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Institute for Sustainable Futures

NSW SUSTAINABLE HOUSEHOLDS PROGRAM 2012: LITERATURE REVIEW

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ABOUT THE AUTHORS

The Institute for Sustainable Futures (ISF) was established by the University of Technology, Sydney in 1996 to work with industry, government and the community to develop sustainable futures through research and consultancy. Our mission is to create change toward sustainable futures that protect and enhance the environment, human well-being and social equity. We seek to adopt an inter-disciplinary approach to our work and engage our partner organisations in a collaborative process that emphasises strategic decision-making.

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NSW Sustainable Households Program 2012: Literature Review

Prepared for: NSW Office of Environment and Heritage

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Introduction

The NSW Office of Environment and Heritage (OEH) is currently scoping the potential development of a NSW Sustainable Household Program to motivate sustainability actions within homes and local communities. OEH engaged the Institute for Sustainable Futures (ISF) at the University of Technology, Sydney (UTS) to undertake a literature review on engaging households in sustainability. The literature review explored the following questions:

- What are Australian and, where available, NSW householders' understanding, needs and priorities in relation to sustainability issues and practices?
- What does Australian and international social marketing and sustainability engagement research identify as the effective key elements of a program aiming to engage NSW householders in sustainable practices?
- What is the recommended design for a program aiming to engage a NSW householder audience in sustainability?

Best-practice in sustainability engagement

The literature review identified the following ten principles for best-practice in sustainability engagement that can guide the development of a NSW Sustainable Household Program:

1. Household sustainability engagement programs need to look beyond the individual to the systems and groups they are embedded in if they are to be effective in transitioning to more sustainable practices.
2. Engagement programs should take advantage of 'moments of change' as a way to unfreeze habits and establish new, more desirable behaviours.
3. Other people's behaviour matters:
    - 3a. Recruit influential messengers for the desired audience and have them demonstrate desirable practices
    - 3b. Involve government, business and the community so that households perceive a fair basis for action
    - 3c. Form participants into supportive teams (face-to-face or online) or tap into established groups
    - 3d. Employ injunctive and descriptive norms and seek long-term shifts in these norms
    - 3e. Make inconspicuous practices visible.
4. Use market research to understand and segment your audience and identify their current practices.

5. Identify the target behaviours that are the end goal of the engagement and design and test messages and strategies to support those behaviours.

6. Start where people are and connect to their existing, local concerns through participatory processes and support for existing community groups and leaders.

7. Design messages and programs to nurture intrinsic values and challenge extrinsic values, for example through identifying and building programs around existing intrinsic values and incorporating pledges or commitments.

8. Use framing to design messages that are positive, inspiring and appeal to existing mental models.

9. Pilot and evaluate multiple household engagement programs before final deployment.

10. Make it easy for householders to access, participate and implement program activities.

Categorising sustainable practices

The literature review demonstrated that there are diverse ways of categorising sustainable living practices as a way of engaging households and little evidence on what is most effective. We recommend the use of the categorisation in DEFRA's (2011) Sustainable Lifestyles Framework. Although the wording may need revision for the NSW context, this categorisation has the strongest evidence base, is consistent with the principles above and covers the key content areas identified by OEH. DEFRA identifies the following nine headline groups of target behaviours:

1. Eco-improving your home (retrofitting)
2. Using energy & water wisely
3. Extending the life of things (to minimise waste)
4. Cooking and managing a sustainable & healthier diet
5. Choosing eco-products & services
6. Travelling sustainably
7. Setting up and using resources in your community
8. Using and future-proofing outdoor spaces
9. Being part of improving the environment.

Audience segmentation

Although the literature broadly agrees that audiences should be segmented to allow tailoring of messages for particular sub-groups, there is no single approach to segmentation that will be appropriate in all cases. Whether to use demographics, attitudes or values as a basis for a segmentation strategy will depend on the context and the message.

A general approach could be to use values-based segmentation for broad communication messages, while using demographic or attitude-action segmentation when targeting specific audiences or behaviours. It is important to bear in mind that simply tailoring messages to existing values without also trying to activate intrinsic values can work against long-term sustainable living practices. The challenge is to design messages that

strike a balance between appealing to extrinsic values and subtly reinforcing intrinsic values.

Message design

Following on from the above, it is clear that there are no easy answers on how to design messages to engage households in sustainable living practices. The literature includes strong advocates of different approaches that are often contradictory. To some extent, this reflects the importance of the specific context and audience; an approach that works in one circumstance will not work in another. This means that it is critical to get to know the specific audience segments that are of interest for a particularly application, define the desired behaviours and tailor the communication strategy appropriately.

For example, there is competing research on whether to use financial incentives (gains) or losses to motivate behaviour change. There is some evidence that financial incentives work well when the desired behaviour is simple and linear, cost is a barrier and the action is largely self-interested. On the other hand, financial incentives can be counterproductive as a motivation for more complex lifestyle changes where there is less individual benefit. People do not expect to be paid for changes they make in the public good and financial incentives rarely provide the necessary motivation to change long-established habits. In these cases, pointing out that the lifestyles that people hold dear are under threat from environmental changes may be a more effective message.

The debate between messaging based on extrinsic or intrinsic values is also still playing out in literature and practice. We believe it would be unwise to rely solely on appeals to extrinsic motivation without at least thinking about the long-term effect of such appeals and how messaging can be modified to appeal more to intrinsic values. But we do not think it is yet time to abandon appeals to extrinsic motivation completely. Messages should seek to blend elements of both extrinsic and intrinsic motivation. This will require a lot more thinking about the specific wording of messages and the kind of values they might activate.

How are NSW and Australian households engaging with sustainability?

Social research indicates that ‘sustainable living’ is a familiar term for NSW householders. However, it is not one of the most salient issues for Australians in the conduct of their lives. Householders see issues like food and health, basic services, local crime, equal opportunity and individual economic well-being as more important. Further, many householders lack more detailed ‘practical knowledge’ of how to engage in sustainable living. Many householders are concerned about sustainability issues (especially women, parents and those with higher education) but there are also groups of householders who appear to have grown distrustful of environmental messages and are now feeling sceptical about the need for sustainable living. Energy and greenhouse, water and waste are all high priority issues for NSW householders.

The take up of pro-environmental actions in NSW appears to be slowly increasing; however there is still a lot of room for improvement and householders would benefit from initiatives that help to provide them with practical knowledge on sustainable living in the context of their daily practices. NSW householders see local and national environment and conservation organisations as providing the most reliable environmental information so engagement programs may be best delivered by these trusted groups at the local community level.

Most challenging for sustainability engagement is the evidence that concern about environmental issues is generally declining in Australia. This makes it very difficult for sustainable living messages to be heard above other issues seen as more salient.

Recommendations: Best-practice program design

Drawing on the literature review, we recommend the following for design of the NSW Sustainable Households Program:

1. Use the community engagement principles outlined above to provide guidance during design of the NSW Sustainable Households Program.

2. Consider using the language and concept of 'sustainable living' as a foundation for developing the Program, as this is well recognised by NSW residents. This framing may also allow for some continuity with the previous *Our Environment, It's a Living Thing* program.

3. Adopt the headline categories identified by DEFRA (2011) as a starting point for grouping target behaviours into everyday household practices. Test these categories through social research and revise the language and groupings as needed to make them NSW-specific.

4. Update the existing attitude-action audience segmentation using new social research (from *Who Cares About the Environment in NSW*) when it becomes available.

5. Undertake social research on the values of NSW residents as the basis for values-based audience segmentation. Tailor communications to appeal to different value segments, while also trying to activate intrinsic values where possible.

6. Test messages that make greater use of loss aversion and intrinsic motivations and incorporate these into the program if they perform well in testing.

7. Use diverse community engagement techniques to engage people with different values, learning styles and interests.

8. Give a high priority to engagement techniques that involve householders in supportive local groups, either by tapping into existing community groups, clubs, schools etc. or by establishing purposive groups (e.g. Energymark groups, Eco Teams etc).

9. Use social networking to provide these groups with ways to connect and share their ideas and progress.

Section 7 also provides a summary of the current situation, recommended approaches to audience segmentation and suggested communication strategies for each of the nine headline behaviours identified by DEFRA (2011).

1 Introduction

1.1 Background

The NSW Office of Environment and Heritage (OEH) is currently scoping the potential development of a new program to engage NSW households in sustainability and motivate sustainability actions within homes and local communities. It is envisaged that the program would run for 3 years from July 2013, and target all NSW householders.

OEH engaged the Institute for Sustainable Futures (ISF) at the University of Technology, Sydney (UTS) to undertake a literature review on engaging households in sustainability. The literature review explored the following questions:

- What are Australian and, where available, NSW householders' understanding, needs and priorities in relation to sustainability issues and practices?
- What does Australian and international social marketing and sustainability engagement research identify as the effective key elements of a program aiming to engage NSW householders in sustainable practices?
- What is the recommended design for a program aiming to engage a NSW householder audience in sustainability?

1.2 Engaging NSW households in sustainability

The proposed program to engage NSW households in practical sustainability action is in the early stages of its design so the specific objectives remain open. However, some broad parameters can be defined at this stage. The program will closely align with NSW 2021 (NSW Government 2011), in particular its focus on strengthening local environment and communities. More specifically the program will strongly link to:

- Goal 5: Place downward pressure on the cost of living
- Goal 22: Protect our natural environment
- Goal 23: Increase opportunities for people to look after their own neighbourhoods and environments
- Goal 24: Make it easier for people to be involved in their communities.

Following on from these NSW Government priorities, the proposed program goals are:

- Increase householder awareness, knowledge and understanding about sustainability and how to live more sustainably
- Make it easier for householders to engage with sustainability and sustainable living
- Make it easier for householders to participate in environmental activities and issues in their local community

- Make it easier for householders to live sustainably with less pressure on their cost of living while maintaining their quality of life.

The program will achieve this by providing and facilitating access to:

- Information about sustainability and how to live more sustainably
- Environmental networks available for NSW householders
- Local environmental activities and organisations.

For the purposes of the proposed program, the term sustainability refers to the achievement of positive outcomes for the environment, economy and community, without limiting resources for future generations. Sustainable living is taken to mean the adoption of environmentally responsible actions across a range of environmental issues. These actions may also deliver economic and social benefits.

The term information and engagement refers to the full spectrum of **communication** channels and engagement activities offered by Australian/NSW government, local councils and major environmental NGOs to **inform, engage and influence** NSW householders about sustainable actions and practices. These channels and activities may include but are not necessarily limited to:

- Websites
- Social media
- E-newsletters
- Print information - fact sheets, brochures, posters, letters, displays
- Mass media advertising and editorial
- Resource kits
- Video and print case studies
- Local community environmental action events
- Events - workshops/seminars, presentations, demonstrations, expos, festivals
- Awards, recognition and competition programs
- Financial incentive based programs such as rebates, subsidies, vouchers
- Developing networks/peer learning/supporting champions
- Mentoring.

The content areas being considered for inclusion in the proposed program will include, but are not limited to:

- Energy efficiency
- Water efficiency
- Waste, recycling and litter
- Biodiversity
- Transport
- Air
- Chemicals
- Environmental activities in the local area.

The program will seek to build upon and further refine OEH's existing approach and positive track record for engaging the community in sustainability - the Our Environment – it's a Living Thing (OEILT) program. In June 2001, the NSW Government launched this program to motivate and encourage people to adopt environmentally sustainable lifestyles at home, work and play.

The OEILT program included a mass media campaign, professional development for sustainability educators and a grant program to help non- government organisations to engage communities across NSW. In 2003, a Partner Resource Kit was provided to help local councils and NGOs to promote the program. Those engaged in this program are now principally supported by a quarterly e-newsletter and the OEILT website.

It is envisaged that the proposed new program would act as a unifying umbrella for sustainability information and engagement being offered to householders by various NSW Government departments, NSW local councils and Australian/NSW NGOs and businesses. The program will also tailor information and engagement where there is an identified need.

1.3 Report structure

The report is structured as follows:

- Section 2 draws on Australian and international literature to identify general principles for household sustainability engagement
- Section 3 considers Australian and international research on how best to categorise different sustainability practices to facilitate household engagement
- Section 4 examines Australian and international research on audience segmentation to identify approaches that could potentially be effective in NSW
- Section 5 provides a summary discussion on message design

- Section 6 looks at how NSW households are engaging with sustainability, covering knowledge, attitudes, values, priorities, actions and program design preferences
- Section 7 draws on the previous chapters to provide recommendations on best-practice design for the proposed household sustainability program
- Section 8 provides a detailed bibliography.

2 Best-practice in sustainability engagement

There is a vast and diverse literature on how to engage households in sustainable practices and pro-environmental behaviours. Some of the fields that are relevant to understanding how to engage households include behavioural economics (e.g. Dawnay & Shah 2005; Ariely 2009), social marketing (e.g. DEFRA 2008; DEFRA 2011), environmental psychology (e.g. Geller 2002; Steg & Vlek 2009; Stern 2000), social practice theory (e.g. Shove 2004; Hargreaves 2011), the 'Common Cause' approach, education for sustainability (e.g. UNESCO 2009) and sustainability communications (e.g. Futerra 2009).

This section provides a high-level overview of this literature. It draws on and synthesises the literature to propose a set of principles for effective household sustainability engagement. These principles provide guidance throughout the remainder of the report.

2.1 The elements of sustainable household practices

Models of sustainable behaviour

To understand how best to engage households in sustainability it is critical to understand why people behave in the ways that they do. One of the most comprehensive and useful reviews of behavioural models and behaviour change practices relevant to sustainability is Tim Jackson's report on 'Motivating Sustainable Consumption (T. Jackson 2005).

Much of Jackson's (2005) review is devoted to a discussion of competing models of consumer behaviour and theories of behaviour change. He starts with a critique of models that treat people as rational consumers that weigh up the options, consider all the information and come to an individual, rational decision. He notes the empirical evidence that people use mental short cuts to make decisions instead of rational calculation, are swayed by their emotions and are strongly influenced by the social and cultural context.

Jackson's arguments align with those of behavioural economists. Behavioural economics has developed a strong critique of the conventional rational actor model on the grounds that it is not sufficient to explain actual human economic behaviour (Bernheim & Rangel 2005; Brekke & Johansson-Stenman 2008; Gowdy 2008). Instead, behavioural economics suggests that human behaviour is often irrational (Ariely 2009). Ariely (2009) argues that human behaviour is 'predictably irrational', in that it diverges from rational assumptions in recurring ways that are evident from empirical research. Behavioural economics attempts to build an economic theory and practice that is better able to explain actual human behaviour than the rational actor model.

Having surveyed various attempts to address the limitations of the rational choice model of human behaviour, Jackson (2005, p.x) goes on to consider integrative theories of consumer behaviour, drawing on behavioural economics and other sources:

> *Some models of consumer behaviour focus on internal antecedents of behaviour such as values, attitudes and intentions. Others focus more on external factors like incentives, norms and institutional constraints. Some models are good at describing internal (cognitive) aspects of individual decisions but fail to reflect the importance of contextual or situational variables and vice versa.*

> *Making sense of behaviour inevitably requires a multi-dimensional view which incorporates both internal and external elements. In particular, as Stern* (2000) *has noted, a useful model has to account for:*
>
> - *Motivations, attitudes and values*
> - *Contextual or situational factors*
> - *Social influences*
> - *Personal capabilities; and*
> - *Habits.*

This list of elements gives a sense of the factors that need to be considered when engaging households in more sustainable practices. It is not only individual motivations that are important, but also the context, social and cultural norms, personal skills and habitual behaviour.

Consistent with this approach, the UK Department of Environment, Food and Rural Affairs (DEFRA) Sustainable Lifestyles Framework, categorises the important factors influencing behaviour as situational factors and behavioural factors (DEFRA 2011). Situational factors include infrastructure, culture, geography, social networks, the institutional framework, access to capital, information and social learning. Behavioural factors include beliefs, norms, experience, attitudes, habits, self-efficacy, values, awareness, altruism, perceptions, leadership, knowledge and identity.

Social practice theory

Social practice theorists argue that most community engagement initiatives focus on individual knowledge and motivations and do not take into account all of the factors listed above, particularly situational factors (Moloney et al. 2010; Hargreaves 2011; Strengers 2010). In a study of Australian community engagement initiatives, predominantly in Victoria, Moloney et al. (2010, p.7614) found that 'most fail to take sufficient account of the systems, standards and norms shaping consumption'.

A social practice approach takes the attention off individuals as agents and focuses instead on how both individuals and structures participate in everyday practices (Hargreaves 2011). Both situational factors and behavioural factors are seen as integral elements of social practices, rather than external influences on behaviour. According to Reckwitz (2002, p.249):

> *A 'practice'…is a routinized type of behaviour which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge.*

Everyday practices are critically important to sustainability because the way a practice is constituted determines how much energy and water it uses, how much waste it generates and the other environmental impacts it has. For example, Shove (2004) documents how shifts in bathing practices have increased water consumption as daily showering became established as a social norm.

Just as Jackson identified elements of behaviour change models above, so practice theorists have identified elements of social practices. Hargreaves (2011, p.83) draws on Shove and Pantzar (2005) to identify practices as:

> *assemblages of images (meanings, symbols), skills (forms of competence, procedures) and stuff (materials, technology) that are dynamically integrated by skilled practitioners through regular and repeated performance. To provide a simple example, football involves a specific set of images (e.g. about the rules and aim of the game and the appropriate level of emotional engagement), skills (e.g. of dribbling and kicking a ball), and stuff (e.g. a ball and a goal).*

Taking a slightly different tack, Strengers (2010) identifies the elements of a social practice as material infrastructure, rules, common understandings and practical knowledge. There are strong similarities here with the elements identified by Jackson (2005).

System, self, group

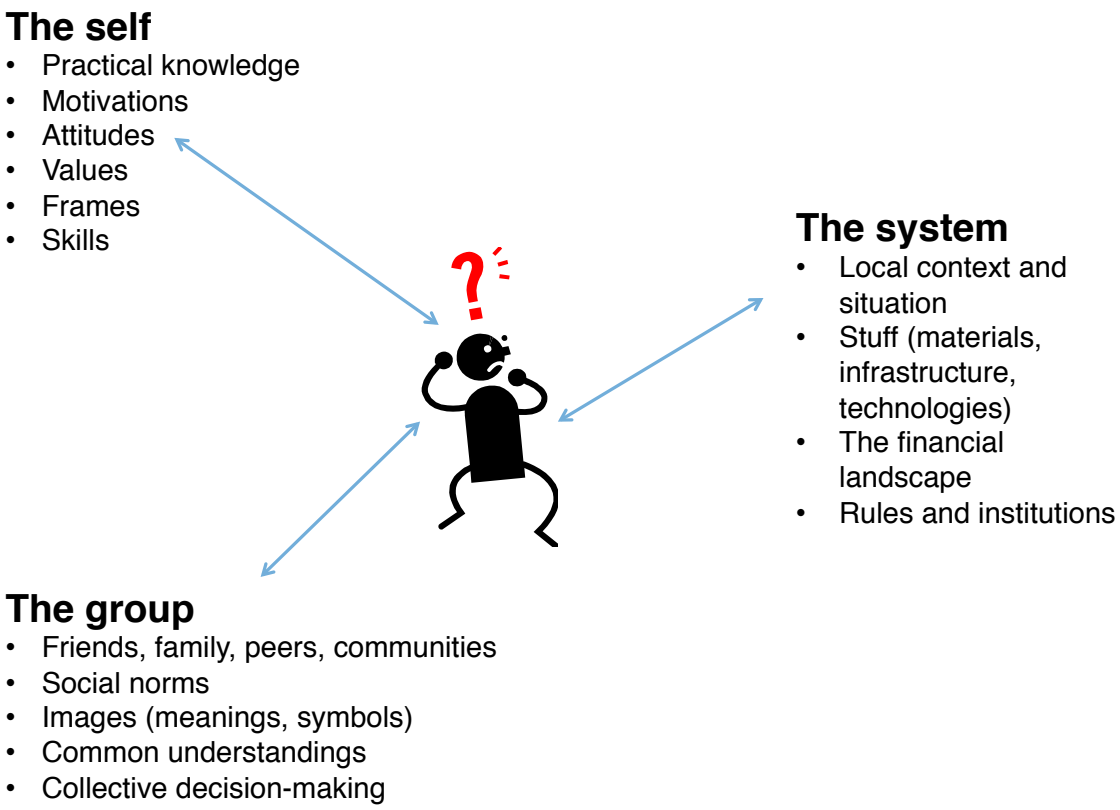
Summarising the literature above, there are three interrelated elements that constitute household practices: the system, the self and the group. These elements are shown in Figure 1.

The *system* refers to the infrastructure in which individuals and groups are embedded, including the local context and situation, the materials and technologies (or 'stuff') that facilitate or hinder particular household practices, the financial landscape of incentives and penalties and the rules and institutions that govern behaviour. For example, an individual that wishes to consume less fuel by using their car less may be prevented from doing so by the lack of transport alternatives in their area; the lack of the necessary material infrastructure makes attempts to engage that individual in public transport use a waste of time.

The *self* refers to the interior world of the individual – their knowledge, motivations, attitudes, values, frames and skills. Clearly, an individual is unable to engage in practices that they do not know about, but the literature also indicates that information on alternative practices is far from sufficient to motivate adoption of those practices. The compatibility of particular practices with an individual's values and attitudes and the way the practice is framed when it becomes known to them are critical in determining whether they will change their practices. Further, information needs to be put into practice to form 'practical knowledge', which Strengers (2010) defines as 'learned social know-how which is accumulated through everyday experience'.

Finally, the *group* refers to the cultures to which an individual feels they belong. This includes groups of friends, families, colleagues, peers, neighbours and more distant individuals that they perceive as like-minded. Groups develop 'common social understandings about "right" and "wrong" ways of doing things', which are often 'referred to as norms, conventions, customs, traditions, common sense or public opinion' (Strengers 2010, p.10). These common understandings play an important role in shaping individual consumption practices, as most people take their cues from others and want to be seen to fit in. Common understandings are often transmitted through images in media and art that express cultural meaning. They are also expressed through the collective decisions that groups make, implicitly or explicitly, which members accept as binding on their practices.

Figure 1: The influences on household behaviour – system, self and group.



This practice-based approach to household engagement points supports a more comprehensive approach to the design of household engagement initiatives that considers system, self and group.

Principle 1: Household sustainability engagement programs need to look beyond the individual to the systems and groups they are embedded in.

2.2 Moments of change

Above, Jackson (2005, p.x) noted that any useful model of behaviour needs to take habits into account. Habits are harder to change the more frequently they are repeated and the stronger and more immediate are the rewards associated with the habit. Psychologists suggest that to change habits they firstly have to be "unfrozen" and moved to the level of conscious decision-making (Dawnay & Shah 2005).

From this perspective, habits can be thought of as frozen choices. They are the continuation of choices we made in the past in order to simplify the complex set of decisions that we face every day. The resulting behaviour is habitual. It is not fixed but it is relatively unconsidered and unlikely to change unless there is some sort of intervention. When engaging households, we need to recognise that behaviours like showering, travel to work and disposal of food scraps are habitual and rarely reflected on. Engagement initiatives need to find ways to 'unfreeze' habits and establish new habits that have lower environmental impact.

Dawnay and Shah (2005) note the introduction of a levy on plastic shopping bags in Ireland as an example of an initiative that successfully changed ingrained habits. The small charge for plastic bags (currently 22 Euro cents per bag) made the decision to use a plastic bag conscious and allowed old habits to be unfrozen. When the levy was introduced, there was an immediate drop in plastic bag use from 1.3 billion to 20 million bags per year. Even after 10 years, current use is only 11% of pre-levy levels.

While much behaviour is routine and unconsidered, there are particular moments when a householder potentially becomes more open to change and might be recruited into new practices. A recent report examines these 'moments of change', or 'times in a person's life where existing habits and behavioural patterns are disrupted' (S. Thompson et al. 2011). It looks at two types of moments of change: life events and macroeconomic events. Life events include leaving home, having a first child, moving house and retiring. Macroeconomic events include the global financial crisis and energy price shocks. The report finds theoretical support for the idea that behaviour change is more likely during these moments of change but the empirical evidence remains patchy and anecdotal, partly because there have been very few studies that track behaviours over time across these moments of change.

The idea of moments of change can be expanded to include purchasing decisions. When a householder decides to make a purchase, there is an opportunity to influence that purchase and change the material infrastructure in the home, leading to new practices.

At least in theory, moments of change are disruptive events that can 'unfreeze' existing habits and open up space to lock in new, more desirable behaviours (Knott et al. 2008). These disruptive events are also times when significant purchases might be made, with long-term impacts on behaviour and environmental impact. They are promising places for household engagement initiatives to intervene.

Principle 2: Engagement programs should take advantage of 'moments of change' as a way to unfreeze habits and establish new, more desirable behaviours.

2.3 Other people's behaviour matters

It is now well-established in the literature that simple awareness and information campaigns are rarely effective ways to engage households in sustainable living (Chess & B. B. Johnson 2007; T. Jackson 2005). This is not to say that information is unnecessary; for a practice to be adopted and sustained, people need to have the practical knowledge, skills and capabilities to engage in that practice (DEFRA 2011). Information should be part of any household engagement program but the primary goal must be to have people act on that information.

According to Jackson (2005, p.xi) research 'suggests that learning by trial and error, observing how others behave and modelling our behaviour on what we see around us provide more effective and more promising avenues for changing behaviours than information and awareness campaigns'. In their excellent summary of the behavioural economics literature, Dawnay and Shah (2005, p.3) capture this insight in a simple principle: 'other people's behaviour matters'. Similarly, one of DEFRA's (2011) best-practice principles for influencing behaviour is 'we will if you will', capturing the idea that

people look to others for how to behave, but also expect government and business to take action alongside communities.

The role of social norms

Behavioural economists argue that we do not reach individual decisions in isolation but look to others to determine our behaviour. In the terms discussed in Section 2.1, we look to common understandings or social norms to guide our participation in practices. Social norms are our beliefs about appropriate behaviour. They can be descriptive or injunctive. Descriptive norms signal mainstream behaviour – they are our sense of what is 'normal'. Injunctive norms signal perceived approved or disapproved behaviour – they are our sense of what other people will think of us if we behave in a particular way. Liverani (2009, p.9) argues that 'harnessing the power of social norms implies increasing the "visibility" of behaviour and its implications'. Messages used to engage households should embed descriptive and injunctive norms about desirable behaviour to increase their chance of successfully influencing the audience.

Dawnay and Shah (2005) identify a number of relevant theories underpinning the concept of social norms. *Social learning* indicates that we learn by observing what other people do; *social proof* observes that we look to others to see how to behave, especially in situations of risk and uncertainty; and *social identity* theory notes that we demonstrate a strong bias toward "like others" or members of the "in-group". We feel the strongest affiliation for smaller groups that we belong to, such as our families or local community groups. This provides some clear direction for household engagement programs:

- Messages delivered by people that are 'like us' or that we are influenced by are more likely to be listened to
- Seeing people we trust engaged in desirable practices is more influential than just receiving information about those practices
- Using household engagement programs to recruit people into groups that can experiment with new practices together and hold each other accountable is likely to be an effective strategy
- Messages that employ descriptive and injunctive norms about desirable behaviour are preferable
- Engagement programs that bring 'inconspicuous' practices into the open are likely to be effective (e.g. giving low energy users flags, signs or stickers to display on their house).

Norms are not easily changed and household engagement programs need to balance the goal of short-term results with the need to shift social norms in the medium to long-term to achieve lasting behaviour change. Examples of where this has been successfully done include seatbelt wearing and smoking in public places (in the UK and also in Australia). However, in both of these cases, it was legislative reform that drove shifts in social norms. This serves as a reminder that behaviour change should not be pursued in isolation but needs to be integrated with policy and legislative reform.

Knott, Muers & Aldridge (2008) identify four different types of approaches for promoting more environmentally sustainable social norms:

- Through *family, friends and associates*, e.g. providing support for positive peer networks such as school cycle groups and using informal mentors to exemplify environmental messages
- Through *organisation, school and workplace*, e.g. supporting schools to teach about the importance of the environment and promoting voluntary and third sector environmental groups
- Through *community and neighbourhood*, e.g. building sustainability into neighbourhood planning
- At the level of *society*, e.g. high-level policy narrative on the environment, encouraging public debate and dialogue, building public awareness and partnering with businesses and retailers.

They then identify four strategies to change behaviour - exemplifying, engaging, encouraging or enabling.

We will if you will

In DEFRA's Sustainable Lifestyles Framework (DEFRA 2011), a best-practice principle is 'we will if you will'. DEFRA (2011), argues that collective action by government, business and civil society is needed to enable others to act and 'Government has a facilitation role to encourage action at all levels'. Household action needs to be part of a broader suite of action on sustainability, perhaps facilitated by government, but involving all sectors of society.

Behavioural economics provides support for this principle by stressing the importance of fairness and perceived fairness in human behaviour based on experimental evidence. Gowdy (2008, p.633) notes that humans regularly exhibit a 'culturally conditioned sense of fairness, and they are willing to enforce cultural norms even at economic cost to themselves'. Dawnay and Shah (2005) note that, for example, people's willingness to pay for a public good has also been shown to be moderated by fairness. People have a sense that costs should be split between people who will benefit from the public good and those responsible for creating the need for it. People are willing to contribute more when perceived fairness is high.

Behavioural economics experiments examine the conditions under which people will cooperate even when it is not in their own material interest. Brekke and Johansson (2008) note that many results from experiments and also observations from the field point to *conditional cooperation* i.e. people will cooperate if others do too. Research on cooperation also shows that unless people have information about other people's behaviour, cooperation drops (Liverani 2009). A key message for policy makers is that household engagement programs need to be part of a comprehensive set of actions across society and that these actions need to be highly visible.

Team-based approaches

Many community engagement programs attempt to capitalise on the persuasive power of social norms by recruiting participants into teams. There is substantial evidence that

individuals are more able to change their behaviour when they are part of a supportive group that provides motivation and helps to reinforce the new behaviour by providing encouragement and esteem. Numerous team-based approaches to GHG reduction have emerged to take advantage of this insight, including Eco Teams (Gershon 2009; Staats et al. 2004), "Cool Communities" (Gershon 2009), the Low Carbon Diet approach (Gershon 2006; Gershon 2009) and Sustainability Street (http://www.sustainabilitystreet.org.au/).

These team-based approaches may not appeal to all audience segments. While the evidence is patchy, there are indications that people attracted to participate in team-based approaches are more likely to be women, positively inclined towards sustainability issues, middle-aged and better educated than the general public (e.g. Staats et al. 2004). Thus, there is a risk that these approaches are 'preaching to the converted' unless specific steps are taken to attract more mainstream participants. Nevertheless, tapping into existing groups with established social norms is an approach that can work for diverse audiences.

David Gershon has been a pioneer of team-based approaches for many years. In his book, *Social Change 2.0* (Gershon 2009), he describes the history of the Eco Teams approach, which formed the basis for the Low Carbon Diet and "Cool Communities" approaches to team-based climate change response. An Eco Team is a support group of people that meet regularly to help each other to reduce their environmental impact. Team members share what they are doing, make commitments, report back on progress and swap tips on what works and what doesn't. They may be neighbours in a community, work colleagues, members of a sporting club or a church group.

Gershon (2009) argues that the traditional social change tools – regulation, tax policy and public protest – are not up to the job of achieving the rapid transformative change required to deal with problems of sustainability. He asks: 'how might we empower people to voluntarily adopt new behaviours that help them, their community, and their organizations operate at a higher level of social value so we can realize more of our potential as a human species' (Gershon 2009, p.3)? He argues that 'people are willing to change if they have a compelling vision and are provided tools to help them bring it into being' (Gershon 2009, p.3).

Gershon describes an eight-step strategy for scaling up community-wide behaviour change:

1. *Form a core organising team.* Gershon argues that community groups, business and local government should be represented on this team and their core responsibilities are recruiting and supporting partners to deliver the campaign and providing coordination.

2. *Identify the ecological footprint of the residential sector and set a reduction goal.* Gershon recommends a 25% reduction target for participating households as the evidence from this approach is that such a target is achievable and will make a substantial contribution to reducing community environmental impact.

3. *Create a three-year plan with quarterly benchmarks.* Gershon recommends organising the campaign as a series of twelve waves rolled out every three months over a three-year period. Gershon defines the participation goals for the campaign using terms from the theory of diffusion of innovations. In the first year, the goal is to get early adopters aboard – about 15% of the population. In year two, the goal is participation by the early majority – another 35% of the population. In year three,

the goal is participation by the late majority – an additional 35% of the population. The remaining 15% he categorises as laggards who will never be encouraged to participate.

4. *Identify partner organisations.* The strategy leverages existing networks in the community. The organisers seek partners in the community that are capable of establishing 50 Eco Teams over a three-year period. Partners run World Café events to recruit people to set up Eco Teams. The objective of these events is to help individuals process their fears and hopes for the future and take personal responsibility for change through participating in an Eco Team. In the World Café process, participants engage in group discussions at a table and then move on to another table, leaving one participant at the table to summarise the previous discussions for the new participants. In a four-hour workshop, participants address questions about their fears and hopes and are asked to make and share a commitment to take action.

5. *Host a recruitment event to enrol partner organisations.* Gershon argues that local government is a key player in local sustainability action and should have a significant role in drawing on local networks to recruit local partners. Local partner organisations are invited to establish Eco Teams and the local government also sets up a high-profile Eco Team to act as a role model.

6. *Build capacity of partner organisations.* Capacity building training for partner organisations focuses on teaching the social change framework, how to publicise and host World Cafés, how to keep track of results online and basic transformative leadership skills.

7. *Mobilise students and businesses to strengthen outreach.* Students and corporate volunteers can play a key role in delivering a campaign. Gershon has developed the idea of a Cool Community Corps of student volunteers to help start neighbourhood Eco Teams, and a Cool Corporate Citizen program to involve the corporate sector.

8. *Engage media and partner organisations to promote campaign successes.* The campaign needs to be kept in front of people regularly in local media to keep it alive, with features on success stories that help to model the desired behaviour and shift social norms.

This type of team-based approach makes heavy use of social norms to encourage and sustain new behaviours. For a household sustainability engagement initiative, finding ways to either form people into groups or tap into existing groups is likely to be an effective strategy.

Traditionally, team-based behaviour change programs relied on face-to-face contact between team members. Increasingly, social networking technologies make it feasible to form virtual teams that provide many of the same benefits. While there is arguably no substitute for face-to-face interaction, intelligent use of social media and online engagement techniques can cost-effectively link households together to support each other in sustainable living practices.

Principle 3: Other people's behaviour matters:

3a. Recruit influential messengers for the desired audience and have them demonstrate desirable practices

3b. Involve government, business and the community so that households perceive a fair basis for action

3c. Form participants into supportive teams (face-to-face or online) or tap into established groups

3d. Employ injunctive and descriptive norms and seek long-term shifts in these norms

3e. Make inconspicuous practices visible.

2.4 Know your audience and their behaviours

While it may seem obvious, knowing the audience that you wish to engage and their current behaviours is a critical starting point for household engagement programs. The literature on social marketing is particularly focused on identifying the audience and tailoring messages to suit that audience. Social marketing approaches recognise that individuals have different values, beliefs, attitudes, and personal norms and that different messages are needed to reach different people. They use market segmentation techniques to 'characterise different sectors of the target audience according to the motivations presumed to underlie their willingness to undertake behavioural change,' and then tailor messages to the values that dominate within that segment (Crompton 2008, p.5). These messages are then employed in marketing, communication, advertising or other community engagement approaches to encourage behaviour change.

One of the key challenges for household engagement programs is how exactly to segment the audience. This challenge is explored in more detail in Section 4. However, we can note here that market research will normally be needed to understand the demographics, knowledge, attitudes, values, priorities and current level of engagement of the audience. Section 6 reports on existing audience research for NSW and Australia.

Whatever way the audience is broken up, a clear message from the literature is that engagement techniques and messages need to be tailored to audience segments to be most effective. For example, a message that works for an urban audience may not suit a rural audience. Further, people learn in different ways, which means that a single engagement technique will not motivate everyone to take action. Some people are visual learners, others learn through movement and doing and others learn through talking and discussion. To reach as many people as possible, community engagement programs need to use diverse engagement techniques that suit different learning styles and motivations. When designing a household engagement program, this means providing a suite of engagement techniques to suit different audiences. As DEFRA (2011, p.30) puts it, 'there is no single solution' – an 'integrated package of interventions is needed' and 'different approaches and packages are effective for different population groups'.

To give one example, DEFRA (2008) describes a framework for establishing pro-environmental behaviours that is based on a social marketing methodology. The framework recognises that 'motivators and barriers vary across population groups and may change over time according to life stage and other individual circumstances' (DEFRA 2008, p.7). DEFRA draws on market research to identify seven distinct population segments in the UK population. The population segments have descriptive names:

positive greens, waste watchers, concerned consumers, sideline supporters, cautious participants, stalled starters and honestly disengaged. They are based on clusters of shared attitudes and beliefs towards the environment, environmental issues and behaviours. DEFRA then identifies specific strategies for engaging each audience segment, using different combinations of policies to engage, exemplify, enable or encourage.

Alternative audience segmentation strategies are discussed in Section 4.

Principle 4: Use market research to understand and segment your audience and identify their current practices.

2.5 Identify target behaviours

Having developed an understanding of the audience and their current practices, the next step suggested by many in the behaviour change literature is to identify the behaviours that we actually want people to adopt (Geller 2002; McKenzie-Mohr & Smith 1999). The behaviours that we want households to take up are called *target behaviours*. Having people take on target behaviours is the end goal of a household engagement program. Ideally, these behaviours should be the ones that deliver the best combination of impact (i.e. improvement in household sustainability) and feasibility (i.e. likelihood of uptake and ease of overcoming barriers) (DEFRA 2011; McKenzie-Mohr & Smith 1999).

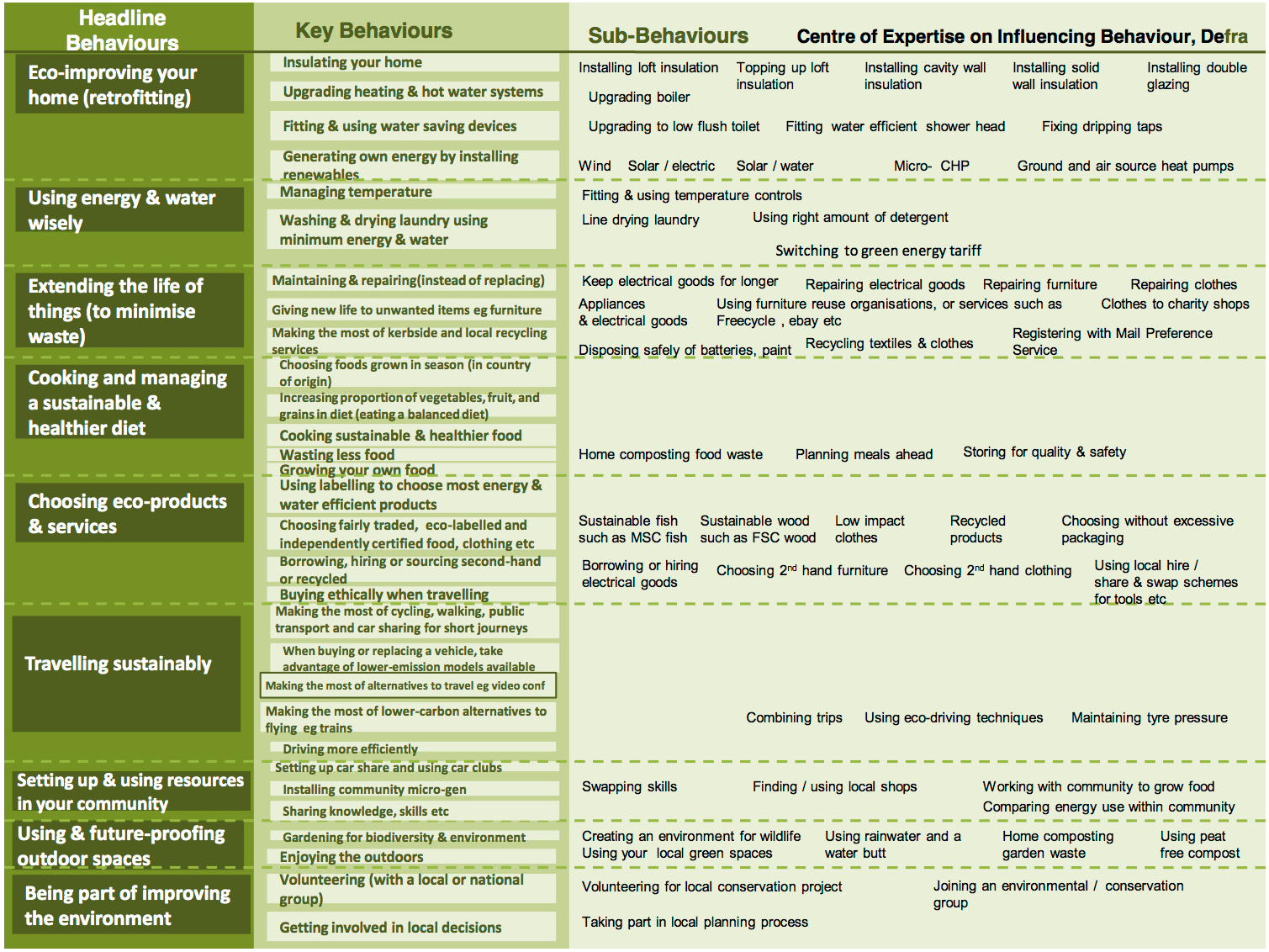
In its Sustainable Lifestyles Framework, DEFRA (2011) reviewed hundreds of possible behaviours to identify nine headline behaviours and 30 key behaviours that constitute sustainable lifestyles. These behaviours were identified based on their sustainability impacts and potential for action. The behaviours are shown in Figure 2. At the headline level they are:

- Eco-improving your home (retrofitting)
- Using energy and water wisely
- Extending the life of things (to minimise waste)
- Cooking and managing a sustainable and healthier diet
- Choosing eco-products and services
- Travelling sustainably
- Setting up and using resources in your community
- Using and future-proofing outdoor spaces
- Being part of improving the environment.

Although developed in a UK context and perhaps in need of some rewording to suit the Australian context, this set of high-level target behaviours seems highly applicable to Australia and NSW.

Principle 5: Identify the target behaviours that are the end goal of the engagement and design and test messages and strategies to support those behaviours.

Figure 2: Target behaviours for a sustainable lifestyle (DEFRA 2011).



2.6 Start where people are

One of the key principles in DEFRA's (2011) Sustainable Lifestyles Framework is to 'start where people are' by focusing 'policy development on understanding people and how different groups respond rather than what we assess as a "rational" response'. In other words, it is important to work to connect sustainability messages to existing values and concerns rather than to try to impose a particular way of living.

This connects to knowing your audience, as discussed in Section 2.4. Engagement programs need to identify what is important to the audience, understand how people feel about current behaviours and target behaviours and make links to what people care about, beyond environmental concerns (DEFRA 2011). Wherever possible, this means working with existing groups, trusted intermediaries and the 'influencers' and 'catalytic individuals in people's social networks' (DEFRA 2011). It means adopting a 'lifestyle approach to engagement' that is conscious of how people actually experience behaviours and practices. Some of the ways that this can work in practice are discussed below.

Participatory processes

When people feel in control of a situation they can be highly motivated to change things for the better (Dawnay & Shah 2005). However, when they are subject to information overload or too much choice, or feel that a problem is outside their control, they can disengage (Dawnay & Shah 2005). Participatory approaches to community engagement can be highly effective in helping people to feel ownership of decisions, increase their feeling of self-efficacy and to find motivation to change behaviour (Dawnay & Shah 2005). DEFRA advocates working 'with communities to identify the issues they face and collaboratively design solutions' (DEFRA 2011). There is certainly demand from citizens for more of this kind of participatory local engagement around Australia (Herriman 2011). Social research undertaken for the Australian Centre of Excellence for Local Government found that citizens are now seeking more direct ways to get involved in public life and decision-making, particularly on issues in which they have a direct interest (Herriman 2011).

Supporting and connecting existing groups

In any community there are numerous groups already existing that can directly or indirectly support more sustainable practices. Local Landcare, bush regeneration, community gardening and sustainability groups obviously have such a focus. However, sporting clubs, Rotary and Lions Clubs and many other community groups can choose to take on actions that support sustainable living. An effective way to proceed for policy makers is to work collaboratively with existing groups rather than try to establish new groups (Dawnay & Shah 2005).

Local groups and community leaders need different kinds of support. Some may have a very good understanding of sustainable practices but need support to recruit new members, secure funds for projects or build new skills in areas like use of social media or meeting facilitation. Others may be right at the start of a process of engaging with sustainability and need support to build their practical knowledge of actions they can take. While governments can help provide this kind of support directly, there is also a role for connecting local groups so that they can support each other.

Recent research by ISF indicates that facilitating local and regional exchange events for community groups can be a very effective engagement approach (Riedy et al. 2012). For

example, this might mean holding a forum or networking event for grassroots groups within a local government area or region to allow members of groups to meet each other and exchange knowledge about what they are doing. In North East Victoria, the Yackandandah Sustainability group held such a forum within its local government area to facilitate networking between existing groups (Riedy et al. 2012). Often, new sustainability projects can emerge from the new relationships that are built, or existing projects can become more effective. Capacity building workshops to train community leaders as change agents or sustainability ambassadors have also achieved promising results (NCS n.d.).

Connection to place

One of the things that makes communities different is their place. Place-based community engagement approaches recognise that local context is critical. Actions and messages that make sense in one place may have less value in another. Engagement programs should be responsive to local context and should draw out actions from the community that are appropriate and sensitive to the local landscape.

Principle 6: Start where people are and connect to their existing, local concerns through participatory processes and support for existing community groups and leaders.

2.7 Activate intrinsic values

While it is important to 'start where people are', as discussed above, this does not mean that all messages should appeal to cost savings or 'what's in it for me'. Behavioural economists acknowledge that people can be altruistic. This is in stark contrast to conventional economics in which people are assumed to always act only in their own rational material interests. Gowdy (2008) argues that that materialistic behaviour is not genetically driven but has arisen because of culturally specific systems of rewards and punishments such as advertising and social status. We can therefore imagine different systems of rewards and punishment that reward environmentally benign behaviour instead of consumerism (Gowdy 2008).

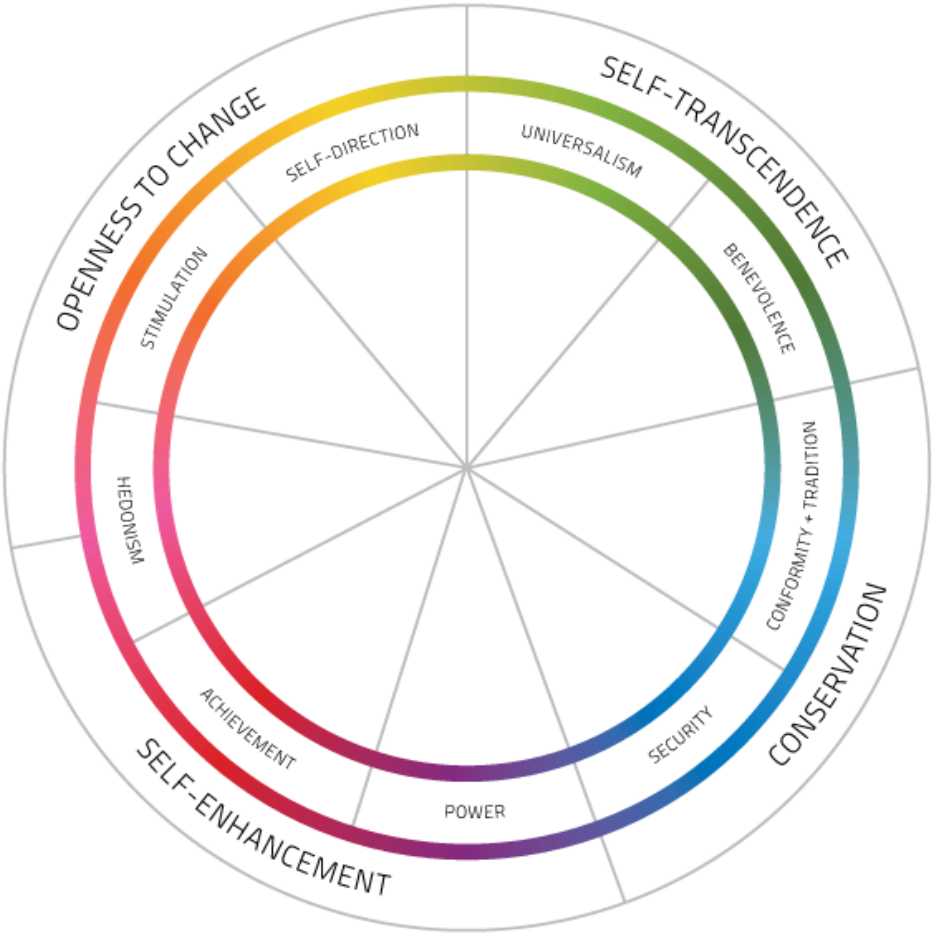
In light of this inherent desire to 'do the right thing' (Dawnay & Shah 2005), experimental research appears to show that monetary incentives can be a disincentive to cooperative behaviour, such as donating to charity or donating blood. Dawnay and Shah (2005, p.6) argue that money can demotivate people as it 'detracts from the warm feeling of having done something good'. This calls into question over-reliance on financial incentives to influence behaviour. Gowdy (2008, p.637) cites literature that claims environmental policy should not be based on price incentives alone but should instead be based on principles such as 'social conscience, ethics and norms of fairness'.

This kind of approach has been developed in some detail by Tom Crompton from WWF in the UK and colleagues (Crompton 2008; Crompton 2010; Crompton & Kasser 2009; Holmes et al. 2011). The 'Common Cause' approach argues that we need to engage people on the basis of their values: 'Values represent our guiding principles: our broadest motivations, influencing the attitudes we hold and how we act' (Holmes et al. 2011, p.8). Advocates of the Common Cause approach argue that there are ten groups of values that recur across cultures:

- Universalism
- Benevolence
- Tradition
- Conformity
- Security
- Power
- Achievement
- Hedonism
- Stimulation
- Self-direction.

These values are depicted graphically in Figure 3, showing also that they occur on a spectrum from self-enhancement to self-transcendence, and from openness to change to conservation.

Figure 3: The values circumplex (Holmes et al. 2011)**.**



These values can also be grouped as intrinsic or extrinsic values: 'Extrinsic values are centred on external approval or rewards; intrinsic values on more inherently rewarding pursuits' (Holmes et al. 2011, p.8). Intrinsic values include affiliation to friends and family, connection with nature, concern for others, self-acceptance, social justice and creativity. Extrinsic values include wealth, material success, concern about image, social status, prestige, social power and authority.

The important central message of Common Cause is that appeals to extrinsic values may deliver short-term gains for sustainability but will ultimately undermine the long-term potential for sustainable lifestyles. Crompton (2010, p.10) summarises:

> *Of course, extrinsic values can motivate helpful behaviour, but this will only happen where extrinsic goals can be pursued through particular helpful behaviours: for example, buying a hybrid car because it looks 'cool'. The problem is that, in many cases, it is very difficult to motivate helpful behaviours through appeals to extrinsic values, and – even when successful – subsequent behaviour tends to relapse into that which is more consistent with unhelpful extrinsic values. Moreover, such strategies are likely to create collateral damage, because they will also serve to reinforce the perceived importance of extrinsic values, diminishing the importance of intrinsic values and undermining the basis for systemic concern about bigger-than-self problems.*

The Common Cause approach is not an argument for abandoning the use of extrinsic values to motivate desirable practices but it is an argument for nurturing intrinsic values, challenging extrinsic values and being aware of the 'big picture' effects of messages that express particular values.

What this means in practice for household engagement remains an area of active experimentation. The Common Cause website is collecting case studies that illustrate the approach.[1] Waste Watch's Our Common Place project engaged people living in large blocks of flats by starting with conversations about their values and what they were enthusiastic about and using that as the basis to build recycling-focused programs. The conversations identified areas where intrinsic values were already active and built engagement programs around these.

Another way of potentially activating intrinsic values is through commitments or pledges that seek to align our actions with intrinsic values. Such pledges tend to be most effective when they are written, public and freely volunteered within a group setting (Dawnay & Shah 2005).

Principle 7: Design messages and programs to nurture intrinsic values and challenge extrinsic values, for example through identifying and building programs around existing intrinsic values and incorporating pledges or commitments.

2.8 Use framing to design motivational messages

One of the key techniques for designing motivational messages is framing:

> *Frames are both mental structures that order our ideas; and communicative tools that evoke these structures and shape our perceptions and interpretations over time* (Holmes et al. 2011, p.36).

As pointed out by behavioural economists, our cognitive limitations lead us to take mental shortcuts when interpreting information or making decisions. We build mental models of how the world works and use them to interpret the world around us. Unfortunately, our mental models and rules of thumb are often false. We experience problems like 'confirmation bias', where we look for the data that fits our mental model and overlook contradictory data. Dawnay and Shah (2005, p.2) note that people are bad at computation when making decisions: 'they put undue weight on recent events and too little on far-off ones; they cannot calculate probabilities well and worry too much about unlikely events; and they are strongly influenced by how the problem/information is presented to them'.

The way in which choices are framed or presented to us has a profound impact on the choice that is made. For example, Brekke and Johansson-Stenman (2008) note that changing the default alternatives presented to people has a dramatic effect on the choices they make. People are more likely to select the default option, even when it is not the economically rational one.

[1] http://valuesandframes.org/casestudies/

For example, if Green Power is offered as the default (or opt out) option for a new electricity contract, more people will choose Green Power than if it is only available as an opt in. Similarly, making a vegetarian meal the default option will increase the number of people that choose that meal over a meat-based meal.

People are also 'loss averse', which means they are more strongly motivated by avoiding losses than achieving gains. Dawnay and Shah (2005, p.10) note that if one choice is presented as a loss, and the other as neutral or as a gain, then 'we will avoid the apparent loss – even when the two outcomes are mathematically identical'. In practice, this means that a small fine can be more motivating than an incentive of a similar size. This insight was used effectively in Ireland, where a small tax (22 cents) on plastic bags led to an immediate drop in plastic bag use from 1.3 billion to 20 million per year.

Recognition that the way choices are framed influences the choices that people make has led to the emergence of a policy approach called 'soft paternalism', in which governments present choices in a way that makes selection of the most socially beneficial choice most likely but still leaves open freedom of choice (Thaler & Sunstein 2008). Continuing the Green Power example above, a government could require electricity retailers to offer a Green Power option as the default or first offer to customers. Customers would be free to opt out, so there is no constraint on choice. However, many would just settle for the default option.

Based on the above, framing a sustainable lifestyle as a cost or a sacrifice is far less likely to motivate people to act than framing it as fun and exciting. Household engagement programs need to find ways to make sustainability a positive, attractive and alluring destination. Negative environmental impacts of current practices can also be framed in terms of lost environmental amenity to take advantage of loss aversion. This might mean highlighting local natural assets that could be threatened if we do not adopt sustainable living practices, such as local beaches, watercourses or forest areas. Messages stencilled on stormwater drains that point out where the drains go to, and where any litter flowing into the drain will end up, are a specific example of this.

Futerra's (2011) 10 rules for communicating on sustainable development provide useful guidance on framing:

1. Big picture – make connections, demonstrate long-term thinking, blow myths
2. Technically correct – be trustworthy, provide transparency, give real facts
3. Be cool – be sexy, mainstream, non-patronising, brave – stand out!
4. Belong – join a massive worldwide change, start positive conformity, join a success
5. Only stories work – empathy and emotions are powerful, use stories to hold people's attention
6. Optimism – sustainable development is achievable, avoid too much guilt
7. Glory button - 'sustainable development makes you a great person and we love you for it'

8. Change is for all - break stereotypes, use inclusive language and images, push mass ownership

9. We need more heroes – introduce icons to emulate – 'be like me'

10. Personal circle - relate big ideas to everyday life, give them a familiar context.

Principle 8: Use framing to design messages that are positive, inspiring and appeal to existing mental models.

2.9 Test and evaluate

While the literature on community engagement is full of useful advice drawing on theory and practice, how to successfully engage households in adopting sustainable practices remains an area of great uncertainty. What works to motivate new practices is highly context-dependent and it is rarely possible to take a successful approach from elsewhere and simply apply it in a new context. Experimentation with different engagement techniques is a high priority to improve the body of knowledge of what works.

Piloting household engagement approaches, monitoring their outcomes, evaluating and feeding evaluations back to redesign strategies is strongly supported across the literature.

Principle 9: Pilot and evaluate multiple household engagement programs before final deployment.

2.10 Make it Easy

Today's householders have many demands on their time and are faced with increasingly busy lifestyles. The ease of access to a sustainable household program, and ease of implementation is paramount to creating a smooth path for participants. The lower the level of effort associated with sustainable lifestyle activities, the lower the risk that householders will find other less-sustainable approaches to living. It will be important for a program to use the most common and sought after channels for implementation, particularly in an increasingly virtual lifestyle based on new and rapidly evolving technologies such as smart phones, tablets, automated house systems and internet-based resource charging, tracking and participation.

Principle 10: Make it easy for householders to access, participate and implement program activities.

2.11 Summary

This section has drawn on the literature to identify ten general principles for best-practice sustainability engagement:

1. Household sustainability engagement programs need to look beyond the individual to the systems and groups they are embedded in if they are to be effective in transitioning to more sustainable practices.

2. Engagement programs should take advantage of 'moments of change' as a way to unfreeze habits and establish new, more desirable behaviours.

3. Other people's behaviour matters – recruit influential messengers, demonstrate desirable practices, involve government, business and the community, form participants into supportive teams, employ injunctive and descriptive norms, make inconspicuous practices visible and seek long-term shifts in social norms.

4. Use market research to understand and segment your audience and identify their current practices.

5. Identify the target behaviours that are the end goal of the engagement and design and test messages and strategies to support those behaviours.

6. Start where people are and connect to their existing, local concerns through participatory processes and support for existing community groups and leaders.

7. Design messages and programs to nurture intrinsic values and challenge extrinsic values, for example through identifying and building programs around existing intrinsic values and incorporating pledges or commitments.

8. Use framing to design messages that are positive, inspiring and appeal to existing mental models.

9. Pilot and evaluate multiple household engagement programs before final deployment.

10. Make it easy for householders to access, participate and implement program activities.

Subsequent sections will begin to put these principles into practice and explore in more detail some of the issues that they raise for a NSW Sustainable Household Program First, Section 3 looks at how to best categorise sustainable practices to facilitate successful engagement.

3 Categorising sustainable practices

This section considers Australian and international research on how best to categorise sustainable practices, i.e. is it more effective to engage householders in broad sustainable living programs or in discrete programs targeting different content areas? For either of these strategies, what is the best way to split and group different content areas, behaviours or practices to simplify program implementation and maximise engagement with households?

3.1 Defining Sustainable Practices and Sustainability

For the purposes of the NSW Households Sustainability Program, the Office of Environment and Heritage defines sustainability with a focus on the continuation of ecological systems and sustainable living as the adoption of environmentally responsible actions across a range of environmental issues. The issues are categorized into eight areas:

1. energy efficiency
2. water efficiency
3. waste, recycling and litter
4. biodiversity
5. transport
6. air
7. chemicals
8. environmental activities in the local area.

The reports reviewed for this literature review provided information across categories of sustainable practices, but few provided the motivations or methods behind defining and using categories specifically. This may be a result of the varying definitions given to “sustainable” practices or “sustainability”, which are largely subjective. Interestingly, most literature did not provide a specific definition of sustainability or sustainable living prior to introducing the range of practices they associate with these terms.

For example, the Fielding et al (2010) report on understanding the attitudes and behaviour of Australian households discusses the theoretical framework for behaviour on page 13 of report and states “household culture is conceptualised as the extent to which a household has an environmentally sustainable identity and that there is agreement about the importance of environmental sustainability in the household” despite no definition of sustainability being provided prior to or after the instance, with the exception of the document title. The document continues to provide information in relation to household behaviours across three categories of water, energy and waste. The report also considers socio-demographic variables such as, gender, age, household tenure, household income, level of education, dwelling type, number in house, and household composition. While these categories are common across much of the literature, this report also identifies the number of bedrooms and size of garden as variables (Fielding et al., 2010, p83) to be considered across sustainable energy, water and waste practices. Section 4 considers different variables for segmenting audiences in more detail.

3.2 DEFRA Sustainable Lifestyles Framework

The DEFRA (DEFRA 2011) Sustainable Lifestyles Framework (as discussed in Section 2.5and illustrated in Figure 2) categorises sustainable practices, by analyzing thousands of behaviors and identifying those key for a sustainable lifestyle. The framework provides 9 headline and, within these, 30 key behaviours - assessed on the basis of evidence of sustainability impacts e.g. carbon emissions, water, biodiversity and wellbeing, and potential for action (i.e. current uptake; potential uptake without major infrastructure change) (DEFRA 2011 p.11). The nine headline categories include:

1. Eco-improving your home (retrofitting)
2. Using energy & water wisely
3. Extending the life of things (to minimise waste)
4. Cooking and managing a sustainable & healthier diet
5. Choosing eco-products & services
6. Travelling sustainably
7. Setting up and using resources in your community
8. Using and future-proofing outdoor spaces
9. Being part of improving the environment.

The DEFRA Sustainable Lifestyles Framework (DEFRA 2011) was developed to specifically challenge traditional categorisations and sought instead to identify motivations and barriers to behaviours. The report stressed that no single solution was available to catalyse behaviour change but rather that multiple measures at multiple levels were necessary. Specifically, a package of measures based on why householders act or do not act and responses to different interventions to behaviour. This is discussed further in Section 4.

3.3 OECD Households Survey

An OECD (2011) survey of 10 000 households across eleven OECD countries of Australia, Canada, the Czech Republic, France, Italy, Korea, Mexico, the Netherlands, Norway and Sweden focuses on five areas of sustainable practices in households, namely:

1. Water Use
2. Energy Use
3. Personal Transport Choices
4. Organic Food Consumption
5. Waste Generation and Recycling

The above categories are further defined and outlined in the OECD report and are summarised in Table 1.

Table 1: Sustainable Practices Content Areas used by OECD (OECD 2011)

Sustainable Household Practices	Categories	Sub Categories
Water Use	Water Saving Behaviours	• Turn off the water while brushing teeth • Take shower instead of bath to save water • Plug the sink when washing dishes • Water the garden in the coolest part of the day • Collect rainwater or recycle waste water
	Water Efficient Equipment	• Water efficient washing machine Water flow restrictor tap/low flow shower head • Low volume or dual flush toilet
	Water Pricing	• No fee • Flat fee • Variable fee
	Water Quality	• Unpurified tap • Purified tap • Bottled
Energy Use	Energy Saving Behaviours	• Turn off appliances • Turn off lights • Stand-by mode • Lower heat • Full Dishwasher/Washing Machine
	Energy Metering/Charging	• Metered • Not metered • Charged according to Time of Use • Not charged according to Time of Use
	Energy Saving Equipment/Purchasing	• Renewable energy • Thermal insulation • Efficient heating boiler • Energy-efficient light bulbs • Purchase Green Energy or not
	Energy Equipment Labelling	• Recognise appliance energy label • Energy-efficiency-rated appliances installed
Personal Transport Choices	Mode	• Car • Public Transport • Cycle
	Travel Purpose	• Commuting • Shopping • Education • Visiting Family and Friends
	“Push” Factors	Fuel Prices
	“Pull” Factors	Transport Infrastructure

Sustainable Household Practices	Categories	Sub Categories
Organic Food Consumption	Food Categories	• Fresh Fruits And Vegetables • Milk And Dairy Products • Eggs • Meat and Poultry • Bread, Pasta, Rice and Cereals
Waste Generation And Recycling	Waste materials	• Glass Bottles and Containers • Plastic Bottles and Containers • Aluminium • Tin and Steel Cans • Paper and Cardboard • Food or Garden Waste
	Collection service	• door-to-door • drop-off • deposit-refund • bring-back and no service

3.4 Your Home Technical Manual

Your Home (Milne et al. 2010), an Australian government guide to environmentally sustainable house design and construction provides seven categories of sustainable practices for the residential housing sector (as outlined in Figure 4). Under each category are a large number of sub categories. These categories are specific to design and construction of the home rather than behaviours during operation. However, owner builders may be considering such categories at the early stages of a houses' lifecycle, which may carry into the patterns of thinking and behaviour during operation.

Figure 4: Sustainable Practice Content Areas utilised in the Your Home Technical Manual (Milne et al. 2010 p6)

3.5 WA Living Smart Household Program

The Living Smart Household Program implemented in Western Australia is driven by a specific goal for the program to reduce the amount of CO^2 emissions per targeted household by one tonne per year through a reduction of between 5 and 10% in the consumption of car travel, energy, water and waste disposal. The project was delivered using two approaches to categorizing sustainable lifestyle activities based on level of engagement:

- Topic Design – households engage only in one of four different topics (energy, water, travel or waste) at a time before proceeding to the next topic
- Level Design – households engage in all four topics from the beginning of the program and progress through three different intensity levels of action (Milne et al. 2010)

Households identified for the program were offered three separate “menus” of information that were mailed out to residents, enabling them to select particular items they were interested in. Typically participants ordered approximately 20 from a “menu” of 60 items. The categories, and sub-categories of materials distributed to households include (Socialdata Australia 2009):

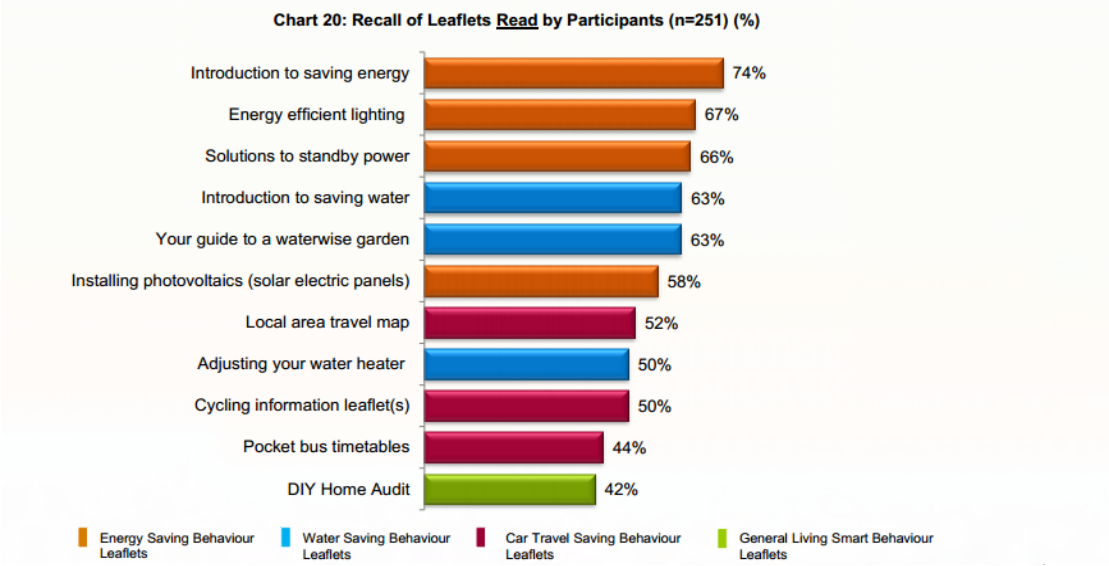
- Energy
    - Switching to clean energy

  - Checklist for switching off standby power
  - Reading your electricity bill to track your savings
  - Introduction to saving energy
  - Effective ways to heat and cool your home
  - Switching to energy efficient lighting
  - Generating and selling your own electricity from the sun
  - Energy efficient down light options
  - Adjusting your storage water heater
  - Efficient fridge set up
  - How effective is your roof insulation?
  - Buying carbon offsets
  - Switching to a solar hot water system
  - Adjusting your instantaneous water heater
  - Shade your windows from the summer sun
- Water
  - Planting a water wise garden
  - Reading your water bill to track your savings
  - Introduction to saving water
  - How to reuse grey-water
  - Installing a rainwater tank
  - Using flow regulators to cut water use
  - Mulching to save garden water
  - Water wise toilet solutions
  - Installing a water wise shower head
  - Fixing leaking taps
  - Watering your garden
  - Installing drip irrigation
- Waste
  - Seasonal is best - a pocket guide to seasonal fruit and veg
  - Reduce waste and save
  - Good food that doesn't cost the earth
  - Mandurah rubbish and recycling guides
  - Keep it at home by composting
  - Starting a veggie garden
  - Joondalup rubbish and recycling guides
  - Keep it at home by worm farming
- Travel
  - Pocket sized timetables for your nearest bus stop
  - Pocket sized timetables for Mandurah station
  - Map of travel options around your neighborhood
  - Mandurah walking map
  - Guide to public transport tickets and fares
  - How to make smarter use of your car
  - A guide to walking for fitness
  - Your guide to the Mandurah train line
  - Cycling on shared paths
  - 10.000 steps walking challenge information

  - Connections to Mandurah station
  - Choosing a bike and accessories
  - Pocket sized timetables for your nearest train station
  - Shopping by bike
  - Joondalup walking map
  - Riding the sunset coast
  - Your guide to the Joondalup train line
- Environmental Resources
  - Discount card for your local garden or hardware store
  - The complete do it yourself home audit
  - Measuring your carbon footprint
  - Star rating your home
  - Invitation to free Living Smart workshops
  - Information on free home consultations
  - Discount card for your local bike shop

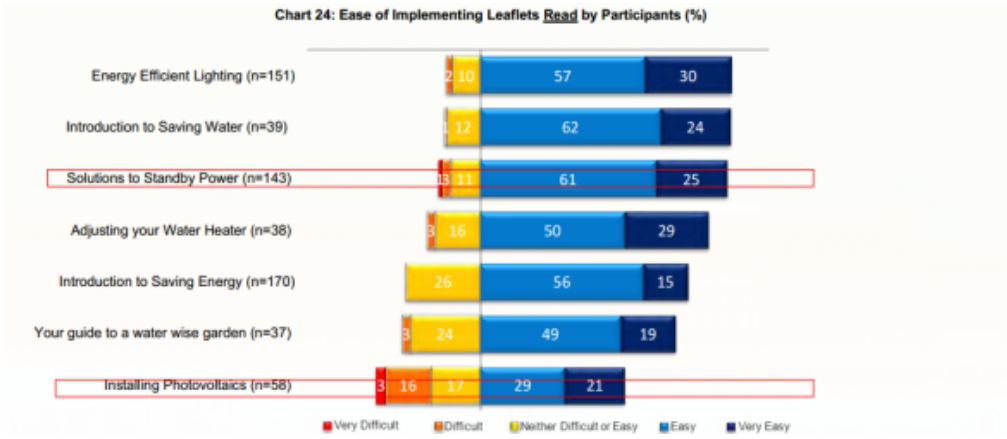
Results from the program showed that leaflets relating to energy efficiency were most highly read by participants while leaflets relating to reducing car usage were least read, as illustrated inFigure 5.

Figure 5: WA Living Smart Household Program – Leaflets Read by Participants
(TNS Consultants 2011 p35)



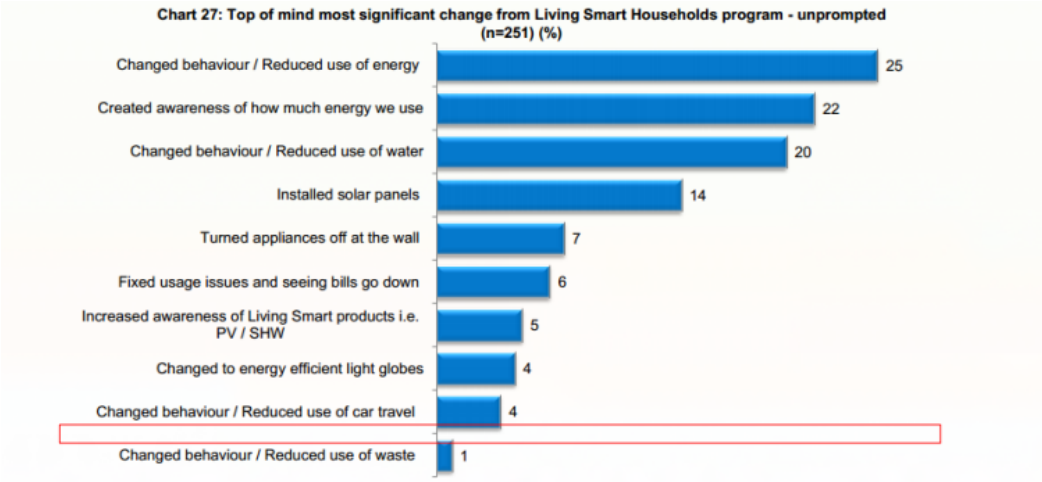
Amongst participants, there was general consensus that the leaflets were useful and interesting, but the leaflets detailing more specific actions (e.g. installing solar photovoltaics or adjusting water heater) were not as easy to understand. Leaflets requiring greater behaviour change or more costly implementation (e.g. a water wise garden) were considered more difficult to implement, as illustrated in Figure 6.

Figure 6: WA Living Smart Households Program – East of Implementing Leaflets (TNS Consultants 2011 p39)



As illustrated in Figure 7, unprompted responses indicated that the most significant changes arising from the Living Smart Households program are reduced energy and water use.

Figure 7: WA Living Smart Households Program – Significant Changes from Program (TNS Consultants 2011 p45)



3.6 Content by Household Rooms

A number of programs locally and internationally consider sustainable lifestyle content areas by rooms in the house. For example Bathurst Regional Council's Sustainable Lifestyle House opened in 2011 includes a virtual web-based tour that provides the visitor with key highlights of sustainable features in each room (Bathurst Regional Council 2012). However, many of these initiatives are focused on the design of the house, with a few focused on operation. Similarly the CERES Eco House (virtual) provides an online tour of sustainable design features by room(CERES 2012) . Similarly the Toronto and Region Conservation Archetype Sustainable House at The Living City Campus at Kortright (north

of Toronto) includes a website with an online tour (Toronto and Region Conservation 2012) of sustainable features by loft, bathroom, bedroom, basement and various floors.

The 100 Ideas House (by non-profit Centre for Sustainable Energy, West of England Partnership and DEFRA) however, provides a room-by-room guide to operational household sustainable behaviours via an interactive house on a website (DEFRA 2012) . Specifically it highlights features across:

- Kitchen (includes bathroom and outdoor space behaviours)
- Lounge (includes transport behaviours)
- Garden (includes transport behaviours)

Some of the lifestyle measures, however, may not be feasible due to regulatory or market barriers, for example “get a small wind turbine for your home or bigger one for your community” and “buy a sheep or goat so you don’t need to mow the lawn or use garden fertilisers” (DEFRA 2012).

Similarly, the Living Greener website hosted by the Australian Government Department of Climate Change and Energy Efficiency (Department of Climate Change and Energy Efficiency 2012) offers information for householders about living more sustainably and reducing environmental impact as well as programs and financial support. Specifically the website offers “life guides” for householders with content across a range of areas including:

- ***Seasons,*** for example: *spring into living greener, the autumn of living greener, the summer of living greener and top tips for living greener this winter*
- ***Stages of life***, for example: *babies and budgets, sustainable back-to-school guide, home buyer's guide* and *home renovator’s guide*
- ***Popular events or holidays***, for example: *I'm dreaming of a green Christmas, Rio +20 - 20 ideas for simple things you can do right now to be part of global sustainability efforts* and *World Environment Day*
- ***Common Behaviours in the Home***, for example: *living greener with home entertainment and technology*

3.7 Discussion

The literature reviewed here demonstrates that there are diverse ways of categorising sustainable living practices as a way of engaging households. Generally, little justification is provided for particular categorisations. We have not been able to identify any evaluations that assess the effectiveness of different categorisation approaches for engaging households.

Of the different categorisations considered here, DEFRA’s (2011) Sustainable Lifestyles Framework appears to have the strongest evidence base. It is also the most consistent with the principles identified in Section 2. Specifically, it breaks up sustainable living behaviours into grouped practices that are likely to be familiar to households (Principle 1), includes some key ‘moments of change’ such as renovating and shopping (Principle 2), draws on audience research (Principle 4), clearly identifies target behaviours (Principle 5) and engages people ‘where they are’ by working with everyday household practices (Principle 6).

Although it breaks things up differently to the tentative categorisation developed by OEH, it appears able to cover all of those categories. Table 2 roughly maps the suggested OEH categories of sustainable living to the DEFRA Sustainable Lifestyles Framework headline, key and sub-behaviours. It should be noted that some of the DEFRA sub-behaviours are somewhat ambiguous and could be:

- further defined as to their purpose and benefit (e.g. ”using right amount of detergent”, “low impact clothes” and “swapping skills”)
- adjusted to reflect the local equivalent in NSW (if available, for example “services such as Freecycle”)
- altered to reflect the Australian language and context (e.g. “water butt”: is the UK term for a rainwater tank and “using peat free compost”)
- expanded to a wider range of activities for each headline and key behaviour.

Table 2: OEH Environmental Sustainability Content Areas mapped to DEFRA Sustainable Lifestyles Framework behaviours

OEH Environmental Sustainability Categories	Associated DEFRA Sustainable Lifestyles Framework Behaviours		
	Headline Behaviours	**Key Behaviours**	**Sub-Behaviours**
1. Energy efficiency	Eco-Improving your home (retrofitting)	• Insulating your home • Upgrading heating & hot water systems • Generating own energy by installing renewables	• Installing/topping up loft/ cavity/solid wall insulation • Installing double glazing • Upgrading boiler • Wind, solar/electric • Solar/water • Micro CHP • Ground and air source heat pumps
	Using energy & water wisely	• Managing temperatures • Washing & drying laundry using minimum energy & water	• Fitting & using temperature controls • Line drying laundry • Switching to green energy tariff
	Extending the life of things (to minimise waste)	• Maintaining & repairing (instead of replacing)	• Keep electrical goods for longer • Repair electrical goods & appliances
	Choosing Eco Products or Services	• Using labelling to choose most energy & water efficient products • Borrowing, hiring or sourcing second-hand or recycled	• Borrowing or hiring electrical goods • Using local hire/share & swap schemes for tools etc
	Setting up and using resources in your	• Installing community micro generation	

OEH Environmental Sustainability Categories	Associated DEFRA Sustainable Lifestyles Framework Behaviours		
	Headline Behaviours	**Key Behaviours**	**Sub-Behaviours**
	community		
2. Water efficiency	Eco-Improving your home (retrofitting)	• Fitting & using water saving devices	• Upgrading to low flush toilet • Fitting water efficient shower head • Fixing dripping taps
	Using energy & water wisely	Washing & drying laundry using minimum energy & water	• Line drying laundry • Using right amount of detergent
	Choosing Eco Products or Services	Using labelling to choose most energy & water efficient products	
	Using and Future-Proofing Outdoor Spaces	Gardening for biodiversity & the environment	Using rainwater and a water butt[2]
3. Waste, recycling and litter	Extending the life of things (to minimise waste)	• Maintaining & repairing (instead of replacing) • Giving new life to unwanted items e.g. furniture • Making the most of kerbside and local recycling services	• Keep electrical goods for longer • Repair electrical goods, appliances, furniture, clothes • Using furniture reuse organisations or services such as Freecycle, eBay etc • Clothes to charity shops • Recycling textiles & clothes • Registering with Mail Preference Service

[2] UK term for a rainwater tank

OEH Environmental Sustainability Categories	Associated DEFRA Sustainable Lifestyles Framework Behaviours		
	Headline Behaviours	**Key Behaviours**	**Sub-Behaviours**
	Cooking and managing a sustainable & healthier diet Cooking sustainable and healthier food	• Wasting less food	• Home composting food waste • Planning meals ahead • Storing for quality & safety
	Choosing Eco Products or Services	• Borrowing, hiring or sourcing second-hand or recycled	• Borrowing or hiring electrical goods • Using local hire/share & swap schemes for tools etc. • Recycled products • Choose (products) without excessive packaging • Choosing second hand furniture and clothing
	Using and Future-Proofing Outdoor Spaces	Gardening for biodiversity & the environment	Home composting gardening waste
4. Biodiversity	Cooking and managing a sustainable & healthier diet Cooking sustainable and healthier food	• Choosing foods grown in season (in country of origin)	
	Choosing Eco Products or Services	• Choosing fairly-traded, eco-labelled and independently certified food, clothing etc.	• Sustainable fish such as MSC fish • Sustainable wood such as FSC wood • Low impact goods

OEH Environmental Sustainability Categories	Associated DEFRA Sustainable Lifestyles Framework Behaviours		
	Headline Behaviours	**Key Behaviours**	**Sub-Behaviours**
	Setting up and using resources in your community	• Sharing knowledge and skills	• Working with community to grow food
	Using and Future-Proofing Outdoor Spaces	• Gardening for biodiversity & the environment	• Creating an environment for wildlife
	Being part of improving the environment	• Volunteering (with a local (or national group)	• Volunteering for local conservation project • Joining and environmental/conservation group
5. Transport	Cooking and managing a sustainable & healthier diet	• Choosing foods grown in season (in country of origin) • Growing your own food	
	Choosing Eco Products or Services	Buying ethically when travelling	
	Travelling sustainably	• Making the most of cycling, walking, public transport and car sharing for short journeys • When buying or replacing a vehicle, take advantage of lower-emission models available • Making the most of alternatives to travel e.g. video conference • Making the most of lower carbon	• Combining trips • Using eco-driving techniques • Maintaining tyre pressure

OEH Environmental Sustainability Categories	Associated DEFRA Sustainable Lifestyles Framework Behaviours		
	Headline Behaviours	**Key Behaviours**	**Sub-Behaviours**
		alternatives to flying e.g. trains • Driving more efficiently	
	Setting up and using resources in your community	• Setting up car share and using car clubs	• Finding/using local shops
6. Air (see Transport)			
7. Chemicals	Extending the life of things (to minimise waste)	• Making the most of kerbside and local recycling services	• Disposing safely of batteries, paint • Recycling textiles & clothes
	Using and Future-Proofing Outdoor Spaces	• Gardening for biodiversity & the environment	• Using peat free compost?
8. Environmental activities in the local area.	Extending the life of things (to minimise waste)	• Giving new life to unwanted items e.g. furniture • Making the most of kerbside and local recycling services	• Using furniture reuse organisations or services such as Freecycle, eBay etc • Clothes to charity shops • Registering with Mail Preference Service
	Choosing Eco Products or Services	Borrowing, hiring or sourcing second-hand or recycled	• Using local hire/share & swap schemes for tools etc
	Travelling sustainably	• Making the most of cycling, walking, public transport and car sharing for	• Combining trips

OEH Environmental Sustainability Categories	Associated DEFRA Sustainable Lifestyles Framework Behaviours		
	Headline Behaviours	**Key Behaviours**	**Sub-Behaviours**
		short journeys • Making the most of lower carbon alternatives to flying e.g. trains	
	Setting up and using resources in your community	• Setting up car share and using car clubs • Installing community micro generation • Sharing knowledge and skills	• Finding/using local shops • Swapping skills • Working with community to grow food • Comparing energy use within community
	Using and Future-Proofing Outdoor Spaces	• Enjoying the outdoors	• Using your local green spaces
	Being part of improving the environment	• Volunteering (with a local (or national group) • Getting involved in local decisions	• Volunteering for local conservation project • Joining and environmental/conservation group • Taking part in a local planning process
Other Key or Sub-Behaviours Not Mapped (associated headline indicators are shown)	Cooking and managing a sustainable & healthier diet	Increasing proportion of vegetables, fruit and grains in diet (eating a balanced diet)	
	Choosing Eco Products or Services		Low impact clothes

4 Audience segmentation

This section reviews international and Australian research on audience segmentation to identify best-practice approaches to employ in NSW. Based on our existing understanding, there are at least three distinct approaches to segmentation, based on:

1. Demographics
2. Attitudes and actions related to environmental views
3. Broad life values

Each of these approaches is discussed in more detail below:

4.1 Demographics

The Who Cares about the Environment research (DECCW 2010) analysed the results of its study on attitudes to environmental issues in NSW by segmenting the population by age, gender, location, education and language spoken at home. Some key results are described below:

Age: The number of people undertaking everyday environmental behaviours increased with age. Older respondents (over 65) were more likely to believe that the quality of a range of environmental issues had deteriorated; they were also however less likely than average to believe in climate change (27% compared to an average of 17%). Younger respondents (under 35) were more likely to believe in climate change (86% compared to average of 78%). However the youngest group (15-24) was also the least likely to be undertaking everyday environmental behaviours and the most likely to consider environmental regulations as too strict (OEH 2009a).

Segmentation is sometimes undertaken according to life stage, rather than age. This approach recognises that, for example, having young children can shift motivations and priorities regardless of age. As a result, life stage may be a more valuable basis for segmentation than age. However, there is still a huge variation in environmental attitudes within life stages that makes prediction of behaviour and motivation based on life stage problematic.

Education: The OEH (2009) study classified respondents by their highest level of educational attainment. Four segments were used; 'University degree', 'Trade or technical qualification', 'Completed secondary education' and 'Not completed secondary school'. The results of the study suggested that priorities for environmental protection differed between age segments. Those who had completed University were more likely than average to be concerned by energy issues. By contrast those who had not completed secondary school were more likely to be concerned by biodiversity issues. University graduates were also slightly more likely to be concerned about climate change and to be engaged in local environmental actions. There was no correlation between education levels and the level of everyday environmental actions being undertaken.

Gender: OEH (2009c) found that women are more concerned about the environment (81% to 74%) and more likely to believe that climate change is happening now (42% to

33%) and that NSW should take urgent action (73% to 65%). Women were also more likely to be engaging in everyday environmental activities. Men were more likely than women to consider information sources unreliable.

Urban, Regional and Rural locations: The OEH (2009b) *Who cares about the environment?* Report studied the view on environmental issues of residents of all regions across the state. Perhaps not surprisingly, considering the local impacts of many environmental issues, the issues that were perceived as priorities varied between urban, regional and rural residents. Residents of Sydney were more likely to perceive that environmental conditions had deteriorated across a range of issues. They were also more likely to perceive environmental regulations as too lax in relation to recreational and commercial fishing, forestry and in particular property development and construction. Rural residents were more likely to perceive environmental regulations on farming as being too strict. Residents of rural areas were more likely to be participating in both every day and occasional environmental activities (OEH 2009b)

There were also differences in the perceptions of specific environmental issues between areas of NSW. Newcastle residents (OEH 2009b)were much less likely to agree that NSW should take urgent action on climate change regardless of the economic and social conditions (32% to 19%). This could be due to the importance of the coal industry to the Newcastle economy. Residents of the Murrumbidgee/Murray region were more concerned than residents of the rest of the state about water issues, 62% of residents from this area considered water issues the most important environmental issue (compared to 42% across the state). The Richmond-Tweed area on the Far-North Coast and Inner Sydney were the most likely to be concerned about environmental problems whereas residents of the Mid-North Coast and Outer Sydney were the least likely to be concerned (OEH 2009e).

Language and culture: The comparison between people who only speak English at home and those who speak another language, referred to as CALD (Culturally and Linguistically Diverse) is often used as a proxy for understanding demographic differences based on language or culture. The *Who Cares About The Environment Study?* Found that CALD respondents were more concerned than those who only spoke English at home about waste issues and air pollution but less concerned about water issues. CALD respondents were less likely to have knowledge about waterway and beach pollution (42% compared to 29%) and the causes of the climate change (53% to 43%) but were likely to support urgent action on climate change (75% to 67%).

Sustainability Victoria & Metropolitan Waste Management Group (2011) undertook an analysis of attitudes towards recycling and focussed specifically the attitudes of a number of CALD groups to recycling. The report focussed on three CALD groups; Italian and Greek speakers; Arabic and Sudanese speakers; and Chinese and Vietnamese speakers. The study found that while there was no lack of commitment for recycling amongst CALD groups. However some groups, in particular new arrivals or people who had recently moved from multi storey public housing (where there is no kerbside recycling) were confused how recycling operated in Australia. The process of deciding whether a difficult item was able to be recycled was an example of how different preferences for gaining information amongst CALD groups; the Italian/Greek and Arabic/Sudanese groups regularly checked council bin stickers whereas the Vietnamese/Chinese group was more likely to consider what a material was made of when deciding whether it could be recycled.

The three CALD groups also showed different preferences for what types of behaviour change programs would motivate them to undertake more recycling. The Arabic/Sudanese group was the most receptive to all types of programs but was particularly receptive to programs aimed at increasing knowledge of both the aims and process of recycling. The Vietnamese/Chinese group was less receptive to programs in general but was relatively receptive to a carrot (incentives) and stick (fines) approach. The Greek/Italian group was most likely group to be motivated by the council notifying them if they had put the wrong materials in either the recycling or rubbish bins (Sustainability Victoria & Metropolitan Waste Management Group 2011).

Household characteristics: Many studies segment the audience according to household characteristics, including household type (e.g. couple without kids, family with children, share household), home ownership (e.g. owner occupier or tenant), number of children or household income bands. The *Who Cares* research made some use of household characteristics, particularly number of children, to identify audience segments. Australian Bureau of Statistics research commonly distinguishes between survey responses using household characteristics (ABS 2009; ABS 2010; ABS 2007). Recent research by the Australian Housing and Urban Research Institute (AHURI) also looked at differences across household characteristics (Fielding et al. 2010).

Segmentation according to household characteristics is perhaps most important for identifying the feasibility of different sustainable living practices for different audiences. For example, tenants are much less likely to take actions that require significant physical changes to the home, such as installing insulation. The AHURI research found that owners had stronger intentions to conserve energy and water and engaged in more water and energy saving practices than renters (Fielding et al. 2010). However, it also found that differences were much less marked across other household characteristics, indicating that household characteristics are not normally a good indicator of how best to motivate different audience segments.

The literature reviewed indicates that there are demographic differences within the NSW audience that could justify tailoring of household engagement approaches to target particular demographic groups. For example, as women tend to be more engaged with environmental issues, programs like Energymark that are more attractive to women could be marketed, particularly through channels that reach women.

However, many of the differences between demographic categories may be due to underlying attitudinal or value differences. Consequently, alternative approaches to audience segmentation draw on research into attitudes and values to define audience segments.

4.2 Attitudes and actions

An alternative to segmenting an audience by their demographic characteristics is to segment based on members of the audience's views on environmental issues (either in general or in relation to specific issues) or the degree to which they engage in environmentally focused behaviours. The method of developing these audience segments involves social research focussing on people's attitudes towards the environment and the degree to which they already undertake pro-environmental behaviours in their everyday

lives (DEFRA 2008). The results of this research are then analysed quantitatively to see where clusters of results lie. These clusters are used to build up snapshots of examples of typical audience members.

This type of segmentation is typical of social marketing approaches. Section 2.4 discusses social marketing and the recognition that individuals have different values, beliefs, attitudes, and personal norms and that different messages are needed to reach different people (McKenzie-Mohr & Smith 1999; Crompton 2008).

The Department of Environment, Food and Rural Affairs (DEFRA) in the UK have developed the attitudinal segmentation method the most extensively; their Sustainable Lifestyles Framework as well as several examples of the implementation of attitudinal segmentation is described below.

DEFRA: Sustainable Lifestyles Framework

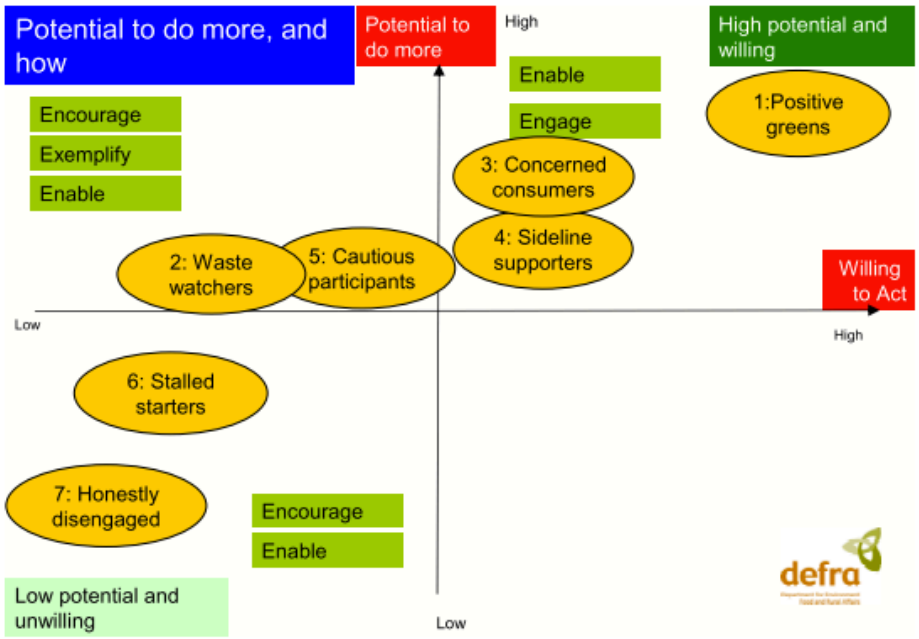
DEFRA's Sustainable Lifestyles Framework (2008) developed an evidence based segmentation model to help policy makers effectively target sustainability programs at different audiences. The seven groups identified by Defra (DEFRA 2008) are (see also Figure 2)

- **1. Positive greens**: This group believe it's important to do as much as possible to limit impact on the environment. Members of this group show a bias towards affluence, being middle aged and women. Members of this group believe that environmental issues are pressing and that disaster is imminent however most of this group (71%) also believe that it is possible for humans to find ways to overcome the world's environmental problems. They are the most likely of all groups to be undertaking pro-environmental behaviours in the home but are also the most likely to want to undertake more actions. They are the most likely to believe that climate change is due to human behaviour and that individuals will need to take action to combat carbon emissions.
- **2. Waste watchers**: The motto of this group is 'waste not, want not'. This is the oldest group and the most likely to live in rural areas. They are concerned that humans are rapidly using all the Earth's resources and that population is rapidly reaching the maximum that the Earth can carry. This group is heavily concerned about local environmental issues such as loss of countryside and biodiversity but somewhat more sceptical of global issues in particular climate change being the third highest of all groups to believe that climate change arguments have been exaggerated. They are undertaking a relatively high amount of environmental activities but unlike the positive greens they do not feel the need to do more and do not feel guilty about undertaking anti-environmental activities.
- **3. Concerned consumers**: Members of this group do more than most people but there is a limit to how much they are willing to change their lifestyle. This group is relatively affluent and has an early-middle age profile with the highest number of dependent children. They have a largely pro-environmental attitude but without the level of conviction of positive greens or sideline supporters. They believe that action needs to be taken to address threats to the environment and believe that this will only be resolved by everyone taking action rather than waiting on scientists to come up with a technological solution. A significant difference between this group and groups 1 and 2 is that they are the least likely to feel that the Earth's population is reaching its limits. Whilst they are very concerned about climate change they are less concerned about threats to the countryside and biodiversity.

- **4**. **Sideline supporters**: Sideline supporters consider climate change to be an important issue but do not feel as though they are doing enough about it. They are less affluent than average and whilst spanning all age groups are slightly more likely to be in the 16-29 age group. Overall their conviction about the seriousness of environmental issues is second only to the positive greens. However they are undertaking less pro-environmental behaviours than groups 2 and 3. They are finding it difficult to change their lifestyles in more sustainable ways and are significantly more likely than average to report that they would do more if the government did more. They have the second highest levels of guilt in regards to their environmental activities (after group 1).
- **5. Cautious participants**: This group does undertake some sustainable practices and would undertake more if other people were also. This group has a younger age profile with a high level of dependent children and a middling amount of financial security. This group has a medium level of concern for environmental issues but are notably pessimistic about the chances of humans addressing big issues such as climate change. This group was the most likely to report doing one or two pro-environmental behaviours, with time pressures being a major barrier to doing more. They showed high levels of guilt about their impacts.
- **6. Stalled starters**: This group has a low level of knowledge about climate change. They have the lowest socio-economic profile of any group with an over representation of younger and older people and the highest level of cultural diversity. DEFRA found that it was difficult to gain an accurate understanding of the environmental attitudes within this group as there was tendency to answer yes to all questions (so there was, for example, a high proportion of people saying a climate disaster was imminent and a similarly high proportion saying that they thought climate change has been exaggerated). The environment was a relatively low priority for this group with time and money pressures acting as a barrier to taking more action.
- **7. Honestly disengaged**: This group has a negative environmental worldview with the environment playing a small role in their life. They are on lower than average incomes and are the more likely to be male. They were the least likely to think that environmental disaster was imminent and the second most likely (after group 6) to believe that climate change arguments had been exaggerated. They were by far the most likely to express indifference (‘neither agree nor disagree) in answers to questions related to the environment. They were also by far the least likely to experience guilt in relation to undertaking anti-environment behaviours.

Figure 8 below shows the implications of the Defra segmentation approach to policy and communications campaigns aimed at each group. Segments 1, 3 and 4 are relatively engaged and have a relatively high potential for doing more. The approach for these groups is to remove external barriers stopping people taking action and engaging through communications and community action. Segment 2 is already taking quite a lot of action and is not motivated to take more, segment 5 are easily embarrassed taking environmental behaviours unless they perceive it as normal. For this group providing incentives and governments leading by example are important. Segments 6 and 7 are relatively disengaged and unlikely to voluntarily take action, for these groups regulations aimed at improving the sustainability of products may be important (DEFRA 2008).

Figure 8 : The potential and willingness to act amongst DEFRA's population segments.



Attitudinal segmentation in Australia

Ashworth et al. (2011) use the results of responses to survey questions to cluster the community into groups based on their attitudes to environmental issues. Ashworth et al. (2011) applied a cluster analysis to identify four main groups based on their responses to a survey examining the attitude of Australians to climate change. The report found two dimensions, concern about climate change and knowledge of climate change that were sufficient to distinguish between segments of the community. Using this method the report identified the following four groups:

1. Engaged: People with high levels of concern about climate change and moderate to high levels of knowledge about climate change. This group contained 27% of the respondents.

2. Concerned and confused: This group contained members with moderate to high levels of concern about climate change and moderate levels of knowledge. This group represented 36% of respondents.

3. Disengaged: this group had a low level of knowledge of climate change issues and a low to moderate level of concern. This group represented 15% of respondents.

4. Doubtful: This group had a moderate level of understanding about climate change but the lowest level of concern. Their knowledge in many cases correlated with arguments from the climate denial movement. This group represented 23% of respondents.

Ashworth et al. (2011) also linked the results of their cluster analysis to demographic segments within the community. There was no statistically significant correlation between the attitude segments and several major demographic variables (including household type, income and location). Statistically significant correlations were found between the attitudinal groups and gender (females were more likely to be in the 'engaged' and 'concerned but confused' categories and less likely to be in the 'disengaged' and 'doubtful' categories) and age group (the proportion of respondents categorised as 'disengaged' decreased with age and the proportion categorised as 'doubtful' increased with age).

Behavioural segmentation in Australia

The DECCW (2010) *Who Cares About The Environment?* not only analysed environmental attitudes by demographics (see 4.1) but also categorised respondents into three broad behavioural groups. These groups were formed on the basis of respondent's behaviours in relation to household environmental activities and citizen participation in environmental activities. The three groups are summarised below (See also Figure 9 below):

1. Committed (38% of population): This group scored highly for both household environmental activities and citizen participation. There was an over-representation of females (54%); people in their older middle years (45-64); and people living in rural and regional areas amongst the Committed group. They were by far the concerned about environmental issues even though their level of environmental knowledge is approximately the average for the population. They tended to believe that environmental regulations were lax in many areas and were very concerned about climate change.

2. Private (32%): This group was concerned about the environment and undertook household environmental activities but were much less likely than the Committed group to be engaging in citizen participation around environmental issues. Two thirds of Reluctant group had a great deal of concerns around environmental issues; overall they had slightly lower than average knowledge of environmental issues. They had more trust than other groups in media presented to them by business or media personalities.

3. Reluctant (21%): Reluctants were less likely than others to feel strongly about environmental issues and less likely to be engaged in either household or citizenship environmental behaviours. This group was biased towards males (57%) and had a slightly younger age profile compared to other groups.

Figure 9: Occasional (citizenship) and everyday (household) behaviours amongst the DECCW segments.

	Committeds %	Privates %	Reluctants %
Participated in local development or environmental issues	54	5	7
Tried to get information on an environmental topic or issue	84	17	22
Purchased an energy efficient appliance	80	72	64
Took part in Landcare, Bushcare, tree planting or other project	41	6	5
Tried to encourage someone else to change an environmentally harmful activity or practice	87	28	29

	Committeds %	Privates %	Reluctants %
Chose household products better for the environment	90	89	31
Reused something instead of throwing it away	94	95	52
Reduced water consumption	94	93	74
Reduced energy consumption	96	97	87
Avoided products with lots of packaging	83	82	16
Reduced fuel consumption	79	74	46
Composted and/or used a worm farm	63	49	27
Avoided plastic bags to carry shopping	86	76	54
Reduced the amount of food household throws out	91	88	60
Bought fewer items that were not needed	80	74	17

The social marketing approach to audience segmentation, based on attitudes and actions, can be a powerful technique for identifying which groups to engage and in what way. Generally, segments based on attitudes and actions are more coherent and consistent than segments based on demographics. This makes it easier to design messages to appeal to specific segments.

4.3 Values

Values Theory suggests that there is a distinct set of orientations that people in all cultures recognise. These values are important in motivating people's behaviours as people generally attempt to act in ways that are consistent with the values that they hold. Values also affect how people process information making it more likely they will be receptive to information that correlates with their values. Campaigns hoping to motivate behaviour change need to consider not just what information they are providing but also how it will interact with the values of their audience.

The following section will provide a brief introduction to Values Theory and what it means for audience segmentation and targeting. It will then be followed by a consideration of two interpretations of the theory that draw divergent and in some ways contradictory interpretations of how it should be used in behaviour change campaigns.

Values theory an introduction

Values are beliefs that are not limited to specific actions or situations but rather act as guiding principles in all actions that people undertake. People set goals to strive for that are in line with their values and so values have a vital role in motivating behaviour. Any action that increases the likelihood of attaining these goals s will be viewed positively whereas any actions that that threaten these goals will be viewed negatively (Schwartz 2006). Values influence actions even when people do not reflect on these values

consciously. For example, a person who prioritises the value of security will be less likely to open the door to a stranger than one who prioritises benevolence (Crompton 2010).

Every individual attaches differing levels of importance to different values and in doing so creates a hierarchy of priorities that will guide their actions. An individual's values are closely tied to their emotional understanding of their world and so the ability of objective, rational information to change a person's values is limited.

Values Theory is based on the work of Shalom Schwartz who identified ten basic values that included all core values of cultures around the world. The ten basic values are (Schwartz 2006)

1. **Self-Direction** – Independent thought and action; choosing, creating, exploring
2. **Stimulation** – Excitement, novelty, and challenge in life
3. **Hedonism** – Pleasure and sensuous gratification
4. **Achievement** – Personal success through demonstrating competence according to social standards
5. **Power** – Social status and prestige, control or dominance over people and resources.
6. **Security** – Safety, harmony, and stability of society, of relationships, and of self
7. **Conformity** – Restraint of actions, inclination, and impulses likely to upset or harm others and violate social expectations or norms.
8. **Tradition** – Respect, commitment, and acceptance of the customs and ideas that traditional culture or religion provide the self.
9. **Benevolence** – Preserving and enhancing the welfare of those with whom one is in frequent personal contact (the 'in-group').
10. **Universalism** – Understanding, appreciation, tolerance, and protection for the welfare of all people and nature.

Schwartz found that certain values are closely linked to other values (the ones closest to them in Figure 3) and these values people find relatively easy to combine. Other values are opposed (the ones opposite them in the circle in Figure 3), and the motivations they engender are contradictory. Therefore values such as self-direction and stimulation that motivate unusual or risky behaviour are opposed to the values of conformity and security. Adherents of both the Values Modes approach and the Common Cause approach accept the existence of opposing values; however their interpretation of what this means for behaviour change campaigns is very different.

Values Modes Approach

The Values Mode framework (Rose 2010) is based on the values work of Schwartz as well as the work of psychologist Abraham Maslow. Maslow stated that people followed a sequence of needs beginning with needs of sustenance and safety, moving then to needs of success and recognition and finally to ethics and self-actualisation. Rose (2010) uses these three Maslow groups to segment the population into three broad psychological archetypes as outlined below (Rose, 2010; Rose & Dade, n.d.):

'Settlers' SD (Sustenance Driven or Security Driven): People in this group are concerned with core physiological needs as well as needs for safety, security and

belonging. Members of this group prioritise Schwartz's values of security, conformity and tradition.

'Prospectors' OD (Outer Directed): Members of this group are driven by the desire to generate self-esteem and the esteem of others. They seek opportunities to succeed and gain social and material recognition for their success. They are motivated by the Schwartz values of stimulation, hedonism, achievement and power.

'Pioneers' ID (Inner Directed): Pioneers are inner directed, the drivers for their behaviour are aesthetic or cognitive. They are more concerned than other groups with 'big picture' questions and are guided by a sense of justice and equality. They are motivated by the Schwartz values of self-direction, benevolence and universalism.

To gain the support of members of each group a communications campaign needs to appeal to the motivations of each group. This may mean that different communication mechanisms need to be used for each group. Pioneers are especially interested in 'issues' and are likely to be disproportionately represented amongst those that work in occupations encouraging behaviour change. A common problem that campaigns face is too pitch an idea using 'universalist' propositions under the assumption that if people knew the facts they would be inspired to take action (Rose 2010). However, these arguments appeal to Pioneers but may be seen as boring by Prospectors and too 'PC' by Settlers (Rose 2010).

The way that behaviours spread through the population is that Pioneers who are attracted to the interesting and innovative take up a behaviour first (in marketing terms they are the innovators), if Prospectors feel that it is a behaviour that will succeed in improving their social standing (e.g. the behaviour is seen as 'cool') then they are likely to adopt it (they are considered early adopters). Settlers who value conformity will most likely adopt behaviour only once it is being undertaken by most of the Pioneers and Prospectors and has thus become normalised.

Under each of the three Maslow groups lie four Value Modes (see Figure 10). One Value Mode, the 'Now People' is considered particularly important for mainstreaming a behaviour, idea or product. The Now People are the most concerned with social status and are inherently attracted to anything that will help them appear 'cool', they also have highly developed social skills and so are adept at spreading any innovation they adopt. Because of the importance of the Now People, the Values Mode approach places a particular emphasis on designing communications that appeals to their values. An example of this emphasis is the organisation Global Cool whose motto is 'we want you to feel good about doing good'. Like many other organisations Global Cool targets high emissions behaviours but places very little emphasis in communications on the 'issues' instead aiming to make emissions reductions fun, exciting and cool (Rose 2010).

Figure 10 : The twelve Values Modes (Cultural Dynamics 2012)**.**

Value Modes groups

Settlers

Roots – The base value mode concerned with survival and therefore the need to 'look after number one' and be self-sufficient

Smooth Sailing – They have developed a degree of security beyond those in the Roots stage. Their main concern is to maintain their lives in a harsh world and they tend to stick to routines. Minimal awareness of societies needs and limited ambition.

Brave New World – Hard workers who dream of a better world. Whilst they are attracted to big ideas they have a reductionist worldview that separates life into discrete situations.

Certainty First – Attracted to the 'old ways' they would prefer the pace of change to slow down. They understand they have a role or position in society and are content to stick to it. They are attracted to strong, simple explanations of reality.

Prospectors

Golden Dreamers – A transitional group between Settlers and Prospectors this group believes that peoples aspirations can come true and are thus willing to take some risks to achieve their dreams. They are somewhat torn between this risk taking attitude and the need to maintain financial safety and will therefore "sometimes cut corners to 'buy the dream'".

Happy Followers – Optimistic and ambitious people they are seeking respect but are confused whether the respect of others or self respect is more important. Their ambition means they are often too busy to have time to sort out these issues.

Now People – High energy people who want to get the most out of life. More than any other group they actively seek the approval of others and have highly developed empathetic skills. This group is particularly crucial for spreading innovations from Pioneers to the rest of society.

Tomorrow People – Compared to other Prospectors Tomorrow People have already achieved the esteem of others and are now focussed on the development of self-esteem. They are optimistic about life and the future and have highly developed social skills.

Pioneers

Transitionals – Rational, pragmatic people they are open to new situations but like to explore them safely using trusted methods. Life has got exciting for them but they are not seen by other people as exciting.

Concerned Ethicals – Deeply concerned about issues, they aim to be better people and contribute to a better world. They have a diverse knowledge base and an opinion on a range of subjects however they may sometimes lack compassion for others.

Flexible Individualists – Highly self-reflective and highly energetic they like to push their own boundaries. Ethics figure strongly in their worldview however they are more likely to change their views than Concerned Ethicals.

Transcenders – The most self aware and contented of the pioneers. They seek connections between things and new ideas, they adopt a forgiving attitude both to themselves and to others.

Common Cause

Like the Values Modes approach the Common Cause approach recognises the importance of values and the existence of complimentary and opposing values. As discussed in Section 2.7, Common Cause splits the basic values into two types: intrinsic and extrinsic (Crompton 2010).

Intrinsic values: These values are largely those where the individual believes they 'are the right thing to do' even if they do not offer immediate external rewards. These values are those that are associated with 'bigger-than-self' problems (problems where the impact on the individual or the individuals capacity to tackle the problem is limited) such as social justice or environmental protection.

Extrinsic values: Extrinsic values are those of self-interest that generally come with the expectation of external rewards. These rewards may be material or financial but they can also be social in the form of enhanced respect or esteem from others

A value is activated in a person when they undertake an action in line with that value or are exposed to communications promoting that value. In the same way that when muscles are exercised they become stronger values become stronger and more accessible the more they are activated. Experiments have shown that when a value is activated people become more motivated to undertake other behaviours that are in line with that value. Equally, activating a value acts to supress the opposing values (those values that are on the opposite side of the circle in Figure 3).

This has profound implications for campaigns directed at encouraging sustainable behaviour change. Advocates of the Common Cause approach (see Section 2.7) accept that appealing to consumerist values to promote a specific behaviour change (e.g. promoting a behaviour as cool, fashionable, cost-effective etc.) can be effective. However they claim that it creates 'collateral damage' to other related values making it more difficult to activate these in the future. Conversely if values such as benevolence and universalism are activated when encouraging behaviour change these values become more accessible and the opposing values of achievement and power become suppressed. This makes it easier to promote related behaviour change campaigns in the future.

A key concept in this approach is the idea of 'frames' which are 'cognitive structures held in the long term memory that contain particular values' (Crompton 2010). Frames are more issue specific than values and the use of a particular frame can have a significant influence on how an issue is perceived. Crompton (2010) uses the example of the US Government's response to the September 11 2001 attacks; the government used the phrase 'War on Terror' to invoke the pre-existing 'war' frame with its associated ideas of a long series of violent battles, some won, some lost and significant casualties. The alternative option would have been the frame of 'criminal justice' and the associated ideas of a search for individual perpetrators and people brought to justice using the legal system. The choice of the 'war' frame alters the public expectations of the policy response.

Two particularly relevant frames for the issue of behaviour change are the 'self interest' frame and the 'common interest' frame. The 'self-interest' frame suggests that people

should pursue their own self-interest, most commonly understood as their ability to maximise their economic interest. The opposing 'common interest' frame suggests that not all value can be assessed economically, some values are intrinsic, and that working cooperatively can lead to benefit to all members of a community (Crompton 2010). Common Cause proponents argue that messages should be tailored to use the language and metaphors appropriate to a particular audience segment but only to the degree that this helps strengthen helpful frames such as the 'common interest' frame (Crompton 2010).

The debate between proponents of the Values Mode and Common Cause approaches has been heated and is still playing out. To date, there has been insufficient testing of the Common Cause approach to definitively claim that it is the superior approach, although there have been promising results and the evidence base is strong. Our position is that the two approaches are not completely exclusive and clever communications design can potentially use a mix of intrinsic and extrinsic values to motivate.

The best example of such an approach that we have come across is the Orange RockCorps initiative in the UK (http://www.orangerockcorps.co.uk), which seeks to motivate young people to undertake volunteer work. Youth who do 4 hours of volunteer work in their local community get given an exclusive ticket to a concert with high-profile acts. The extrinsic reward of the concert ticket is used to support the intrinsic value of volunteering. As noted by Futerra:

> *It's an amazing programme, using extrinsic motivations to engage, encourage and reinforce intrinsic values of community, altruism and shared experience. It helps young people realise their power, fulfill their potential and 'symbolically self-complete' as the type of people who can make a real difference in their communities through volunteering.*[3]

This is one of very few examples of this kind of messaging and there is a strong need for marketing and communications design experts to take these research insights and turn them into appealing messages.

4.4 Discussion

There is no single solution to segmenting an audience that will be appropriate in all cases; the most effective method will depend on the context and the message that is trying to be communicated. However, wherever possible, some attempt should be made to target a communications campaign at specific segments of the public. The diverse motivations, knowledge, and means of accessing information amongst the public will mean that any communications strategy that attempts to broadband a message without any form of targeting will, most likely, be wasting a large share of its marketing resources.

Whether to use demographics, attitudes or values as a basis for a segmentation strategy will depend on the individual campaign. Demographic information about an audience is the easiest to obtain and if it is clear that an audience contains a large proportion of a single demographic grouping (e.g. a specific CALD group or young people) then the message can be tailored for that group. However, demographics are generally a poor predictor of behaviours or attitudes so they provide little guidance in how to motivate new practices.

[3] http://www.futerra.co.uk/blog/incentivising-volunteering

When a communications campaign is being directed at a larger and more demographically diverse grouping a segmentation technique based on either attitudes and actions or audience values may be more appropriate. Both of these types of segmentation provide a stronger basis for developing multiple messages designed to motivate people with different perspectives. When the campaign is aimed at a specific behaviour (e.g. recycling, switching off appliances) it may be most appropriate to analyse the audience based on their current actions in relation to that behaviour. However, segmentation based on behaviours does not tell us why a person is performing or not performing a behaviour. This makes design of suitably targeted messages difficult.

The use of a values approach may be most appropriate for a large-scale and/or broad communications campaign. In this case there may be a need to communicate across multiple mediums and the message can be tailored to the value groups that are most likely to be accessing that medium. In these cases it may be also valuable to target the campaign at those value groups that play the most influential role in spreading new ideas (e.g. the 'Now People'). However, as pointed out by advocates of the Common Cause approach, using the Values Mode technique is not without risk as it has the potential to strengthen negative attitudes towards intrinsic values and thus have a negative impact on similar behaviour change campaigns (more details of the use of intrinsic values are provided in Section 2.7).

We find the evidence base for the Common Cause approach most convincing of all those presented, as it takes into account the most up to date understanding of human psychology. However, there are relatively few examples of practical applications to draw on at this stage. It is therefore recommended to cautiously proceed to test Common Cause approaches, alongside more conventional approaches. This might mean, in a subtle manner, reinforcing intrinsic values and frames whilst appealing to the values that motivate particular Values Modes. The Orange RockCorps example presented above is one of the few examples we are aware of that does this well. Getting this balance right is no doubt difficult but it does have the potential to bring not only direct benefits to the specific program but also indirect benefits that can make future communications easier.

5 Discussion: Message design

It should be clear from this literature review that there are no easy answers on how to design messages to engage households in sustainable living practices. The literature includes strong advocates of different approaches that are often contradictory. To some extent, this reflects the importance of the specific context and audience; an approach that works in one circumstance will not work in another. This means that it is critical to get to know the specific audience segments that are of interest for a particularly application, define the desired behaviours and tailor the communication strategy appropriately.

However, there are some fundamental conflicts in the literature that go beyond just contextual differences. This section briefly discusses those conflicts to provide some guidance on how to navigate them.

5.1 Losses or gains

Conventional wisdom, and a lot of the survey research discussed in Section 6 argues that financial rewards in the form of cost savings, rebates or other incentives are crucial to achieve behaviour change. In contrast, behavioural economists argue that people are 'loss averse' and will therefore respond best if the desired change is framed to avoid a loss. Messages designed around these two different approaches would clearly be quite different.

Unfortunately, it is not a simple matter to say which of these approaches is 'right'. Empirical evidence does show that households respond to financial rewards. One only needs to look at the response to the NSW Solar Bonus Scheme to see that this kind of approach can be effective. On the other hand, experimental evidence shows that people like to hold on to what they already have and will do more to defend what they already have than to gain something of equal value.

There is some evidence that financial incentives work well when the desired behaviour is simple and linear, cost is a barrier and the action is largely self-interested. Installing solar panels does not require people to change their lifestyle, a financial incentive helps to make the investment viable and they will end up saving money on their bills. Messages based on gain will therefore work fine for a lot of simple resource-saving behaviours.

On the other hand, financial incentives can be counterproductive as a motivation for more complex lifestyle changes where there is less individual benefit. People do not expect to be paid for changes they make in the public good and financial incentives rarely provide the necessary motivation to change long-established habits. In these cases, pointing out that the lifestyles that people hold dear are under threat from environmental changes may be a more effective message.

5.2 Intrinsic or extrinsic motivation

The debate between proponents of the Values Mode approach and the Common Cause approach is still playing out in the literature. As stated previously, our position is that the weight of evidence for the Common Cause approach, based on appeal to intrinsic motivation, is strong. Nevertheless, the Values Mode approach, based on appeals to extrinsic motivation, can point to many successes (albeit usually in short-term projects).

Again, there is no simple answer here. We believe it would be unwise to rely solely on appeals to extrinsic motivation without at least thinking about the long-term effect of such appeals and how messaging can be modified to appeal more to intrinsic values. But we do not think it is yet time to abandon appeals to extrinsic motivation completely. Messages should seek to blend elements of both extrinsic and intrinsic motivation. This will require a lot more thinking about the specific wording of messages and the kind of values they might activate.

With both of these messaging dilemmas, what is actually needed is testing of each kind of approach through focus groups and real applications to add to the body of evidence on what is most effective in different contexts. For now, the literature is equivocal but strongly suggests that greater use of loss aversion and intrinsic motivation than is current practice will lead to more effective outcomes.

6 How are NSW and Australian households engaging with sustainability?

This section addresses the question:

- What are NSW and Australian householders' understanding, needs and priorities in relation to sustainability issues and practices?

Key resources for this section are the results (both quantitative and qualitative) from the triennial social research series, *Who Cares about the Environment*? This research measures the environmental knowledge, attitudes and behaviours of NSW householders through surveys and focus groups. The most recent results are from 2009 (Ipsos-Eureka Social Research Institute 2010b; Ipsos-Eureka Social Research Institute 2010a; DECCW 2010). We also draw on some results from the 2006 survey (Elliott & Shanahan 2006) and some more recent social research for OEH (Ipsos 2012b).

In addition to the *Who Cares* resources, we reviewed the following additional studies and reports on the attitudes and behaviours of Australian households in general:

- Survey research by the Australian Bureau of Statistics (ABS 2009; ABS 2007; ABS 2010; ABS 2011)
- The Australian Housing and Urban Research Institute (AHURI's) *Environmental Sustainability: understanding the attitudes and behaviour of Australian households* (Fielding et al. 2010), undertaken in Brisbane and Melbourne
- The Organisation for Economic Cooperation and Development (OECD) report *Greening Household Behaviour: The role of public policy* (OECD 2011)
- Qualitative research undertaken for the Climate Institute's 2012 *Climate of the Nation* report (JWS 2012)
- *What Matters to Australians: Our Social, Political and Economic Values* (Devinney et al. 2012)
- Auspoll's *Energy Efficiency: A Study of Community Attitudes* (Auspoll 2011)
- CSIRO's *Communication and Climate Change* (Ashworth et al. 2011), which included some broader survey questions on other environmental issues
- The *IPSOS Climate Change Report 2011* (Ipsos 2012a), which also includes some broader environmental research.

Although focused on Australia as a whole, these reports provide some insight into how NSW households are engaging with sustainability. They are all more recent than the *Who Cares* research, so they help to explore possible recent changes in attitudes and behaviours. Generally, the recent Australian research reinforces the earlier NSW research findings. However, some of the recent Australian research indicates that the decline in the perceived importance of sustainability and sustainable living that was already evident in the 2009 *Who Cares* research has continued in the last three years.

This section specifically considers the following five research sub-questions related to NSW and Australian households in relation to their knowledge, attitudes/values, priorities, actions and (program design) preferences:

1. What do people know about sustainability issues? (Knowledge)
2. To what extent do people care about sustainability issues? (Attitudes and values)
3. How important are sustainability issues to people and which issues are high/low priorities? (Priorities)
4. What practices are people actually engaging in to improve their sustainability? (Actions)
5. How would people like to be engaged about sustainability and what messages and delivery approaches work? (Program design preferences)

This section presents a high level summary of evidence for NSW and Australia, and where possible across the following environmental issues: energy efficiency, water efficiency, waste/recycling/litter, biodiversity, transport, air and chemicals, and environmental activities in the local area

6.1 Knowledge

The 2009 *Who Cares* research with NSW householders revealed that the term **sustainability**, and even more so **sustainable living** was one of the most frequently used and best understood environmental terms of those investigated (Ipsos-Eureka Social Research Institute 2010b). The research also found that familiarity and comfort with the term sustainability had increased compared to research carried out previously. According to the earlier 2006 *Who Cares* research, NSW householders were slowly changing the way they view 'the environment' and were beginning to see relationships and interconnections between various environmental issues rather than viewing them separately (Elliott & Shanahan 2006).

Importantly, the research to date has found that concern about environmental issues is not necessarily related to high levels of knowledge – householders with lower concern for environmental issues may be just as informed as those who are more concerned. The research also revealed that householders who were more engaged in environmental actions only had a slightly higher level of knowledge compared to those who were less engaged in environmental actions (DECCW 2010). This suggests that additional factors other than knowledge are at play when determining the level of environmental concern and action – and also confirms the literature findings in Section 2.1 of this report.

As mentioned, NSW householders are beginning to see the relationships between various environmental issues, and **energy efficiency** is one example. Generally considered within the residential context, NSW householders strongly associated energy efficiency with protecting the environment (as well as saving money) (Ipsos-Eureka Social Research Institute 2010a). Almost half of NSW households knew that electricity production generates more carbon pollution than transport (DECCW 2010) and there was evidence that understanding and awareness of energy efficiency actions has increased (Ipsos-Eureka Social Research Institute 2010a). In 2011, almost half of NSW households (46%) were aware of the GreenPower scheme (ABS 2011). However, an Australia wide survey

by Auspoll found that around half of all Australians don't know very much, or know "nothing at all", about key aspects of their home **energy use**, including how much it costs to run different appliances and the amount of money that can be saved through energy efficiency actions (Auspoll 2011).

In 2009, 74 per cent of householders believed that **water consumption** had improved (reduced) in the previous three years (DECCW 2010, p. 34) and 35 per cent knew that agriculture is the primary user of water in NSW (DECCW 2010).

Research found that NSW householders lacked knowledge about **recycling**. Findings revealed that householders did not always know what can and can't be recycled, that they lacked awareness of the resources saved by recycling and didn't know why there is a need to recycle (DECC NSW 2008; DECCW 2010). In relation to **littering**, NSW householders thought the main impacts were both aesthetic (visually untidy and dirty) and environmental (harming animals and wildlife) (Ipsos 2012b, p. 2). Most knew it was wrong to litter and would not want to be seen doing it (Ipsos 2012b).

In relation to **waste**, NSW householders identified three key issues – that products are increasingly heavily packaged, that not all recyclable materials are being recycled, and that landfill sites are reaching capacity (Ipsos-Eureka Social Research Institute 2010b, p. 25).

NSW householders had a poor understanding of the term **biodiversity.** Results from qualitative research found that understanding of the term had not improved compared to previous years and for most it was not a term used in everyday conversation (Ipsos-Eureka Social Research Institute 2010b). This provides further justification for engaging householders around practices (and language) they are more familiar with, such as DEFRA's (2011) focus on a headline behaviour of 'using and future-proofing outdoor spaces' rather than primarily on biodiversity protection.

The Australian research reports, other than those already cited, add little to our understanding of household knowledge in NSW. They are consistent with what is seen in the NSW research. The overall conclusion we would draw is that lack of knowledge is not necessarily a key barrier to engaging households in sustainable living practices. Households may lack 'practical knowledge' of how to engage in and sustain a particular practice but this is better addressed by providing households with experience of that practice than trying to make them experts in explaining the issues.

6.2 Attitudes and values

NSW research

The 2009 *Who Cares about the Environment* survey found an overall shift toward **lower levels of concern** about environmental problems since the previous survey carried out three years prior (2006). The number of people not concerned at all about environmental problems almost doubled from 13 per cent to 22 per cent (DECCW 2010). Women, parents and people with higher education levels tended to be the most concerned about environmental problems (DECCW 2010). The main reasons for being concerned about the environment included: concern for future generations, maintaining ecosystems, and, long term economic sustainability.

Of those who reported a lack of concern about environmental problems, some 24 per cent reasoned that the problem is not as bad as people say (up from 6 per cent in the 2006 survey). The conclusion to be drawn from this finding is that more people now believe environmental problems to be exaggerated, but it was presumed that this belief is in response to the climate change issue more specifically (DECCW 2010). Other reasons for lack of concern illustrate a lack of engagement with environmental issues. Younger people aged 15-24 were more likely to lack concern because they hadn't thought about it, while older people (aged 65+) (and retirees) were more likely to say they were too old to be concerned (DECCW 2010).

While quantitative survey results showed a decrease in the importance of **water supply/water conservation** to NSW households (since 2006), qualitative research found that **water security** was still frequently mentioned as a key challenge facing NSW, particularly given an increasing population (Ipsos-Eureka Social Research Institute 2010b).

Concern about **waste** as an important issue increased between 2006 and 2009. Overall, results suggested that people had become more concerned with the amount of waste produced by the community (DECCW 2010). Fourteen per cent of NSW households said they were either not interested or that it was 'too much effort' as their reason for not **recycling** (ABS 2009, 4602.0.55.002, Table 2.7).

OEH research underpinning the Love Food Hate Waste program provides a detailed picture of attitudes and behaviours in relation to food waste specifically (OEH 2011). This research is not summarised here, given that it is already well addressed through the existing Love Food Hate Waste program.

Views about **litter** were mixed: 44 per cent felt that there had been an improvement in litter reduction, 34 per cent felt there was little change, and one fifth thought the issue of litter had become worse (DECCW 2010). Participants generally viewed littering negatively, even when they admitted to dropping litter themselves. More recent research indicates that littering of biodegradable waste is seen as more acceptable (Ipsos 2012b).

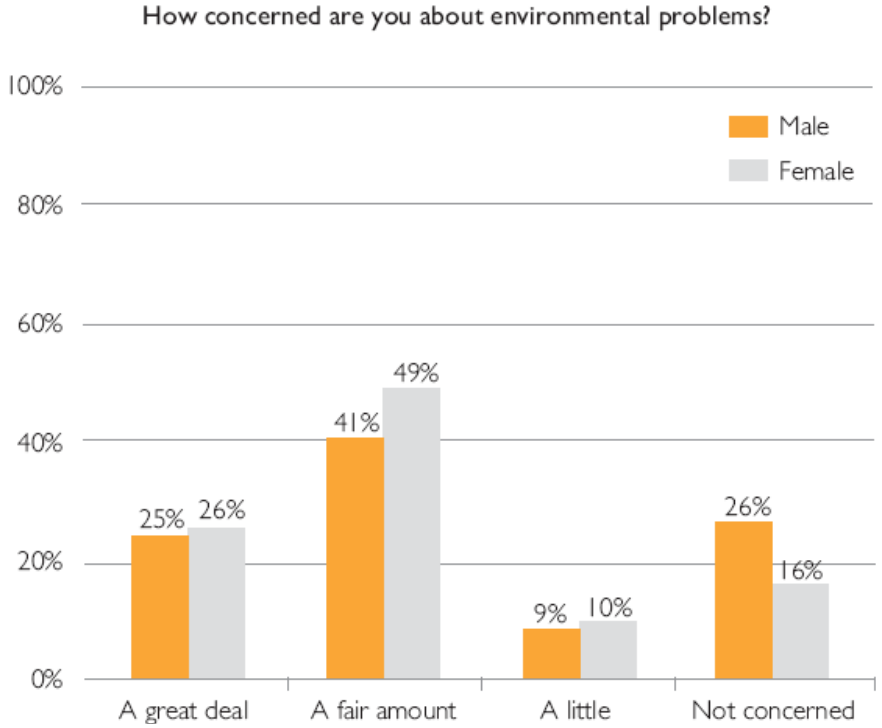
As mentioned previously, qualitative research found that householders had a poor understanding of the term **biodiversity**. Even so, quantitative research found that householders held strong views about biodiversity issues. For example, an overall negative trend was found in relation to people's views concerning the protection and conservation of endangered plants and animals (that it is, they think the level of protection is getting worse). There was also strong agreement that some areas of the marine environment should be protected – even if it meant excluding recreational and commercial fishing (DECCW 2010, p.50). And as mentioned above 'maintaining ecosystems' was one of the main reasons for being concerned about the environment. So, while NSW households care about the natural environment and other species, they do not connect this concern with the term biodiversity.

On the issue of **transport** – specifically, perceptions of progress on encouraging alternatives to motor vehicles – results showed a long term decline in positive perceptions since the 2000 survey (DECCW 2010). Also, whereas more people thought that **air quality** had improved since 2006, there was only a marginal increase in positive views since the 1994 survey (DECCW 2010). An earlier study found that for those concerned about **air pollution/quality**, the concern stemmed less from environmental values, but more from utilitarian concerns about quality of life (Reeve 2008).

Australian research

More recent CSIRO research (from a survey conducted in October 2010) found that Australians generally express concern about the environment, with one third concerned a great deal (Ashworth et al. 2011). Figure 11 shows the breakdown of results by gender showing that women are slightly more concerned than men.

Figure 11: Concern about environmental problems (Ashworth et al. 2011).



Those who were not concerned raised the following issues:

> *perceived lack of control over the problems, beliefs that environmental problems were being exaggerated by vested interest groups such as the media and environmental organisations, or that environmental issues were part of a natural cycle and therefore should not be worried about. Others expressed the view that they would not be around to see the impacts and therefore did not worry* (Ashworth et al. 2011, p.14).

Over a quarter of Australians (27%) believe individuals should reduce their **energy** consumption to combat climate change (Ashworth et al. 2011). Interestingly, the survey research mentioned above on community attitudes to energy efficiency carried out by Auspoll in 2010, found that almost all Australians are prepared to make additional changes to take actions to use less energy or be more **energy efficient** (Auspoll 2011).

The Auspoll survey found that Australians are very concerned about home energy costs, more so than food and grocery, healthcare, housing, transport or education costs. However, as mentioned in Section 5.1, Australians didn't have much knowledge about the times when energy is charged at off-peak rates, the amount of energy that different appliances use, and the amount of money that could be saved by taking various action (Auspoll 2011). The CSIRO survey found 23% of respondents advocated the use of renewable energy sources (Ashworth et al. 2011).

Water-related issues are a common concern for Australians (Ipsos 2012a). The Ipsos Climate Change survey (Ipsos 2012a) asked participants which environmental issues they would take action on if they were in charge of making decisions for Australia. The results showed that Australians are most concerned about addressing issues relating to **water**. However, there was a decline in the proportion of Australians nominating water-related issues compared to the previous year; water availability and wastage was selected by three quarters (75%) of respondents in 2010, but only by 58% of respondents in 2011 (Ipsos 2012a).

This accorded with results from a separate online survey study of 1495 people carried out previously in 2008 that Australians generally have very positive attitudes towards water conservation and water saving appliances – 97% of respondents stated that water conservation is important – however the positive attitudes are not consistently translated into behaviours (Dolnicar & Hurliman 2010).

The AHURI study was interested in the beliefs that underpin attitudes about **water curtailment**. The study found respondent attitudes to be underpinned by beliefs about the advantages and disadvantages of water curtailment actions. Both cost savings and saving water were the main advantages reported, though some householders prioritised the cost savings. The study found that householders viewed saving water as 'critical' and a 'serious issue' and it was something that they had 'worried' about for many years and that they felt 'strongly' about it. The advantage for some was that they were 'doing the right thing' (Fielding et al. 2010, p. 41).

The study also found that householders viewed the advantages of **water saving** behaviour to have greater urgency than energy saving or waste minimising behaviours. Overall, the AHURI findings suggest that positive attitudes to water curtailment actions were mainly underpinned by beliefs about costs savings and environmental benefits. The report notes that 'householders might perceive that there is little benefit in conserving water if the utility is going to increase water prices or if their own behaviour has little impact on their water bills' (Fielding et al. 2010, p. 43). The AHURI study found positive attitudes to **energy** saving curtailment behaviour were, like water, underpinned by perceived financial and environmental benefits (Fielding et al. 2010, p. 66).

The Climate Institute's *Climate of the Nation* focus group study found that people's reasons for taking part in individual actions on climate change are often not necessarily about addressing climate change or even environmental reasons. Cost saving was found to more often be the trigger or a requisite consequence of the action, with the environmental or climate benefit an added bonus (JWS 2012, p.24). Some of the reported reasons included:

- Saving on costs
- Reducing my energy use and reducing waste
- Reducing pollution
- Knowing I am doing my bit
- Improving my health
- Improving my quality of life
- It is the right thing to do
- Being smart about the way we do things
- Saving and protecting the natural environment
- Working towards a sustainable future.

These findings suggest that while many householders are concerned about sustainability issues (especially women, parents and those with higher education), there are also groups of householders who appear to have grown distrustful of environmental messages and are now feeling sceptical about the need for environmental behaviour change. This was particularly evident in the CSIRO research that investigated the reasons for lack of environmental concern (Ashworth et al. 2011). It found that some householders feel that authorities are exaggerating environmental impacts and are not to be trusted. Audience segmentation would be useful for identifying which groups hold these opinions. This gives us good reason to suggest that messages be framed in a positive and inspiring way that will appeal to existing mental models – so that even sceptical groups may find reasons to engage in actions. As mentioned in Section 2 of this report, it is important to start where people are and connect to their existing concerns and mental models.

6.3 Priorities

NSW research

Survey results showed that as a future priority, environmental issues came second only to health issues for NSW households in 2009. Eleven per cent of householders nominated the environment as an *immediate* priority, and twice as many householders nominated the environment as a *future* priority (DECCW 2010). The importance of environmental issues increased over past years – as a current and future issue of priority (DECCW 2010). Young people (and students) and people with children were more likely to consider the environment as a high priority issue (DECCW 2010).

Energy and fuel was considered one of the two most important environmental issues by 17 per cent of NSW households surveyed in 2009 – representing a dramatic increase since 2003 when only 2 per cent saw this as one of the two most important issues. NSW householders expressed views about the need to reduce reliance on coal and fossil fuels, improved energy efficiency and the need to promote/increase the use of renewable energy supplies (DECCW 2010).

Water issues were a big priority for NSW households in 2006, due to severe drought conditions occurring during that survey period. In 2009, water issues such as supply, conservation/management and drought were again the most nominated issues (alongside climate change). However, in 2009, the prominence of water related issues as a *priority* declined and can be explained partly by the easing of the drought, but also by the increased prominence of economic issues due to the global financial crisis (DECCW 2010).

Waste, by contrast, regained prominence in the 2009 survey – mentions of waste increased from eight per cent in 2006 to 14 per cent in 2009, and 7 per cent nominated waste as the single most important environmental issue (compared to two per cent in 2006) (DECCW 2010).

Focus group discussions carried out in 2011 and 2012, found that **litter** was considered important, but was not viewed as a priority, although 'the behaviour and attitudes that littering was seen to represent, such as a lack of ownership or concern for others or for the environment, was believed by some as more important and serious than the act of littering itself' (Ipsos 2012b).

In contrast to the Ipsos focus group research, the research report 'Community Preferences for Litter Reduction' by consultants Instinct and Reason, which involved focus groups with participants from Sydney (also in 2011), found that people would like to see **litter** in waterways and recreational outdoor areas such as parks and playgrounds reduced as a priority. The concern related to the impact of litter on the environment, children and people (Donnelly & Buard 2011). Younger Australians were more concerned about the aesthetic damage done by litter, while older people tended to be more concerned about the general long term damage to the environment, animals and humans (Donnelly & Buard 2011).

When asked in focus group sessions about **recycling**, NSW householders indicated that it was important, but it was considered a low priority (compared with water conservation or saving electricity). While many reported there was no strong desire to act (to recycle everything they could), the findings suggested that this was mainly because recycling had become an everyday, routinised activity and wasn't something householders put much thought into (85% of respondents agreed with the statement 'recycling is just routine for me') (DECC NSW 2008). While there may be high rates of reported recycling (see Section 5.4), householders are generally only recycling basic items (some paper, glass and plastic) without ever seeking information about which other items can now be recycled (DECC NSW 2008).

Sydneysiders were more likely to nominate **air pollution** as one of the two most important environmental issues in NSW, compared with the rest of NSW householders (DECCW 2010). But generally, air pollution and air quality appear to be of less importance to NSW householders compared with the past – mentions of this issue have decreased over time from 32 per cent in 1997 to 17 per cent in 2009.

On the related issue of climate change, a large majority (69 per cent) of householders surveyed agreed that the NSW Government should take urgent action regardless of current social and economic conditions, and in 2009, the nomination of climate change as one of the two most important environmental issues increased on previous years (DECCW 2010) – almost a quarter nominated it as a top issue (up from 13 per cent in 2006). Overall, in 2009, NSW householders thought the environment was an important priority area. Energy and greenhouse, water and waste were all high priority issues for NSW householders.

Australian research

The OECD's Greening Household Behaviour survey, conducted during 2008, was interested in the degree of concern about selected environmental issues. Respondents for this study were from Australia, Canada, Czech Republic, France, Italy, Korea, Mexico, Netherlands, Norway and Sweden. Figure 12 below shows the results across the ten participating countries. Respondents expressed the highest degree of concern over natural resource depletion, and air and water pollution (OECD 2011, p. 30). Figure 13 shows the percentage of respondents who were very concerned about each issue by country. In Australia, levels of concern were similar to, or slightly above, the OECD average. The order of concern was much the same, with climate change ranking a little higher in Australia than the OECD average.

Figure 12: Degree of concern over selected environmental issues. (OECD 2011, p. 30)**.**

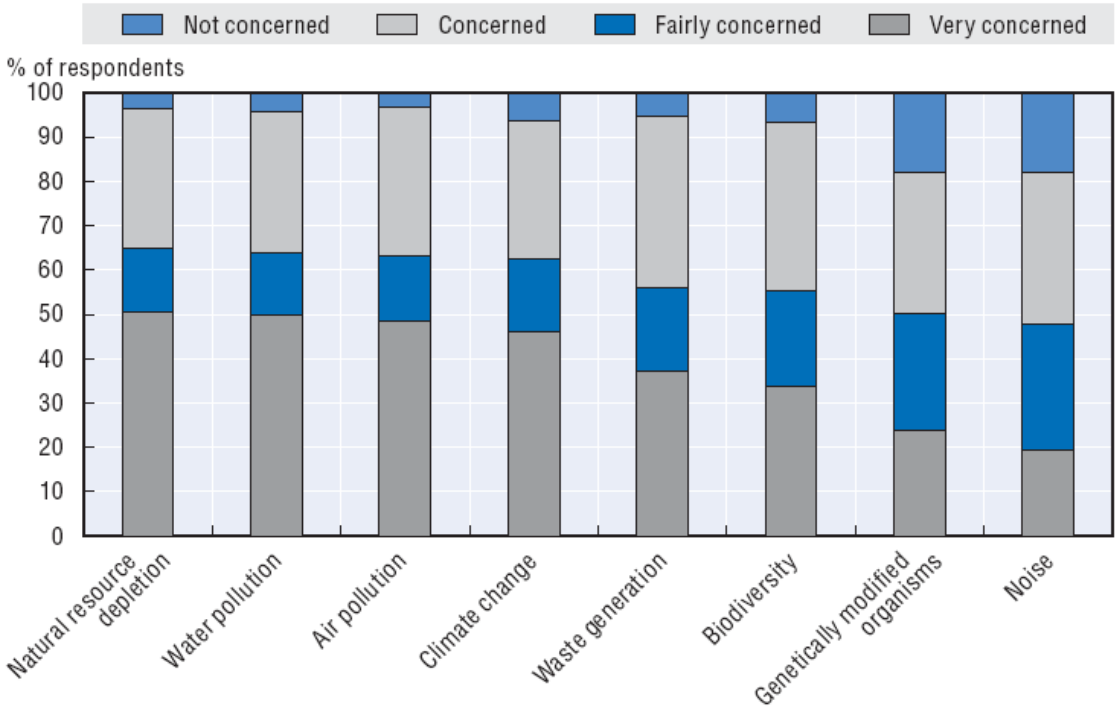
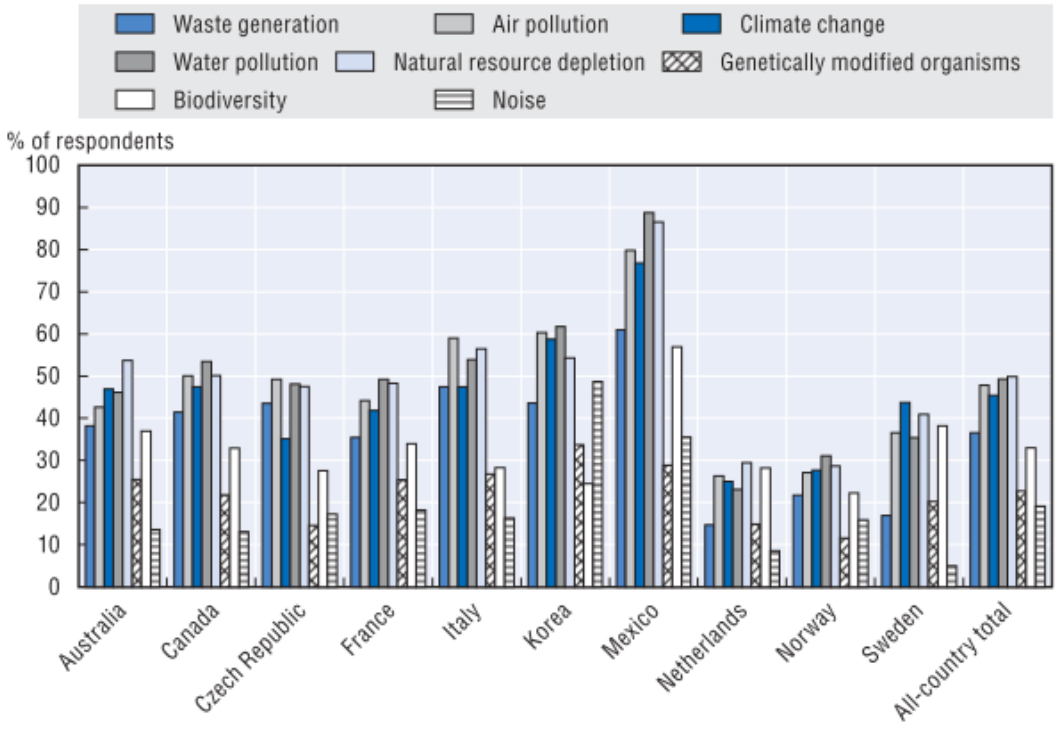


Figure 13: Percentage of respondents who are very concerned over a specific environmental issue (OECD 2011, p.31).



OECD survey respondents were asked to rank a set of six issues in terms of their importance. Respondents ranked economic and personal safety issues as a high priority, social and environmental issues as a medium concern, and health and international issues as low concerns. Figure 14 below shows that respondents in higher income classes tended to rank environmental concerns relatively higher (OECD 2011, p. 35).

Figure 14: Percentage of respondents ranking environmental concerns in the top 3 out of 6 concerns. (OECD 2011, p. 35).

In the discussion of CSIRO research in Section 6.2, we noted that participants expressed concern about environmental issues when asked. However, environmental issues ranked below the cost of living, the Australian economy and global financial crisis, employment and the health system as the most important issues for Australians (Ashworth et al. 2011). In other words, environmental issues are not top of mind priorities but people express concern when specifically asked about these issues.

When asked about the most important environmental issues, participants in the CSIRO research ranked climate change and related issues as most important, slightly ahead of water. These were clearly the two most important issues for participants, followed by deforestation, pollution, rubbish and waste, renewable energy, agriculture and food security, land degradation, drought and species loss (Ashworth et al. 2011).

A study by the Anatomy of Civil Societies project in 2012 found a similarly moderate level of priority placed on environmental issues (Devinney et al. 2012). When survey participants were asked to make trade offs between issues on the basis of what was important to them in the conduct of their lives, environmental sustainability ranked eighth on the list, below food and health, local crime and public safety, rights to basic services, civil and personal liberties, equality of opportunity, individual economic well-being and worker/employment rights. Importantly, environmental sustainability had fallen from a ranking of third in the 2007 survey, indicating a decline in the perceived importance of sustainable living.

The middling importance of sustainability to households and the recent decline in perceived importance are clearly challenges for engaging households in sustainable living

practices, as it means messages have to compete against issues seen as higher priorities. The recent Australian research adds to the NSW-specific research by indicating that there appears to have been a decline in the perceived importance of sustainability issues since the last *Who Cares* research was undertaken in 2009.

6.4 Actions

NSW research

The majority of NSW householders have reported that they are frequently engaging in practices that benefit the environment including **reducing energy and water consumption**, reducing **food waste**, deciding to **reuse** something instead of throwing it away and **avoiding plastic bags**. Most environmental behaviours were often or sometimes carried out by about 60 per cent of NSW householders, except for composting or using a worm farm (49 per cent) (DECCW 2010).

On average, women were engaged in more environmental behaviours than men. Women were more likely to choose household products that are better for the environment, reuse something, use less water and energy, avoid plastic bags, buy fewer unnecessary items, and reduce food waste (DECCW 2010)

Older people were more likely to reduce fuel use and vehicle air pollution, avoid products with lots of packaging and compost/use a worm farm. Meanwhile, younger people were more likely to have never chosen household products better for the environment or avoid products with lots of packaging (DECCW 2010).

Research findings included that students and employed people often did fewer behaviours than retired people. In addition, students were more likely to only occasionally reduce their food waste and water use and never avoid highly packaged products.

Compared to previous years, in 2009 more people reported that they had tried to get information on an environmental topic (46 per cent up from 38 per cent in 2006). The internet was the main source of information (DECCW 2010).

NSW householders living in a detached house were more likely to have sometimes or often **composted or used a worm farm**, whereas those living in semidetached housing or flats were more likely to have never done this (DECCW 2010).

Compared to previous years, in 2009 more people reported on often reducing **energy consumption** (an increase of 9 per cent from 73 per cent in 2006) (DECCW 2010). In 2011, the number of NSW homes with insulation increased by 10 per cent (since 2008) (ABS 2011). Thirteen per cent of households had installed insulation because a rebate was offered (ABS 2011). Seven per cent of NSW householders had solar powered hot water systems (compared with 8% Australia-wide). Only 3 per cent of NSW householders had solar electricity (ABS 2011).

However, despite these apparent improvements in energy efficient activities, ‘the typical NSW household was still characterised as being inefficient – they tended to implement actions on an inconsistent basis (Ipsos-Eureka Social Research Institute 2010a). And in addition, the number of energy using appliances has been slowly increasing: for example, since 2005, the proportion of NSW householders with a clothes dryer and a dishwasher

has increased – in 2011, 61 per cent had clothes dryer and 49 per cent had a dishwasher (ABS 2011).

In relation to **water efficiency**, the percentage of NSW households with a rainwater tank has increased (24 per cent in 2010 compared to 21 per cent in 2007). The greatest increase in uptake of rainwater tanks was seen in Sydney, with no change in the rest of NSW (ABS 2010, 4602.0.55.003, p. 13, table 5).

Almost half of the NSW households who installed a rainwater tank had done so to save water. Other reasons for installing a rainwater tank included water restrictions (16 per cent) and no connection to mains water (19 per cent) (ABS 2010, 4602.0.55.003, p. 14, table 6).

In the bathroom, the last decade has seen a big increase in the number of NSW households with a dual flush toilet (82 per cent in 2010 compared with 46 per cent in 1998) (ABS 2010, 4602.0.55.003, p. 5).

To save water in the garden, NSW householders are using mulch (22 per cent), only watering when necessary (20 per cent) and watering at cooler times of the day (14 per cent) (ABS 2010, 4602.0.55.003, p. 20).

NSW households are taking advantage of government assistance for water efficiency – in 2010, more than 160,000 households had received a government rebate or incentive in the previous year for at least one water-saving product (e.g. a washing machine/dishwasher (61 per cent) or a water efficient tap or showerhead (26 per cent) (ABS 2010, 4602.0.55.003, p. 21).

The large majority of NSW householders are **recycling** (98 per cent) and reusing items to avoid waste (83 per cent).[4] The most common items recycled/reused were paper, cardboard and newspapers (96 per cent), plastic bottles (94 per cent), glass (93 per cent) and plastic bags (90 per cent) (ABS 2009, 4602.0.55.002, Table 2.2 & 2.4). Recycling of steel cans has increased. Items are often recycled through municipal kerbside recycling services, which has increased from 89 per cent in 2006 to 92 per cent in 2009 (ABS 2009, 4602.0.55.002, Table 2.5).

Of the householders who did not recycle, 14 per cent said they were not interested/too much effort and nine per cent offered no reason for not recycling (ABS 2009, 4602.0.55.002, Table 2.7).

In 2009, the most common hazardous waste item disposed of were household batteries with 67 per cent of NSW households disposing of them during the previous year – an increase since 2000 when 51 per cent reported disposing of this item (ABS 2009, 4602.0.55.002, Table 2.11). In the same year, 60 per cent of NSW households were unaware of hazardous waste disposal services in their local area (ABS 2009, 4602.0.55.002, Table 2.13).

Composting food and/or garden waste or using a worm farm has the highest non-participation rate (DECCW 2010).

[4] Note that this is not in conflict with the findings in Section 5.3 indicating that recycling is a low priority for NSW households. Recycling has now become so routine that households do not see any priority to change what they are already doing.

One fifth (20 per cent) of householders in NSW are taking part in active environmental restoration work (e.g. Landcare, Bushcare or other restoration projects) (DECCW 2010). This shows that local environmental activities are a relatively high priority for NSW households.

Australian research

Looking at Australia wide research concerning sustainability actions, nine in ten Australian said they took steps to limit their personal **energy** use, with women being more likely than men to do so (ABS 2011). Comfort was the main reason why most Australian householders (83%) had insulation installed to reduce energy use, whereas 11% of householders said it was to save money on energy. Of those without insulation, for 34% of householders it was because they were not the home owner or not responsible, some (17%) said cost was the reason, while others (12%) said they had not considered installing insulation (ABS 2011).

When it came to **water use and conservation**, in 2010 just over a quarter (26%) of households were using a rainwater tank as a source of water. This had increased from 19% since 2007 (ABS 2010, 4602.0.55.003). Of the households living in a dwelling suitable for a rainwater tank, the number with rainwater tanks had increased from 24% in 2007 to 32% in 2010 and the proportion of households residing at a dwelling less than one year old that had a rainwater tank installed rose from 26% in 2007 to 57% in 2010 (ABS 2010, 4602.0.55.003). That is, households living in newly built homes were more likely to have a rainwater tank installed than other households in older homes. Households in capital cities had the greatest increase in the proportion of rainwater tanks installed at their dwelling (26% in 2010 compared with 15% in 2007).

Some of the main reasons for installing rainwater tanks included water savings, water restrictions and government rebates. In 2010, more than 600,000 Australian households had received a government rebate or incentive in the previous 12 months for at least one water saving device – 41% for a washing machine or dishwasher, and 37% for a water efficient tap or shower head (ABS 2010, 4602.0.55.003).

Australian family households were the most likely to take at least one water saving step inside or outside their homes and the most common areas for households to save water were in the garden and the bathroom (ABS 2010, 4602.0.55.003).

The same ABS survey found that the proportion of households with dual-flush toilets and water efficient showerheads had increased in the previous 12 years. 86% of households had a dual flush toilet in 2010 and 66% had water efficient showerheads (compared with 55% and 32% in 1998 respectively) (ABS 2010, 4602.0.55.003). To save water in the garden, just over a quarter (27%) of Australian households with a garden used mulch and 20% only watered when necessary (ABS 2010, 4602.0.55.003).

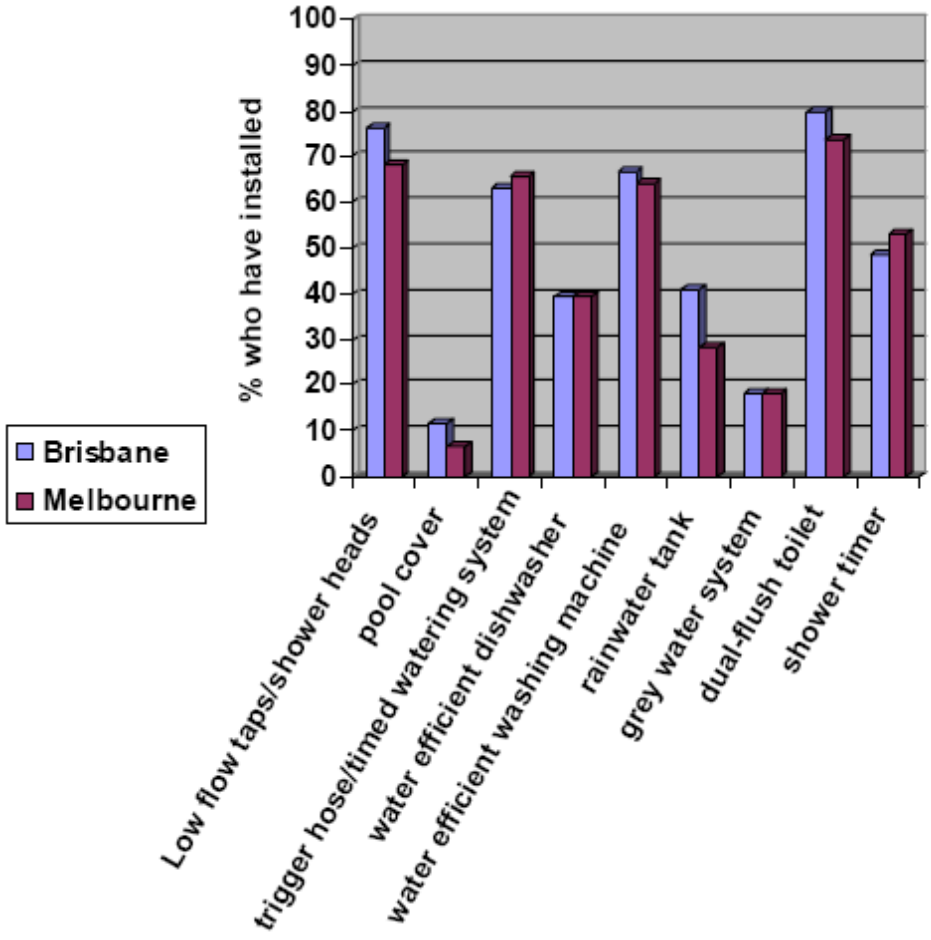
The 2010 Australian Housing and Urban Research Institute (AHURI) study on the sustainability attitudes and behaviour of Australian households, found high levels of engagement with **water curtailment actions** such as: only running the dishwasher when full, washing cars with minimal water, only running the washing machine with full loads, turning taps off when brushing teeth. The exception was taking shorter showers and using greywater on the garden (Fielding et al. 2010, p. 33). Owners were found to report engaging in significantly higher levels of water curtailment actions compared with renters.

Family households used greywater less frequently compared to single adult and multiple adult households, and were less likely to be water wise in the garden. Single adult households in Melbourne were more engaged in two water curtailment actions: only running the dishwasher when it is full and water wise gardening (Fielding et al. 2010, p. 35).

Of the Brisbane respondents involved in the AHURI study, low-income households reported the most short showers, followed by medium and high income households. Low-income households also reported engaging in more water-wise behaviour in the garden than medium and high-income households. Also, low income households used greywater more on their garden than high income households (Fielding et al. 2010, p. 36). Figure 15 shows the percentage of respondents who have installed water-efficient devices in Brisbane and Melbourne (Fielding et al. 2010, p. 36). Again, owners were more likely than renters to have installed water-efficient devices. In Brisbane, more multiple adult and family households had installed a rainwater tank than single person households. In Melbourne, more multiple adult and family households had installed a water efficient dishwasher than single person households (Fielding et al. 2010, p. 37-38).

Over half of high-income households had installed a water efficient dishwasher, followed by medium income households, and low-income households.

Figure 15: Percentage of respondents who have installed water-efficient devices in Brisbane and Melbourne (Fielding et al. 2010, p. 36)**.**

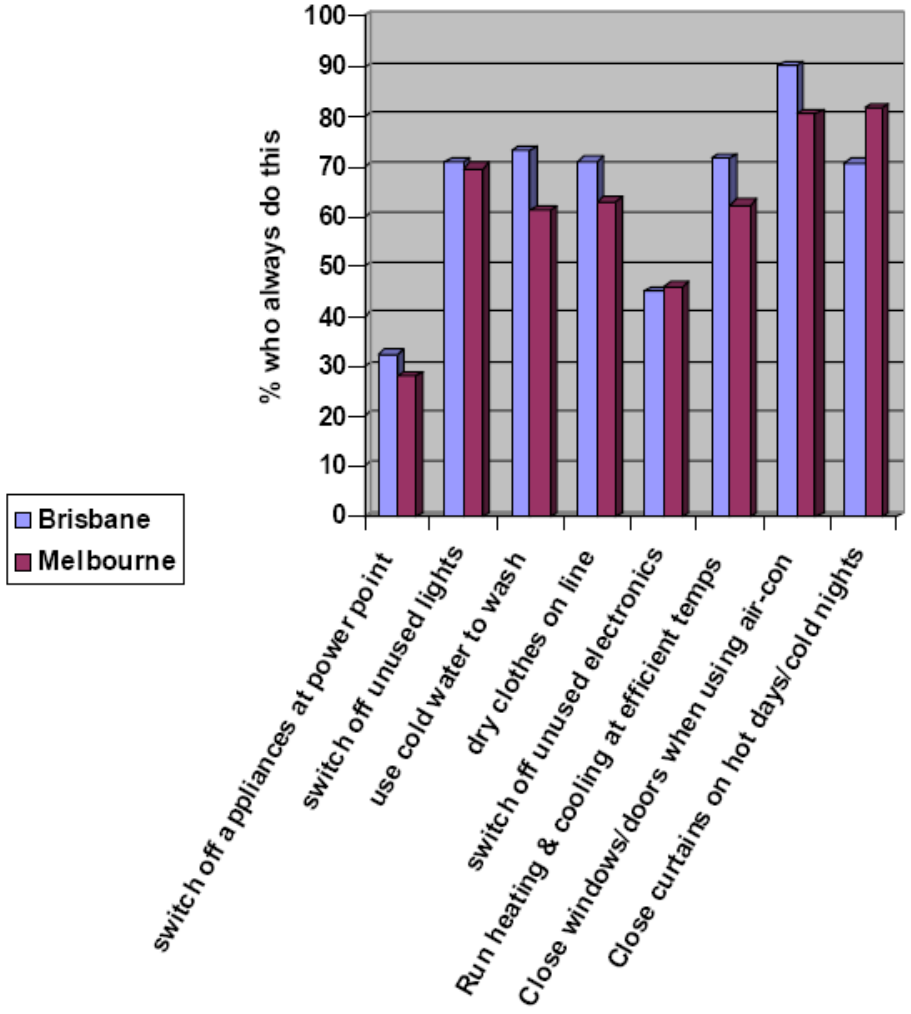


The AHURI study also found that for those people who had not already installed devices, intentions to install them in the near future were not strong (Fielding et al. 2010, p. 38). However, owners were more likely to intend to install a rainwater tank than renters.

The AHURI study found high levels of engagement in energy curtailment actions and the results suggested that for a majority of respondents the actions are habitual with the exception of switching off appliances at the power point and switching off computers and electronic equipment when not in use (Fielding et al. 2010, p. 58). Figure 16 summarises results for Brisbane and Melbourne. Single person households were more likely to switch off unused appliances compared to multiple adult or family households. Also, family households were less likely to dry clothes on the line rather than in a dryer and switch off computers and electronic equipment compared to single person and multiple adult households (Fielding et al. 2010, p. 59).

Low income households generally engaged in more of the energy curtailment actions – they used cold water to wash, switched off electronic equipment and kept doors and windows closed when operating heating or cooling more often than high-income households (Fielding et al. 2010, p. 60). Only a small percentage of respondents had installed solar hot water or solar panels.

Figure 16: Percentage of respondents who report always engaging in these actions (Fielding et al. 2010, p. 59)**.**



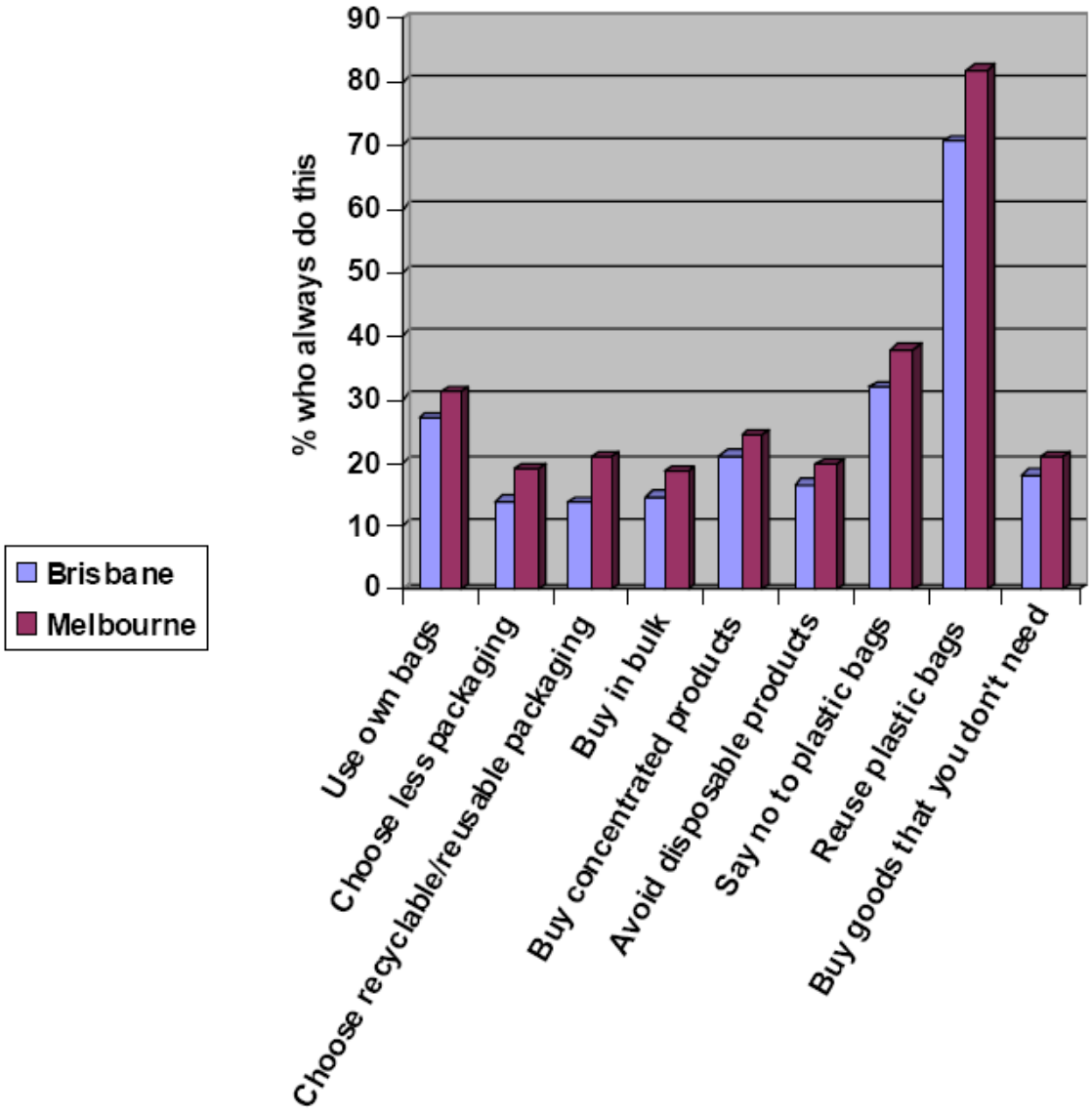
More owners had installed energy saving compact fluorescent lighting and household insulation than renters (Fielding et al. 2010, p. 62).

The AHURI study also found that respondents had higher intentions to install electronic equipment/whitegoods/appliances with energy star ratings of four or above than for installing solar hot water or solar panels (Fielding et al. 2010, p. 63).

Almost every Australian household (99%) participated in some form of **recycling** or **reusing** of waste (ABS 2010, 4614.0.55.002). Again, as mentioned above, this should be understood as the percentage of people doing some form of recycling, even if it is just the basics (paper, glass, plastic), and not that people are recycling 99% of all the household waste items/materials that are recyclable. The ABS also found that the most recycled or reused items were paper/cardboard/newspapers (95% of households), plastic bottles (94%), glass (93%) and plastic bags (90%) (ABS 2010, 4614.0.55.002. About half (51%) of Australian households recycled/reused kitchen or food waste (ABS 2010, 4614.0.55.002), which was a similar finding to NSW mentioned above.

The AHURI study found that respondents engaged in waste curtailment actions less than water or energy curtailment actions. Reusing plastic bags was the only practice that a majority of the respondents reported that they always engage in (see Figure 17 below) (Fielding et al. 2010, p. 81).

Figure 17: Percentage of respondents who always (or never in the case of buying goods you don't need) engage in these actions (Fielding et al. 2010, p. 81)**.**



The AHURI study found that householders with more positive attitudes to waste minimisation actions were likely to be those who perceived the environmental benefits of the actions and products and also perceived cost and quality benefits (Fielding et al. 2010, p. 85). Householders with more negative attitudes are likely to be those who perceive that the actions and products are costly, inconvenient and lower quality (Fielding et al. 2010, p. 85).

In 2009, Australians mainly **travelled** by car to get to work or full time study, and this had not changed much since previous years (80% in 2009 whereas it was 82% in 2000). Conversely, only 14% of Australians **used public transport** to get to work or full time study (compared to 12% in 2000) (ABS 2010, 4614.0.55.002). Private motor vehicles were also the most widely used form of transport in people's day-to-day trips other than to their place of work or full-time study (90%) (ABS 2009, 4602.0.55.002).

In 2009, New South Wales had a slightly higher level of public transport use (17%), but had the lowest bicycle ownership (46%, compared with the highest in ACT with 66%). In that year, of those who didn't use public transport, the reasons given for not using public transport included being without services at the right/convenient time, being entirely without services, and because of the comfort and convenience of using a private vehicle (ABS 2010, 4614.0.55.002).

The same ABS survey found that Australians had continued to increase their car ownership, and in 2009, 92% of households had one or more registered motor vehicles. The four main factors considered when buying a motor vehicle included purchase cost (53%), fuel economy/running costs (41%), size (32%) and type (32%) of vehicle (ABS 2009, 4602.0.55.002).

For those people who usually walked or cycled to work or full time study, the most common reasons reported for doing so included proximity of home to place of work or full time study (64%) and exercise and health (50%) (ABS 2009, 4602.0.55.002).

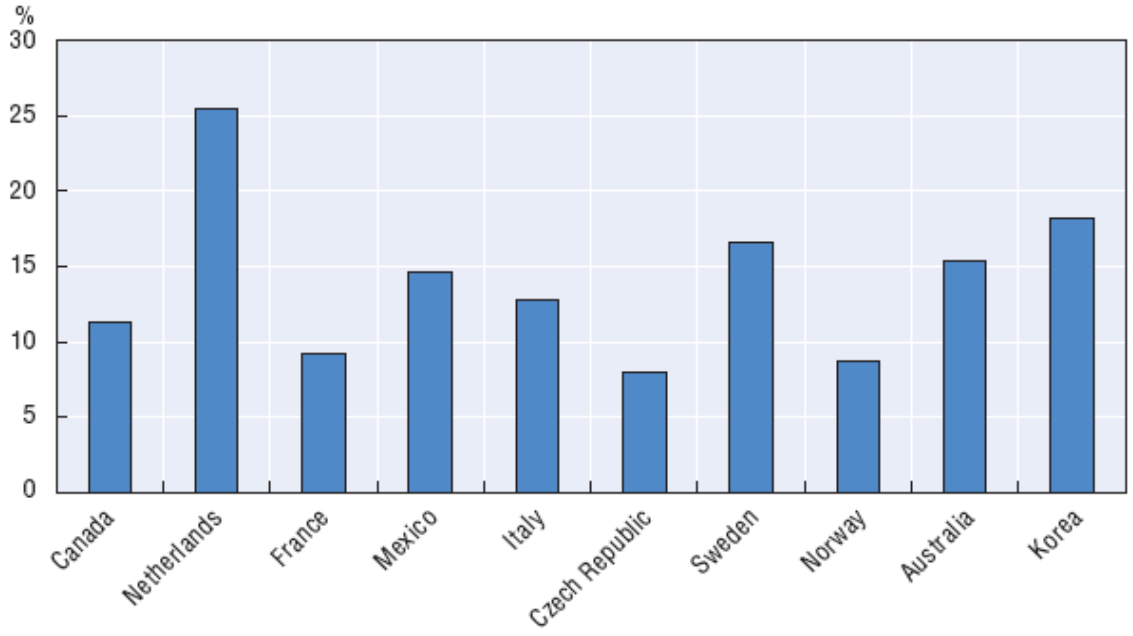
The focus groups that were carried out and reported in The Climate Institute's report *The Climate of the Nation*, asked participants to write down the actions they had taken or things they have done in response to climate change. Though climate change is not a focus of this research report brief, the table is included below as it includes many actions related to sustainability issues of interest for this report.

Figure 18: Individual actions on climate change (JWS 2012).

Energy: • **Turn off, unplug lights** • **Installed solar panels** • **Switched to energy saving light bulbs** • **Reduced use of household appliances, e.g. air conditioning, heating, clothes dryer, etc** • **Replaced electric hot water with solar/heat pump** • Changed household appliances to appliances with better energy ratings • Installed energy saving power cut off • Installed house insulation • Reviewed power usage in the home	**Recycling, re-use and minimization:** • **Recycling of household papers, cardboard, cans and bottles** • **Buy local produce** • **Grow own vegetables and herbs** • Shopping locally • Boycott products with excessive packaging • Not using plastic bags at supermarket • Buying second hand goods • Composting / Worm farm for composting • Swap / barter goods rather than buying new
Transport: • **Converted car from petrol to LPG** • **Ride or walk instead of driving** • **Catch the bus instead of driving** • Bought a hybrid car • Ride motorcycle to work rather than driving a car	**Environment and water:** • **Took part in Clean Up Australia Day** • **Tree planting** • Became a vegetarian • Turn off taps • Installed a water tank • Saving water, e.g. brushing teeth, shower • Storm water harvesting • Reduced use of chemicals for house cleaners • Switch to water saving shower heads • Installed dual flush toilets
Government, community and workplace: • **Had a 'climate smart' appraisal of the house** • **Use less energy at work** • **Improved chemical disposal and farming practices** • Took part in earth hour	**Other actions:** • **Watch documentaries, research and self-education about climate change** • Write letters to people in power • Teach children about climate change

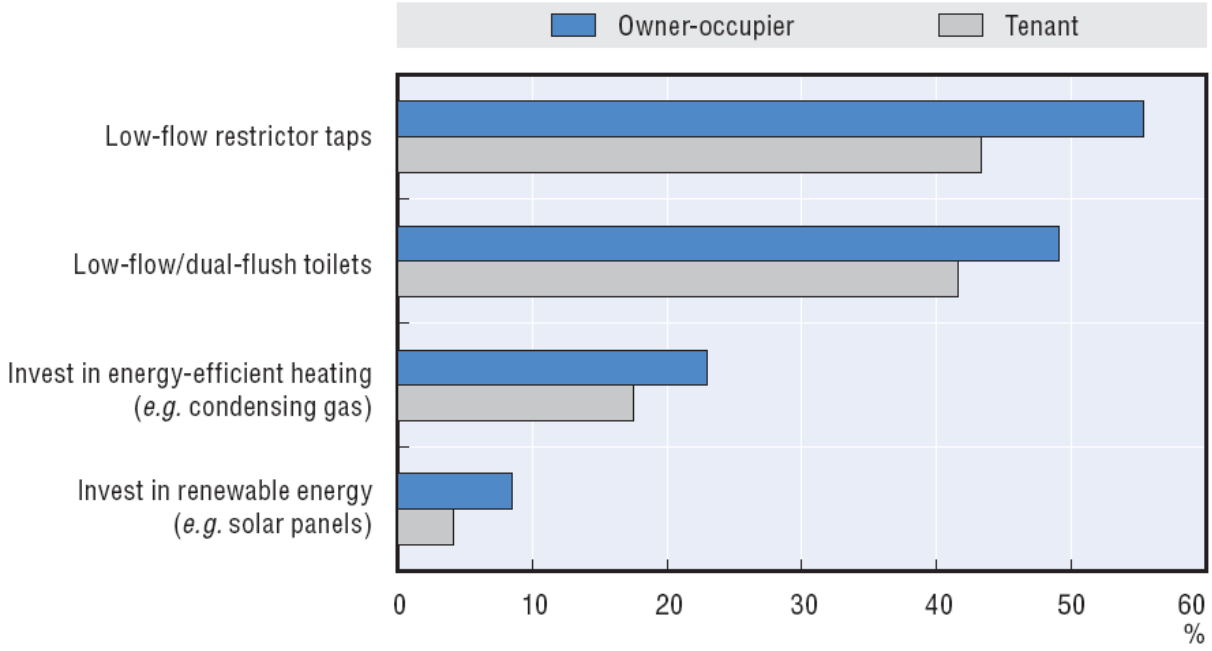
The OECD survey discussed previously found that 15% of Australian respondents were members of (or contributors to) an environmental organisation. Figure 19 below shows the results in comparison to the other countries surveyed.

Figure 19: **Percentage of respondents who are members of (or contributors to) an environmental organisation** (OECD 2011, p. 33)**.**



The OECD report also confirms the AHURI findings on water and energy curtailment actions – that home owners are more likely to have installed water and energy/saving efficient devices (see Figure 20).

Figure 20: Percentage of owner-occupiers and tenants having undertaken specific investments (OECD 2011, p. 37)**.**



In summary, the take up of pro-environmental actions appears to be slowly increasing; however there is still a lot of room for improvement and householders would benefit from initiatives that can provide practical tools and solutions to assist and facilitate a re-orientation toward more sustainable day to day practices in and around the home and local community. It is also apparent that most of the actions taken to date are small, simple steps rather than larger changes in living practices.

6.5 Program design preferences

NSW research

The *Who Cares* research series found that pro-environmental behaviour undertaken by NSW householders tended to be influenced by personal benefit or external influences – behaviours that offered cost benefits or were normalised among the peer group tended to be the most likely to be adopted (Elliott and Shanahan 2006, p. 44). For example, in 2010, NSW householders reported 'saving money' as a key driver of energy efficiency (in addition to drivers of: helping to protect the environment, having an anti-waste mentality, and government information). The research also found that people tended to engage more in behaviours that were considered convenient and non-costly (Elliott and Shanahan 2006, p. 44).

The Ipsos-Eureka report (2010b, p. 40) recommended repositioning behaviours as things that citizens simply do, rather than as overtly 'environmental' behaviours. This means that changing behaviour does not necessarily require a prior change in environmental knowledge or attitudes. As an example, among NSW householders, littering is not considered an 'environmental behaviour', but rather it is viewed as representing general disrespect and lack of ownership.

Also, the Ipsos-Eureka (2010b, p. 40) research found that some groups of NSW householders were sceptical about several environmental behaviours – either not appreciating the relevance of the behaviour or doubting its effectiveness. The report suggested personalising environmental issues and encouraging people to appreciate the pertinence of environmental issues on a more personal level.

These findings provide good reason for engaging NSW householders around practices that make sense for them on a personal level and have other benefits such as cost savings, improved health, community connectedness and being well regarded by others. DEFRA's focus on headline behaviours like 'using energy and water wisely'; 'extending the life of things' and 'eco-improving/retrofitting your home' certainly have a cost savings appeal. Similarly, 'cooking and managing a sustainable and healthier diet', and 'travelling sustainably' have a health benefit appeal, and 'setting up and using resources in your community' has personal benefits like community connectedness/social capital and esteem. This form of engagement may have more appeal with householders.

Additionally, the *Who Cares* research series found that over the 15 year period of running the surveys, local and national environment and conservation organisations were consistently seen as providing reliable environmental information. The most recent survey also found that scientists/technical specialists, schools and community services groups were all seen as reliable by more than three-quarters of householders surveyed (DECCW

2010, p. 64). In comparison, religious leaders/churches, media personalities, and business and industry were seen as much less reliable (DECCW 2010) (p. 64). This suggests that any information and engagement programs on sustainable living may be best delivered by groups that are most trusted in the community such as national and local environment and community groups.

The research report 'Community Preferences for Litter Reduction' referred to earlier, also found that people would like to see more effort put into cleaning and punitive actions against **litterers**, and monetary rewards for those who **recycle**. According to this research, people think it is important to focus efforts on preventing littering in the first place, through various communication efforts and education as well as providing more bins (Donnelly & Buard 2011). Other suggestions for addressing **littering** included limiting the amount of advertisements, and more education such as videos showing the bad effects littering is having on the environment and communication and promotion in schools (Donnelly & Buard 2011).

Australian research

The Auspoll research, found that most Australians (73%) would welcome more information about how they can use less **energy** or use energy more efficiently in their homes (Auspoll 2011). Also, this research found that independent consumer groups are seen as the most trusted source of information on energy efficiency, followed by electricians, the government and energy retailers (Auspoll 2011). There was support for schemes which would make energy retailers directly responsible for assisting home owners use energy more efficiently (Auspoll 2011).

In the AHURI study, education was identified as something that would help facilitate water curtailment actions, 'particularly in educating children who were sometimes the main cause of high water use, particularly teenage children' (Fielding et al. 2010, p. 44). Also, receiving feedback on household water use (through information on water bills) was reported to have helped householders' curtailment measures.

The AHURI study concluded that economic considerations such as the cost of energy are an important reason for respondents' energy use, and that cost considerations were important beliefs related to energy, water and waste conservation/minimisation. The AHURI study surmised that (Fielding et al. 2010, p. 112):

> *Taken together, our research suggests that positive changes in household water and energy use and waste minimisation will be achieved through multiple pathways. Strategies that promote environmental concern and awareness, those that foster positive attitudes to sustainable practices and encourage the emergence of social norms that support sustainability practices, those that provide householders with knowledge and awareness of how to go about being sustainable, and those that overcome the very real economic constraints that households face in their efforts to become more sustainable, are likely to be the most successful.*

7 Recommendations: Best practice program design

This section brings the findings from the previous sections together to provide recommendations on a best-practice approach to the design of the NSW Sustainable Household Program. Section 7.1 summarises our recommendations. Section 7.2 provides more detailed advice on the current situation, audience segmentation and communication strategies for the headline target behaviours.

7.1 Summary of recommendations

1. Use the community engagement principles outlined above to provide guidance during design of the NSW Sustainable Households Program.

2. Consider using the language and concept of 'sustainable living' as a foundation for developing the Program, as this is well recognised by NSW residents. This framing may also allow for some continuity with the previous *Our Environment, It's a Living Thing* program.

3. Adopt the headline categories identified by DEFRA (2011) as a starting point for grouping target behaviours into everyday household practices. Test these categories through social research and revise the language and groupings as needed to make them NSW-specific.

4. Update the existing attitude-action audience segmentation using new social research (from *Who Cares About the Environment in NSW*) when it becomes available.

5. Undertake social research on the values of NSW residents as the basis for values-based audience segmentation. Tailor communications to appeal to different value segments, while also trying to activate intrinsic values where possible.

6. Test messages that make greater use of loss aversion and intrinsic motivations and incorporate these into the program if they perform well in testing.

7. Use diverse community engagement techniques to engage people with different values, learning styles and interests.

8. Give a high priority to engagement techniques that involve householders in supportive local groups, either by tapping into existing community groups, clubs, schools etc. or by establishing purposive groups (e.g. Energymark groups, Eco Teams etc).

9. Use social networking to provide these groups with ways to connect and share their ideas and progress.

7.2 Detailed advice for each headline behaviour

Following on from the above recommendations, this section provides further suggestions for each of the nine headline behaviour groups. For each, we outline the following:

- A summary of where NSW households are at for each behaviour, drawing particularly on Section 5 and consistent with the principle of starting where people are (Principle 6)
- Suggestions on audience segmentation for each behaviour, drawing on Section 4 and consistent with the principle of knowing your audience (Principle 4)
- Advice on suitable communication strategies, including messages, delivery channels, resource types and sources of information for each behaviour.

7.3 Eco-fit your home

Current situation

The literature reviewed in Section 6 indicates that many NSW households are receptive to doing more to retrofit their homes to improve energy and water efficiency. Energy and water conservation are seen as important issues and householders report that they are taking action (DECCW 2010) but householders lack practical knowledge about the full range of actions they can take.

Structural barriers are particularly important in preventing households from doing more to retrofit their homes. While rising energy prices are reducing payback periods and increasing demand for energy conservation actions, the upfront cost of many home improvement measures remains a barrier to taking action. The collapse of programs like the Australian Government's home insulation and Green Loans program has been a setback to programs that seek to reduce this upfront cost.

While BASIX edits out the worst options for substantial home renovations, it may also create a mentality that compliance is sufficient. The proposed mandatory disclosure of home environmental performance may create stronger incentives to go beyond compliance and represents a substantial engagement opportunity once it is introduced.

Many home improvements lack visibility so there is a lack of strong social norms encouraging eco-retrofitting. Television shows and magazines focusing on home renovation encourage values such as aesthetics, status, thrift and comfort rather than environmental values.

Audience segmentation

Demographic segmentation is likely to be valuable for this target behaviour, particularly by home ownership status and possibly by gender. Owner-occupiers have the most freedom to retrofit their homes so will be a key audience, whereas renters will have much less freedom to act. Whereas women are generally more likely to care about environmental issues and take environmental action, men are likely to be significantly involved in home improvement decisions and may need to be specifically engaged.

Home improvements can deliver multiple benefits, making it feasible to appeal to multiple values to motivate action. Benefits include improved comfort, health benefits, reduced utility bills, improved aesthetics and environmental benefits. Identifying value segments in the audience can help to determine which of these benefits should be highlighted in particular communications that are tailored to that audience segment.

Communication strategies

Given the above, **messages** should highlight the multiple, positive benefits of home improvement actions. In the current climate of rapidly increasing energy prices, saving money and reducing the cost of living will be important messages but should not be the sole messages. As DEFRA (2011) puts it:

> *Use a mix of emotional and rational cues to encourage take-up – e.g. use people's desire for comfort, dislike of wastefulness, and emotional cues like 'warmth' rather than just saving energy and money.*

Messages should draw out the full range of benefits of eco-retrofitting but will need to emphasise different benefits for different value-segments of the audience.

Some of the **delivery channels** of particular relevance for this group of behaviours include suppliers of home improvement goods and services (e.g. Bunnings), tradespeople (e.g. builders, plumbers and electricians) and home improvement media (e.g. television shows, magazines). While householders may do some of their own research on eco-retrofitting options, they are likely to take a lot of their advice from suppliers and make decisions on the spot about what to buy. If these suppliers are delivering sustainability messages and information on eco-retrofitting is readily available in home improvement stores it is more likely to reach the target audience at the time of a decision, i.e. a key moment of change. Of course, to make it easy for householders, these suppliers need to actually stock sustainable options so that there is not an extra step of having to order items in.

There are excellent **resources** already available on eco-retrofitting homes, including the Your Home website (www.yourhome.gov.au) and associated publications such as the Renovator's Guide. Making these resources more readily available through the delivery channels discussed above is likely to be an effective engagement strategy.

Other key communication **strategies** could include:

- Working with suppliers to provide on-the-spot information on sustainable options when a householder is at the point of making a decision

- Finding ways to strengthen social norms around eco-improved homes, such as developing a sign or sticker that eco-improved homes can display. This helps to make these actions more visible and potentially more desirable. Such a strategy would need to integrate with the proposed mandatory disclosure of environmental performance of homes.

7.4 Use energy and water wisely

Current situation

Whereas the above group of behaviours is about improving your home, this group of behaviours is about managing your home wisely to use less energy and water. It includes switching off lights when not in use, maintaining appropriate internal temperatures, washing in cold water, using clotheslines and buying Green Power products. These are the types of behaviours that are currently targeted by the NSW Government's Save Power campaign, CSIRO's Energymark program and Sydney Water's Water4Life program.

The current situation is much as described above – householders think that using energy and water wisely is important but lack practical knowledge about the full range of actions they can take. However, there are fewer structural barriers to these behaviours as they generally have little upfront cost. The changes are largely behavioural, so the challenge is to motivate and support householders to break habits and develop practical knowledge of the desired behaviours.

Households have shown their ability to greatly reduce water use in the past in response to water restrictions. However, when the drought breaks, the incentive to continue to save water is diminished. At present, households are less focused on reducing water use than they have been in the past so engagement approaches need to find new motivations beyond doing our bit to respond to drought.

Audience segmentation

OEH has previously developed attitude and action based segments that were used to help tailor messages for the Save Power campaign. These segments provide a useful basis for tailoring messages about using energy and water wisely. Research undertaken for the Water for Life program may also be relevant.

As noted above, identifying value-based audience segments may also be useful. Like home improvements, actions to use energy and water more wisely around the home can deliver multiple benefits. Identifying value segments in the audience can help to determine which of these benefits should be highlighted in particular communications that are tailored to that audience segment.

Communication strategies

As for eco-retrofitting, **messages** should highlight the multiple, positive benefits of using energy and water wisely. A lot of communication about energy and water conservation frames action as a sacrifice, or doing without. Messages are more likely to be effective if they use positive frames, such as taking control of your energy bill or encouraging friendly competition between households to see how much they can reduce energy and water bills.

While messages may be broadly similar to those discussed for retrofitting, **delivery channels** will be quite different. The multimedia delivery approach used by the Save Power campaign (i.e. website, billboard advertisements, television spots etc) is well suited to this set of target behaviours. However, stronger use could be made of communication via schools, neighbours and existing community groups. Programs like Energymark and Climate Clubs have shown the potential to use discussions with other householders and friendly competition to motivate wiser use of energy and water. A program that builds on

these pilot initiatives but does a better job of tapping into existing community groups and networks would be a potentially effective way to motivate these behaviours. For example, existing community groups could sign up to compete to reduce energy and water (like Climate Clubs) but run through a more structured process to help them to do so (like Energymark).

The Save Power website is an excellent existing **resource** that could be expanded to cover energy and water. Given the strong brand recognition for the black balloons campaign, it makes sense to build on this platform rather than create entirely new resources.

Other key communication **strategies** could include:

- Use of pledges and commitments like the Power Pledge to activate social norms
- Offering prizes or other incentives to encourage friendly competition
- Using social networking to link diverse groups that are taking action to share tips and activate social norms.

7.5 Extend the life of things (to minimise waste)

Current situation

This group of target behaviours includes actions to avoid waste such as repairing and reusing items, as well as use of kerbside recycling services and proper disposal of hazardous household chemicals. In this area, a norm of recycling is dominant. Almost everyone claims to recycle and many feel that by doing so, they are doing their bit. This makes it difficult to motivate other behaviours such as waste avoidance, repair and reuse. The framing of this target behaviour as 'extending the life of things' is intended to bring these other behaviours into play.

While reuse comes up as a frequent behaviour for NSW households, the extent of reuse still seems to be small and households lack practical knowledge about their options for avoiding disposal of particular items. At the same time, there are strong social norms, associated with consumer culture, that encourage disposal of items and purchase of replacements. These norms and the lack of practical knowledge make it difficult to motivate people to go beyond kerbside recycling to extend the life of things.

In some cases there are also structural barriers to extending the life of things, such as lack of access to reuse services and lack of affordable and readily accessible repair services. While there are some services to help NSW households identify recycling options, such as the *Recycling Near You* website, there are few ways to easily identify reuse options.

Audience segmentation

There is very little research on how best to segment an audience to motivate them to take up this group of target behaviours. Due to the strength of countervailing consumer culture norms, we anticipate that values-based segmentation will be an effective strategy for this set of target behaviours. People that already display post-material values, for example, will be relatively easy to reach. On the other hand, those that are steeped in consumer

values will need to see alternative status benefits from avoiding waste, such as seeing use of second-hand or vintage items as cool.

Communication strategies

Consistent with the discussion of audience segmentation above, effective **messages** are likely to be those that can make reuse, repair and recycling cool. A great existing example that uses this kind of approach is the Garage Sale Trail. It creates a buzz around garage sales, turning these into a community event that people want to participate in.

Garage Sale Trail makes effective use of celebrities and influential people as **delivery channels** for its message. These people share stories about what they are selling at their garage sales, helping to establish use of these second-hand markets as a social norm. This approach could be expanded to cover a broader range of waste avoidance, reuse and recycling activities by having celebrities tell stories of things that they have done to avoid waste, such as getting an item repaired or posting it on Freecycle.

One of the most challenging barriers to this group of target behaviours is finding out what options are available to avoid disposing of an item. A valuable **resource** would be a website that provides a one-stop-shop where householders can type in any item and get a list of reuse, recycling and repair options tailored to their location. For example, if someone looks up television, they would get a list of local repair services, links to reuse services like Freecycle and second-hand markets and tips on how to prepare the item for reuse or sale through those services.

The key communication **strategy** we would recommend is to bring the diverse available resources on waste avoidance, reuse and recycling together into a well-designed website that stresses the cool factor of avoiding waste.

7.6 Cook and manage a sustainable and healthier diet

Current situation

This group of behaviours includes eating a healthier, lower impact diet and reducing food waste. The literature reviewed in Section 6 provides a great deal of specific information about why consumers waste food (Reeve & Coleman 2010; OEH 2011), but relatively little information about why households choose a particular diet. However, in our experience, practical knowledge about the sustainability of different food options in the community is low. There are also significant structural constraints on the food options that are available to people; when more sustainable options are available in major supermarket chains they are typically more expensive.

There is also a countervailing consumer culture that favours convenience foods over more sustainable options and promotes images of excess. For example, programs like Masterchef tend to promote diets with a high meat and fat content, using luxury ingredients that need to be imported over great distances.

The NSW Government has an existing focus on reducing food waste through the Love Food Hate Waste program. This program provides an excellent foundation for a broader engagement on sustainable eating that goes beyond waste to look at dietary options.

Audience segmentation

As noted above, we have identified little research on current understanding of food options on which to base segmentation. DEFRA's (2011) work indicates that food choices are strongly linked to personal identity, so we would anticipate that values-based audience segmentation would be an effective strategy.

Communication strategies

DEFRA's (2011) research indicates that environmental benefits are a relatively low priority in food choices and that **messages** focusing on health benefits are likely to be more effective. We would expect similar findings in Australia. To the extent that healthier choices are also the more environmentally sustainable choices, stressing the health benefits should be an effective message.

Growing food locally to reduce transport impacts is a target behaviour – so messages about localism that stress the community benefits of local farms and community gardens are also likely to be effective. This type of messages connects with the target behaviours discussed in Section 7.9.

The prevalent cooking shows and magazines are likely to be effective **delivery channels** if they can be suitably engaged. Many celebrity chefs are already stressing the value of using local, sustainable ingredients so there is a strong platform to build on. Given its large audience, having Masterchef include more sustainable food challenges (as it has done in the past) could be an effective strategy.

The Love Food Hate Waste website and associated multimedia materials represents a key **resource** that could be expanded to cover sustainable food more broadly. However, the strong food waste focus of the current initiative may make it difficult to expand in this way without rebranding the initiative. A rebranding that was clearly linked to the existing branding could achieve most of the benefits of building on what has already been achieved. Other resources could include materials developed by Meatless Monday campaigns around the world. A sustainable food cookbook could be developed as a resource to focus engagement.

Given that awareness of sustainable food options is still quite low, this is one area where key communication **strategies** could focus on raising awareness about more sustainable food options and where to obtain them.

7.7 Choose eco-products and services

Current situation

This group of target behaviours involves purchasing eco-friendly products and services, including products labelled as ethical, fair trade or environmentally friendly and second-hand products. Of all the headline target behaviours considered here, this is the one for which we have the least research on the current situation for NSW households. Shopping habits are not considered in the 'Who Cares' research, other than the extent to which shoppers avoid using plastic bags or heavily packaged products. Further research would likely be necessary to provide baseline audience information for development of engagement strategies on this headline behaviour.

What is clear is that there is currently no single eco-label that identifies eco-products and services. There are many different labels with different objectives, which can make it very confusing for consumers. Probably the best-known labels are the energy and water star rating labels for efficient appliances.

Audience segmentation

As noted above, there is little current research available to suggest what type of audience segmentation would be most useful for this target behaviour. However, given how closely our choice of products and services is tied to our identity, it is again likely that value-based segmentation would be effective for this target behaviour.

Communication strategies

Given the strong influence on consumers of advertising and media advocating consumption of anything and everything, designing **messages** to encourage purchase of eco-friendly products and services is challenging. This is particularly the case because there is no universally accepted labelling system for sustainable products and services, making communication complex. Perhaps the greatest contribution the NSW Government could make at this time is to provide shoppers with general information about the impacts of different products and services and link shoppers to existing labelling schemes.

An eco-shopping guide could be developed as a **resource** for consumers to provide information about existing labelling schemes and the impact of different products. The ideal **delivery channel** would be through a mobile phone app or mobile website so that shoppers could check the environmental credentials of a product immediately at the point of purchase. It is recognised, however, that this would a resource-intensive strategy. The Good Shopping Guide in the UK is a good example that is available as a book or an app.[5]

Ultimately, the preferred **strategy** for encouraging purchase of eco-products and services is probably to develop a broad eco-labelling scheme for Australia. This would require intergovernmental cooperation and substantial industry engagement.

7.8 Travel sustainably

Current situation

This group of target behaviours includes using active transport and public transport, buying more-efficient vehicles and avoiding unnecessary travel (e.g. by video conferencing). Car-driving habits are strong and are supported by urban structure in Australia. People are put off of changing to sustainable transport modes by a perception that they are less convenient, less comfortable, take longer and are less safe. Unfortunately, in many parts of NSW it is true that sustainable transport modes take longer and are less convenient for many trips.

Transport is one area where structural constraints on behaviour are crucial. If sustainable transport modes are not readily available at a location, then people will use their cars. Further, car use is the social norm and people receive little or no reward in terms of social status or recognition for using other forms of transport. For some modes of transport, such as cycling, practical knowledge about safe routes and practices may be lacking.

[5] See http://www.ethical-company-organisation.org/.

Audience segmentation

Because structural factors are so important for transport, demographic segmentation based on geographic location is likely to be an effective approach. Targeting audiences along routes where there is greater potential for uptake of sustainable transport options is likely to be more effective than blanket messaging. People are particularly receptive to considering changing their travel behaviour when making a major life change such as changing job or moving house. At this time people need to develop new travel routines and so providing new householders with targeted travel information specific to their location could be particularly effective.

As with many of the other target behaviours discussed here, transport choices are important to sense of identity, so value-based segmentation is also likely to be useful. While some will be motivated by environmental benefits, many will be more likely to respond to individual health and financial benefits.

Communication strategies

Messages about sustainable transport need to overcome the stigma associated with active transport and public transport options. DEFRA argues for reinforcing the personal benefits of acting, such as promoting the health and wellbeing effects of walking and cycling and “me time” on public transport.

One possible **delivery channel** is via influential people and celebrities, who could be shown using sustainable transport options to increase the perception that these options are cool and activate social norms. Drivers caught in city traffic are a captive audience, so other delivery channels could include radio advertisements during ‘drive time’ and billboard advertisements along heavily trafficked routes.

Accessible, tailored information about public transport routes and cycle paths is a key **resource** for engaging households in this target behaviour. The existing TransportInfo website and smartphone app meets this need for public transport in Sydney and the BicyleInfo website does so for bike transport. Rather than developing new resources, these existing resources can be promoted.

As noted above, an appropriate **strategy** is probably to target communication according to routes, rather than to try general household engagement. Communication will be wasted in areas where sustainable transport options are lacking. It would be a much better use of resources to identify under-utilised routes and to specifically engage households in the catchment for these routes. Mailing households along these routes – especially any people who have recently moved into the area – with a travel guide showing summarised timetables as well as local maps identifying public transport routes, safe cycling routes and important local destinations could be an effective strategy within these limited areas.

To overcome negative perceptions about sustainable transport options, one strategy could be to give people positive experiences of sustainable transport so that they can see that it is a viable option. Promotions to get people to try out sustainable transport, such as free public transport days or dedicated cycling and walking days could get people to try out the desired behaviour and maybe discover that it is something they enjoy.

7.9 Set up and use resources in your community

Current situation

This group of target behaviours includes things like setting up community gardens, food cooperatives or car sharing clubs, establishing community energy facilities and sharing knowledge and skills to support sustainability. While this is a diverse set of behaviours, the common theme is finding ways to motivate householders to engage with others in their community to take joint action to improve sustainability.

Householders can find engaging in their community in this way challenging due to lack of time, lack of skills or lack of knowledge about what groups exist.

Audience segmentation

Clearly, geographic location is important for this target behaviour. People need to know what is going on and what is needed in their local community if they are to get involved. However, messages could be much the same in different locations as long as they then point to tailored, local information. For example, the Do Something! Near You website (http://www.dosomethingnearyou.com.au/) gives people localised results for community groups operating in their vicinity.

Values-based segmentation may again be valuable. People operating from intrinsic values will be motivated by the idea of doing good and working with others in their community. People operating from extrinsic values will be more interested in what is in it for them. Strategies that can appeal to extrinsic values are discussed in Section 7.11.

Communication strategies

Messages should stress both the community benefits of these target behaviours (such as improved community resilience) and the individual benefits (such as getting to know your neighbours better and feeling good about yourself). Research on team-based approaches to reducing environmental impact indicates that getting to know your neighbours is a big motivation for engaging in such initiatives (Gershon 2009) and should be emphasised.

Delivery channels could be localised, consistent with the local nature of the engagement. For example, flyers in community centres or advertisements in local newspapers would be good ways to tap into local community networks. Alternatively, a general media campaign using multimedia channels could encourage general behaviours, such as visiting the Do Something! Near You website.

The Do Something! Near You website is a wonderful **resource** for linking people up with existing community groups in their area. An effective **strategy** for the NSW Government would be to support and drive traffic to this website. However, what the website does not do is provide people with guidance on how to set up and manage a community initiative. The NSW Government could potentially develop such a resource and support it with community leadership training to build the capacity of emerging community leaders to establish and run sustainability initiatives.

7.10 Use and future-proof outdoor spaces

Current situation

This group of target behaviours includes gardening for biodiversity and the environment (e.g. attracting wildlife to the garden and using water-wise plants), enjoying the outdoors (e.g. National Parks) and avoiding littering. Of the nine headline behaviours identified by DEFRA, we feel that this one is the most problematic as it brings together quite disparate behaviours and uses language (i.e. future-proof) that is potentially alienating. This headline group may need to be split further, for example into gardening for biodiversity and reducing litter. Potentially, gardening for biodiversity could be picked up as part of eco-retrofitting your home.

Household research indicates that biodiversity is an unfamiliar term for many householders but remains something that they care about. Householders may not be clear about what exactly they can do to improve biodiversity, so identifying and promoting tangible behaviours will be important.

Littering is generally frowned upon and strong social norms have developed to discourage it, making this potentially an easier area to target.

Audience segmentation

Little is known about how best to segment audiences in relation to this set of target behaviours as little social research is available to draw on. Some demographic factors may be important for gardening for biodiversity; for example, gardens will be more important for people living in houses than in flats. There appears to be fewer demographic distinctions in relation to littering.

How motivations for these behaviours vary according to values is less clear and would need further research.

Communication strategies

As noted above, the future-proofing language used by DEFRA may be a bit alienating. A better **message** might be ‘use and protect outdoor spaces’ or ‘value our natural environment’. Alternatively, more specific messages focusing on gardening for wildlife and litter protection could be more effective. Messages could stress the aesthetic benefits of attracting wildlife to gardens and of having a litter-free environment.

Delivery channels could include garden suppliers and garden magazines for messages about gardening for biodiversity. Anti-littering campaigns may be more effective using multiple forms of media with broad reach.

OEH has a guide to sustainable gardening that is a useful **resource**. Other such guides could be brought together and some tailoring to different local environments would be valuable.

An effective **strategy** could be to get people to think of their garden as part of a wider network of outdoor spaces that can support native wildlife. Making people feel that they are part of something bigger by taking action in their own backyard should be an effective approach.

7.11 Be part of improving the local environment

Current situation

This group of target behaviours includes volunteering to work with local environment groups and getting involved in local planning and decision-making. There is potentially some overlap with the behaviours discussed in Section 7.9 and the two groups of target behaviours could feasibly be merged. Much of the discussion in Section 7.9 is equally relevant here.

One of the things that stops people from volunteering in their local area is the feeling that they lack the skills to participate, or a lack of practical knowledge about what is happening in the area and how to start. People may also doubt that their small, local activities can have much impact on large-scale problems.

Audience segmentation

See Section 7.9.

Communication strategies

DEFRA (2011) recommends the use of a wide range of motivating factors in **messages**, as some people are:

> *driven by desire to improve where they live and their local environment; others have concerns about wildlife and biodiversity; some act for the health and wellbeing benefits for themselves, friends, and family. Some people are motivated by collective action and/ or feelings of joint achievement.*

DEFRA also stresses 'the power of local', arguing that 'people are more likely to react favourably to opportunities to affect situations in their own backyard'.

In addition to the delivery channels, resources and strategies highlighted in Section 7.9, it is worth drawing attention to a specific example of engagement related to this kind of behaviour, identified by Futerra in the UK. The Orange Rock Corps (http://www.orangerockcorps.co.uk/) aims to make volunteering cool and to specifically attract young people to volunteering. It schedules rock music concerts by leading acts where the only way you can get a ticket is by volunteering for at least four hours in your community. A similar program that provides exclusive benefits to volunteers could be an effective strategy in NSW and start to active positive social norms around volunteering.

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