%
Flats <4 storeys				
Count	6	11	2	19
%	30%	58%	11%	99%
Flats >4 Storeys				
Count	2	2	0	4
%	46%	54%	0%	100%
TOTAL				
Count	110	218	31	359
%	31%	61%	9%	100%

Question 71– Do you think prices of water/energy should be increased to encourage people to use less?

	Yes	No	Don't Know	TOTAL
Owner				
Count	182	654	59	895
%	20%	73%	7%	100%
Buyer				
Count	106	421	23	550
%	19%	77%	4%	100%
Private Rent				
Count	119	380	44	543
%	22%	70%	8%	100%
Rent Public				
Count	34	70	13	117
%	29%	60%	11%	100%
Other				
Count	5	45	4	54
%	10%	83%	8%	101%
TOTAL				
Count	446	1570	143	2159
%	21%	73%	7%	100%

Question 73 – Do you think prices should be increased to pay for improved conservation policies and practices?

	Yes	No	Don't Know	TOTAL
Owner				
Count	248	565	82	895
%	28%	63%	9%	100%
Buyer				
Count	149	362	38	549
%	27%	66%	7%	100%
Private Rent				
Count	192	295	56	543
%	35%	54%	10%	99%
Rent Public				
Count	36	59	21	116
%	31%	51%	18%	100%
Other				
Count	8	41	5	54
%	15%	75%	10%	100%
TOTAL				
Count	633	1322	202	2157
%	29%	61%	9%	100%