

# **The generative mechanisms of 'food waste' in South Australian household settings**

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**A thesis submitted in fulfilment of the requirements for the degree of:**

**Doctor of Philosophy**

**Flinders University**

**Submitted: 7 March 2014**

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## **ABSTRACT**

In the developed world, up to 50% of food produced for consumption is wasted, with much of the uneaten, wasted food coming from households. Much of this waste ends up in landfill where it contributes to greenhouse gas production through the production of methane and presents an environmental hazard. While studies have attempted to quantify the amount of food waste, little is known about the underlying generative mechanisms. Through this exploratory research, I provide insights into the socio-cultural and generative mechanisms of food waste. Without knowing why people waste food, we cannot reduce its occurrence.

I developed a contemporary methodological approach using ethnographic methods to study food use in 14 households across the city over a 13-month period in 2011 and 2012. I used a suite of methods including in-depth semi-structured interviews, observations, food maps, photographs and vignettes to gather a range of data.

Waste practices occurred at five key food activity stages. These were Provisioning, Storage, Preparation, Consumption and Clean-up. Practices that generated or mitigated waste were identified for each stage. The subsequent conceptual analysis presents four dimensions of food waste. The cultural, social, temporal and material dimensions of food practices influenced the perception of edible and inedible food by participants. 'Food waste' practices occurred as part of everyday routines, which were confounded by situational impediments. The term 'food waste' did not resonate with participants, but what constituted wasted food was socially and culturally constructed, imbued with a range of values that determined edibility or inedibility of food. The perishable nature of food and the perceived risk by participants were also contributing factors to the determinations of edibility.

Food waste at the household level is reflected as the shadow of consumption. It is an intrinsic and embodied component of food and associated food practices. Therefore, food waste should always be considered within the context of food and not as a separate set of discrete practices.



## **DECLARATION**

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

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## **CONFERENCE PRESENTATIONS & DISSEMINATION OF RESEARCH**

**Association of American Geographers (AAG) Annual Conference**, New York, USA,  
25 February 2012

Title: One person's food trash is another person's treasured meal: Insights into understanding why people waste food

**Presentation to WRAP** in London, UK, 6 August 2012

Title: Insights into understanding why people waste food

**World Congress of Rural Sociology**, Lisbon, Portugal, 31 July 2012

Session Chair: Theoretical frameworks for food waste

Title: From food to food waste: Using ethnographic methods to inform theoretical development

**Food Studies: A Multidisciplinary Menu**, Adelaide, Australia, 17–19 February 2014

Title: Wasting food at home: Creating innovative ethnographic methodologies to address the challenges of researching multiple households over multiple sites

**Radio Adelaide** 5 March 2014

Interview on Harvest, discussing PhD and food waste research

## ACKNOWLEDGEMENTS

I would like thank my supervisors Professor John Coveney, Professor Paul Ward and Dr Kirrilly Thompson, for their patience, support and guidance throughout this process and for their belief in my ability to get it done – it is in part, as much their journey as mine. I would also like to extend my thanks to members of the project team, and in particular Christian Reynolds and Sandra Davison for their encouragement. My thanks to Primary Industries and Resources SA in allowing me flexible working arrangements for the duration of my candidature, and periods of extended leave to accommodate fieldwork and writing up. They probably did not anticipate, in their support of my PhD, how much time I would need to be away from work!

There are numerous people who have provided support and encouragement throughout the PhD journey and I thank them all. In particular, I would like to thank Alicia Briggs for continuously checking up on progress and pushing through the barriers, often with the help of a whiteboard and a whiteboard marker, and always with tea and chocolate. Your calm approach to formatting was invaluable! A big thanks to Tina Germanos who provided a sounding board for my thought development. Thank you to Anne Duncan for her help with the ethics application and making me realise there are only 24 hours in a day! For editing, thank you to Anne Duncan, Stephanie Hester and in particular Eileen Clark. Thank you Michael Guarna for your clarity of thought and support coffees – I will forever be buying Vietnamese or any other cuisine dinners to make it up to you! A huge thank you to Vickie Simos for her belief in me that it could be done, for her patience to work through each hurdle and being there as it was overcome. I am forever indebted.

To my wonderful family, parents and in-laws, for providing all sorts of services necessary to ensure my family and household still functioned – thank you. To Stephan, who believed when I doubted, for accepting the huge change in our lives this process demanded and for being the most incredible and fantastic support anyone could ask for – thanks, I can take the baton back now! To my beautiful girls who have had to endure an absent mother during this process, and for keeping it

'real' – I'm back and we have so much to catch up on! I hope you have understood that there is no "end" to learning and in the words of Aristotle, "the more you know, the more you know you don't know". Dream big and believe!

And to the wonderful families who opened their homes to me during the fieldwork – thank you for the privilege. Go well in all that you do.

*“I spend half of my time keeping, throwing, keeping, throwing. You know, you think you are going to eat it, but then it doesn’t happen” – Sally, participant, dinner observation*

# 1 INTRODUCTION

*“...questioning the ostensibly unquestionable premises of our way of life is arguably the most urgent of services we owe our fellow humans and ourselves.” (Bauman, 1998, p. 4)*

## 1.1 WHAT IS FOOD WASTE?

Food waste, in the broadest sense, refers to food intended for human consumption but not consumed. As will be explained in Chapter 2, the definition of food waste is not universal in the academic literature, and the conduits for food waste disposal vary. However, for the purposes of this thesis, the term ‘food waste’ has been operationalised as organic food and liquid matter brought into the home for the purposes of consumption but not consumed. I include organic matter that was part of the food but not intended for consumption, such as banana skins. I exclude non-organic material such as packaging even though it was part of the food coming into the house.

## 1.2 WHY IS FOOD WASTE A PROBLEM?

A recent report published by the Food and Agriculture Organization (FAO) of the United Nations (UN) has indicated that, globally, roughly one-third of the edible parts of food produced for human consumption is lost or wasted, amounting to approximately \$1.3 billion per year (Gustavsson, Cederberg, Sonesson, van Otterdijk, & Maeybeck, 2011). This report shows food losses and waste at the consumption and pre-consumption stages for different global regions,<sup>1</sup> and several countries have also undertaken studies to quantify their levels of food waste. Table 1.1 provides an indicative account of studies quantifying food waste, recorded over time, for both developed<sup>2</sup> and developing countries.

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<sup>1</sup> Regions are identified as Europe, North America and Oceania, Industrialised Asia, Sub-Saharan Africa, North Africa, West and Central Asia, South and South-East Asia and Latin America (Gustavsson et al., 2011)

<sup>2</sup> The terms used to differentiate between countries are contested. Comparisons are usually made based on the level of the economy (measured as gross domestic product, per capita income), level of industrialisation and standard of living, although these vary and are dependent on the organisation making the classification. For the purposes of this thesis, the terms developed and developing will be

**Table 1.1: Amount of food waste recorded by various studies, across several countries over time.**

Location of Study	Amount of food waste...	...of type of food <sup>3</sup>	Reference
<b>USA</b>	5%–40%	Produced during WWII	(Kling, 1943)
<b>USA</b>	14%	Total food purchased	(T. Jones, 2006)
<b>USA</b>	7%–35%	Available food	(Gallo, 1980)
<b>USA</b>	27%	Available food	(Kantor & Lipton, 1997)
<b>USA</b>	40% or US\$165B	“Farm to fork”	(Gunders, 2012)
<b>Canada</b>	CA\$27B with 51% from households		(Gooch, Felfel, & Marenick, 2010)
<b>UK</b>	8.3 million tonnes		(Quested, Parry, Easteal, & Swannell, 2011; WRAP, 2009b)
<b>Sweden</b>	50%	All food	(Lundqvist, Defraiture, & Molden, 2012)
<b>Norway</b>	280,000 t/yr		(Minsaas & Heie Chr, 1980)
<b>Australia</b>	AU\$5.2B		(Baker, Fear, & Denniss, 2009)
<b>Australia</b>	AU\$7.8B		(AFGC, 2003)
<b>Mauritius</b>	25%	Of solid waste to landfill is food waste	(Mohee, 2002)
<b>China</b>	64.4%	Of MSW (municipal solid waste) of sample area was food waste	(Zhuang, Wu, Wang, Wu, & Chen, 2008)
<b>Brazil</b>	8.8%	Officially collected household garbage was food spoilage	(Fehr & Romao, 2001)

The quantities and cost of food waste identified in the studies in Table 1.1 indicate that the magnitude of the food waste problem is significant, despite variations in measurement techniques used by researchers. There is a difference in the occurrence of waste along the supply chain between developed and developing countries (Godfray et al., 2010; Gustavsson et al., 2011; J. Parfitt, Barthel, & MacNaughton, 2010). Most food waste in developing countries occurs during the upstream stages of the supply chain, in the production, harvesting, distribution and

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used to denote differences between the countries with advanced economies, such as the USA, UK, Germany, France, Australia and South Korea and those with less advanced economies

<sup>3</sup> This column depicts the type of waste and where in the supply chain the measurement took place.

storage of food. This is arguably the result of managerial, financial and technical challenges experienced during harvesting, together with storage issues (Godfray et al., 2010; Heta-Kaisa et al., 2012; J. Parfitt et al., 2010). Developed countries, however, experience food losses further downstream, predominantly in the retail and consumer categories (households) and the restaurant and catering industry (Godfray et al., 2010; J. Parfitt et al., 2010). More specifically, studies undertaken in the United Kingdom (UK) (Quasted et al., 2011; WRAP, 2007b, 2009a), Canada (Gooch et al., 2010), the United States (US) (W. L. Rathje, 1984; W. Rathje & Murphy, 1992), Australia (Baker et al., 2009) and other parts of the developed world (Bartl, 2011; Godfray et al., 2010) have identified that the majority of food waste occurs downstream in the supply chain, from the consumer and the household.

### **1.3 RAMIFICATIONS OF LARGE AMOUNTS OF FOOD WASTE**

Human population numbers are expected to increase and plateau at around 9.5 billion people by 2075, according to United Nations' mid-range projections, implying a potential extra three billion mouths to feed by the end of the century (Institute of Mechanical Engineers, 2013). One key issue from such a projection is how to produce enough food to feed more people in a world of finite resources.

The Institute of Mechanical Engineers estimates that, globally, we produce four billion metric tonnes of food per annum but because of poor practices in harvesting, storage and transportation, and market and consumer wastage, around 30–50% is wasted (1.2–2 billion tonnes).

The significant amount of food waste is a major global issue from social, biological and environmental perspectives.

#### **1.3.1 FOOD WASTE IN A GLOBAL CONTEXT**

The projections of world population growth highlight the pressing need to understand the social, economic, environmental and political issues affecting our sustainable future, one of which is food waste (Godfray et al., 2010; Institute of Mechanical Engineers, 2013). Population growth will see continued growth in consumption against a backdrop of increased competition from urbanisation for



land, water and energy. When combined with changes to the landscape through desertification, salinisation and soil erosion, this will limit our ability to produce food from finite resources (Godfray et al., 2010). Therefore, the social and humanitarian impacts of food waste are intertwined with its environmental ramifications. Both fuel the political and academic discourse around food security.

In the 1970s, headlines in the Western world highlighted the hopelessness of the world food problem, raising feelings of guilt and fear in people. Newspaper headlines such as “World Food Crisis: Basic Ways of Life Face Upheaval from Chronic Food Shortages” (1974) in the *New York Times* were not uncommon and were largely brought about by the oil crisis of the time. Such headlines were framed by the need to produce more food. The implicit message that people would not have enough to eat is reflected in current debates around food security and higher food prices, with the street protests, riots or revolutions in Brunei in 2005, in Somalia, India, Mauritania, Yemen, Cameroon, Mozambique, Sudan, Cote D’Ivoire, Haiti, Egypt, Somalia, and Tunisia in 2008, and in Mozambique, Tunisia, Libya, Egypt, Mauritania, Saudi Arabia, Sudan, Yemen, Oman, Morocco, Bahrain, Syria and Uganda in 2011 creating further instability across the world (CNN, 14 April 2008; Dando, 2012). The current tightening of the world economy resulting in recession and loss of jobs creates further localised pressure, with people finding themselves in vulnerable situations with not enough food. These fears are about access to and distribution of food, reflected in and confounded by the wastage of excess food and resources. Academic studies (Godfray et al., 2010; J. Parfitt et al., 2010) and government reports (Government Office for Science, 2011) recognise that the challenge of feeding a growing population includes addressing the issue of food waste. That is, one way of feeding the world is to reduce wastage in food-rich countries where households produce much of the food waste.

### **1.3.2 FOOD WASTE AND THE SOCIAL CONTEXT**

The FAO’s Hunger Portal (2013) showed that there were 842 million people, predominantly from developing countries, who were undernourished and receiving less than the recommended caloric intake between 2011 and 2013. Furthermore,

the increasing cost of food (Caswell, 2008) puts more pressure on those from low incomes and exacerbates the divide between the majority who are undernourished and people in the affluent world. Bloom (2011) and Stuart (2009) argue that while we cannot truck our stale bread and old tomatoes to the world's poor, the issue of inequitable distribution remains intertwined with 'food waste' and cannot be considered separately. While this thesis will not examine the role of food waste in food security, it nevertheless recognises that there are many issues abutting food waste. In this introduction, I highlight some of these issues in an attempt to show the issue in context.

Edible food that is thrown away represents the loss of a potentially valuable food source (Nahman, de Lange, Oelofse, & Godfrey, 2012). While FAO reports focus on global malnutrition among the world's poor, who are often in developing countries, studies have shown that people in modern, first world cities may also suffer from inadequate food. Up to 14% of the US population (Coleman-Jensen, Nord, & Singh, 2013) and 5% of Australians indicated that they had experienced food insecurity at least once in the past 12 months (Law, Ward, & Coveney, 2011; Temple, 2008). It could be argued that the confounding paradox of excessive food waste while others die of malnutrition represents a distortion of the social order of things in our time.<sup>4</sup>

### **1.3.3 FOOD WASTE IN A BIOLOGICAL CONTEXT**

It is estimated that over 900 million people worldwide are obese through exceeding their recommended caloric intake, with studies highlighting the long-term chronic health problems that this creates and the subsequent costs to society and health systems (Foster & Lunn, 2007; K. D. Hall, Guo, Dore, & Chow, 2009). Blair and Sobal (2006) use the term "luxus consumption" to refer to food waste as overconsumption leading to storage of body fat, health problems and excess resource utilisation. Most people with obesity live in the developed world. One suggested reason for the increase in obesity is related to the growing awareness of the impact of dietary lifestyles on other individuals and the environment (Griffin, Sobal, & Lyson, 2009). Headlines such as "Obesity is now more deadly than

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<sup>4</sup> This is a play on the title of Mary Douglas' book *Food in the Social Order* published in 1973.

smoking” (2010) in the *Sydney Morning Herald* highlight the problem that overconsumption has created, and bring the discourse of over-consumption into everyday life. Increasing use of processed, packaged and “convenience” foods, particularly in developed countries (already identified as a contributor to obesity) has further increased concern about wasted food (Munro, 1995). Some writers have suggested that increased food waste may be linked with increased rates of obesity (K. D. Hall et al., 2009; T. W. Jones, 2006). Obese people may be seen as ‘food wasters’ because their daily calorie intake is more than their bodies require.

#### **1.3.4 FOOD WASTE AND THE ENVIRONMENTAL CONTEXT**

Food waste has serious consequences for the environment and public health (Bayley & Nancarrow, 1998; Bekin, Carrigan, & Szmigin, 2006; Griffin et al., 2009) . Contrary to the belief that food as organic matter decays or evaporates harmlessly in landfills (Harrison, Rathje, & Hughes, 1975; Nahman et al., 2012; W. Rathje & Murphy, 1992), the anaerobic decomposition of food waste (and other biodegradable waste) in landfill produces several greenhouse gases including methane, a more potent greenhouse gas than carbon dioxide (Baker et al., 2009; K. D. Hall et al., 2009; Iacovidou, Ohandja, & Voulvoulis, 2012). The severity of the impact of food waste on the environment is recognised at the highest levels of government in Europe, with the European Directive 2011/2175 (INI) (2011) stating:

[W]hereas food waste has not just ethical, economic, social and nutritional but also health and environmental implications, since unconsumed food mountains make a major contribution to global warming and food waste produces methane, which as a greenhouse gas is 21 times more powerful than carbon dioxide.

In addition, the growing, harvesting, distribution and storage of food require energy, water, and fertilisers which, in turn, contribute to greenhouse gas emissions (Gustavsson et al., 2011; WRAP, 2011), as does packaging (Reay, 2009). According to the Department of Climate Change and Energy Efficiency (2011), agriculture contributed 15% of Australia’s greenhouse gas emissions in 2009. Consumers use energy to transport and refrigerate food, some of which they throw away. In effect,

food that is wasted contributes twice to greenhouse gas emissions (Heta-Kaisa et al., 2012). The resources used to grow food and the resources required for its disposal affect all people in developing and developed countries; as resources are depleted or degraded, livelihoods are affected and the vicious cycle is perpetuated (Anan, 2002). Ironically, the changes brought about by climate variability will, in turn, impact on agriculture and the growing of food (Frumkin, Hess, Luber, Malilay, & McGeehin, 2008). Food waste is recognised as a key element that needs to be addressed when developing sustainable food systems (Quested et al., 2011). Increased efficiencies in food systems resulting from changes in business, government and consumer practice (Kantor & Lipton, 1997) will see a triple bottom line solution of more efficient resource use and cost savings (Gunders, 2012).

For public health authorities, the consequences of increased greenhouse gas emissions are of significant concern (Frumkin et al., 2008). However, public health authorities must balance food waste related risks against the need to decrease the amount of food waste going to landfill (a contributor to greenhouse gas emissions). They do this in conjunction with waste management authorities. Early waste policies were driven by the public health agenda (Coward, 1988) to reduce exposure to pathogens. Typically, food wastes contain high moisture and protein-rich organics which make them rot easily, causing odour problems (Kim & Kim, 2010) and attracting rats and disease (T. D. Evans, 2012). Currently, waste collection authorities encourage food waste minimisation programs based on fortnightly recycling. An unintended consequence of the storage of food waste until collection may be increased exposure to health risks (T. D. Evans, 2012).

Finding locations for landfill sites and other waste facilities is politically fraught because most people live in urban settings. The proximity of housing to waste sites and methods of waste removal become increasingly challenging (Knowlton, 2001). People do not want to live near landfill sites (Lee, Choi, Osako, & Dong, 2007) and increased-density living makes it harder for waste collection services such as trucks

to navigate narrow streets.<sup>5</sup> For example, in October 2013, a recycling facility adjacent to the Wingfield dump in Adelaide's north-western suburbs burned for days, with fire fighters struggling to extinguish the blaze.<sup>6</sup> Air pollution from decaying food and water and pollution from runoff or leaching especially from landfill sites, threaten public health. Public health nutrition has recognised, through the Giessen declaration, there is a need to include the inter-relationship of humans with the environment in its field of study (Holdsworth, 2010).

#### **1.4 COMPLEXITIES**

In many of the studies shown in Table 1.1, researchers identified the complexities associated with measuring waste and commented that their measurements may be inaccurate and an under-estimate of waste. One reason for this is the absence of a clear definition of food waste. This will be further discussed in Chapter 2.

Research into food waste has focused on measuring the quantity and types of food wasted. Estimates have been made from statistical data on food supply (see (Blair & Sobal, 2006; K. D. Hall et al., 2009; J. Parfitt et al., 2010; WRAP, 2008). Studies have looked at institutional waste such as "plate and tray" waste from hospitals (Almdal, Viggers, Beck, & Jensen, 2003; Barton, Beigg, MacDonald, & Allison, 2000), and "school lunch waste" in dining halls (Cohen, Richardson, Austin, Economos, & Rimm, 2013; Marlette, Templeton, & Panemangalore, 2005) and university dining halls (Sarjahani, Serrano, & Johnson, 2009). Other studies used compositional analysis (Fehr & Romao, 2001; Schneider & Obersteiner, 2007; Watanabe, 2009; WRAP, 2008) to look at the composition of waste. Kitchen diaries, where participants keep a diary based on instructions given to them by researchers (Langley et al., 2010; Selzer, Glanz, & Schneider, 2009; Wenlock, Buss, Derry, & Dixon, 1980; WRAP, 2008), questionnaires and surveys (Pekcan, Koksal, Kucukerdonmez, & Ozel, 2006; Schneider & Lebersorger, 2009; WRAP, 2008) have also been used to gather

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<sup>5</sup> Presentation at "Watch your Waste-line" conference, Adelaide, South Australia, 2011, by the Environment Officer, City of Charles Sturt.

<sup>6</sup> 'Thick smoke drifts across Adelaide suburbs from Wingfield Waste and Recycling Centre fire' ABC news, 17 Oct 2013; <http://www.abc.net.au/news/2013-10-16/thick-smoke-drifts-from-waste-depot-fire/5025374>

information on food waste. There has been much less use of qualitative interviews (Glanz & Schneider, 2009).

Some of these studies indicated above have investigated food waste as part of household waste, while others have focused on the differentiation between waste to landfill and waste to recycling. Food recycling may be a favourable option for certain type of facilities while not for others. For example, Coker et al. (2008) looked at the disposal of biohazard waste, which included food waste from a medical facility in Nigeria, highlighting the issue of contamination.

In examining the behaviours that lead to food waste, Sonesson, Anteson, Davis, and Sjoden (2005) indicated that next to nothing is known about how household routines and everyday practices affect the extent of waste creation. There is not enough evidence looking at the underlying reasons that drive behaviours, attitudes and decisions toward food waste at the household level.

## **1.5 RATIONALE FOR THIS STUDY**

In the context of food waste, Bauman's quote at the beginning of the chapter encourages the questioning of, in essence, a practice taken for granted – that of wasting food. If not enough is known about underlying causes of behaviour, how can we hope to change it?

At the time of designing this project in late 2010 and early 2011, there were few studies found that examined food waste behaviours. WRAP is one of the few organisations to look at the behaviours surrounding food waste in the household and the types of food wasted (WRAP, 2007a, 2009a, 2009b, 2011). As a result, they created a 'Love Food, Hate Waste' campaign, recognising that increased public awareness would help to reduce food waste.

Interestingly, while WRAP (2007a) found that around 6.7 million tonnes of food waste was generated in UK homes each year, they also found that most people thought they did not waste much food (WRAP, 2007b). Consumers are in denial about food waste and its environmental impact (Butler, 2008). Baker et al. (2009)

also came to the same conclusion in Australia. Such discrepancies may be accounted for by the gap between what people say they do and what they actually do (Adams, Soumerai, & Ross-Degnan, 1999; Boote & Mathew, 1999; McGuire, 1984; Patrick, Cheadle, Thompson, & Diehr, 1994; Warriner, McDougall, & Claxton, 1984).

It could be argued that food waste campaigns have encouraged behaviour change without understanding the underlying reasons for the existing behaviour. For example, buying too much has been identified as one reason people waste food (WRAP, 2007a). Food waste campaigns focus attention on 'buy what you need' without information about why people 'buy more than they need' in the first place.

Outcomes of government and non-government organisations' investment in food waste related campaigns and policy at local, state and national levels would be improved if they did more than quantify food waste or identify behaviours associated with food waste practices. An understanding of the socio-cultural mechanisms contributing to the behaviours and attitudes held by people would provide further understanding into the reasons why people waste food and ensure a more robust investment in food waste reduction programs.

Societal concern for global warming has prompted international attempts to reduce greenhouse gas emissions, to which food waste is a recognised contributor. In South Australia, the State government's recognition of greenhouse gas contributions to global warming as a major issue facing society has seen it implement the *Climate Change and Greenhouse Emissions Reduction Act (Clth) 2007*, and set emission reduction targets as part of the *State Strategic Plan (the Plan)* (South Australian Government, 2011). 'Reducing food waste to landfill' is a strategic priority, focusing attention on mitigating food waste to landfill. State government organisations such as Zero Waste were created to find ways to reduce these levels and meet the targets prescribed in the Plan.

Strategic plans rely on quantification to show they are achieving targets; therefore, the emphasis has been on measuring the extent of waste. Consequently, there is

the risk that plans will manage only that which can be measured. While not the focus of this study, it is worth recognising that, in part, an acceptance of waste reflects the current business paradigm which 'tolerates' waste (Schapper & Chan, 2010) because capitalist production and consumption norms foster the planned obsolescence of goods and their finite life span (Hawkins, 2006). In fact, waste allowances (shrinkage rates) remain unchallenged in manufacturing by companies because they are embedded into existing budgets (WRAP, 2011).

In recognising that a significant proportion of food waste occurs at the local level, local government authorities are investing in food waste reduction strategies for households. No Australian studies were identified that looked at underlying generative mechanisms of food waste at the household level, that is, those practices that result in the generation or reduction of food waste. Therefore, there is scope to uncover what these mechanisms may be. An understanding of the generative mechanisms of food waste may provide further insights to those who aim to develop food waste reduction programs in the public sphere, assist with the development of such programs and work alongside studies quantifying food waste. This study represents a significant opportunity to gain insight into everyday food waste practices, which will in turn have implications for the resources contributing to food, for the communities in which we live, and for our own personal resources. There is a clear need to understand why wastage of food continues to resist general approaches to waste reduction in Australia. Knowledge informed by the socio-cultural context surrounding food purchase, preparation, consumption and disposal can assist in changing wasteful consumer behaviours that have not responded to interventions based on economic or financial rationales alone.

## **1.6 STUDY OBJECTIVES**

The overall aim of this project was to identify the socio-cultural dimensions of food consumption and understand how they affect food waste practices in household settings.

There were two broad objectives:



1. To identify food waste related practices that generate or mitigate food waste within household settings
2. To identify the cultural behaviours, decisions, values and attitudes of why people waste food

The purpose of this research, in a theoretical sense, was to develop theory to explain the issue of food waste. In a practical sense, it seeks to assist local and state government authorities to devise targeted intervention programs to reduce food waste going to landfill. It does this by providing insight into the everyday attitudes and behaviours of people's food consumption (and associated activities) that result in the generation of food waste, i.e. the generative mechanisms of food waste. With this knowledge, authorities will be better equipped to target behaviours that lead to food waste.

This thesis was funded by an Australian Postgraduate Award (Industry) scholarship as part of an Australian Research Council Linkage project (#LP0990554) titled "Zeroing in on food waste: Measuring, understanding and reducing food waste". The project is a collaboration between Flinders University, the University of South Australia, the Local Government Association and Zero Waste SA.

## **1.7 STRUCTURE OF THE THESIS**

The purpose of this study was to explore why people waste food in household settings. I began by reviewing academic and grey literature to gain a sense of the breadth and depth of food waste studies. While many disciplines including humanities, social sciences, nutrition, dietetics, public health, sciences, agricultural sciences, psychology, engineering, food technology and marketing have conducted food-related studies, few have explored food waste. The topic of food waste as an academic area of study is relatively new and therefore information remains diffuse and scant. Chapter 2 presents a synopsis of this literature, outlining the topics of food waste, food and waste and providing the ontological starting point for the research project.

The literature review occurred in two stages. In the first stage, I explored the breadth of the topic and identified areas where research could further knowledge about food waste. The second stage occurred in parallel with the analysis and informed interpretation. In examining the studies that have investigated food waste, I found much emphasis had been placed on quantification and using numbers as the impetus to change behaviour, especially in the consumer sector in developed countries. There appeared to be an emphasis on changing behaviours without much information about why people wasted food. Certainly, “obvious” reasons were apparent – people bought too much food, forgot about it in the refrigerator or threw it out because it was past its use-by date. What was lacking was the “why” – why did people buy too much or forget they had food, and what was driving them to throw out food once the use-by date had passed.

In Chapter 3, I use an interpretivist epistemology to discuss the rationale for drawing on contemporary ethnography as my chosen methodology to explore the socio-cultural experiences and influences affecting food waste in household settings, to uncover the “why”. In outlining the design of my study, I discuss the six complementary methods used to gather data and show how the methods, together, provide greater insight into and context for the generative mechanisms of food waste.

In Chapter 4, I present my initial analysis in the Geertzian (1973) sense of a ‘thick’ description, where generative and mitigating practices toward food waste are described against five identified stages of food-related activities: Provisioning (bringing food into the home), Storage, Preparation, Consumption and Clean-up. While reflecting a production-based supply chain at the household level, these food stages did not occur in a linear fashion; rather, food activities and interaction with the various stages occurred in ways that may be described as convoluted and messy, further exacerbating the complexity surrounding food waste practices within households. This chapter answers the first research question.

In Chapter 5, I present an analysis and discussion of these findings as an answer to the second research question posited. I do this by developing four key dimensions

or themes presented in a particular order, because their layering adds to the depth of understanding. The first theme is that of constructing organic matter as edible or inedible, which in turn determines what people will eat and how they will dispose of the uneaten food. The second theme builds on the edible and inedible construction of food through the identification and prioritisation of value in food transformation. Food was imbued with a range of values; money, novelty and social relations were more highly valued than waste minimisation. Price contributed as both a generator and mitigator of waste, while ethical and moral values, coupled with skills and knowledge, were highly valued as contributors to waste minimisation. When waste was valued as a resource, it was not viewed as 'food waste'.

The third dimension, the situational impediments and the rhythms of everyday life affecting food waste, created further tension in the value system we use in determining the edibility of food. Food exists as part of everyday routines; but routines can be altered to accommodate food. However, changes to lifestyle resulted in a disruption of the everyday rhythms, and waste often increased until the adjustment phase was over. The fourth material dimension centres on the transformable nature of food through perishability and risk. Food is perishable and dynamic, having its own agency. We, in choosing to eat certain food (or not), exert our own agency. Using a range of risk symbols, determinations are made as to the edibility or otherwise of food.

These four faces of food waste act interchangeably on the perception of edibility and inedibility, covering cultural, social, temporal and material dimensions and act as generative mechanisms of food waste. I will frame my interpretation through the theoretical 'lenses' of Douglas, Bourdieu, Giddens, Beck and that of practice theory.

Chapter 6 concludes with an account of the significance of the study in light of the literature and discussing the strengths, limitations and opportunities for further research.

## **2 LITERATURE REVIEW**

### **2.1 INTRODUCTION**

This chapter begins with an outline of the literature search strategy on the topic of food waste. I then identify the discrepancies in reporting the scale of food waste, and note that this arises in part because of the lack of a clear definition but also because of the complexity of assessing and measuring food waste. In determining the research questions and addressing the need for further research identified in the literature, it was recognised that the majority of food waste in the developed world is produced by the downstream components of the supply chain, also known as the consumer and household components. Disposal systems at the household level are the responsibility of local authorities; therefore, I discuss food waste as a subset of waste more broadly and in so doing, identify behaviours associated with waste disposal, including the role consumerism plays in the developed world. Because these behaviours are the result of our interaction with food, I briefly discuss how food is regarded in our everyday lives and the role of everyday food practices. In identifying the lack of information surrounding the precursors to behaviour, I conclude this chapter with my research questions in an attempt to provide further insights into the generative mechanisms of food waste.

### **2.2 LITERATURE SEARCH**

Food waste literature was gathered from academics involved in the ARC Linkage Project (Project Team), including my supervisors, and relevant references were followed up. I also undertook a search of relevant texts and peer reviewed literature to gain an understanding of the topic in the broadest sense. With progressive readings, and the narrowing of my research frame to focus more on addressing gaps in the literature, I explored theoretical literature related to qualitative research. From the initial literature, a list of keywords was developed (Table 2.1) and cross-referenced. These keywords were used in the scoping or cluster (Booth et al., 2013) search of peer reviewed journal articles, editorials and reviews.

**Table 2.1: Keywords used in searching the literature in commercial and grey databases.**

The keywords have been grouped by theme, the synonyms which represent the OR component of searching. The different columns represent the various combinations combined using the AND component of searching.

<b>FOOD</b>	<b>WASTE</b>	<b>CONSUMPTION</b>	<b>HOUSEHOLD</b>	<b>OTHER</b>
Food	Wast*	Consum*	Household*	Behavi*
Non food	Left over*	Post consum*	Domestic	Habit
Non-food	Left-over*	Purchas*	Home*	Ethnograph*
Foodstuff	Refuse	Buy*		
Food stuff	Disposal	Non consump*		
Provision*	Divestment	Use		
Eat*	Scraps	Non use		
Food wast*	Compost*	Use value		
	Binning			
	Waste composition			

A comprehensive search for food waste literature (not limited to any specific range of years) was undertaken in academic and grey literature databases, based on the keywords listed in Table 2.1 and written in English. The academic databases were PubMed, SCOPUS, Web of Science, Sociological Abstracts (on the ProQuest platform) and PsycINFO, while grey literature databases included FACTIVA, ADT (Australian Digital Theses), TROVE and Google Scholar. It soon became apparent that food waste related literature was not held in one repository and was spread across a number of disciplines (see Appendix 1 for the OR searches, based on synonyms highlighting the conceptual and contextual richness of the topic).

PubMed is a citation database indexing biomedical and life sciences journals including public health, health policy development and related educational activities. Scopus is a large citation database and Web of Science is a multidisciplinary index to the journals in the sciences, social sciences, arts and humanities. Sociological Abstracts contains abstracts from sociology and related disciplines literature and PsycINFO is a citation and abstract database for psychology and related disciplines. These multidisciplinary databases increased the range and type of studies found. Searches also extended to general books, Google, social media blogs and Twitter.

Decisions about inclusion and exclusion were based on the content of each article, not its quality, because the aim was to explore the breadth of the literature rather than complete a systematic review. Publication was taken as evidence of a minimum quality level, including for editorials and commentaries.

Literature published before early 2011 was used to formulate the initial research questions and inform the research design before applying for ethics approval (see Chapter 3). Literature published after this date was used to inform interpretation of data, where relevant. After data collection, I developed another set of keywords used in subsequent searches to inform the analysis. These words included value, risk, lifestyle, knowledge, practices and taste, food and waste\* and the searches were carried out using the same databases as before.

### **2.3 DEFINING FOOD WASTE**

It is customary to present definitions to set the scope and context of a study and ensure effective and consistent analysis (Mason, Boyle, Fyfe, Smith, & Cordell, 2011). However, the problem of there being no universally accepted definition for food waste, first identified by Gallo (1980), remains an issue today (Watson, 2013b). The literature shows there are two reasons for the wide range in reported food waste figures; one is the lack of a clear definition of what constitutes food waste while the other has to do with the complexities of assessing and measuring food waste along the supply chain. Taking into consideration that the highest levels of food waste come from households, as outlined in Chapter 1, the lack of a clear definition may present challenges for those who seek to reduce waste in people's homes. It may also account for the wide range of figures quoted in Table 1.1. Certainly, grounded ethnographic research that attempts to understand what people do with food in their homes may help provide insights into why they are wasting so much, which in turn can inform programs focused on reducing food waste. The following section will look at the definitions used by food waste researchers.

All definitions refer to food waste as food intended for human consumption that is lost to the food system, where system refers to the complex assemblage of interdependent and interacting elements of food-related activities, from research and development, to production through to consumption and disposal. Biowaste refers to biodegradable kitchen and garden waste (Lebersorger & Salhofer, 2003) and has been further defined as vegetable, fruit and garden waste (Ryckeboer, Mergaert, Coosemans, Deprins, & Swings, 2003). Further definitions conceptualise waste into three categories; solid waste (W. Rathje & Murphy, 1992), biodegradable (Chandon & Wansink, 2002), or organic (McDonough, 2002). Mason et al. (2011) define food waste as a subset of organic waste and exclude liquid waste (that is, wastewater associated with the consumption, digestion and excretion of food). Organic waste is also the term used to refer to the by-products of agribusiness, with the main sources of organic waste stemming from food manufacturing and processing plants, institutional food preparation facilities and grocery stores (Bohlsen, Weeder, & Wang, 1997). In some nutrition studies, plate waste is the accepted definition for measuring what one leaves behind on the plate (Cereda & Pedrolli, 2009). In one instance, the term “luxus consumption” has been used to define food waste as overconsumption leading to storage of body fat, health problems and excess resource utilisation (Blair & Sobal, 2006).

The FAO has updated its 1981 definition of edible material, intended for human consumption, which is discarded, lost, degraded or consumed by pests between harvest and the consumer. It now refers to food losses and food waste, capturing the complexity of food’s progress along the supply chain. Food losses refer to the decrease in edible food mass through the part of the supply chain that specifically leads to edible food for human consumption, whereas food waste refers to those losses occurring at the end of the food chain in the retail and consumer sections (Gustavsson et al., 2011). They base this definition on the work by J. Parfitt et al. (2010) who differentiate between food loss and food waste where food loss takes place along the production, post-harvest and processing stages while food waste is used for products that are for human consumption (excluding feed). Food loss also refers to the decrease in food quantity or quality that makes it unfit for human

consumption (Grolleaud, 2002). The FAO's definition has been widely recognised, and the distinction between food waste and food loss begins to address the issue of the inevitability of waste, which Munro (1995) discusses in reference to production and consumption cycles.

Some studies have defined waste as food material that is wasted upstream of the supply chain, that is, in production, post-harvest and processing. Most food losses are reported as food waste (K. D. Hall et al., 2009; Marchettini, Ridolfi, & Rustici, 2007; Sharholy, Ahmad, Mahmood, & Trivedi, 2008). In other cases, waste is defined as a combination of losses and scraps (Fehr & Romao, 2001). Similarly, products discarded in food stores are also referred to as food waste.

According to Kelleher and Robins (2013), the terminology that researchers use to define the types of waste has changed over time and reflects different expressions recognised by policy makers. Often, policy makers adopt expressions used in quantitative studies. Chardoul and Coddington (2012) postulate that food waste is one of the categories of waste removed from the larger waste category to allow effective packaging of waste and waste management practices. The expressions for the type of waste are still under negotiation. For example, the use of the term organic waste reflects the historical term for all household wastes including wastes from the kitchen. Nowadays, it is common to see kitchen waste referred to as food organics while green waste from households is referred to as garden organics (Chardoul & Coddington, 2012; ZeroWasteSA, 2010). Waste managers have developed these terms after considering the impacts that the wastes could have on the environment.

To avoid the issues associated with different interpretations of wasted food, WRAP established a classification of food waste (WRAP, 2008) based on avoidability (Parfitt, 2005; WRAP, 2009a, 2009b, 2010a, 2010b, 2011) and this has led to a change in the food waste discourse.

*Avoidable* waste refers to food and drink thrown away because it has passed its use-by date or has perished. In most cases, avoidable wastes include foods that



were edible prior to their disposal, but had deteriorated, gone mouldy or had become inedible.

*Possibly avoidable* waste includes food and drink considered edible by some people and not by others (such as vegetable peelings), or that can be eaten when prepared (such as potato skins). It can also include food that is disposed of because of cosmetic issues such as appearance or specific quality criteria (irregular shaped bananas).

*Unavoidable* food waste refers to food and drink that is not considered edible at all and includes banana skins, orange peel, chicken bones and so on. Supply chain losses in harvesting, storage, transportation and processing are also classified as unavoidable.

Some studies were unable to establish whether food wastes are avoidable or unavoidable. The terms could be applied to food left for disposal by both producers and consumers. However, there are differences between the two categories of wastes (Chardoul & Coddington, 2012; Fehr & Romao, 2001; Pothukuchi & Kaufman, 1999). Producers may avoid food waste by exercising changes in the processes or equipment applied in food preparation of food to ensure greater utility of raw materials converted into consumable food products. Similarly, it is possible for producers to work closely with distributors to ensure that the distributed food products are available to consumers in a condition that is consistent with consumer requirements. Based on supply chain understanding, it could be argued that households, through the acts of the consumer, represent the final point of the supply chain. However, supply chain management only focuses on the product up to the point of sale or purchase and does not concern itself with its trajectory once it leaves the store and moves through the home. Burgon (2007) argues that there is a difference between purchase and consumption, as is seen in the work of the Expenditure Food Survey (EFS) in the UK. Munro (1995) introduces the terms inevitable 'waste' and hedonistic 'surplus', implying the former occurs upstream, at the production end of the supply chain, while the latter occurs downstream, in the consumption domain.

While actions taken along the supply chain may help to minimise waste irrespective of its category, actions by householders have also been encouraged. Mason et al. (2011, p. 4) recognised that unavoidable food wastes arise whenever households experience different sets of circumstances that do not allow them to consume food, thereby leaving it to waste. Of the 6.7 million tonnes of food wasted in the UK, WRAP estimates that 4.1 million tonnes could have been avoided if proper management policies and practices were applied (WRAP, 2007b). Waste management agencies in the UK established a campaign dubbed *Love Food, Hate Waste* to sensitise the public to the significance of avoidable food waste and promote changes in behaviour.

The terms avoidable, unavoidable and possibly avoidable begin to alter the perception of waste, and use of this terminology introduces concepts such as responsibility for food outcomes. Avoidable waste becomes food that could have been eaten but was not, and was subsequently thrown away.

While it may be argued that the definitions do not vary greatly, the lack of a clear and accepted definition has contributed to the lack of comparability between the myriad of studies undertaken and the results obtained. Such variation in definitions is not unexpected, considering the range of disciplines concerned with researching food waste. Furthermore, there are four main areas that deal with food-related activities from which food waste results. These are the supply chain (from upstream in the production end through to the downstream consumer end, including retail), the catering and hospitality industry, and food preparation in institutions (hospitals, schools, universities, prisons), all of which are beyond the scope of this thesis, and households.

There is no denying that the extent of food waste is substantial, in terms of volume or value, as shown in Chapter 1. Furthermore, there are discrepancies in measuring waste, which in part result from the lack of a clear definition and the complexity of measuring food waste along the food supply chain, which varies in developed and developing countries.

In effect, the variations in definition indicate divergent understandings of the term food waste. Such divergence indicates the need for grounded, ethnographic research that attempts to understand what people do with food in their homes. This thesis will focus on food waste at the household level, because studies have shown that this is where the majority of waste arises. In order to understand why people in households were wasting food, I believed it was important to see how the process of transformation took place; where food turned into, became or was made waste, and was eliminated from the home.

## **2.4 FOOD WASTE CAMPAIGNS**

A number of recent food waste campaigns have encouraged consumers to waste less food, such as the *Love Food, Hate Waste* campaign, pioneered by WRAP in the UK (WRAP, 2008) and bought by the New South Wales government in Australia. In Finland, the *Less food wasted means more money in your wallet* campaign in the Helsinki metropolitan area was put in place from 2005 to 2007 (YTV, 2008). In the United States, the Environment Protection Authority launched the *Food: Too Good to Waste* campaign in 2012. In January 2013, the United Nations Environment Program (UNEP) launched their global *Eat, Think, Save* campaign. In parallel, many social media blogs encourage less food wasting, and authors such as Tristram Stuart in the UK, organiser of *Feed the Five Thousand* (on food destined for waste) and Jonathon Bloom in the US have brought the technical aspects of food waste to a lay audience.

Because local government authorities are responsible for managing household waste, it is easier to quantify food waste from this source than from elsewhere along the food supply chain. Collection processes for waste remain largely unseen, especially at the household level; waste is regarded as having somewhere “to go” and its disposal, once regarded as a problem for domestic consumers (C. Reynolds, Thompson, Boland, & Dawson, 2012) has become the state’s responsibility. Such an attitude may imply that people do not care what becomes of their waste.

In South Australia, Zero Waste SA in partnership with the Local Government Association launched their *Get to Know What's Good to Go* campaign at the end of 2013, encouraging people to put food waste into the green organics bins supplied to households. Zero Waste SA is a South Australian state government organisation charged with helping people to improve their recycling and waste avoidance practices at home, work or in industry. They are working towards meeting the target of reducing waste by 25% by 2020. According to Zero Waste SA, almost 80% of all waste is being diverted from landfill. At the household level, food waste is managed as a subset of household waste. The formal collection process has only recently provided the mechanism for and encouragement of separated food waste and will be discussed below. Therefore, an understanding of waste, especially within the household context, is necessary to assist understanding of food waste.

## **2.5 HISTORICAL SNAPSHOT OF WASTE**

The practice of throwing unwanted matter out of the home has taken an interesting course through history. Today, cities designate sites for refuse known as landfill sites, or dumps. The first recorded municipal dump was founded in ancient Athens 2500 years ago, developed because of the smell, filth, disease and hazard resulting from citizens' practice of hurling their refuse out of windows or into alleyways (Humes, 2012; Rushbrook, 2006). However, the distances and difficulty associated with transporting waste led to the concept of a municipal dump being lost.

Not surprisingly, evidence found from excavated homes in ancient Pompeii suggested that the interiors of houses were kept much cleaner than the city streets, with floors mostly kept clean and rubbish removed from houses, either to middens outside the urban area, or Pompeii may have had a rubbish collection system (Murphy, Thompson, & Fuller, 2012). Some food waste was burnt in kitchen fires.

The revival of the town dump occurred in the 1300s in Paris because of national security, rather than for public health reasons (Humes, 2012). Mounds of stinking debris piled at the gates of Paris hid approaching enemies from sight, so the population was ordered to dump large items of trash further away to keep the

gateways clear of debris. These disposal rules did not extend to the city streets within the walls, and the resulting accumulated waste was the breeding ground for the rats that carried the fleas that transmitted bubonic plague. Garbage played a significant role in the Black Death not long after the great Parisian gate clearing (Humes, 2012).

Across the Atlantic, the public health risks associated with waste littering the streets could not be ignored. The first recorded law found prohibiting the casting of waste in streets was passed in 1657 in New Amsterdam (now Manhattan, NY) (Association of Science-Technology Centers Incorporated & Smithsonian Institution Traveling Exhibition Service, 1998) but it was not until the 20th century that waste controls and regulations were orientated toward protecting public health from municipal waste (Rushbrook, 2006). In 1894, Mayor William Strong engaged Colonel Waring and his 2000 sanitation soldiers, known as “White Wings”, to march through and clean the streets of New York City (Humes, 2012). Mayor Strong was also the first mayor to introduce three categories of waste collection – a garbage receptacle, an ash receptacle and rubbish bundles (Humes, 2012).

### **2.5.1 IN AUSTRALIA**

In Australia, the development of waste systems stemmed from its colonial roots, with each colony developing separate but similar regulatory instruments based on British administrative policy (Baum, 2003). Waste management was driven by public health needs, especially the efforts to control disease, and attempted to create healthier living environments (Baum, 2003). The response to epidemics saw all Australian colonies pass Public Health Acts in the last two decades of the nineteenth century (Baum, 2003). In South Australia in particular, the location of this study, the drivers for waste policy formation stemmed from the public control of communicable and preventable disease and the public management of urbanisation (Baum, 2003; Coward, 1988).

### **2.5.2 RECYCLING**

Recycling of materials has been part of everyday life, with people making decisions to keep, re-use or throw away items. Kitchen waste was often fed to dogs or pigs.

The growing population in cities resulted in the accumulation of household and human waste that was associated with outbreaks of cholera and undermined the relatively stable private sector in the late 19<sup>th</sup> century (Humes, 2012).

Industrialisation also brought changes in the composition of waste, making it less suitable for fertiliser (Raven, 2007). Waste became something to dispose of, rather than a useful product (Parto, Loorbach, Lansink, & Kemp, 2006).

The perception of waste and recycling has changed over time. In the 1960s in Los Angeles, for example, a mayoral campaign was won on the promise of *One Home, One Trash Bin* thereby ending compulsory separation of refuse and recyclables by homeowners (Humes, 2012). Today governments encourage recycling behaviour, providing bin facilities for homes and in public places for separation of waste at source.

In many developed countries, recycling has been part of the response to address the waste hierarchy. Countries such as Japan and Korea encourage recycling. Announced in 1997, and coming into effect in 2005, Korea introduced a ban on landfilling as part of their policies for effective food waste management, with the government giving priority to reducing waste generation over recycling (Lee et al., 2007).

The key to sustainable waste management is waste minimisation; in particular the reduction of waste at the source (Pongrácz, Phillips, & Keiski, 2004). In Australia, as in many other countries, the waste hierarchy drives waste policy (Figure 2.1). The majority of waste in Australia goes to landfill, with recycling rates increasing.



Figure 2.1: The waste hierarchy. Graphic courtesy of Zero Waste SA.

In South Australia, a food waste diversion campaign from landfill to recycling was carried out by Zero Waste South Australia in 2009–2010 (ZeroWasteSA, 2012). This was one of the largest pilot studies of recycling in Australia, reaching 17,426 households in 10 participating council areas. The aim of the campaign was to educate residents and encourage them to dispose of food waste into the green organics bins already provided, rather than into the blue- or red-lidded landfill bins (ZeroWasteSA, 2010).

Participants were supplied with appropriate receptacles (kitchen caddies, baskets or bio-bins, and compostable cornstarch liner bags) and fortnightly collection of the green organics bins continued. Two kerbside audits of landfill waste, recycled and green organics were conducted, a baseline audit before commencement of the pilot study and another during the trial. The amount of food waste diverted from landfill was used as the measure of change in household food waste practices. The most successful diversion method, with a rate of 59.7%, was with the bio-bin and fortnightly collection. The bio-basket with weekly collection diverted 28%, and the kitchen caddy 9.31 %. The pilot study cost approximately AUD\$615,000 (C. J. Reynolds, 2013).

### **2.5.3 PACKAGING**

The packaging surrounding food may increase waste creation through its large size if food is not consumed in time, or decrease waste by using technologies such as modified atmospheric atmosphere packaging. Consumers generally prefer less packaging while manufacturers prefer more, as larger volumes often reduce costs. Butler (2008) argues that the benefits of packaging are not limited to one part of the supply chain but occur along the whole supply chain. With less packaging, the shelf life of the product decreases and the rate of food loss increases, especially in other parts of the supply chain. Conversely, adding more packaging can help reduce food waste. Williams, Wikström, Otterbring, Löfgren, and Gustafsson (2012) argue that packaging plays an important role in reducing food waste but knowledge of how it affects food waste in households is scarce. They found that if packages were too big or difficult to empty or the product had passed its use-by date, wastage occurred.

In South Australia, all manufactured and packaged goods are required to display an expiry date in the form of a use-by or best-before date. While it is questionable whether public health regulations surrounding expiry dates on perishable products enhance industrial food safety (Leib, 2013), expiry dates have been found to contribute to food waste (Lyndhurst, 2011).

In South Australia, a recycling system for bottles, plastics, aluminium cans, glass, paper and cardboard has been in existence since the late 1990s, and householders use yellow-lidded recycling bins for these. While it is not the intention of this thesis to explore the role of packaging in food waste, it is noted that householders have been encouraged to recycle many of the materials used for packaging food for nearly 20 years.

### **2.5.4 CONDUITS OF DISPOSAL**

Munro argues that eating is, in effect, governed in part by the availability of the 'conduits' of disposal (1995, p. 313), claiming that neither the production nor consumption views theorise disposal and are not aware of its effects. Conduits of disposal vary. For example, in response to food insecurity in developed countries,



organisations such as food banks,<sup>7</sup> food pantries, the practice of food rescue or salvage, and social movements such as “Tafel” in Germany (Lorenz, 2012) have arisen as non-profit charitable organisations to distribute food to those in need by acquiring food through traditional channels of purchase or cultivation (Bloom, 2011; Gunders, 2012). The food distributed through these channels is “excess” food that was not used for its primary intention, and it is either donated to or acquired by the food bank or food rescue organisation. In this way, rather than throwing away excess food, food-related businesses such as distributors, supermarkets or restaurants distribute it to food banks or food pantries who in turn give it to charity organisations and people in need. Handing excess food to the needy also provides an acceptable channel for disposal (Lorenz, 2012), bringing to the fore the question of the morality of food waste. However, neither regulatory nor structural frameworks exist for householders to channel their excess food into such organisations, but this is also beyond the scope of this thesis.

Other disposal mechanisms include waste receptacles or bins in households. Chappells and Shove (1999) argue that waste bins occupy a critical position in any narrative of waste management. They argue that by “being situated at the interface of private lives and household practices on one hand and public health and environmental management on the other, the dustbin technologies provide a revealing indicator of waste relationships within society’ (p. 267).

Some local authorities favour food waste disposal units<sup>8</sup> (FWDs) to divert waste from landfill. Large-scale uptake of these units could lead to significant waste reduction, and this would outweigh the costs associated with the impact on waste water treatment (Iacovidou, Ohandja, & Voulvoulis, 2012).

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<sup>7</sup> The first food bank was established in 1967 in the United States and food banks are now found on six of the seven continents. They operate under various models but the two major operations are the “front line” model or the “warehouse” model. Food banks operate slightly differently to food rescue, food salvage or gleaning programs.

<sup>8</sup> A food waste disposal unit is an electric device placed under the sink that grinds food waste at source and discharges it through a water outlet to the sewer and from there to the local wastewater treatment plant (see (Iacovidou, Ohandja, Gronow, & Voulvoulis, 2012) for a review of FWDs and their use as a waste management option).

## 2.6 FOOD WASTE BEHAVIOURS

At the household level, studies have shown what food is being wasted and who is wasting it. In the UK, it was found that younger working people (aged 16–34 years) and families with school-aged children wasted the most food (WRAP, 2007b). In Australia, single person households wasted the most food on a per person basis, while households with five or more people wasted the most on a per household basis (Baker et al., 2009). Data from the UK show fresh fruit, vegetables and salads were the foods most often wasted (1,405,000 tonnes) followed by bakery goods (782,000 tonnes) and home-made and ready-made meals (666,000 tonnes) (WRAP, 2008).

Several food waste behaviours have been identified in the literature. Gunders (2012) cites these as:

- lack of awareness and undervaluing of foods
- confusion over date labels
- spoilage
- impulse and bulk purchases
- poor planning
- over-preparation.

Variation in the perishability of individual foods, the likelihood of a food being used as an ingredient or eaten without further preparation, and the degree to which a food is typically consumed by children or adults all influence consumer-level food losses (Muth, Karns, Nielsen, Buzby, & Wells, 2011).

In the UK, WRAP (2007a) identified more than 30 reasons for food waste in the home, which included:

- buying too much
- buying more perishable food – often as a result of trying to eat more healthily
- poor store management
- ad hoc, rather than methodical, ‘spring cleaning’ of stored products
- high awareness of food hygiene
- preparing too much food in general

- not liking the food prepared
- lifestyle factors.

Their work identified that lack of consumer knowledge and understanding about how to store and use food is likely to contribute to food waste (WRAP, 2010a).

Baker et al. (2009) found a link between higher incomes and increased food waste for households of most sizes. They also found that survey respondents identified contradictory behaviour, such as taking a list when shopping to buy only what they needed, and then often buying items on impulse. Respondents also indicated that while they thought about how to incorporate leftovers into a meal, they planned meals around what they wanted to eat rather than what they had on hand. Saving money was cited as the primary motivation for reducing food waste, with double the number of responses as protecting the environment or humanitarian concerns (Hamilton, Denniss, & Baker, 2005).

However, there is no evidence to support the underlying mechanisms that affect these behaviours. Food waste reduction programs appeal to environmental and personal financial concerns. Just as knowing that smoking is bad for one's health does not mean a person will stop smoking; knowing food waste contributes to greenhouse gas emissions is not enough to prevent people from wasting food. This 'value-action' gap occurred when people reported positive attitudes towards the environment that were not matched by their behaviours (Southerton, 2013). Appealing to the moral dimension of food waste may not be enough to change behaviour, either. There is insufficient evidence to determine the effectiveness of these programs, nor is there evidence that behaviour change programs accept or deal with the underlying mechanisms of food waste. There is no evidence of such research conducted in Australia.

In order to understand how to explore the underlying generative mechanisms of food waste, a line of inquiry usually attributed to the social sciences, it is important to deconstruct the term 'food waste' and examine each of its components in turn. I will return to the composite term of 'food waste' once I have done this, and argue for the chosen ontology of the study.

## 2.7 WASTE IN THE CONTEXT OF FOOD WASTE

The word “waste” first arrived in the English language in the 15th century, derived from the Latin word *vastus* ("Online Etymology Dictionary," 2001). It was preceded by the words “midden”, “muck”, “filth”, and “rubbish”, which first appeared in the 14th century. Today, a variety of words are used to classify waste, such as refuse, scraps, trash and even “shit” referring both to our excrement and a colloquial form of object. In most instances, such classifications imply disgust and pollution and become words of taboo (Douglas, 1966 [2002]).

The word waste is defined as “use to no purpose or for inadequate result or extravagantly; treat as wasted or valueless; superfluous; no longer serving a purpose; waste material or food; refuse; useless remains or by-products – wasteful, wastefully, wastefulness ("The Concise Oxford dictionary of Current English," 1990).

The use of the word waste implies that no further use may be derived from the object and its value for that person is no more – it has no value. M. Thompson (1979) distinguishes between the valued, the valueless and things of negative value, and he shows that the transformative process from valued object to valueless waste occurs through action toward the object. Thompson maintains that the qualities of objects are conferred by society, and Evans (2011) supports the notion that the construction of waste is socially and culturally derived.

One of the key components necessary to our understanding of ‘food waste’ is the concept of value and how this applies to ‘food waste’, to food and that which gradually becomes or is transformed into waste, often through a number of stages and practices, or is waste. Appadurai (1986) argues that it is economic exchange which creates value, while according to Thompson aesthetic value and price are clearly related, “yet, equally clearly, they are not one and the same” (M. Thompson, 1979, p. 83). Thompson adds that to maintain the social order, there has to be some agreement on what is of value. Hawkins states that value is a product of social processes, not an intrinsic property of things (Hawkins, 2006). This is reinforced by (Simmel, 1978 [1900]) who states that value is never an inherent property of objects, but is a judgement made about them by subjects.

“Value” refers simultaneously to the price of goods (their market value) and to the things we value or hold dear that are often considered beyond price. Marx made the key distinction between the practical or use value of goods and their exchange value in the marketplace for the purposes of consumption (P. Jackson, 2013; Warde, 1997).

Bourdieu’s work on capital may be useful for explaining these aspects of value. For Bourdieu, strongly influenced by Marx, economic capital is the root of all other forms of capital (Field, 2003). Economic capital is needed to make purchases, but money is not the only influence on what is bought. Symbolic capital and social capital influence how economic capital is disbursed. Furthermore, the influence of the *habitus* also influences how value is determined.

Marshall (1995) cites a number of researchers who have recognised the social aspects of food consumption and linked it in a wider process to production. In adopting Goody’s five-stage provisioning model, see Figure 2.2, he recognises that each stage is affected in some way by every other stage. These stages are the areas of growing, allocating, cooking, and eating, which represent the phases of production, and distribution, preparation, consumption and disposal.

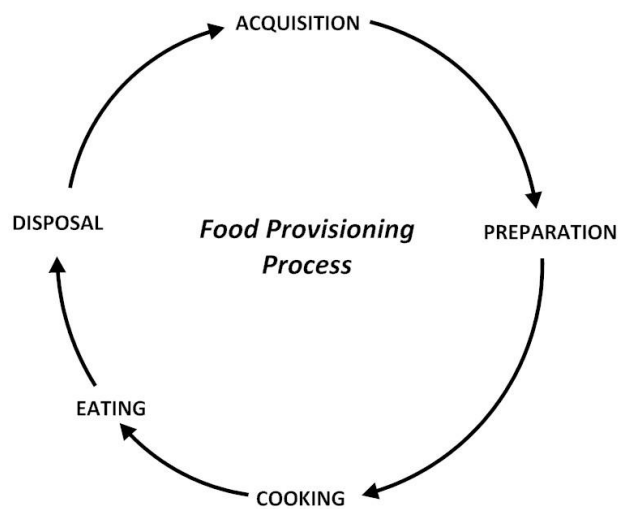


Figure 2.2: The food provisioning process as used by Marshall (p. 11)

Waste is intertwined with overconsumption (Bauman, 2007), and disposability and convenience (Lucas, 2002). Gregson (2011) argues that waste is the shadow of

contemporary consumer culture and was once largely invisible. A change in waste management resulted in the sorting and separation of waste, making it more visible to consumers (Gregson, 2011).

## **2.8 FOOD IN THE CONTEXT OF FOOD WASTE**

Food is defined as “a nutritious substance, especially solid in form, that can be taken into an animal or a plant to maintain life and growth” (“The Concise Oxford dictionary of Current English,” 1990). Such a definition, when viewed alongside the definition of waste, implies that food is the very antithesis of food waste, where one has value of the highest order, that of sustaining life, while the other is that which no longer serves a purpose and does not sustain life.

Food has been the object of study in a wide range of disciplines including, but not limited to, agriculture, food science and technology, biology, nutrition, economics, marketing, psychology, history, sociology and anthropology but interdisciplinary communication has been ‘virtually non-existent’ (Marshall, 1995, p. 4) . The complex question of why people eat as they do has been and continues to be of particular interest.

### **2.8.1 FOOD CHOICE – WHOSE CHOICE IS IT REALLY?**

The concept of taste, while intuitively viewed as the influencing factor in food choice, is rather contentious. It is recognised that a combination of psychological, social, cultural, economic, and biological factors influences the development and maintenance of food choices (Fischler, 1988; Meiselman & MacFie, 1996; Nestle et al., 1998; P. Rozin, 1980). Food choices are only partially explained by the inherent physical properties or characteristics of a product (D. Thompson, 1988), or by consumers’ reactions to taste, textures, smells and flavours. Lewin (1943) argued that ‘people like what they eat’ rather than ‘eat what they like’. Bourdieu, who studied French families extensively, found that tastes in food, culture and presentation were indicators of class, because trends in their consumption seemingly correlated with an individual’s fit in society (1984, p. 184). Connors,

Bisogni, Sobal, and Devine (2001) revealed that participants used a personal food system as a means of managing their values in making food choices.

Food choice is further shaped by cultural representations, where the individual matter of taste is superseded by a cultural order of the alimentary code (food taboos, ritual rules) which defines what is eaten, by whom and when (Douglas, 1972; P. Falk, 1994). Taste, while present, is subsumed by judgement located at the boundaries of culture (P. Falk, 1994). The considerable literature on the social anthropology of food (see (Mintz & Du Bois, 2002) for an excellent review of anthropological studies on food and eating, including theory and research methods) further demonstrates that what is considered edible varies cross-culturally (P. Caplan, 1994, 1996; Pat Caplan, 1997; Stephen Mennell, Murcott, & Otterloo, 1992).

Identities related to eating have been identified as important characteristics in food choice (Bisogni, Connors, Devine, & Sobal, 2002; C. Devine, 1999; C. Devine, Connors, Bisogni, & Sobal, 1998; Fischler, 1988). Mintz and Du Bois (2002) and Sellaeg and Gwen E. (2008) identify a range of studies which have examined the role of ethnicity, nationality, class and, importantly, gender.

Identity and social relations are also linked with willingness to try novel foods, especially for children (Pelchat & Pliner, 1995) and food gatekeepers. L. W. W. Falk (1996) argues that “taste preferences are related to and even determined by the symbolic principles, which translate the material universe into representations of the edible vs inedible, which are then further specified into different sub-categories according to taboos and ritual rules” (p. 68). For example, parents may want to ensure the food they provide for their children is nutritious and likely to be eaten by them (Bathgate & Begley, 2011; Warren, Parry, Lynch, & Murphy, 2008), in addition to it being safe. In this way, parents act as gatekeepers on food exposure and choice (Wenrich, Brown, Miller-Day, Kelley, & Lengerich, 2010). Wenrich et al. (2010) found that taste approval reduced the likelihood that food would be wasted once it was prepared. K. Thompson, Blunden, Brindal, and Hendire (2011) found that children did not have the requisite knowledge to order and reconcile conflicting

pieces of information or knowledge about food, further reinforcing the need for a gatekeeper. Children can actively resist foods they dislike, making it difficult for parents to control children's diets (Brewis & Gartin, 2006).

C. M. Devine (2005) argues that people bring their past food choices, events and experiences 'to the table' each time they make another food choice. That is, each behavioural context, coupled to social locations and key personal characteristics also has a temporal component (C. M. Devine, 2005). On the other hand, sensory characteristics do not explain a consumer's acceptance of food for which they have an aversion, such as coffee (E. Rozin, 1982).

External influences such as access, availability and the economic means to purchase food also contribute to food choice. Numerous studies discuss eating 'properly', particularly in low socio-economic groups (Charles & Kerr, 1986), where lack of financial resources prohibited trying new foods in case they were not prepared well and were wasted (Engler-Stringer, 2011). Eating properly was more easily defined in social terms (Charles & Kerr, 1988). Risk has also been identified as an influence on food choice, with food safety a concern for consumers (Coveney, 2007; House & Coveney, 2013; Nyachuba, 2010; Skarstad, 2008) and confusion surrounding use-by dates and best-before dates increasing food waste (Van Boxstael, Devlieghere, Berkvens, Vermeulen, & Uyttendaele, 2014).

There are gender roles surrounding 'food work' (DeVault, 1991). Mothers are usually in charge of feeding children, and food provision is central to the conceptualisation of motherhood (DeVault, 1991; Lupton, 1996; Warde & Hetherington, 1994; Warin, Turner, Moore, & Davies, 2008). Abarca (2006) argues that the kitchen, especially for working-class women, is *their* space of social, economic and personal mobility rather than a *woman's* space (my emphasis).

### **2.8.2 FOOD CONSUMERISM**

After production, food undergoes several processing procedures that make it edible. The consumption of food varies from one community to another, based on cultural and other factors. Consumption practices can result in food waste or



effective waste management. According to K. D. Hall et al. (2009), overconsumption is one food concept that, when entrenched in the society, could result in an increase in food wastes. First, it is important to note that consumption of food depends on several factors, including price and income. Economic theory postulates that as the price of food products increases, consumption is likely to decrease, but this is not the case for essential food commodities. Similarly, an increase in individuals' income could result in increased food consumption. Consumers also purchase more food products that are of higher values (WRAP, 2010a).

In the context of food, K. D. Hall et al. (2009) define overconsumption as overindulgence in the consumption of certain types of food products. The most commonly over-consumed food products are certain carbohydrates or high calorie food products. Food overconsumption is addictive because it enables an individual to engage a compulsive physiological and psychological need to consume food. Not all food elements are consumed, leaving some to be discarded as wastes. Therefore high food consumption is likely to result in high levels of food waste.

Murcott (2000) discusses the ways in which lifestyle and food use have contributed to purchasing patterns and the organisation of meals, citing Giddens' notion that lifestyle is about identity. Food marketers who influence consumption volume identified ease of access, convenience, variety, taste and safety as food preferences (Chandon & Wansink, 2012). Hawkes (2009) carried out a review of how sales promotions affect which foods people buy and eat, and concluded that sales promotions affect food consumption patterns through purchasing choices and encouraging consumers to eat more, and hence had the potential to increase waste. Larger plate size encourages overconsumption, therefore smaller plates imply less waste (Wansink & van Ittersum, 2006). Studies have shown that consumers believe a healthful diet should include a variety of foods, with recipes and menus that require little cost or preparation time (C. K. P. R. D. Miller, Lowast, & Branscum, 2012). A non-diversified diet can have negative consequences on health (Savy, Martin-Prevel, Sawadogo, Kameli, & Delpeuch, 2005), yet according to W. Rathje and Murphy (2001) a varied diet will result in more waste. Their first principle of waste states that "the more repetitive your diet, the less food you waste" p.243).

## 2.9 PRACTICES

The practices associated with social life can be explained by a set of cultural and philosophical accounts known as practice theories (Halkier, Katz-Gerro, & Martens, 2011), originating from the philosophy of Heidegger and Wittgenstein. In the social sciences, practice theories stem from the work of Bourdieu, the early work of Giddens, the later work of Foucault, Butler (Halkier et al., 2011), Garfinkel, Latour and Taylor and Schatzki (Reckwitz, 2002). Bourdieu focused on the internal differentiation practices determined by social classification, assimilation and the ability to access food. Bourdieu attributed consumption practices to the *habitus*, “which is the conversion of behaviour into a position that generates meaningful practices and meaning-giving perceptions” (Bourdieu, 1984, p. 170). Bourdieu’s theory is based on general and transposable dispositions compared with the organisation practices common in the society. Structured class, classification and perceptions are responsible for particular consumption practices as compared with recruitment. Different groups of people have different consumption practices with regard to understanding of the practice and the procedures involved. In development of a practice, speaking also has a significant role because agents vary in understanding and goals.

Practices are developed through a trajectory path that is different for the substantive forms of practices. Practices are conditional upon the arrangements within the social institution, the characteristics of space and time, the social context such as in the manner in which the household is organised, modes of economic exchange and cultural traditions (Warde, 2005). Based on these aspects, it is possible to establish reasons as to why people do what they do, how they do things and the ways they do them. Changed consumption behaviour lies in the development of practices. Practices have sets of understanding, procedures and objectives that work together to govern conduct within the practice. Practices of habituation, routine and practical consciousness, tacit knowledge and traditions are entrenched in the theories of practice. As noted by Giddens (1984), routines are essential regardless of the capacity for reflective monitoring of performance. In addition, the concept of *habitus* put forward by Bourdieu explains the orderliness

and predictability of the actions of different people when they are faced with free choices within a given practice and across different practices (Warde, 2005).

Quested et al. (2011) suggests the adoption of sustainable food consumption practices to minimise food waste. A 1998 UNEP report stated that consumption of food enhances human development. The report further affirmed that consumption must be shared equally and should strengthen and enhance capabilities of individuals. Environmental sustainability and social responsibility are other aspects of sustainable consumption. Another definition of sustainable consumption is the use of good and services in response to basic needs and enhancement of life. The external costs related to consumption must not be externalised to the environment and should not be passed on to future generations (Trueba & MacMillan, 2012).

## **2.10 FOOD WASTE – THE NEED FOR SOCIO-CULTURAL RESEARCH**

Food has a social dimension (Douglas, 1982; P. Rozin, 1996), displayed through commensal eating. It also has a symbolic nature (Ferguson & Zukin, 1995; Murcott, 1983) such as providing enough food for guests, which may result in excess food and wastage. On the other hand, waste has a moral dimension (Hawkins, 2006), such as the guilt felt when food is thrown away, and may represent that which is no longer valued enough to be retained (M. Thompson, 1979). Thus, separately, both food and waste may be subjectively determined, as the old adage “one man’s trash is another man’s treasure” demonstrates. That is to say, the practices of food provisioning are implicated in the process of waste generation.

M. Thompson (1979) explains similar findings for what is considered rubbish. Therefore, when put together, ‘food waste’ may be regarded both as a subject and an object, where its meaning may be constructed by human beings as they engage in the world they are interpreting. How they engage in their world is based on their historical and social perspectives, bestowed upon them by their culture (Crotty, 1998) or according to Bourdieu, their *habitus*. The basic generation of meaning is always social, arising in and out of interaction with a human community (Crotty, 1998). The meaning of ‘food waste’, therefore, may also be socially and culturally

determined, for example, the culturally constituted meanings might form part of local government authorities' and waste authorities' decision-making processes in a variety of practice based situations.

Furthermore, social reality can only be understood through social constructions such as language, consciousness and shared meanings (Searle, 1995). Inferences are made from what people say, how they act and the artefacts they use (Featherstone, 1987). These elements imply that in order to acquire an understanding of the social, cultural and emotional elements of food use and waste, research needs to include what people say, how they act and what they use around food. This requires an interpretivist approach.

The primary goal for local authorities is to reduce food waste to landfill because it is a significant environmental problem. In South Australia, Zero Waste and the Local Government Authority encourage local councils to provide collection services for ratepayers and households, and to spend money on advertising or kitchen caddies. Advertising campaigns and collections concentrate on the food waste materials going to landfill, while in the waste hierarchy the emphasis is on avoidance, but is it possible to avoid food waste altogether? What about those people who 'recycle' food waste? In this thesis, I take food waste to mean all the organic material that enters a household for consumption. I will follow the path this food takes and look at all the channels that it enters when it is not consumed, and try to understand the reasons why it does so.

## **2.11 STUDY OBJECTIVES**

There have been studies in the UK looking at food waste behaviours, but no in-depth studies in Australia could be found. Furthermore, campaigns encouraging people to reduce food waste appear to have leapt forward to target behaviours, with little knowledge of the generative mechanisms behind food waste practices. For example, encouraging people to buy less is based on the premise that they overconsume (Hawkins, 2006; D. Miller, 1994; Urry, 2010; Warde, 1997) and by buying less, they will waste less. The very nature of food must be taken into account

when considering practices surrounding food waste. Food itself possesses different properties to other commodities and it is viewed by society as doing more than sustaining life. One person may regard food in many ways, and this depends on a range of social factors. Food may be thought of as fuel, sustenance, a gift to share, or having symbolic meaning (such as in religious ceremonies) and each of these and others has the potential to affect the generation of food waste. To this end, the research design was crafted to answer the following research questions:

1. What are the food waste related practices that generate or mitigate food waste within household settings?
2. What are the cultural behaviours, decisions, values and attitudes that influence people to waste food?

The following chapter will present the epistemological grounding on which this research was based. It will provide an account for the methodology and methods used to answer the research questions.

## 3 METHODOLOGY AND RESEARCH PROCESS

### 3.1 INTRODUCTION

The first part of this chapter argues why, based on the epistemological framework of interpretivism, ethnography was chosen as the methodology most suited to answer the research questions posited. The second part of this chapter presents the methods employed to gather data and explains how a suite of complementary methods and techniques was used to provide greater insight and context for the behaviours, attitudes and values of the participants toward 'food waste'.

### 3.2 EPISTEMOLOGICAL GROUNDING

This study was originally conceptualised through a relativist ontology where knowledge is a social reality, value laden and brought out to the open through individual interpretation (Creswell, 2003) and for which the rationale was provided in Chapter 2. Subjective meanings are constructed through discussions or interactions in the social life-world where they are negotiated socially and historically (Creswell, 2003; Crotty, 1998).

However, during the data gathering and analysis processes, I came to recognise that elements of a critical realist ontology would assist in the interpretation of the data. That is, people have knowledge that things exist 'out there', but I was also part of the knowledge that I was discovering through my presence as a researcher and as an individual. For the context of this study, in seeking to understand what participants themselves understood as food waste, I accepted that there was a concept of food waste. Certainly, all the studies measuring food waste in landfill, as described in Chapter 1, attested to the existence of food waste.

Ritzer and Goodman (2003) explain that a number of people have interpreted *verstehen*<sup>9</sup> (and Weber's statements about it) as a technique aimed at

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<sup>9</sup> *Verstehen* is a German word, closely associated with the work of the German sociologist Max Weber. It literally means "to understand" and implies an interpretive or participatory examination of social phenomena.

understanding culture. Clifford Geertz provided an essentially semiotic concept of culture:

Believing, with Max Weber, that man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs, and the analysis of it therefore not an experimental science in search of law but an interpretive one in search of meaning (Geertz, 1973, p. 5).

Seeking the meaning of experience therefore becomes an exploration of culture (Crotty, 1998). The use of the term 'culture' in anthropology implies something deep, a system of values and symbolic logics with a long trajectory behind them (D. Miller, 1998).

Because people have varied experiences, the meanings they derive from them vary, implying that meaning is not static but rather in a constant state of flux. These varied meanings can exist within cultures and within individuals. As it is possible that there are many truths, one of the main objectives of this study is to explore what these truths may be, and this requires a flexible, inductive and iterative approach.

The understanding of human behaviour within social, cultural and local contexts is best studied using qualitative research methods because it is within this context that values, attitudes and beliefs acquire particular cultural meaning (K. Thompson, 2013). Qualitative research provides the methods to reveal *how* people perceive food waste within their homes and *why* they waste food, beyond the often-quoted answer, "because they buy too much!"

Qualitative research provides the tools for researchers to talk to participants and observe them, because people tend to act in ways contrary to their knowledge about the ideal way to behave (K. Thompson, 2013). For example, people know smoking is bad for them, but many continue to smoke. It is important to understand what people know and how they translate this knowledge into actions (K. Thompson, 2013), how they think they translate knowledge into action, and how

these may differ. Qualitative research is suited to provide explanations between stated and revealed behaviour.

Through a constructionist epistemology I argue that meaning and truth emerge from engagement and interaction with the world being interpreted. Meaning is neither discovered (objectivist position) nor created (subjectivist position) but is constructed. Meanings differ across cultures, contexts and situations, therefore behaviours, attitudes, beliefs and values are understood better when considered within their cultural context. Therefore, *a priori*, no one theoretical framework was chosen through which to analyse the problem of why people waste food; rather the methodological approach of ethnography, suited to uncovering meaning, was used.

To avoid being ethnocentric, using an external or 'outsider' perspective to interpret and evaluate the behaviour, attitudes, values and beliefs of the group under study, the researcher should gain an 'insider' view of what people do and the meanings they ascribe to their actions (K. Thompson, 2013). This insider's view is referred to as the 'emic' perspective and understanding, while the outsider's view is referred to as the 'etic' perspective.

Ethnography encourages the collection of social and historical information about participants, the location (Preston, 2005), and the social milieu within which a study takes place. In providing background information on the researcher, who was the instrument through which data gathering occurred, ethnography provides the platform from which to gain an emic understanding of the socio-cultural context within which the generative mechanisms of food waste occurred.

The primary aim of this research was to gain an emic understanding of people's perceptions and practices surrounding 'food waste', to contribute to the identified knowledge gap in such understanding, as discussed in the literature review.

Numerous studies have quantified 'food waste' (see Chapter 1 for a summary) [(Baker et al., 2009; Gustavsson et al., 2011; WRAP, 2007a)], highlighting that much of the 'food waste' comes from households, while others show what is being wasted at the household level. However, little research is available as to why people



‘waste food’ in the context of their homes. Therefore, this research sought to make sense of how people make everyday decisions resulting in ‘food waste’ and how ‘food waste’ is embedded with the social-cultural context in which they live.

### **3.3 TRADITIONAL ETHNOGRAPHY**

Ethnography, from the Greek words *ethnos* meaning folk or people and *grapho* meaning to write, can help us to understand human behaviour by discovering its meanings in a socio-cultural context. To gain an emic understanding of the culture and values of the participants, the researcher needs to understand how people view their world, and in this case, how they construct their world and what they are saying about food waste. To do this, the researcher must “get inside their heads” and include what participants themselves know and how they define their actions, otherwise, as researchers, we have only partial explanations that distort the ‘human situation’ (Spradley, 1979).

Classical or traditional ethnography was founded over a century ago by Malinowski and Boas (Madden, 2010). It routinely involved anthropological fieldwork, referred to as immersion, in a culture over a period of years and was based on learning the language and participating in social events (D. Silverman, 2011). Early anthropological studies such as those of (Malinowski, 1967 [1922]), focused on the ‘exotic’ cultures of the ‘primitive’ and unfamiliar world (R. Hall, 2008; Liamputtong, 2009), such as the Trobriand Islanders in the Western Pacific.

#### **3.3.1 CONTEMPORARY VERSUS TRADITIONAL ETHNOGRAPHY**

Contemporary ethnography encompasses a much broader range of interest (Lassiter & Campbell, 2010), from studies of groups in one’s own culture (see (P. A. Adler & Adler, 1994, pp. 384-385), and also (Nash, 1975, 1981)) to experimental writing<sup>10</sup> to political interventions (Buscatto, 2011, p. 38; Goffman, 1961). For this

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<sup>10</sup> “Bio-confessional” ethnographies of the 50s and 60s intentionally exposed the nature of ethnographic research, such as *Tristes Tropiques* by Claude Lévi-Strauss. Later, “reflexive” ethnographies further refined the technique of translating cultural differences by representing their effects on the ethnographer, such as *Deep Play: Notes on a Balinese Cockfight* by Clifford Geertz. In the 80s ethnography came under scrutiny within the discipline, influenced by literary theory and

research project, I borrowed from the tradition of anthropology and the use of ethnography. I used the methods of ethnographic inquiry to capture what the participants themselves knew, the words they used and how they defined their actions, to understand why they wasted food and in turn answer the research questions. I immersed myself into a broadly defined 'community' (defined later in the section of site description) of 14 individual households in 14 suburbs for a period. An essential component of this method is a description of the field site and an account of the social milieu that existed at the time the fieldwork component of the research took place, providing greater depth to the context within which the research was carried out. These accounts are provided below.

There has been much debate in the academic literature as to what constitutes a *real* ethnography (see in particular (Agar, 2006) and (Roth, 2006)) with ethnography changing its focus, especially in light of globalisation (Agar, 2006). Despite this debate, it is recognised that ethnography leads to a written description of immersion in the field and of directly observing the behaviour of a social group. P.A. Adler and Adler (2008) provide a detailed analysis of ethnographic writing and identify four genres of representation that shape its form and content. I used the ethnographic methods of participant observation and in-depth, semi-structured interviews to examine what people thought about food waste and to reveal how insights gained from this methodology shaped decisions about my process of inquiry. I will present a two-stage analysis, borrowing from the hermeneutic circle approach. That is, Chapter 4 will present parts of the whole and answer the first research question, while Chapter 5 will present the whole of the parts and answer the second research question.

### **3.4 ROLE OF RESEARCHER**

The researcher is an integral part of both the act of researching and the interpretation of the research. The reasons why researchers study certain areas and not others is often left unexplored (Okely & Callaway, 1992) but in ethnographic

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post-colonial-structuralist thought, reflected in "experimental" ethnographies such as that of *Shamanism, Colonialism, and The Wild Man* by Michael Taussig.

research where the researcher is the primary data collection instrument (Creswell, 2003; Eberle & Maeder, 2011), his or her nature and background also shape the interpretations of the research. In fact, Max Weber stated that all research is influenced to some extent by the values of the researcher and through those values certain problems are identified and studied in particular ways (1946). The conclusions and implications drawn from a study are largely grounded in the moral and political beliefs of the researcher. Layder (2006) argues that stating the researcher's own assumptions at the start facilitates the production of more powerful and adequate interpretations of empirical data. To this end, I present a short biography of myself.

### **3.4.1 SHORT BIOGRAPHY**

I am an English-speaking married woman of Greek background, aged in my late thirties during the fieldwork. I have two children and I am the main food caretaker in my home. I have worked in food-related fields since high school and used both my knowledge of food and my background to build rapport and to enable participants to feel comfortable in sharing their stories. My work in food value chains has encouraged me to compartmentalise food activities in terms of supply chain terminology.

My fluency in the Greek language allowed me to converse comfortably with participants who spoke Greek, allowing them the opportunity to express themselves in their native language. During participant recruitment, I identified myself as a researcher from a Public Health department, which created expectations among participants as to my knowledge and skills surrounding food. They sought my opinion on a range of food-related matters including the preparation and storage food. In fact, one participant stated that he thought I was researching how healthily he was eating.

### **3.5 RESEARCH AIMS**

The study investigated 'food waste' in South Australian household settings – how 'food waste' was considered, talked about and practised in everyday life through

the actions and words of the participants. For reasons discussed in the literature review, households were chosen as the unit of study. Two research aims were developed:

1. What are the food waste related practices that generate or mitigate food waste within household settings?
2. What are the cultural behaviours, decisions, values and attitudes that influence people to waste food?

### **3.6 RESEARCH DESIGN**

The research was designed to answer the research questions by gathering socio-cultural data from households. The outcome was a description and interpretation of the reasons people waste food within their specific culture of suburban Adelaide. Because I used ethnographic methods to gather data and my findings depend on rich detailed data of one particular place in one particular city, it is important to provide the reader with an understanding of this site. Indeed, this was part of the rationale of conducting research similar to that conducted in the UK (see (Evans, 2011)), because the socio-cultural context may influence the findings of the study. The following sections provide information about the city of Adelaide where the study took place, participant recruitment and ethical considerations. I then detail the tailored use of several methods to gather data on the meaning and context of 'food waste' behaviours, practices, decisions, values and attitudes, and conclude the chapter with a description of data analysis. Since this study was designed in 2011, Evans has published a series of articles outlining his findings on food waste within UK households using ethnographic research methods (2011; 2012). Evans conducted his fieldwork across a range of households in two streets of the same suburb, and participants were aware he was investigating food waste. My research investigated food waste in households across a range of suburbs and participants did not know that food waste was the issue under investigation, discussed below.

### **3.6.1 DESCRIPTION OF SITE**

The location chosen for the study was the city of Adelaide, the capital city of the state of South Australia and the fifth largest city of Australia. It covers an area of 20 kilometres (or 12 miles) wide from the coast to the foothills and 90 kilometres (56 miles) long from Gawler in the north to Sellicks Beach in the south. Most of the state's population live in the capital. Colonised by the British in 1836, Adelaide is now home to people from many different ethnicities. In 2011, the Census (ABS, 2011) showed a total of 1,225, 235 people living in Adelaide. Adelaide's inhabitants occupy 366,912 houses, 57,696 semi-detached, row terrace or town houses and 49,413 flats, units or apartments.

The northern part of Adelaide is considered to be of the lowest socioeconomic status; the east is of relatively high socioeconomic status and currently has one of the highest rates of increase in property values (K. Thompson, Palmer, & Raven, 2006). The south is experiencing a boom in affordable housing estates and new infrastructure to meet the demands of an increasing population that was traditionally working class but is increasingly idle class; the west is a middle-class area with historical ties to the working class, especially those who worked in abattoirs (K. Thompson et al., 2006).

Rather than conduct an ethnographic study in one or two streets of a suburb or community (see (D. Miller, 1998) or (Evans, 2011)), I chose to undertake a multi-sited (multi-suburb) study, in order to facilitate theoretically driven sampling, discussed in the section Sampling Strategy. Fourteen households were recruited for the study, drawn from the greater Adelaide area. A map of Adelaide and the location of the households is shown in Figure 3.1. Suburbs in the north, east, south and west of the city were represented. Thirteen households lived in detached houses, two of which were rental properties, and one was in a rental apartment. Suburbs' demographics vary; all the detached houses in the study had front and back yards; all properties had separate kitchens and meals areas. Four households had more than one refrigerator and one household had an additional kitchen outside in their garage, which they frequently used in the summer months.

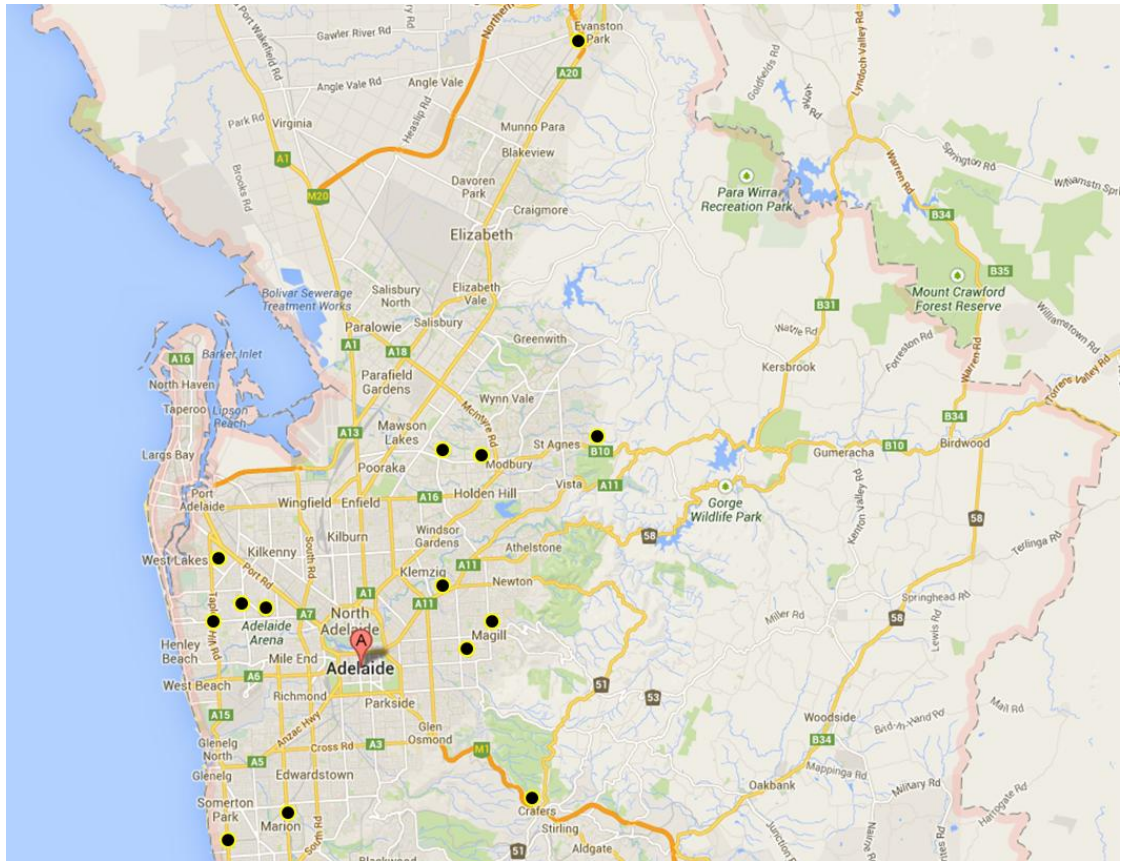


Figure 3.1: A map from Google Maps of the area of Adelaide in South Australia. The black circles denote the suburbs of participating households.

Fifty-seven percent of adults in the study households had university qualifications, a much higher proportion than the population of Adelaide, where about 20% have university qualifications. This could indicate that people with higher levels of education are more likely to participate in research studies (Galea & Tracy, 2007). Of the total population of Adelaide, 29.8% were born overseas. Ethnicity was not an inclusion or exclusion criterion, but participants' ethnicities were identified. Three households in the study had at least one adult participant born overseas. The population of Adelaide is ageing more rapidly than that of other Australian capital cities, and it was not surprising that participants from three households were aged over 65 years of age.

The management of household waste was an important component of this study. In Adelaide, local councils are responsible for waste collection services and supply all households with three rubbish bins, a blue- or red-lidded landfill bin, a yellow-

lidded recycling bin for bottles, cans and plastics and a green (garden) organics bin for branches, leaves and organic material. Some councils collect food waste and residents are encouraged to use their green organics bin for this, with the option of using a kitchen caddy supplied with bin liners or wrapping food waste in newspaper. No participants were using the council food waste services at the commencement of the study. During the course of the study, two participants learned they could place their food waste wrapped in newspaper in the green organics bin and two had received a kitchen caddy. In summary, households recruited to this study were unremarkable in terms of the waste management services provided by councils.

### **3.6.2 SOCIAL MILIEU**

Adelaide has a “food rich” reputation, holding the title of Australia’s wine capital.<sup>11</sup> Food is plentiful in supermarkets, specialty food stores and markets. Like in other parts of Australia, two major supermarket chains, Coles and Woolworths, dominate Adelaide’s grocery sector, with around 80% of market share; a third smaller independent retailer provides an alternative supermarket shopping experience. Supermarkets run campaigns such as “Buy local” and “Buy SA”, encouraging people to buy local products. Television programs such as *MasterChef* and *My Kitchen Rules* dominate ratings on commercial television. South Australia was in the middle of a prolonged drought during the time of the study; media attention was focused on the impact of drought affecting farmers, food production and the price of food. Foreign ownership of Australian farming land was also an issue in the media at the time of the study.

### **3.6.3 SAMPLING STRATEGY – PARTICIPANTS AND RECRUITMENT**

I chose to undertake a ‘multi-site’ or multi-suburb study. I sought a sample that would produce the type of knowledge necessary to understand the generative mechanisms of ‘food waste’ (Popay, Rogers, & Williams, 1998). Based on quantifiable evidence (Baker et al., 2009) that it was highly likely that everyone wasted food, all persons living in houses, semi-detached houses, row terraces, town

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<sup>11</sup> A comprehensive account of the history of eating in Australia is provided in Symons (2007), 2<sup>nd</sup> Ed., *One continuous picnic: A gastronomic history of Australia*.

houses, flats, units or apartments were eligible to participate. According to Spradley (1979), there is no homogeneous culture with one set of values, even within subgroups, implying that within a suburb or a city one cannot assume that the culture is homogeneous.

A theoretically informed sampling strategy was devised to capture a wide range of participants, varying in gender, age, household composition and ways of eating. The basic underlying principle of theoretical sampling is that “the researcher should not pre-determine the size nor the composition of the sample in advance of the research” (Glaser & Strauss, 1967, p. 70). Theoretical sampling is purposive; the power lies in selecting information-rich cases for in-depth study (Popay et al., 1998). This allows for theoretical registering of the system elements of social life such as the setting and context of activity rather than simply those to do with the life-world (Habermas, 1987 [1981]). It demonstrates the ties and interconnections between agency and system elements that are at the heart of social life (Giddens, 1991). Variation in the sample also took into account characteristics such as family size, education and income when applicants offered to be included in the study.

I developed a flyer as the basis for recruitment (see Appendix 2). Flyers were emailed to contacts in Anglicare,<sup>12</sup> the Parks Community Centre,<sup>13</sup> the Regional Food Group<sup>14</sup> Chairs and the personal networks including sporting clubs and social groups of myself and other members of the project team. Flyers gave my contact email and this was the only way potential participants could contact me. I replied by email to those who did so, providing an information sheet and consent forms (see Appendix 2). Prospective participants were invited to contact me if they wished to proceed with the study. Snowball sampling was invited and there was no coercion

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<sup>12</sup> Anglicare is an organisation providing services and hope to people within the community who may feel there is none.

<sup>13</sup> The Parks Community Centre was designed in 1977 to meet the human, social and recreational needs of the inner north-western suburbs of Adelaide, one of the most disadvantaged metropolitan areas at the time.

<sup>14</sup> South Australia’s food industry has a number of Regional Food Groups, each aiming to promote and strengthen their region’s profile and the individual companies in each region. The Chairs of each Food Group forwarded the flyer to their respective regional communities.



to participate. All participants signed and returned consent forms before the start of the research.

Seasonal variation was thought to be a potential influence on food waste. Most seasonally variable material in the municipal solid waste stream was food waste (Yousuf & Rahman, 2007), while dietary changes during warmer months had been noted in a study of children and teenagers (Yannakoulia, Drichoulis, Kontogianni, & Magkanari, 2010). To account for the potential effect of seasonal variation on 'food waste' within the home, I staggered the household recruitment process. I had intended to return to each household in the spring/summer and autumn/winter seasons, but the time commitment required for this deterred potential participants. Instead, I grouped the households into cohorts of three to five per season. Recruitment and data collection did not allow the data to fit neatly within the standard seasons of winter, spring, summer and autumn; rather the spirit of the seasons was maintained (colder versus warmer months). Data collection for the 'winter' season started with the first cohort in May 2011 and concluded in October/November; the second cohort ran from September 2011 to December 2011; the third cohort from January 2012 to March 2012; and the final cohort from March 2012 to June 2012. Not all debrief interviews were conducted within the season and some overlap of cohorts occurred.

#### **3.6.4 ETHICS**

Formal ethics approval was sought from and granted by the Social and Behavioural Research Ethics Committee of Flinders University of South Australia; project number 5118. This committee granted approval in writing on 2 March 2011.

Fully informed consent was not obtained at the beginning of the study. This was so the researcher could gain an appreciation of the situation under study (Rappert, 2010). It was believed that participants might modify their behaviour if they were aware that the research was targeting 'food waste' behaviours. The lack of fully informed consent was not considered an increased risk to participants; all participants were advised at the first meeting that the main focus of the study was 'a particular food-related behaviour' and they would be told of that behaviour as

part of the debrief interview at the end of process. The suite of methods employed, including repeat *in situ* observations, increased rapport with participants, and each household was given a \$50 voucher as a gesture of thanks for their participation and time in the study.

### **3.7 METHODS**

This section will describe the methods and tools used to gather data and reasons for their choice. According to (Liamputtong, 2009), theoretical frameworks provide a rationale for the way the research is undertaken and the methodology used, while distinct methods are ways of collecting data. Following on from the methods used I will outline the types of data gathered and will conclude by describing data analysis.

The methods used to gather data included:

1. In-depth semi-structured interviews with the main food caretaker or the whole household as part of a 'Meet and Greet' process
2. Food maps
3. *In situ* observations
4. Photographs
5. Vignettes
6. Semi-structured debriefing interviews with the main food caretaker or the whole household

Using several methods and techniques provides strength and rigour to research findings (Tracy, 2010) and all techniques were used with each household. I began the ethnographic engagement process by interviewing the food caretaker in each household and drafting a food map. In all cases, the ethnographic engagement process concluded with the debriefing interview, a questionnaire and my sharing the vignette I wrote about the food practices I observed. The number and sequence of observations for each household varied depending on each household's circumstances. I took photographs during the observations. Each method and technique is described in more detail below. I conducted 28 in-depth semi-structured interviews and 68 observations over a period of 13 months from May 2011 to June 2012 with the 14 participating households.

I used a Livescribe<sup>®</sup> pen and paper for audio recording and note-taking, including *in situ* field notes, during the semi-structured interviews and observations. The Livescribe pen has an integrated audio recording device that allows audio and written data to be transferred directly to a personal computer. I transcribed the audio data into Microsoft Word and imported the files into NVivo 8, which was upgraded to NVivo 10 during the research period. I reproduced field notes in Microsoft Word and imported them into NVivo, taking into consideration the variation between construction and reproduction when transcribing (Hammersley, 2010). Post observation notes were kept in a separate journal. Photographs of food storage, preparation and disposal areas for mnemonic purposes were transferred to my computer.

### **3.7.1 IN-DEPTH SEMI-STRUCTURED INTERVIEWS**

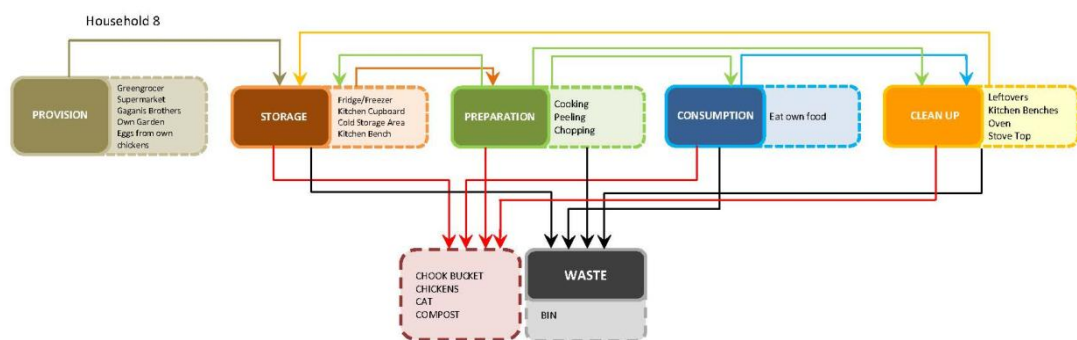
In-depth semi-structured interviews are used in research to access individuals' attitudes and values – things that cannot necessarily be observed or accommodated in a formal questionnaire (Byrne, 2004, p. 182). I held an initial semi-structured interview with the main food caretaker, the person who was responsible for most food-related activities in the house. This acted as a 'Meet and Greet' and allowed me to meet participants and ask questions related to food provisioning and consumption patterns, such as how often did they shop for food, and who was responsible for preparing meals and cleaning up afterwards. If two people sometimes shared the role of food caretaker, both were interviewed about food-related activities. In seven households, all household members were present for the initial interview. Of these interviews, nine occurred in homes, three took place in coffee shops and two took place in a meeting room at the participants' places of work. (See Appendix 2 for the question guide.)

The concluding interviews were the last part of the engagement process and enabled me to share the true intent of the research, namely looking at food waste practices and asking specific questions about food waste, such as 'What do you consider as food waste?' and 'How much do you think you waste?' These questions gave participants the opportunity to reflect on their practices and enabled me to

compare what they thought they were doing with what I observed. Of these interviews, four took place at participants' workplaces and the remainder in their homes.

### 3.7.2 FOOD MAPS

Together with the participants, I developed a food map for each household as part of the first interview, mapping the journey of food into and out of the household. Figure 3.2 represents an example of a food map (see Appendix 4 for food maps for each household).



**Figure 3.2:** The food map developed for household 8 based on the initial interview and observations. The food map's accuracy was verified with the householders during the debriefing interview.

I used the food maps to determine how food entered homes, what happened to it once it was inside the house, where food was prepared, when and where participants ate when they were at home and who was responsible for cleaning up. Through this process, I identified the number of people in each household, their food-related responsibilities, the main food activities and any surrounding food patterns. The food maps also allowed me to determine possible observation times appropriate to each household, taking into consideration their needs and patterns. For example, no daytime observations were scheduled during the working week if no one was home on weekdays. I used the food maps again in the debrief process to confirm that I had captured all avenues of 'food waste', as a method of triangulating the data (D Silverman, 2011; Thurmond, 2001).

### 3.7.3 *IN SITU* OBSERVATIONS

*In situ* observations were used because it was recognised that interviews, while providing representations of people’s experiences, do not inform us directly of their experience (Byrne, 2004). Observations deal not with what people say they do but what they actually do (Gilham, 2008). I used observations of people *in situ*. That is, I conducted the research in the setting under consideration (K. Thompson, 2013). Although I was interested in behaviours and attitudes related to food waste, I wanted to gain an understanding of those attitudes and behaviours in the broader context wherein they existed and were influenced (Anderson, Adey, & Bevan, 2010; K. Thompson, 2013). Interviews alone would not have provided the detailed information I sought, with context-specific information.

I devised a standard observation template, shown in Table 3.1, to use as a guide for food-related activities that could occur in a household, allowing for possible differences between weekday and weekend practices. This template reflected the common practice of people in Australian society of eating three meals a day; breakfast, lunch and dinner. This template was not shown to participants but was used to segment possible observational periods.

**Table 3.1:** Standard observation template used as a starting point for timing of observations

Expected times of observations	Weekday (Mon–Fri)	Weekend (Sat & Sun)
7am–11am	4 hours	4 hours
11am–3pm	4 hours	4 hours
4pm–8pm	4 hours	4 hours

The actual observation days and times were determined with the food caretaker, using the food mapping process. For example, participants from six households were not home for lunch on weekdays, so no observations occurred then. Similarly, in three cases the presence or absence of children determined the nature and timing of dinner, rather than differences between weekdays and weekends. In these cases, two dinner observations were made on weekdays, one with and one without children present. In addition to the initial and debrief interviews, I

conducted a minimum of two and a maximum of ten observations with each household (Appendix 5 lists the dates of the interviews and observations). In total, I carried out 68 observations totalling more than 400 hours. As an example, Table 3.2 shows the interactions with household five.

Table 3.2: Observations and interviews with household five

Interaction with household	Date
Meet and greet/food map interview	05/06/2011
Shopping observation 1	26/07/2011 (with Celeste*)
Shopping observation 2	18/09/2011 (with Johannes*)
Breakfast weekday observation	29/06/2011 (started at 6am, finished at 7:30am)
Breakfast weekend observation	18/09/2011
Lunch weekday observation	06/07/2011
Lunch weekend observation	14/08/2011
Dinner weekday observation	27/06/2011
Dinner weekend observation	31/07/2011
Debrief interview	07/10/2011

\*all names are pseudonyms

There was no set order to the observations; rather I accommodated the needs of the participants. The repeat visits enabled me to observe variations in behaviour and attitudes during different meal times, and to build rapport with participants as they became accustomed to my presence. Through repeated visits, I gained a better understanding of people’s practices and values.

I did not tell participants that I was observing ‘food waste’, but rather that I wanted to observe and understand their relationship with food and the so-called “journey of food” within the home. I made this decision for two main reasons. First, participants could have modified their behaviour in response to being studied, known as the Hawthorne effect (Franke & Kaul, 1978; Mayo, 1993; Roethlisberger, Dickson, & Wright, 1964). Langley, Turner, and Yoxall (2011) noted that people changed their food-related behaviour when keeping a food diary, possibly because of the negative connotations of food waste. Wenlock et al. (1980) reported the possibility of changed behaviour when participants were asked to collect all their food waste material. Secondly, I wanted to observe the precursors to ‘food waste’ to understand better the drivers that led to it. That is, to observe the related behaviours *in situ* leading to food waste practices.

Observations may vary along the continuum from complete participant observation to non-participant observation (Hennink, Hutter, & Bailey, 2011). I was both a participant and non-participant during observations, depending on circumstances. While I was in people's homes I observed them putting their shopping away or preparing a meal, and yet retained a visible distance from their activities and did not participate. I also went shopping with participants and in all except one case, I shared one meal with them, making me a participant. Being in people's personal spaces and homes required a certain level of rapport and trust to be built and exchanged between the researcher and participants, which determined the level of participation by the researcher.

#### **3.7.4 PHOTOGRAPHS**

Photography can be used in ethnographic research potentially to construct continuities between the visual culture of an academic discipline and that of participants or collaborators in the research (Pink, 2001). In this research, I took photographs of kitchens, storage spaces, avenues for 'food waste' and bins, bowls or other storage receptacles for 'food waste'. They served predominantly as mnemonic devices but were also used with the food maps during the debrief interviews.

#### **3.7.5 VIGNETTES**

Vignettes are a useful way of clarifying a researcher's perspective on what was observed (R. Hall, 2008). According to Miles and Huberman (1994, p. 81)

[A] vignette is a focused description of a series of events taken to be representative, typical or emblematic in the case you are doing. It has a narrative, story-like structure that preserves chronological flow and that normally is limited to a brief time span, to one or a few key participants, to a bonded space, or to all three.

Based on the interview and observations, I presented a vignette to each household as part of the debriefing to check that I had represented them accurately through

our interactions, and to give them back something from the research process.<sup>15</sup> In addition, the vignette forced me to see each family separately from the data set. Appendix 4 contains copies of the vignettes, but I provide one below as an example.

**Vignette of household 1**

Household 1	The Jones Family
<p>The home on Siesta Court opened its doors nine times over the winter months of 2011 to be part of a food study looking at the relationship of its occupants with food. The home was built by and belongs to James and Sue, who display great care and love in looking after their happy home. The things that make up this home sit in their assigned spaces and can be accessed at a moment's notice. The kitchen space is separated from the family room by the kitchen bench, on which sits a lovely photo of their granddaughter, her partner and James and Sue. James and Sue are a retired couple who love food. They love eating and preparing food and prefer to cook up a meal rather than get takeaway, since, as James says, "it only takes 20 minutes".</p> <p>The kitchen space is open to other places of the home, with the computer and the television both within watching distance from the kitchen sink, which sits under the breakfast bar. A small table sits at the end of the breakfast bar which serves as a hub when coffees are served and is used for meals by James and Sue when they are alone (always breakfast, a light lunch and cooked dinner). The fridge and the oven stand opposite the kitchen sink, nestled around the pantry and other cupboards where many but not all foodstuffs are stored. The kitchen space seems to fit both James and Sue comfortably when they are preparing food, but they each often say that they get in each other's way.</p> <p>James and Sue will go for their weekly shop together, list in hand, and collect all the things they need to keep their pantry and fridge well stocked. Stops at the supermarket, the fruit and veg store and a specialist butcher provide the food they bring into their home with no top-up shops to replenish anything that finishes. One of their fridges is stocked with fish, caught by James on his annual sojourn up the coast. Goods are only replenished on a weekly basis. On returning home after their food shop, James will make lattes using the coffee machine, while Sue, to ensure the pantry is kept in an orderly state, prefers to put the shopping away. Their three fridges are organised in such a way that there is a supply of protein and vegetables at all times. This enables meals to be prepared very quickly and easily.</p> <p>What they eat has changed considerably to accommodate changing health concerns. James will often cook and Sue will gladly support him in the kitchen, with both of them involved in all aspects of food preparation and cooking. They both like variety. Travelling in the caravan was a much loved pastime and cooking food was an important part of their lives through their travels. This was James's domain and if travelling companions wanted to</p>	

<sup>15</sup> This was triggered during my work in establishing and regulating the newly formed Charter Boat Fishery in Fisheries Policy. I often spoke with fishers who were required by law to provide catch statistics to the South Australian Research and Development Institute (SARDI). They remarked that while they were happy to contribute to the research process, they never really got 'anything back' from it. It would have been 'nice to see something' by which they meant some tangible report or object that they could lay claim to have contributed toward.



share in the meal, they would eat what James had prepared. They no longer travel in that way, but James still enjoys cooking both for him and Sue and for others.

They both convey their love of food through cooking for others, both in and out of their home and each week will prepare at least three dishes and a dessert to take to an elderly aunt. In addition to taking her food, they will cook a meal at her house and share this with her. They think about what food to make as they think that tastes, texture and variety are very important for Auntie. Treats are always well received, and often Auntie will share a new product she has received through her shopping with James and Sue who are happy to try it out and share the results of their endeavours with her. They will also cook for the family and enjoy it when they all get together.

With such a focus on food preparation there is little waste generated. As meals are prepared, a small plastic bag sits in the sink, accumulating rubbish, of which a very small portion is foodstuffs. This bag is taken out to the landfill bin as it fills, and if necessary, another one takes its place until the meal preparation is finished. In some instances, food is saved for the “grand dogs”, as their granddaughter’s dogs are affectionately called, frozen in small containers, in little treat bundles and handed over. Any food that has been prepared and not eaten is kept and eaten at a later time or gladly re-cooked by James into “bubble and squeak”. Sue will wash all the recyclable containers before putting them into the recycling bin.

### **3.7.6 DEBRIEF INTERVIEW AS PART OF A DEBRIEFING PROCESS**

I used the debriefing to disclose the focus of the study. Participants in eight households said that they had guessed that I was researching ‘food waste’ prior to the debrief. The remaining six households were not surprised with my disclosure. For example, one participant explained, amid much laughter, that she thought it odd that I asked her what she was going to do with the other half of an uneaten avocado left on the kitchen bench.

In the first step of the debriefing process I disclosed to participants that the focus of the study was ‘food waste’ and after a short conversation I moved into the semi-structured interview (guiding questions are attached in Appendix 2), allowing time at the end for general discussion. At the end, I gave each household a laminated certificate and a \$50 voucher as a gesture of thanks for their involvement in the study.

### 3.7.7 SUMMARY OF METHODS USED

By using this suite of six complementary techniques, I collected whatever data I could to throw light on the issues that were the focus of the research (Hammersley & Atkinson, 1995). Interviews alone would not have provided me with the contextual information that I obtained from seeing participants in their own environment, even though transcribing electronic recordings is regarded as more rigorous than relying on field notes (Hammersley, 2010). Using these six data collection methods together not only enabled me to collect pieces of information and knowledge about another place or culture. I was also able to use them as part of a process of creating and representing knowledge (about society, culture and individuals) based on both the emic (the participants') and the etic perspectives (the ethnographer's own experiences) (Pink, 2001).

### 3.8 DATA ANALYSIS

I used NVivo to open code the transcripts, field notes, photographs, post observation notes, and questionnaires. I used the vignettes and food maps as tools to interact with the participants to elicit information and to cross-check my understanding of information received, as a form of triangulation. I also used the food maps to develop the conceptualisations arising from the physical pathways as food moved through the home. As a critical link between data collection and their explanation of meaning (Charmaz, 2001), I used coding in this research project as a "researcher-generated construct that symbolises and thus attributes interpreted meaning to each individual datum for later purposes of pattern detection, categorisation, theory building, and other analytic processes" (Saldana, 2013).<sup>16</sup> This approach supports the emergent or grounded theoretical approach used in ethnographic research. I will now provide an outline of the data analysis process, because it is integral to assessing the quality of a study (Green et al., 2007).

A grounded theory approach applies specific types of codes to data through a series of cumulative coding cycles that lead to the development of a theory rooted in the

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<sup>16</sup> The use of *code* in this thesis differs to that used in the field of semiotics where a code relates to the interpretation of symbols in their specific social and cultural contexts (Saldana, 2013).

original data themselves (Saldana, 2013). Borrowing from the exploratory nature of grounded theory, I undertook the first cycle of coding in an exploratory or open fashion using words or short phrases used by the participants themselves during conversations (Strauss, 1987) such as “hate cooking”, but also using my own conceptual words, such as “emotion”. Open coding was used to capture as much of the data as possible. New codes were created until the final observations, which Layder (1998) claims is part of the adaptive process. I created 241 codes through the exploratory coding process (Appendix 7).

Taking the open coded transcripts, field notes and photographs, and the knowledge gained from the literature about the stages of food-related activities, I formed categories around the five identified key food-related activities. Bearing in mind the research questions, both the creation and management of ‘food waste’ were important. Therefore, the second order of coding separated out cultural behaviours, decisions, values and attitudes contributing to practices that either generated or mitigated ‘food waste’ against each of the identified five major categories or stages that food passed through in the home (Appendix 8). Some codes appeared in more than one category. The process was repeated for the categories identified through the data gathering process and could be described as a thematic analysis (Braun & Clarke, 2006). A number of codes did not fit with these categories. They were retained and analysed to determine their relevance to the research questions. The process of forming categories was regarded as second cycle coding. The outcomes of this coding process are presented in Chapter 4.

A third level of coding was undertaken, with the theoretical literature informing and guiding the development of high level concepts. Four high level themes were developed. This process is provided in Appendix 9 and the outcomes are discussed in detail in Chapter 5.

Figure 3.2 illustrates the process I worked through from the initial coding, to the second stage coding of waste generating or mitigating practices against the five key food waste related stages, to the third level of higher order conceptual analysis. I discussed my coding and analysis with my supervisors as a way of validating the

findings, and checked my interpretations with the participants (Saldana, 2013) through debriefing and the vignettes.

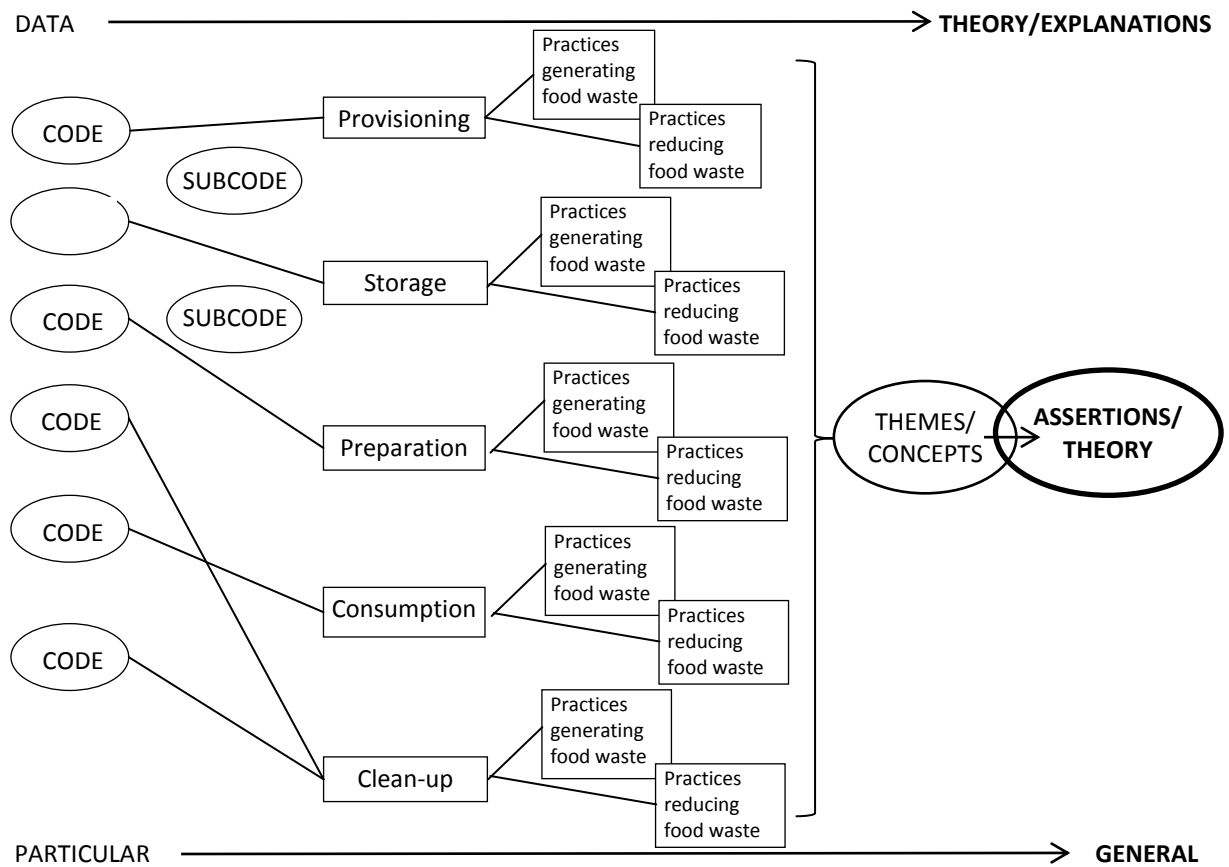


Figure 3.2: Codes to theory model followed for this thesis; adapted from Saldana (2013. p.13)

### 3.9 SUMMARY OF ANALYTICAL PROCEDURES

Using the ethnographic methods of participant observation and in-depth semi-structured interviews *in situ* as the basis of the data gathering process, I was able to identify food waste practices around five key food activity stages within households. These practices either generated or mitigated food waste. I used food maps developed with participants to identify food activity patterns and food-related practices to assist with the timing of observations and to obtain an understanding of what participants actually did. Field notes and reflection journals were hand written and transcribed and most conversations were audio-recorded, transcribed and analysed. Photographs were taken initially as mnemonic devices but were also coded and analysed. Data was coded at three levels: open or exploratory; thematic based on the identified five key food activity stages; and higher order conceptual

coding, informed by the literature. In the latter case, literature was sought to explain the interpretations of the observations rather than fitting the observations into a theoretical framework. The following chapter will provide the outcomes of the first and second order coding in the form of descriptive findings, answering research question 1.

## 4 FOOD WASTE PRACTICES – A STAGE-BASED DESCRIPTION

### 4.1 INTRODUCTION

This section will present the findings of the 68 observations and 28 semi-structured interviews conducted with 14 households across the greater Adelaide area in South Australia. Sampling stopped at 14 households because no new data were being generated and the research questions could be addressed with the data gathered. This chapter answers research question 1: what are the food waste related practices that generate or mitigate food waste within household settings.

While Marshall's (1995) adaptation of Goody's five-stage provisioning model, discussed in Chapter 2, highlighted the interconnectedness of the stages and provided a basis for undertaking observations surrounding food-related activities, it was a flow model for provisioning purposes. Rather than looking at food waste as a separate entity and a discrete stage, as Marshall did, I looked at it across all the food activity stages present in the household. These five key food activity stages were identified as provisioning, storage, preparation, consumption and clean-up and are depicted in Figure 4.1. Furthermore, based on the observations and interviews, the focus on food waste and the thematic analysis outlined in Chapter 3, I found food waste to continuously occur throughout each of five key food activity stages; food waste was not an 'end point' of food related practices.

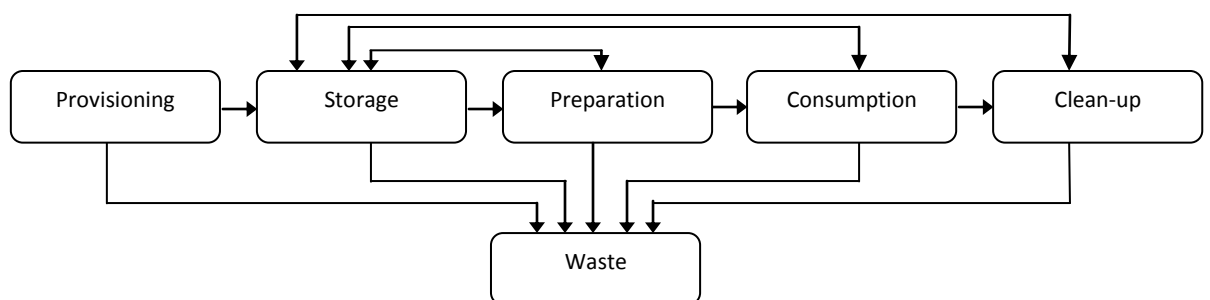


Figure 4.1: The five food activity stages.

Using elements of grounded theory in the initial first round of coding, the exploratory approach outlined in Chapter 3 resulted in 241 open codes. An adaptive

theory approach was taken, with existing theory used to order and pattern the emerging data while simultaneously adapting the order and pattern contained in the emerging data (Layder, 1998). As such, codes were aligned to five stages of food practices in households that had impact on food waste. Following this process, I went through the data determining the practices that either generated or reduced 'food waste'. Examples of the coding processes can be found in Appendices 7–9. It was inevitable, in describing the stages, that practices that generated waste and those that reduced waste could be described in such a way by observation alone.

I have depicted the five key food activity stages in a linear fashion, reflecting the supply chain model used in production-based systems. As food moves through each stage, waste can and does occur, as shown by the arrows in the diagram pointing to the box labelled 'waste'. Food to be re-used moves out of and back into the different stages, as depicted by the arrows on the upper half of the diagram. While the purpose of the study was to examine why people wasted food, from the point of view of participants the purpose of food-related activity was to produce and consume food. This meant that food-related practices were not always distinct, falling neatly into the five identified categories. All food waste practices were tied to food practices. For academic purposes, however, this chapter will present food waste related practices as they occurred at each stage, while the following chapter will present an analysis of the impacts of these practices at a conceptual level.

I present the food waste practices observed and discussed for each stage as those that generated food waste and those that mitigated food waste. I will start with provisioning, for the purposes of commencing 'somewhere', but because of the nature of food in South Australian households, I could have commenced the analysis at any of the five stages. The purpose of structuring this chapter in such a manner is to highlight distinct behaviours around each stage.

In some instances, practices could serve as both generating and mitigating 'food waste', dependent on circumstance. For example, shopping was influenced by taste and time, and could on one day, result in over purchase, while on another day, result in the use of all items in stock before buying new ones.

Data presented in this chapter includes direct quotes or field notes that are italicised and identified by the observation or interview type (as described in Chapter 3) and the household number. In some cases, a descriptive paragraph based on both quotes and field notes is used and is not italicised; this is to provide some variation in the data presented for the reader. Double quotation marks denote the actual words of the participants.

Participants from the 14 households are described in Appendix 4. Names have been altered to ensure anonymity; ages and the relationships between householders, where there was more than one participant in the household have also been included. The food maps I developed and the vignettes presented to each family during the debrief interview are included as Appendix 4.

## 4.2 PROVISIONING

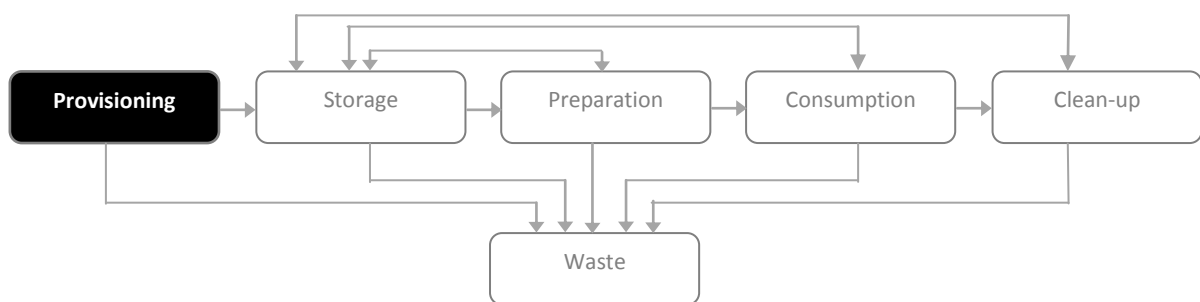


Figure 4.2: The provisioning stage

This section presents food waste practices as they relate to the act of provisioning, that is, of 'bringing food into the home for the purposes of consumption'. These acts involved driving to and accessing food at one or more of the following: supermarket, grocer, butcher, baker, market, health shop or other specialty store. Food provisioning occurred predominantly as an act of purchase but also included food acquired with no money exchange, such as fruit, vegetables or herbs grown on the property, or food given to household participants.



## 4.2.1 PRACTICES THAT GENERATED 'FOOD WASTE' IN PROVISIONING

### 4.2.1.1 LOW COST OF AND EASE OF ACCESS TO FOOD

One of the drivers behind wasteful food practices was the perceived constant availability and low cost at which food could be purchased, as James and Angela highlight:

*James – I mean it's readily available 24 hours a day.*

*Angela – yes, food's quite well- it's not really expensive is it? I mean, groceries are, but I think vegetables – people say they are, but not really. Not compared to other things, really. [Debrief interview, H1<sup>17</sup>]*

*Angela - I think there's a lot of it [waste in the kitchen area]. And I guess lifestyle now and money generates it, the fact that you don't have to do what our parents did and save things. For most people to get food is fairly easy, they just go up the shop, or if they've got a garden they go to the garden, but people just seem to eat and get rid of it. Leftovers really are a thing of the past. [Debrief interview, H1]*

James and Angela provided what were in their mind, rational reasons other people wasted food. They did not include themselves as people who acted in this way.

### 4.2.1.2 PURCHASING CHEAP FOOD OR FOOD IN BULK

It was a common practice for participants to buy at least some of their food in bulk because they felt it was more efficient and saved money and time. When I first visited Tony and Dave, Dave made a point of showing me Tony's stockpiles of long-life juices and canned tomatoes, saying that "*I think he's trying to prepare for a nuclear war or something...*"

Tony bought in bulk food that would last because it had a long shelf life, and there was no evidence of waste from these bulk buys, but this did not happen with others who liked buying in bulk. For Penelope and George—a retired immigrant couple—price, quantity and freshness were as important as bulk buying, and together were more important than not wasting food. George periodically bought a whole box of tomatoes and cucumbers from a farm in Adelaide's northern peri-urban horticultural district. George considered the one-hour drive to the farm worthwhile

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<sup>17</sup> The letter H followed by a number denotes the household; in this instance H1 denotes household 1, and so on.

because his purchase was made at “good price” and it was “straight from the farm”, implying he valued freshness. Penelope used this produce for making salad each day. When I asked Penelope if they ate all the produce bought this way before it spoiled, she said “we tend to” and then went on to explain that it was mainly during the winter months that spoilage occurred, because they were unable to eat it all. She sometimes gave produce to her daughter to ensure that they threw out little or none. Penelope said that they thought it worthwhile to purchase this type of food in bulk because they saved what they considered a significant amount of money, and for them, having a plentiful food supply by buying cheaply was more important than buying just enough and not wasting. This was further reinforced during a conversation we while preparing lunch:

*Penelope – I don't drive, so sometimes I send George out to-to the supermarket for bread or- or something that I need. He often comes home with what I've asked for and more! (shaking her head) Yesterday he came home with five legs of lamb!*

Researcher – *Five?*

*George – they were on special at good price!*

Researcher – *where do you store five legs of lamb?*

*Penelope – we have a deep freeze and we freeze them. Meat is fine, but – well the other day he came home with four heads of lettuce-*

*George (shaking his head smiling) – but they were cheap!*

*Penelope – how much lettuce are we going to eat! [Weekday lunch observation, H15]*

When I queried their attitude toward buying greater quantities of food because it was cheap, Penelope said that this resulted from living through times of little or no food and was tied up with their reasons for migration and seeking a better life. Penelope also said that they did try to consume as much of it as possible; they did not intentionally waste the produce. At the same time, if they did not consume everything, then it did not really matter because it all was purchased so cheaply. The food they were unable to eat because of spoilage was thrown into the rubbish or the green organics bin. It was identified as waste during the Storage stage but occurred because of over-provisioning.

The practice of buying food cheaply, on ‘special’ (a temporary price reduction) or in bulk, reflected shoppers’ perceptions that they got value for money, which appeared to be more highly regarded than not wasting the food purchased.

Claire, a single female living on her own, liked to buy organic food<sup>18</sup> as often as she could but also liked to buy in bulk because it saved her time, saying that “for things that don’t go off, I’ll buy more of because they’ll keep”. However, Claire recounted an instance where her bulk buy of Haloumi cheese did “go off”, having an unintended wasteful consequence:

*Claire – I actually bulk buy Haloumi. I bought a couple of things and I didn’t eat it. It was way over the use-by date. And I tasted it and it was off. [Meet and Greet Interview, H5]*

Claire’s example demonstrates how provisioning practices can indirectly contribute to food waste. In passing through the Storage, Preparation, Consumption and Clean-up stages food is transformed into waste and is no longer food.

#### **4.2.1.3 OVER-PURCHASING – BUYING MORE THAN NEEDED**

Whether buying for one or buying to feed a household, purchasing food in larger quantities than could be consumed in time led to food wastage. Bulk buying practices such as those described in section 4.3.1.2 saved time and money, but led to wastage. Another way that food quantities contributed to ‘food waste’ was through the item size. The following field notes and quote demonstrate this:

*Tony prefers little yoghurts [containers] because he says ‘it’s easier’, especially when he is getting things out of the fridge in the morning. He bought a big tub, actually he bought two because they were on special, but he said they were not as easy to use as the little packets. If there is ever yoghurt thrown away, it is because it is in a big container. [Field notes, shopping observation, H7]*

*Amelia - So yeah, going out a lot, yeah, working long hours, um, the size of the food that one has to buy so, you know, I can’t buy like one stick of celery, I have to buy more – half a thing of celery and then I can’t think of what to do with the other ten sticks of it – yeah, that kind of thing makes me waste more food. [Debrief interview, H13]*

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<sup>18</sup> When the term organic was used by Claire or Amelia it referred to food that was grown using organic farming methods.

Food packaging, often regarded as ‘excessive’ by participants, was a contributing factor to food waste. In some cases, it affected participants’ purchasing decisions.

*Tony – the fact that my bread rolls come in non-recyclable plastic and now that for me is a food-related waste and I try to minimise that as much as I can but there’s a certain element of waste that comes with that, like sandwich wrappings or you know, the paper that the sliced meats are in, um, so there’s an element of waste that goes with the way we consume and buy food as well. So when I try to minimise waste, it’s not just about the actual food itself, it’s the, the packaging of that food. [Debrief interview, H7]*

While Tony was mindful of what he bought to avoid excessive packaging, such as buying produce loose rather than pre-packaged, there were times he admitted to not following his own beliefs:

*Tony – I do avoid buying products with excessive packaging, so I won’t buy apples or potatoes in a plastic bag, you know, pre-pack, um, how then I draw that line, like I buy carrots in a 1kg bag and that wastes plastic so...*

*Researcher – and why would you buy the carrots in a kilo bag? Is it because...*

*Tony – because they’re cheaper (laughs). [Debrief interview, H7]*

Buying items ‘loose’ rather than pre-packaged enabled participants to choose the quantity and quality of the produce, and for highly variable products such as grapes, minimise the potential waste, as shopping with Alice demonstrated:

*Alice spent a good few minutes looking over the pre-packaged grapes, arranged neatly in their small plastic bags on the shelf. She picked up one bag and looked over it carefully, then put it back, and picked up another. She seemed more satisfied with this one, but grimaced as she said “I hate this” referring to the packaged grapes. She re-stated her strong feelings, saying “I hate not being able to choose the grapes myself” as she put the bag carefully in the trolley. [Field notes, Shopping trip, H8]*

Alice felt very strongly about having the ability to choose her grapes taken away from her. Her choice was only a pre-packaged alternative, which she bought despite not feeling ‘good’ about her purchase.

#### 4.2.1.4 BUYING BLIND – PURCHASING FOOD CHOSEN OR PRE-PACKAGED BY OTHERS

When provisioning was outsourced and people outside of the home decided on the size, shape and appearance of specific fresh produce, it was not uncommon for ‘food waste’ to be generated. Claire and Celeste both used a box scheme where locally grown fruit and vegetables were delivered directly to the consumer, usually on a subscription basis. The box scheme provider included produce depending on seasonality and availability. Claire and Celeste were able to select produce from a list and the box scheme provider chose the items, packed and delivered them to their homes. Waste was generated when the items selected did not meet the criteria these participants had in mind, for example, they were too large or too ripe, as Claire explained:

*Claire – They put it in, the reason I was short this week was that they put in small pieces of broccoli rather than big ones.*

*Researcher – So the quantities were different*

*Claire – Yep the quantities were different; and a couple of weeks ago they even sent me these two massive (her emphasis) pieces of broccoli, besides all the other stuff. And, they were old already. The day I got them they were already old. I was furious. And so I had to throw three quarters of one away because by the- today, or last night-today-it was off. So I cut off a lot of the floret and used it. [Meet and Greet Interview, H4]*

Claire removed parts of the food that she perceived as inedible because of spoilage and threw them in the rubbish bin. Her reference to “furious” highlighted the emotional influence of her food.

When produce is observed to be totally unsuitable, such as food that is mouldy, the only avenue is for it to be thrown in the bin.

*Tony – I was really pissed off with currants recently. I got these really fresh currants. The first time I went to open it they’d gone all mouldy. I’d never seen that before.*

*Researcher – did you take them back?*

*Tony – No.*

*Researcher – so did you throw them out?*

*Tony – I did. Yeah when I first came round to using it, it was literally within a couple of weeks, and I was really pissed off. If I had my receipt, I would have taken them back. [Weekend dinner observation, H7]*

Tony expressed anger that the currants were sold to him in a less than optimal condition; his actions did not contribute to the product going mouldy. He claimed that if he had the receipt, he would have returned the mouldy product.

#### **4.2.1.5 PURCHASING FOOD FOR OTHERS**

Food waste was generated when the shopper purchased food for people not present during the procurement process. This was observed when parents, such as Vivian, Ginny, Sally and Violet, were provisioning for their children. They explained that their children's changing tastes provided challenges for caregivers in their food provisioning activities. There were three approaches identified in the five households where parents provisioned for their children (all aged under 15 years of age): parents shopped with children present; parents asked older children for their preferences and the children remained at home; or parents made decisions based on previous consumption patterns. Of these three approaches, the third generated more food waste than the other two, as Vivian explained:

*Vivian – I think it's much harder to pick foods for kids. So usually I'll try to sort of buy things that I know that they'll eat, because sometimes I see something and think 'oh, they'd really like that and I'll buy it and then sometimes it's a hit and other times it's not, so, um, I think yeah, just having kids in general and their changing – changing tastebuds (laughing). [Debrief interview, H11]*

Vivian attributed the changing nature of her children's tastes as a cause of food waste, especially when she based her purchasing decisions on previous consumption patterns.

Sally (H10), on the other hand, said that both she and her husband would eat snacks bought specifically for Anna, their daughter, when she did not eat them, referring to price and taste as influencers of her decision:

*Sally – or if I see something in the supermarket, I'll try it, and as you know kid's snacks are not cheap. For example the rice cracker things that you – you know. So okay, I'll buy them, okay, I haven't bought something new for a while, I'll buy this, see how we go, test it out, she won't like it. I won't*

*throw that out. She'll say I don't like it, I don't want that again, we'll eat it. Whenever we need a snack, I'll save it, and we'll eat it, I won't waste.*

Purchasing food for children carried the risk of that food not being eaten, especially if it was not liked. Sally's practice of eating the food Anna had "gone off", as she put it, only extended to the food Sally herself liked.

Sally was the primary food caretaker in her home and responsible for most of the food activities in the house, including shopping. As Sally was showing me her pantry, she pulled out a large cardboard box full of packets of pasta. She explained that, being of Italian background, her family loved to eat pasta, so she kept stocks of it in the pantry and had particular preferences for the types of pasta eaten. When her husband, Tom, would duck across to the supermarket across the road to buy items for his work lunch once a week, he would sometimes buy pantry items such as pasta, thinking he was helping Sally out with the shopping. As Sally picked out two packets of very thin spaghetti, she explained that Tom had bought this pasta for their daughter. Sally was very sceptical as to whether her daughter would like such thin pasta. Sally's concerns were valid, because Anna was observed not liking and not eating the "thin spaghetti" when it was served for dinner during another of my visits. In this case, while the transformation of the food to waste occurred during the consumption phase, waste was generated by provisioning decisions made by the secondary food caretaker in wanting to provide and care for others in the household.

#### **4.2.1.6 SHOPPING PATTERNS AND CHANGES TO ROUTINE**

Shopping frequency contributed to the generation of 'food waste', as Angela explained:

*Angela – Sometimes I reckon that you would probably waste less if you did what the French do, or a lot of the Asian countries, they buy their vegetables daily. Instead of going to the supermarket one day and thinking oh, I'll have that, that and that, which I do, and the- the watermelon and the rockmelon sits there for week, whereas if you doing it daily, you'd think oh, I feel like watermelon and rockmelon.*

Researcher – *So you'll go and buy it.*

Angela – *yeah, I bought it, but then when I get home the next day I don't*

*feel like watermelon and rockmelon. I think one week's shopping probably influences food wastage a bit too. [Debrief interview, H3]*

An unexpected change in the household routine after provisioning had taken place led to 'food waste' being generated.

*Celeste – See, out of routine is when it would happen more, whereas if we're in routine, like for example during term we always have yoghurt on Tuesday after- because you've got tennis and I don't cook. So then the yoghurt would get used up. But suddenly in the school holidays you suddenly find oops, the yoghurt's gone off, because... [Debrief Interview, H5]*

There was a delay between changes in routine and purchasing patterns that resulted in food wastage.

*Peter said that a change to his work routine led to food being wasted. He undertook his major shop fortnightly. His work sometimes required him to fly interstate at short notice. Having already provisioned for the fortnight, his fresh produce would be thrown out, because his change in routine resulted in him being unable to consume it in time. [Field notes, Shopping trip, H12]*

While these changes to routine appear to be of more of a structural nature, changes may also be the result of more immediate, personal choices.

Amelia said that she now had a higher disposable income than at any other time in her working life and she was able to shop in an *ad hoc* manner, driven by taste to buy higher quality produce when she felt like it. These shopping practices coupled with her way of life then resulted in wastage of food in the Storage and Consumption stages, because her plans changed after she had considered her provisioning needs.

*Amelia - Yeah, I'd been to the beach, it had been really warm, I was really tired, I didn't really feel like what I'd bought, even though at the time it sounded like a good idea. Yeah, and I felt like Thai instead, so I got Thai takeaway. [Meet and Greet Interview, H13]*

While the rhythms of everyday life may be interrupted temporarily, leading to food waste as described by Peter and Amelia, major life changes such as the birth of a child in Vivian's case, Peter's divorce, or Penelope's retirement forced changes to old habits and creation of new ones.



Penelope – *It used to be when I worked, I shopped once a week but now, um, I just, um, try to do most once a week but if I need something, I just go and get it. Mainly, um, like bread and milk and things like that a bit more often, um, more often than items that you know, are in the house.*

Participants described an adjustment period occurring, with food waste generated until enough time had passed for new habits to be formed.

#### **4.2.1.7 GIFTING – THE INFLUENCE OF UNANTICIPATED FOOD COMING INTO THE HOME**

Gifted or unexpectedly acquired food did not come into the home in a planned or organised way and therefore fell outside the scope of ‘usual’ provisioning decision criteria. It was given by family members or friends, and included raw ingredients and cooked meals. When the main food caretaker or other household members accepted gifted food, decisions were needed about how to accommodate and use the unanticipated food. Motivations to gift came from wanting to help others or not wanting to waste excess food, especially from backyard fruit trees.

Sally – *The eggs are from Mum. And the other thing is mother in law has quite a wide range in her veggie patch. So we get quite a bit from her as far as lettuce, um...You know, different vegies, whatever's in season, she loves her garden...So Tom will bring that home, or she'll give it to me when I see her during the week, yeah, a lot of it's from, yeah. [Meet and Greet interview, H1]*

Sally wanted to incorporate Tom mother's produce in her weekday lunch meal, explicitly telling me as she did so that this food “came from the garden”, implying freshness and obligation to use it. Sally expected produce to come into her home but did not know specifically the items; but whether it was lettuce, cucumbers or cabbage she was able to adapt her meal preparation accordingly. While Sally said she used the produce from the garden, I did see her putting uneaten food, some of which was from her mother-in-law, into the chook bag kept in her fridge to be given to her mother as food for the chickens.

In Alice's case, during a weeknight observation when she had her daughter Grace at home, I noticed a bag full of vegetables sitting on Alice's bench. Alice explained that her mother had delivered the contents of her fridge's vegetable crisper earlier in the day because she was going on holiday. When Alice went through the contents,

she was unsure of how to use the beetroot she found, having never cooked it before. She felt that she needed to try and use it, even asking me if I wanted to take it home. After putting it to the side and thinking more about it, she put it in the chook bucket, along with the broccoli given to her that had already started to turn yellow. She expressed feelings of guilt at not being able to use the produce but alleviated these by saying that she would not buy beetroot in the first place. Putting the produce in the compost bucket further reduced her guilt. The compost bucket was regarded differently to the rubbish bin. I asked Alice if she would do something similar and drop off her vegetables to a relative if she were going away. She said it would depend on the state of her vegetables, but she would more likely give them to the chickens.

Gifted food did not always come from a garden. If the gifted food was a ready-to-eat meal, this usually implied that it should be eaten on the day it was received. This required a further decision about what to do with the meal that it was replacing. During a weekday dinner observation, Violet reheated a tray of cooked lasagne that her mother-in-law had sent home with Arthur. Violet did not anticipate this food and had provisioned and organised for another meal, which she prepared in addition to the lasagne. She ended up with more food than her family could eat, storing some food to be eaten later. Food that was stored was not always consumed; as Arthur said during a dinner observation, “We are not great with leftovers”.

When receiving gifted food, the participants displayed emotions ranging from annoyance to gratitude, and felt obligated to consume the food, because it had been given with the implicit assumption of it being consumed. Alice, Sally and Violet all received food unexpectedly. They did not know when nor what type of food would be given to them. They would never refuse food given to them and when it arrived, they made an effort to accommodate it. However, once the gifted food had been turned into a meal or an attempt had been made to use it or eat it, it was more acceptable to throw away what was not eaten.

Interestingly, giving food as a means to provide for others could also be perceived as transferring disposal practices. Penelope gave food to her daughter, despite her daughter's protests that they would not eat so much food and would be likely to throw it away. Penelope then appeared upset that her daughter did not appreciate her efforts. For Penelope, gifting food represented her caretaking role while for her daughter it represented an opportunity to generate food waste.

#### **4.2.1.8 GROWING FOOD**

Growing their own food was a common practice among study participants. Many households in the study had gardens or access to a garden. Sue and James grew parsley and spinach in their yard, while Angela and Justin had fruit trees in pots and had tried to grow spinach. Claire grew rocket (arugula) and herbs, there were fruit trees on the property when she bought the house and she had access to produce from the school garden where she did relief teaching. Celeste had plentiful herbs, produce in pots, a vegetable garden, and she used a local community garden. Alice had fruit trees in her backyard and herbs, strawberries and rhubarb, while Harry had cultivated 20 fruit trees, herbs and grew lettuce in summer. Vivian had vegetables, fruit trees and herbs growing in her garden while George had a vegetable patch and fruit trees in his backyard. Joan, Tony and Sally all had access to garden produce from friends or relatives. Peter, Amelia and Violet lived in rental properties and did not have a garden nor access to one.

Harry and George, with numerous backyard fruit trees they had planted and cultivated themselves, had to manage the overabundance of fruit when it ripened all at once. These two households were the only two of the seven that kept produce gardens and grew fruit in sufficient quantity to produce wastage. Harry and Ginny Potter and Penelope and George said that wastage of fruit was an issue but it could not be helped. I visited the gardens of Harry and George, who each said fruit was often wasted when it ripened all at the same time, but they had no control over the ripening process. Both would try to pick up the fruit that fell each day, but if it had fallen earlier and was rotting, had ants in or birds had pecked it, they would leave it

on the ground, throw it in the compost, or George would occasionally throw it in the bin.

Harry – *It really annoys me that. I don't mind sharing them [with the birds], but they just take a peck out of every one (laughing).*

Female friend – *If they just have one!*

Ginny – *And I don't like eating them then [Debrief interview, H9]*

Ginny did not like to eat fruit that birds had pecked, preferring Harry to throw it into the compost. Harry and George both tried to give away fruit to friends and relatives, and preserved and pickled some produce as a means of extending its life and reducing the amount going to waste (see section 4.3.2).

#### **4.2.1.9 LAST MINUTE TAKEAWAY FOOD PURCHASE**

Ready-to-eat and takeaway food purchased at the last minute had the potential to displace a meal that would have been prepared from food items already bought. The decision to purchase ready-to-eat and takeaway food was often made immediately prior to consumption and was driven by taste, lack of time or perceptions that food preparation was hard work.

Justifying the purchase of takeaway food was also driven by the participants' emotional state or mood, with comments such as "I was so tired", "I am not in the right frame of mind", "I have had a stressful day" or "I do not feel like eating chops"; such comments were often accompanied by the phrase "I don't normally...".

Angela – *Yeah, just can't be bothered, tiredness. Might have gone out somewhere and by the time I got home I can't be bothered.*

Justin – *I don't think, well, I don't really feel like tea, I'll just go and get some chips and I'll probably have chips and then do a toasted sandwich [Debrief interview, H3]*

Interestingly, Angela does not mind a chicken and chips from the local take-away but would not eat chain-store fast food.

Angela – *I mean, we don't eat rubbish like go and get takeaway.*

Justin – *We don't- we rarely have takeaways.*

*Angela – We don't have takeaways and things like that.*

*Justin – And if we do it might be a pizza or something like that.*

*Angela – Very rarely.*

*Justin – Not a Kentucky or not a McDonalds or any of those.*

*Angela – But a chicken and chips from the local chicken shop, yeah... [De-brief interview, H3]*

The use of the word “rubbish” to describe food from Kentucky Fried Chicken or McDonalds implied that chain-store fast food was not suitable as food.

*Claire mentioned that she got takeaway last night. It was enough for at least 2 serves. She didn't seem happy with her purchase. Friends recommended the place to her. She had to pour off some of the orange oil that she did not like the look of. She mentioned that it probably had canola oil in it, which was GM [genetically modified], which she abhors. “It was only a vegetarian curry and was a fair price at around \$19.80 a serve”. She has kept the leftover in the fridge. She doesn't sound enthusiastic about the prospect of eating it again. She doesn't want to throw it away because she hates waste, but seems to be looking for an opportunity to not eat it. She mentions that she might go out tonight and if she did, she wouldn't eat the left over curry. She would go out and have dinner out. [Field notes, shopping observation, H4]*

Participants often looked for excuses not to eat unappetising leftover food, especially if it was takeaway and prepared by someone else.

Ginny purchased takeaway every Thursday because this enabled her to have more time to tidy up the house for the cleaner who came the next day. However, when she was tired or did not want to cook, she quite happily bought takeaway food. Ginny liked to think ahead, often cooking or buying more of a particular food so she could incorporate it into a lunch meal the next day. When buying takeaway hot chips, however, Ginny complained that her “over-buying” practice resulted in wastage because she found it difficult to re-use the chips later and ended up feeding them to the chickens. She blamed the size of the bag the chips came in, saying it was “not quite right”.

*Ginny – There's chicken and chips, and there might be few, like the last two Fridays I bought chicken and chips, and got more chicken than I knew we would eat, but I would then use it for sandwiches on Saturday. There's*

*often a few chips left over, and partly it's because a lot of the places where you get chips they now do them in bag sizes. Before you would go in and say I'd like \$4.50 of chips, and you would know that that quantity is just what you need. Whereas the small is not quite enough, but the next one up...*

Harry – *Oh, they've changed the sizes [inaudible].*

Ginny – *Is too much, and so we get left, and Harry's often said, 'oh, somebody should work out a recipe you can do to use up chips'. [Debrief interview, H8]*

While Ginny was able to use leftover chicken in sandwiches later in the week, the leftover chips were not re-used due to the limited cooking repertoire her and Harry had for them. In jokingly wishing someone would 'work out' a recipe for leftover chips, they imply that this is something they would not do.

#### **4.2.2 PRACTICES THAT REDUCED 'FOOD WASTE' IN PROVISIONING**

##### **4.2.2.1 SAVING MONEY**

While saving money appeared to encourage George or Tony to buy in greater quantities, being thrifty also acted as an incentive not to waste food.

During a shopping trip with Alice, she wanted to buy a tray of mangoes because doing so was cheaper than buying them individually.

*Alice spent some time quietly thinking about her decision while holding the tray, even asking if I wanted to go halves with her, which I declined. After much consideration, she put the tray back and picked out three mangoes. When I asked her about her decision, she said that they eat a lot of fruit, but she was worried that she would not get through the mangoes in time or have time to freeze the pulp if she bought the whole tray. [Field notes, shopping trip, H8]*

Alice wanted to save money by buying the tray in bulk, but she was aware of not wanting to waste the mangoes. Her lack of time to prepare the pulp for freezing and the chance of wastage influenced her decision to buy a smaller amount.

Vivian wanted to purchase avocados during our shopping trip, but she said they were not cheap and were too ripe. She said that she would not use them in time and did not buy them.

In Tony's case, he explained during his debrief interview that he explicitly avoided bulk buying where, despite the cheaper cost, he would end up not consuming the product and then having to throw it out. He claimed that one of his main considerations in purchasing was not to waste food.

*Tony – And that's where that, you know, because I'm very price-conscious as well – but I'm not going to go and buy something because it's cheaper if I know I'm not going to be able to get through that amount of it by the used by dates, so if it means buying it in smaller quantities so that it's fresher and it all gets used up rather than entering false economies. [Debrief interview, H7]*

Tony's bulk buying behaviour extended towards products he knew would be eaten and could be safely stored for an extended period because they were shelf-stable.

#### **4.2.2.2 EXPENSIVE NATURE OF SOME ORGANIC FOODS**

The higher cost of organic food, and for Claire, the additional effort required to purchase it, were factors contributing to its consumption when otherwise it may not have been consumed:

*Claire – No, no, no it will not be wasted. I will not throw that out. That's very expensive organic meat there. No, I will not throw that out. [Weekday dinner observation, H4]*

*Claire – Last term it was too hard. But this term it has sort of worked really well. I was getting so fed up of having to... To get organic is really hard. Like Really hard. You have to either go the market or go to Glenelg...*

*Researcher – or to the Parade*

*Claire – well I wouldn't go the other side of town. No way, No way. Market's my limit! [Meet and Greet, H4]*

The expense of organic food and the difficulty in sourcing it was enough for Claire to make an effort to eat the meat she was referring to, adamant that she would not throw any of it away. She had had defrosted her freezer in preparation for having a new kitchen installed, and had taken out all the meat. When cooked, it made four serves.

*Amelia – Someone said something interesting to me the other day, that now that they buy organic they're much more conscious of using all of their food because it costs so much more, and I thought yeah, that's very true. It's so expensive, um, yeah you make sure that you actually get all of it out*

*of it really if you can, yeah. [Debrief interview, H13]*

However, Tony thought that if he bought organic it would lead to more wastage because the produce would spoil faster.

*Tony – I have to say this, from a scientific perspective but I actually think the level of preservation that occurs in our food in this day is actually really assists you to keep food and use it for a longer period of time. I'm sure if I was using organics, or you know, that kind of thing, I'd see a higher level of wastage of fresh produce, um, so I don't think, um a lot of the irradiation and um, preservatives in food products both processed and fresh, it does actually extend shelf life and reduce wastage. [Debrief interview, H7]*

However, during the debrief interview Claire said that she had thrown out the uneaten lettuce each week.

*Claire – Well actually, that reminds me, I have been throwing away, because I've been buying a lettuce every week, what's not left, I have actually been throwing out.*

*Researcher – Right, okay, yep.*

*Claire – So I'm lying to you (laughing). [Debrief interview, H4]*

Claire had not considered throwing out her uneaten lettuce as food waste until we discussed waste explicitly.

#### **4.2.2.3 INFLUENCE OF UPBRINGING**

During the weekday dinner observation, Claire explained her thriftiness stemmed from her upbringing and extended beyond food.

*Claire – I think part of it is from my family, we were not you know-poverty. We really weren't allowed to waste anything. I really don't like waste. I don't like the idea of wasting anything now, myself I'm an environmentalist. It goes against the grain (hushed) (laughing). And it is too expensive to waste. I feel so guilty. It's stupid, why spend all that money to just go throw it in the bin. It's a bit like having gym membership. You've paid upfront for it. So the money's gone. So, cause I'm experiencing that at the moment. Normally I'd be in there every day, making the most use of it. I've paid for it and its-. But I've got a back injury and I haven't been able to go for weeks. And it's like, damn. [Week day dinner observation, H4]*

Sue and James, Joan, Tony, Vivian and Penelope all specifically mentioned times of austerity during their formative years in their debrief interviews. All except Penelope said thriftiness was entrenched in their upbringing. Penelope's



recollections of austere times had contributed to her not wanting to be without, more so than not wanting to waste food. At each observation, Sue and James referred to what their parents did when they were growing up so as not to waste food, especially when they sat down to eat their meal.

*Sue – Don't like to waste. I think it's the era we came up in [Weekday lunch observation, H1]*

In Sue's case, her thriftiness extended to all things in her home, not only food. Tony also said that the way he was brought up influenced his relationship with food.

*Tony – What do I think about 'food waste'? Um, well I suppose I got brought up, um, to not waste things, so I got brought up very much with parents of that generation – you don't leave food on your plate or if there's leftovers you always use them or even food scraps like peelings, and, and things like that were all put in a chook bucket for the chooks – so very much brought up with making or producing food at home, like growing it, or making sauce and things like that and consuming everything that you had and not wasting things. So I think I've adopted that approach... [Debrief interview, H5]*

Vivian's comments during her debrief interview reflected a recognition of her own practices mimicking her mother's, now that she had children. Vivian explained that she used to enjoy experimenting with different recipes before she had children, but she felt she could not carry on this practice.

*Vivian – I don't know. Maybe I would subconsciously, the way I was brought up influences a little bit, um, just the fact that my mum and dad were very conscious and making the most of food as well, so perhaps that's where it, where it, where it – my beginning point is coming from... [Debrief interview, H11]*

*Vivian – yeah, yeah, mum and dad were on a pretty tight budget when we were growing up so mum always used to buy sort of, um, things, in bulk, like bulk mince, cold meats and so forth and she'd cook them up into batches in foods – so maybe that's influenced it, to a certain extent as well, yeah. I haven't really thought about that but yeah, I think it probably has because I know that, um, a lot of times when I'm doing the shopping I sort of think like that, um, and sort of a few key recipes I guess which she used to cook to make the most of the vegetables and the...and so forth that I repeat them so I guess that does – has – had an influence on me- [Debrief interview, H11]*

Peter discussed the variable nature of fresh produce, saying that he tried to pick items to buy that would “last” the length of time in which he wanted to consume them.

*Peter – ...the quality of what I originally bought, you know, sometimes your tomatoes get softer quicker that you expect them to or – um you know I think even when we were out shopping I talked about the broccoli you know, and, and in fact when we were out, quite a lot of the broccoli heads were already brown on top and that kind of irritates me too because I think, well is that going to last? You know, the time it will take me to consume it.*

**[Debrief interview, H12]**

Peter was a single man living on his own with his daughter visiting every fortnight, and his rate of consumption was slower than in households with multiple participants. He tried to choose items that would “last” him until his next shop.

In the Provisioning stage, the practice of ‘thriftiness’ toward buying food acted as an enabler to reducing ‘food waste’, but more than that, thriftiness as a value led to awareness and the desire to waste less more broadly, as Sue and James said during their debrief interview:

*Sue – Yeah. It’s just that you just don’t like to waste anything.*

*Researcher – Okay. Do you think that extends to other things, or is it different for food?*

*James – Oh yeah.*

*Sue – Oh, with anything.*

*Researcher – Okay.*

*Sue – Oh God yeah, I’ll recycle anything. And if I think, like a piece of clothing even.*

*James – I hate breaking anything.*

*Sue – Oh, gosh yes, yeah – I recycle paper, everything if I possibly can, you know [Debrief Interview, H1]*

All adult participants mentioned money and the cost of food at least once during the study, often during the shopping trips but also during the Preparation stage. In all cases, participants did not want to waste money; in some cases not wanting to waste money was tied to wanting not to waste food, but in others snaring a bargain

was a more effective motivator to thrift than the desire not to waste food. Those who were thrifty toward their food and other aspects of their lives, such as Sue and James or Tony, made comments clearly showing their dislike for others who did not hold the same values about waste.

*Sue – And I find it difficult, we've got a couple of sets of friends, we go out to dinner, and they, they pay exorbitant prices for food, and they leave half of it.*

*James – Push it around the plate.*

*Sue – I can't believe that.*

*James – Just to be seen at the restaurant, you know.*

*Sue – I really find that very difficult.*

*Researcher – Okay.*

*James – I mean, you do go out and you say look what they've left on their plate.*

*Sue – You get so upset (laughing). [Debrief interview, H1]*

Sue and James would like other people to have similar regard to minimising food wastage as they do and get upset when they do not.

#### **4.2.2.4 PURCHASING FOOD WITH OTHERS**

Participants who shopped together could reduce food wastage through negotiating purchasing decisions. When I went shopping with Sue and James, Sue took the non-branded biscuits James had chosen out of the trolley and put them back on the shelf, telling him to buy the Arnott's brand because he preferred these. He said that the biscuits he chose were cheaper, but she reminded him of a previous time when he did not eat the non-branded biscuits. She insisted that he buy the Arnott's ones because he did not like the taste of the others and would not eat them.

Sue's desire to not waste food overrode James' decision to buy the cheaper biscuits. James did not want to waste the biscuits either, but Sue "knew" he would not like them. The negotiation ensured that the purchased food was consumed.

When a couple held opposing values, the more frugal values won out. During the Meet and Greet interview with Tony and Dave, Dave said that price was not an important consideration for him when he shopped; he also said that he did not like shopping. Tony explained that price was a very important consideration in his purchasing decisions, along with his desire not to waste food. Tony had assumed responsibility for food provisioning and food-related practices in general because he liked those activities and thought that Dave wasted money. Dave raised this difference in their approach.

Dave – *...is always looking for the latest bargain, aren't you, Tony?*

Tony – *My list is always up here* [indicating the microwave].

Dave – *It's always a bargain, isn't it? We have these endless debates-*

**[Meet and Greet, H7]**

Tony felt that he knew Dave's food likes and dislikes well enough to accommodate them when shopping. He checked with Dave the type of food to buy, such as juice or yoghurt, but decided on the variety himself, based on price. Dave loved ice cream, and Tony had started buying Dave soy ice cream because it was cheaper, saying that Dave did not know the difference. He was confident that Dave would eat it, and he did.

#### **4.2.2.5 MAKING LISTS**

Participants indicated that making a list of what to buy, based on the meals they planned for the week, helped them to be organised and implied reduced wastage. Sue, Angela, Claire, Joan, Ginny, Vivian and Penelope included items on their lists without having a specific meal in mind, such as tomatoes or lamb chops. Claire, on the other hand, while keeping a list, was flexible in her approach to shopping, looking for items that were fresh. She wanted to make soup during the weekend, and bought a range of vegetables accordingly, influenced by what looked fresh rather than having a prescribed list.

There were those who needed a list to ensure they bought items they used throughout the week. Joan said a list was essential because without it she would spend as much money as if she were buying things she needed, but end up with a

whole lot of food that was not what she needed to get through the week ahead. The list helped keep Joan disciplined. Vivian said that without her list she was “screwed”. While we shopped together, Vivian said that she and her husband used to be “random shoppers” but they were getting better at having set things that they bought. Having a list helped reduce food waste by reminding people to buy what they needed.

Sue, Celeste and Vivian made lists as items ran out, while others checked their storage areas prior to shopping. Sally, Ginny and Penelope bought extra items that were not on their lists. Sally kept a mental list for her own shopping and a written list for her mother’s items that she purchased in addition to her own.

When not using a list, people bought more items than they needed. When I went shopping with Penelope and George, George said that often he drove Penelope down to the supermarket only needing bread, and she emerged with a bag of items. Whether these extra items led directly to food waste was not observed, but in Penelope’s case, it appeared that the trigger for buying the item did not occur in the home; it occurred in the supermarket. Penelope used a list when she shopped, as I observed when we shopped together, but she implied she had no list for the bag of items she purchased under the premise of “I just need some bread”.

#### **4.2.2.6 MEAL PLANNING**

Those who planned their meals made their lists to accommodate their planned meals and this practice helped them to be more organised and to waste less food.

Alice went through her recipes and cookery books on Sunday night, consulting with Steven as she planned her meals for the week ahead. She had recently bought a Thermomix, a small kitchen appliance that chops, blends and cooks food, and this forced her to change the way she shopped for and prepared meals, buying more whole foods.

*Alice – I do a big shop once a week, um, I – but for the last few months I’ve been using the meal planner, and, um, when I sit there I’ll have my shopping list next to me, so, um... I’ll have recipe books.*

Researcher – *And you plan your meals for the week?*

Alice – *Yes, yep.*

Researcher – *Is a week for you seven days?*

Alice – *Yes. Um, yeah, so I'll go through the recipes, I'll sort of talk to Steven because he'll be watching telly and I'll be nutting it out, you know, how does this sound, "yep, do it", "whatever", usually is the response I get. And we choose from, there's vegetarian, meat, and...*

Researcher – *Do you find those books really helpful?*

Alice – *They're great. They've, um, meant that we have so much more variety in terms of what we eat, um, but then once you get more practice at it you could probably start making your own recipes. [Meet and Greet interview, H8]*

During the Meet and Greet interview, Violet said she planned her meals for the week ahead, usually on a Sunday night, even planning school lunches. However, during the weekday breakfast observation, Violet was trying to decide that morning what to prepare for her son's lunch that day.

Lists implied some form of meal planning which in turn implied organisation and encouraged practices that helped to mitigate food waste, although a particular observation with Angela revealed that lists did not work for everybody. During the initial Meet and Greet interview, I had asked Angela if she planned her meals before shopping and she indicated that she did not. During the debrief interview, she revealed that she thought my question sounded like a good idea so she tried it.

Angela – *When you first came here you mentioned do you ever plan your menus ahead for the week, and I said no, so I thought oh, that's a good idea, so I wrote out the menus for the week, and got the stuff I needed, but then when it got to that week I couldn't be bothered, or we went out one night, or we weren't hungry, so planning the menu for the week for me isn't a good idea either because you really don't know what you're going to be doing the night you planned a certain meal, and vegetables will only last so long. [Debrief interview, H3]*

Angela already had a system that worked for her. Changing that system to something that was unfamiliar was not successful. Her immutable position stemmed from familiarity with her practices. Meal planning may not work for everyone. In Angela's case, she threw vegetables away even when she had a list.

#### 4.2.2.7 FREEZING AND BULK BUYING

Pre-packaged food often came in larger quantities, presenting a dilemma for those living on their own. Claire, Peter and Amelia complained about shopping for one person. Despite Amelia saying she had waste from buying a half-bunch of celery when she only wanted one or two pieces, she bought items such as bread, meat or poultry, split them into smaller portions, and froze them, thereby increasing the likelihood of them being eaten and not wasted. Provisioning behaviour was influenced by the storage facilities available to participants and this will be addressed in Section 4.4 Storage.

#### 4.2.2.8 SHOPPING ROUTINES

Where weekly shopping led to food waste being generated by Angela, for Sue and James it ensured they used up the items they had in storage. They were the only household to adhere to such a strict shopping pattern and would not go out and buy one item if they had run out. During a weekday dinner observation, Sue ran out of breadcrumbs for a chicken schnitzel. She added “breadcrumbs” to the shopping list, and said that James had given her “the look”, meaning that she should have not run out.

*James – Is that all the breadcrumbs we’ve got?*

*Sue – Yeah. Oooh! They’re on the list. It’s already on the list. We had chops. We used the last of them on Saturday. Are we going to have enough?*

**[Weekday dinner observation, H1]**

In this instance, Sue improvised and used ‘panko crumbs’ instead, an alternative type of crumb mixture not normally used for schnitzels. Sue indicated that they would only go out to get something they did not have if they had guests and that would be only “if needed”.

All participants shopped at several supermarkets or food stores. For some, the structure of the supermarket and placement of goods was a way of remembering what they had bought during the previous shop. However, shopping from several supermarkets increased the likelihood of buying more items than needed. These people were less likely to remember what they had bought previously because they

were not shopping from the same place and bought extra items not on their list because of this. Routine shopping as demonstrated by Sue and James helped to mitigate waste.

### 4.3 STORAGE

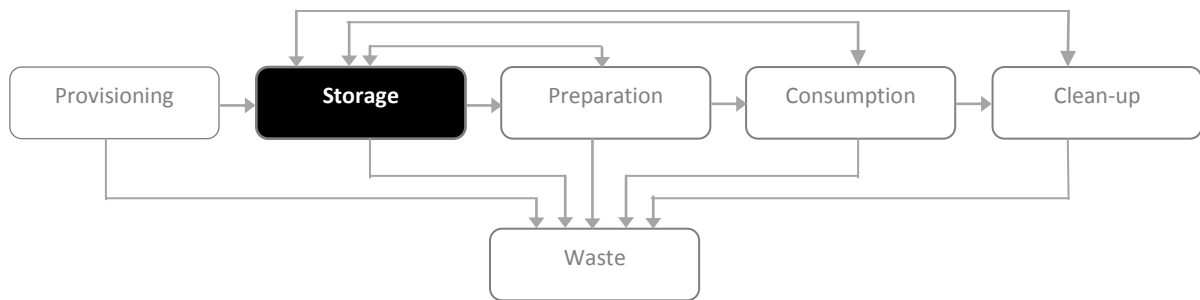


Figure 4.3: The storage stage

This section presents food waste practices related to the act of storing food; that is, how and where food was stored until it was to be used. Food was stored in the house, predominantly in the kitchen but also in the laundry or in another room; food was also stored in outside areas such as in the shed or garage. Food was kept in cupboards, drawers, pantries, fridges, freezers, deep freeze chests or in bowls or baskets on tables or benches. Participants engaged with storage spaces during every food stage, before and after provisioning activities, during and after meal preparation, even during the consumption stage and as part of the clean-up stage, especially with leftover food. This section includes cleaning of storage areas that occurred as part of food-related or everyday practices and not at the end of a meal. The structure of this section follows a similar format to other sections in this chapter, where food waste related practices are identified as generating or mitigating food waste. I observed the storage stage to be one of the key stages in the transformation from food into waste.

#### 4.3.1 PRACTICES THAT GENERATED 'FOOD WASTE' IN STORAGE

##### 4.3.1.1 FORGETTING FOOD IN THE FRIDGE

Participants were busy and forgot food that was in the fridge, or overlooked a particular item. Subsequently, food spoiled or “went bad”. Food that had spoilt was



often discovered during the Preparation stage, as participants prepared for a meal, or before or after provisioning when they checked or put new items into their fridge. Food that was forgotten, spoilt or regarded as no longer edible was thrown into the rubbish bin, the compost, or put into a bag or container as food for chickens. Food thrown away included raw ingredients, cooked food and leftovers.

Amelia's busy way of life contributed to her wasting food:

*Amelia – Well, not having the compost and the, um, worms. Um, oh if we're talking about just having extra food left over, ah, going out a lot, um, doing things spontaneously, so yeah. Ooh something – like I just realise I had this soup in my fridge that I made and I forgot all about it, because I went out last night and the night before and..aha, oops, there you go.*

Researcher – *So would you eat it when you go home do you think, or is there a...?*

*Amelia – It's probably been a few days now, yeah. Yeah, damn it tasted quite good too (laughing). [Debrief interview, H13]*

Amelia's initial comment about "not having the compost...and the worms" referred to her view that food put into those channels was not wasted.

Tony used his freezer to store cooked food and bread, but did not use it to prolong the life of items such as herbs, which had a tendency to spoil before they could be used in their entirety:

*Tony – And this is something that there may potentially be wastage from. Basil. It's one of those things that I don't grow it, I should, um, but basil's the hard one, because it dries off – anyway, so it's not like parsley when you have (inaudible due to pots being moved around on the stove).*

Researcher – *So you will only use what you need?*

*Tony – I use what I need. And then I'll put it in the fridge, and then I'll think if I'm making things "oh, I'll put a bit of basil in with that", but it does tend to be, that it's starting to go black and, you know, perish, before I've had a chance to use it all.*

Researcher – *You won't freeze it?*

*Tony – No, I wouldn't. I hadn't thought of doing that. [Weekend dinner observation, H7]*

Tony began by saying that there “may potentially” be wastage from the way he used the basil, but then explained a situation where it “went black” implying it could not be used due to spoilage. Tony did not want to appear wasteful; he regarded himself as thrifty.

Food was stored, particularly in the fridge, with the intention of re-using it or eating it later but for one reason or another, it was not eaten.

*Researcher – So would find things in there that you’d kept for leftovers and didn’t eat?*

*Sally – And haven’t? Yes, definitely. They’re the ones that add up. Because even though the night before, Tom’s gone “I’ll take that to work”, of course when morning comes he’ll forget. I’ve had a busy day or whatever and if I don’t eat it, then it gets thrown out. That’s the rule. Keep it for one day, if it doesn’t get eaten, throw it out. [Meet and Greet interview, H10]*

Participants spoke of not having enough time to be as organised as they preferred, as Amelia demonstrated:

*Researcher – would you do a clean out of your storage areas or your fridge periodically? Do you do that as you go, or – ?*

*Amelia – No. Well, yeah, again, it’s I have a plan, so I will clean it out as I go, but generally when I get home and it’s late I just kind of put things on top of other things, and then regret it. Because it kind of piles up then. I should clean everything as I go. And I always aim to do that, but it rarely actually happened.*

*Researcher – when you say regret it, in what way? It’s too hard to find things?*

*Amelia – It’s hard to find things, things go off. And then my fridge smells. And I just get kind of frustrated with myself that it’s not nice and neat and tidy and smoothly running.*

*Researcher – do you like neat?*

*Amelia – Again, ideally yeah, I love neat, and in reality I’m not. It’s hard work and when push comes to shove, if it’s a choice between, you know, going out somewhere or cleaning, or being some- or reading, these things always win. [Meet and Greet interview, H13]*

Despite knowing that it was harder to find things in a messy fridge, Amelia resigned herself to a similar pattern occurring again. Her conflicting priorities of wanting to

be organised but preferring to do other, more enjoyable things were compounded by her perceived time-poor lifestyle.

Alice recognised that a little extra time invested in preparing and storing lettuce in a ready-to-eat state would make it more likely to be used. She explained that the chances of “shoving” the lettuce in the fridge were high, because she would be busy the moment she returned home with her two year old:

*Alice is in a hurry to put the shopping away as she is going out at 2pm. She said that if she wasn't in a hurry, then she would wash and store the lettuce. She might do it when she gets home. Now she just leaves it on bench. [Field notes, Shopping observation, H8]*

Sue, Ginny and Penelope had more than one fridge in their homes and might forget food in one or other of the fridges. The second fridge, as it was referred to, was used for longer-term storage and was not accessed every day.

*Female friend – And when you have two fridges it is easy to forget what you put in the other fridge. I do that with the little freezer.*

*Ginny – Well particularly when the other fridge is down the back. And we may not go to it every day.*

*Female friend – Or the girls go and get a bottle of something and they might not see it. [Debrief interview, H9]*

The time between provision and preparation/consumption facilitated ‘forgetfulness’, which was further exacerbated by the rhythms of everyday life.

#### **4.3.1.2 STORING FOOD INCORRECTLY**

Poor or inappropriate storage of food led to wastage. Specifically, this involved food spoiling because it was not refrigerated or frozen where participants recognised that the fridge or the freezer extended the life of food.

*Penelope – Look at the price of those persimmons, they are \$1.69 each! George, you left the rest of that box we brought back [from country trip] out of the fridge and now they have gone soft. [Shopping trip, field notes, H15]*

Penelope’s indignation at the waste of the persimmons was triggered by observing their high price in the supermarket.

Although Peter stored his produce in the fridge to extend its shelf life, sometimes the quality of the purchased produce was such that it spoiled before he had time to use it all.

*Peter – ...whether it's the quality of what I originally bought, you know, sometimes your tomatoes get softer quicker than you expect them to or-*  
**[Debrief interview, H12]**

*Peter - unless I recognise if something is turning quicker than I thought it would, it would end up being thrown into the bin.* **[Debrief interview, H12]**

Amelia commented that if she had not had such a busy week, she would have had time to think about storing food in a manner that would provide her with another meal instead of throwing the food away.

*Amelia – If I hadn't been mentally not quite – this week has been so intensive busy, if I hadn't been so busy I would have actually put it in a container and put it in the freezer.* **[Debrief interview, H13]**

Sally and Penelope, on the other hand, were comfortable to store food outside the fridge on the kitchen bench or in the pantry. Sally kept the leftover pizza from Tom's birthday celebrations the night before on the bench. Food spoiled faster when not refrigerated, and neither participant was concerned about food poisoning.

#### **4.3.1.2.1 STORING FOOD FOR TOO LONG**

It was common for participants not to want to throw away edible food, especially straight after a meal. Participants sometimes put food into the fridge, with the 'hope' it would be eaten. When it turned mouldy or was regarded as physically inedible, participants regarded the food as 'needing' to be thrown in the rubbish bin, increasing the acceptability of their actions.

*Tony – Sometimes Dave or I open a tin of rice pudding*

*Dave – I knew you were going to talk about the rice pudding*

*Tony – We'll open a tin of rice pudding and eat half of it and put the tin back in and not put a cover on it and it starts to dry out. I'll stir it up a bit and say, 'here, finish this rice pudding' and he'll say, 'no, I don't want it' and it goes back in the fridge again until it's to the point where it's...*

*Researcher – thrown out?*

*Tony – thrown out* **[Meet and Greet interview, H7]**

Johannes' choice of words externalised the process of food going "off", indicating that food turning bad was not his fault.

*Johannes – If the food sticks around in the cupboard or fridge just to the extent that it is...*

*Gerard – Something goes rotten or off [Debrief interview, H5]*

Ginny and Johannes explicitly referred to a hierarchy of waste, where mouldy food was only ever put into the rubbish bin and would not be put into alternative waste channels, such as fed to pets or chickens or put into compost, even though food decomposed in compost.

*Johannes – got mouldy to the extent that you wouldn't give it to the worms or to the dog or to, to the compost bin, you would just put it straight into the bin. I think as long as it's got a usage, whether it's going to the worms or to the compost bin it's not waste. [Debrief interview, H5]*

*Harry – If it goes mouldy it means we don't give it to the chooks if it goes mouldy.*

Cooked food was kept with the intention of reheating it later as a meal.

*Arthur – we are not good with leftovers, we throw them away [Weekend dinner observation, H14]*

Arthur acknowledged that his family kept leftovers to eat later but were most likely to throw them away because they did not have time to eat them, the food was not as appealing as when first cooked, or was forgotten; he indicated that this was a practice that would continue. Sally also explained she intended to eat leftover food, but in reality, it was often thrown away.

*Sally – I spend half of my time keeping, throwing, keeping, throwing. You know, you think you are going to eat it, but then it doesn't happen [Weekday dinner observation, H10]*

Some food items did not appear visibly spoiled, despite storage for an extended time. Peter's actions and comments about a bottle of lime juice demonstrated how he delayed the process of disposal. He explained that he could not see if the lime juice had gone off, and normally he would use his sense of smell to guide him and test his "tolerance" for food past its expiry date. If the product did not smell "off" he would keep it longer.

Peter – *Well, like that lime juice for example, I didn't throw it away the first time I realised it was out of date. I gave it the sniff test and used it a few times before I felt comfortable, ok, well I've got to do it now, like it's reached that point, because it was actually the fact that I thought you might go through my fridge (both laughing).* **[Debrief interview, H12]**

The disposal of the lime juice arose in the Meet and Greet interview, the debrief interview, when shopping and during the dinner observation. Peter would have kept the lime juice for longer, but my presence and potential 'threat' of looking in his fridge and his knowledge that the use-by date had 'passed' were enough of a trigger for him to dispose of it down the sink.

Peter – *Yeah, it does, like it does, like even say that lime juice, I just tip it down the sink and it kind of irritates me that I have to do that, yeah. And sometimes I don't think it's a monetary thing either, like a lime juice bottle's not much money to buy but I prefer it not to be the case....* **[Debrief interview, H12]**

Peter – *it had to be done. There was not a lot left in the bottle anyway. That made it better.* **[Shopping observation, H12]**

Peter expressed irritation at having to dispose of a food item that could potentially have been kept longer but was not. His actions were made 'better' because only a small amount was discarded.

#### **4.3.1.3 UNSURE IF FOOD IS SAFE TO EAT**

Fear of food poisoning motivated participants to show caution and throw food away if they were unsure whether it was safe to eat. Sue did not take risks with raw chicken because James had had food poisoning in the past:

Sue – *I left it out for a little while yesterday, just for a little while, then I popped it back in. I am bit thing about chicken – because James has had campylobacter and Carly had campylobacter so – I am very thing about it* **[Weekday dinner observation, H1]**

Justin tried to justify his uncertainty, qualifying his statement by explaining that throwing food away is not a practice he undertakes often.

Justin – *Yeah, we keep them for a while and then eventually, without risking, even though they're refrigerated, sometimes things...*

Angela – *Yeah, you don't want to take a chance*

Justin - *...get a bit hard, they get a bit old, so you're not quite sure, but I*

*don't think we [inaudible]*

Angela – *So to me that would be waste. I would say that would be a waste of good food. [Debrief interview, H3]*

Violet and Sally were wary and afraid of illness from cooked chicken; neither woman wanted to keep surplus chicken for consumption under any circumstances. Their reactions were food type specific; they readily retained other types of food. Penelope, on the other hand, explained that she was quite happy to keep leftover chicken in the fridge.

The arrival of children was a strong reason to take fewer risks with food that had passed its use-by date. Vivian said that while she was happy to smell milk in the past, now that she had three children under five, she was not prepared to take the risk. If milk or any other item had passed its use-by date, she threw it down the sink, put it into the bin or compost, or gave it to dogs.

Peter, who was happy to use his senses to discern edibility as the lime juice example showed, explained a hierarchy of sorts in deciding what he would keep:

Researcher – *So if something's expired, would you trust your nose, or if the date says it's gone, it goes in the bin?*

Peter – *It depends. There's a bottle of lime juice in my fridge at the moment I'm trusting my nose on. But if it were something like paste, for example, I bought a tub of vegemite when I first moved in, and it never got touched, it wasn't even opened, but I chucked it. Yep. It may all have been okay, I don't bother to go on the internet and try and figure out expiry dates for this, would it be ok. It's kind of instinct, I think well, it's gone, it's gone...*

Peter – *but milk and yoghurts – that's strict. I'm strict with any sort of dairy or cheese, something like milk. And I would never keep seafood. [Meet and Greet interview, H12]*

Peter used this hierarchy to help him in determining what food he would keep and what would be thrown out but implied that except for certain, specific items, the hierarchy was variable.

#### **4.3.1.4 SELF-DETERMINED EAT-BY DATE**

All participants applied an 'eat-by' date for leftovers that they had cooked:

Researcher – *how long would you keep food that doesn't have a date?*

Violet – *Look, if we haven't eaten it within two days it goes in the bin* [Meet and Greet interview, H14]

Violet – *We gather leftovers, we gather them up into, you know, some Tupperware with the intention of eating it the next day and the next day we don't it, and then, the next day we don't eat it and then it just gets dumped into the bin.* [Debrief interview, H14]

Amelia explained that her eat-by dates depending on the type of leftover food:

Amelia – *I think it probably depends on what it is. So if it's cooked food, so say I'd cooked a curry, I might eat it one night, and then maybe the next night and the next day, and on that third day I would put whatever's left over in the freezer. Whereas if it was a salad, it generally has to be eaten the next day or else it's no good.* [Meet and Greet interview, H13]

Food retained past the eat-by date was thrown into the bin, composted, or fed to the chickens, provided it was not mouldy. Peter did not think it was appropriate to feed chickens food he would not eat himself, preferring to throw that type of food into the rubbish bin.

Peter – *I'll only save something for the chooks, like a meal or something that I haven't eaten, if it's really only a couple of days. I kind of have the same restrictions on myself as the chooks, so if I'm not going to eat it, why should they? Although – But there's a degree, there's a degree I mean. I'm sure I could have eaten the broccoli too, but it doesn't look right.* [Meet and Greet interview, H12]

In some cases, self-determined dates are overridden by 'taste'. Peter did not want to eat the same food two days in a row. His intent of taking a break from eating a leftover meal sometimes turned into a more permanent break when the food was thrown into the bin because it was not eaten in time.

Peter – *I might put something in the fridge which might be alright for a day or two, and I might get up in the morning and think actually no, I just can't be bothered with that today, or I didn't really enjoy it as much last night, I probably want a day's break from it.* [Meet and Greet interview, H12]

In contrast, Penelope kept eating the leftover food until it was all eaten:

Researcher – *How long do you keep your food for?*

Penelope – *(thinking) I will keep it for about 2-3 days. We try to eat it as soon as we can. Sometimes I will keep things longer, like last week I made "fasolada" (bean soup) and it was just me eating it so I had it all week.* [Weekday lunch observation, H15]



Penelope implied that the type of food that was leftover and how much she did not mind eating it determined how long she kept it and whether she kept it until it was all eaten.

#### **4.3.1.5 CLEARING OR CLEANING OUT STORAGE AREAS**

Participants cleared or cleaned out their storage areas immediately before going shopping, when they removed food for a meal, or in a periodic (once a week) or *ad hoc* way (something smelt off in the fridge). They threw food cleared during cleaning into the bin, the compost bucket, the chook bucket or to pets.

For Vivian, the act of going shopping acted as a trigger to clean out the fridge:

*Vivian says that she usually checks her cupboards before she goes shopping and gets rid of stuff such as leftovers that have to go. She puts them on the bench for the dogs' dinner. This morning she "chucked out" an old dip that was not finished and some leftover cheese that Ash had put back in the fridge after he had eaten some of it. She threw out half a zucchini that had gotten "trashed at the bottom of the fruit and vegetable crisper" and a little container of tuna that wasn't finished that she put out for the dogs. [Field notes, shopping observation, H11]*

While Johannes helped out with meal preparation, Celeste took the opportunity to go through the fridge. She threw some feta cheese that had gone off into the compost bucket sitting on the kitchen bench. She had a look of disappointment on her face:

Johannes – *in the fridge?*

Celeste – *yeah, but I've just thrown it away, it was gross (pulling a sad face)*

Johannes – *It's been there for too long [Weekend dinner observation, H5]*

Celeste aligned the cleaning out of the compost buckets with her twice-weekly household cleaning chores, although she felt comfortable overriding the established pattern if required:

*There was an alignment of cleaning out of storage areas with designated cleaning days for the house, although, ad hoc clearing out of storage areas also occurred. We talk about emptying out the buckets on house cleaning days. Celeste refers to the compost buckets as 'buckets'. She said that her cleaning days are Wednesdays and Saturdays. The compost buckets don't smell because there is no meat in them. Celeste said that if she cleans out*

*her fridge, and she notices that she has forgotten a meal in there, she will take it out to the compost. A little while later, she said that she needed to sort out the fridge, repeating that she needed to “get rid of some stuff out of the fridge” to Johannes. Initially Celeste was going to clean out the fridge on Wednesday, her house cleaning day, but changed her mind. She said she knew there were things in the fridge that should go to the worm farm. Celeste pulled out a plastic container; she lifted the lid and smelt the contents. She pulled a face mentioning the smell, saying that it was chickpea water. Celeste kept the water she cooked the chickpeas in, thinking it had a lot of nutrients, and then tried to use it in soups. In this case she did not use it and poured the liquid down the sink. [Weekday lunch observation, Field notes, H5]*

While observing Penelope clean up and wipe the benches at the end of a weekday dinner with her daughter and her respective family, she remembered that her oven needed cleaning. This prompted me to ask her if she did the same with her fridge. She said that she would clean out her whole fridge at least twice a year, but as she found things in there that had gone off, or rotten food or leftover food that had not been eaten, she would throw it into the bin. She said she did not like to keep food past its use-by date, but occasionally she would smell things or keep continental items past their expiry date if they smelt OK. She did this type of clean out in an *ad hoc* manner when needed, rather than in a systematic way.

Peter did not feel he needed to undertake a major clean out:

*Peter – But otherwise, I really haven’t had to a big cleanout, you’ll see it’s kind of what I need, what I know that I’ll need and I’ll use that and go and replace it all.*

However, having his daughter stay with him acted as a trigger for clearing out food items from his fridge that the chickens would eat. These items were usually fruits and vegetables.

*Peter – Once a fortnight I do a bit of a purge of my fridge. It’s mainly fruit and veg and that sort of thing that I put into the chook bag [Meet and Greet interview, H12]*

Peter believed that if he did not eat a certain type of food, he should not give that food to his daughter’s chickens, expressing a form of hierarchy to his food disposal.

*Peter and Stephanie said they did not give the chickens the stalk from the broccoli because they themselves do not eat it, and the chickens would be unable to eat it. Stephanie said that only if she put it through the processor*

*would she then give it to the chickens, but that involved more effort and she most often threw the stalk in the bin. [Weekend lunch observation, Field notes, H12]*

For Amelia, *ad hoc* cleaning was prompted by smells emanating from her fridge and my visit as researcher:

Researcher – *so when you said you emptied out your fridge, so what did you do – throw things away?*

Amelia – *yeah, it was kind of-yeah, it was a little bit stinky – yeah, just had some old zucchini I had cooked up a while ago which had garlic in it. So my whole fridge just smelt of garlic. So I did a big bag of stuff to put in the compost.*

Researcher – *Was that this morning?*

Amelia – *no-...no, it was actually, I actually did that on the weekend in preparation for you coming. Also because I had been meaning to do it for ages anyway [Weekday breakfast observation, H13]*

Rather than be embarrassed by the possibility of me smelling a ‘stinky’ fridge, Amelia used the opportunity of a researcher’s visit to throw away those items responsible for the smell, but my questioning revealed the reasons behind her actions. She added that cleaning out the fridge something that she had been meaning to do for ages, providing justification for the cleaning out practice beyond that of the researcher’s presence.

#### **4.3.1.6 FOOD KEPT IN VISIBLE LOCATIONS – MAKING IT INVISIBLE**

Angela and Violet preferred to keep fruit on the kitchen bench or table to encourage its consumption. Often, fruit would spoil and they would throw it out. They justified their actions by stating that they wanted to encourage consumption because they regarded fruit as healthy food, and they preferred to eat it at room temperature, especially in the winter months.

Angela – *I’ve often bought fruit and it’s sat here, and sat here until it just had to be thrown out. So I’d call that waste, I think [Debrief interview, H3]*

While topping up the fruit bowl on the kitchen table when sorting out the shopping, Angela said people would not look for food in the fridge unless it “jumped out and screamed at them”, referring to fruit in particular. She said that Justin’s health scare

had prompted him to eat more fruit, meaning she always ensured the fruit bowl was full and he made more of an effort to eat fruit. Justin had been influenced by a newspaper article to eat more fruit. However, the rate of fruit consumption varied, and it was not uncommon for fruit to be thrown out because of spoilage.

Violet encouraged her family to eat fruit, and catered for their preferences of fruit at room temperature. She also determined the deterioration in quality that motivated her to throw food away.

*Violet – When we buy fresh food and it spoils, I think that's a waste. Um, like today, I threw away four oranges that were in the fruit bowl because we've got the heater on all the time, they've-they are not at their optimum, um, eating, you know. [Debrief interview, H14]*

Counterintuitively, the practice of making food visible led to the generation of food waste. Notions of being an adequate caregiver drove the wish to make food visible.

#### **4.3.1.7 CHANGE OF ROUTINE**

Changes of routine led to food not being retrieved from storage places within the intended time, resulting in the food being thrown away. Food was perceived to decrease in quality with the passing of time, therefore for ingredients bought to make a meal, their non-use and subsequent perceived decrease in quality meant they were thrown away, as Sally explained:

*Sally – I guess on the odd occasion, very odd, I might buy a roast and, because this did happen a few weeks ago, leave it in the fridge, and think oh yeah, I'll cook it in a few days, but then a few days go past and for some reason it doesn't get eaten. Someone might ring, 'oh, I'm throwing a birthday party for Jack on Saturday, if you're free come by', and in my head I've planned, - it's probably the last day of that roast. Then I look at it and think that's not good enough to serve my family, and I put it in the bin, which happened a few weeks ago. [Debrief Interview, H10]*

In addition to her preference for socialising with friends, Sally said her reasons for not using food in her fridge included not using it in time, having no appetite for what she had or not being happy with its quality.

Violet indicated that changes to routine usually led to her throwing meat away, more than other items:

*Violet – I think it's usually meat that we like, yeah, that we end up throwing away, um, because I'll buy it – you know, I'll see a nice cut of whatever it is and- with the intention of cooking a certain thing and then it just doesn't eventuate and, you know, then it expires and I think, well, I'm definitely not going to serve that up to my family. So it tends to be the more expensive items in our- I think that's what bothers me, yep. [Debrief Interview, H14]*

Reasons offered for it not “eventuating” included unexpected invitations to a birthday or dinner. Violet expressed similar sentiments to Sally in stating that she then regarded the food as “not good enough for her family” and would throw it out.

Entertaining was considered an organised change to the normal routine, which George cited as reason for generating more food waste. During the debrief interview, George explained that if Penelope cooked one or two extra serves during the course of a normal meal it was not an issue because they would eat the food the next day, or the day after. Entertaining generated an abundance of leftovers, because there was more food to begin with. George said it was “worse” as the leftovers were in addition to the one or two meals they already had in the fridge from the everyday meals. He also said that entertaining always meant there were excessive levels of food and they could not eat all the leftover food in time.

#### **4.3.2 PRACTICES THAT REDUCED ‘FOOD WASTE’ IN STORAGE**

##### **4.3.2.1 CHANGING STORAGE PRACTICE AS A RESULT OF A PREVIOUS EXPERIENCE**

After returning from grocery shopping, Violet put the apples she had bought into the fridge. She explained that because fruit “spoilt very easily with the heating on”, in winter, she thought it best to put fruit in the fridge rather than her fruit bowl. She preferred to leave her apples in the fruit bowl but had changed her practice and used the fridge to prolong their edibility, based on the oranges spoiling previously.

Similarly, Peter said that he had started using the fridge to store items he did not normally store in there. He took an onion out of the fridge, saying that he never used to keep onions in there but found that they lasted longer.

*Peter – in the pantry, they get growths on them! [Shopping trip/Weeknight Dinner Observation, H12]*

He said that once he had used half a red onion and kept the other half, returning to use it a week later and found that it was rotting.

#### **4.3.2.2 USING THE FRIDGE OR THE FREEZER**

Participants used the fridge or the freezer to extend the edibility of three types of meals: intentional leftovers, accidental leftovers, and big batches of food cooked separately from meals. Intentional leftovers were usually stored in the fridge after preparing and cooking more than was required.

*I have been invited by Harry and Ginny to observe a weekend dinner party. As Harry peels the roast potatoes and pumpkin he explains that “we deliberately cook up more food”, as they can use the leftover vegetables for dinner during a weeknight later in the week. Harry also uses the leftover food in his lunch; he shows me his insulated lunch container, saying he feels like Herman Munster from the Addams Family when he takes it to work.*  
**[Weekend dinner observation, Field notes H9]**

Intentional leftovers were mainly stored in the fridge and used to reduce meal preparation on a weeknight. They were incorporated into a new dish, such as the shepherd’s pie that Ginny made following a dinner party, or reheated as the same meal, as Joan explained:

*Joan – Like my tuna mornay, I do enough for four people so I freeze the tuna part of it and then just do the rice fresh for the next time, so that’s an intentional thing.* **[Debrief interview, H6]**

Participants found they could be more organised during the working week if ‘extra’ meals were cooked and frozen. Joan said that cooking four batches of tuna mornay helped her to organise when she could eat it, so she would not have to eat the same thing a few days in a row. Amelia would also use the freezer to freeze a large batch of curry she made on the weekend. However, Amelia kept the curry in the fridge, eating it through the week and then froze the leftovers just prior to it not being suitable to eat anymore. Intentional leftovers were taken to work as lunch meals if they were not used as part of a dinner meal.

Accidental leftovers were also usually stored in the fridge, with the intention of eating them ‘soon’, except for Sally who stored leftover pasta on the bench overnight. Sue and James loved having accidental leftovers, which were mainly

steamed or roasted vegetables from dinner meals, because Sue used them to make bubble and squeak for James the following day.

When preparing a big batch of food, such as Tony's sauce or Sue's meals for the elderly aunt, the food was stored in meal-sized portions, in plastic containers and frozen, unless it was to be eaten that week. These portions were stored in the fridge, as the intention was to consume the food within the eat-by time frame assigned by participants.

*Tony – I'm going to show you how I make sauce, but also how I use it, freezing it and using portions to make meals. Because we're busy during the day, and that dinner's always a nice one that we can have. [Weekend dinner observation, H7]*

When Tony did not use individual containers for a batch of food he cooked, he stored all the sauce in one large recycled ice-cream container. He said that he thawed the container for approximately 30 seconds in the microwave, took out what he needed, then re-froze the remainder. Interestingly, the fridge or the freezer helped to prolong the edibility of food, as demonstrated by Amelia and Tony, while under different circumstances it was involved in participants, such as Violet or Sally, 'forgetting food'.

In some cases, participants used the fridge to prolong the edible life of fruit or vegetables, but they expected a level of spoilage from their produce. They had developed strategies to deal with partly spoiled produce by cutting out blackened or spoilt parts and throwing them into the rubbish bin.

*Tony – You know, things like cabbage and cauliflower, you're always going to, you know, get it out of the fridge and it's got a bit of black on it and you just cut it off. [Weekend dinner observation, H7]*

Angela, Claire and Peter would freeze fish, meat or poultry. Upon returning home from shopping, Peter opened up the packet of chicken breasts he bought, sorting and re-packaging them prior to freezing.

*Peter - ...when it comes to something like chicken breasts, you know, sometimes it seems like the butcher's found a great huge amount of big chooks, um, when I – you know how I put it in separate bags, I put one breast in each bag, well I'll trim the bottom half of the breast off if they're*

*bigger than what I know I want in a standard meal which is usually a dinner and a , you, know, lunch the next day and those cut offs I'll put together to make another kind of batch that I'll use for stir fry or something. So I do that quite a bit, but when we went shopping together I got some stingy breasts, so (both laughing). [Debrief interview, H12]*

Buying larger quantities and freezing them enabled the participants to use food as needed and reduced 'food waste'. Amelia and Vivian both commented that only certain types of food were suitable for freezing, with Vivian freezing food after making a large batch of her "throw everything in" sauce.

#### **4.3.2.3 PRESERVING AS A MEANS OF EXTENDING SHELF LIFE**

Preserving fruit and vegetables was another way to prolong the life of food and reduce 'food waste'. Participants from only two households carried out preserving. Harry and Penelope both preserved some of the fruit they grew when they had time. Penelope also pickled vegetables. Harry said he would make jam with fruit. Penelope explained that she would stew or bake quinces, pickle tomatoes or cabbage, make sauce from tomatoes, roast and freeze capsicums or turn some of the fruit into Greek sweets in order to use the abundance of fruit from their trees or their bulk farm buys. Both Harry and Penelope recounted instances of undertaking this practice during the course of the observations. Lack of time was the biggest factor that prevented them from carrying out these activities, but they did them as often as time permitted.

*Harry – There would be little, if everything goes according to plan, very little would be wasted, because we would stew it or jam it, or eat fresh...If the birds get it then the chooks would then get it. However the time of the year that it happens, if it coincides with, if it's an early season it coincides with Christmas, like the actual celebration of Christmas, then the Christmas celebrations would take priority and the fruit will rot, because we don't have physically time to do everything with it. [Debrief interview, H9]*

Having more than one fridge enabled bulk food to be stored or frozen. Sue and James, Ginny and Penelope all had two or more fridges. James kept one fridge for the fish he caught, which they used throughout the year. Penelope had a second fridge and a deep freeze, which enabled her to store food and prolong its life, minimising waste of items bought in bulk, such as meat.



#### 4.3.2.4 USING TACTICS TO KEEP ON TOP OF ITEMS IN STORAGE

Where participants had a method for putting their shopping away in a particular order, they wasted less food. Johannes and Celeste had agreed to a system for putting away new items in a particular order, and drawing attention to items bought that were not on the list.

*We return home and empty the shopping from the car. Johannes puts most things away in an organised manner, putting some things into the freezer. He puts the apples as they are in their plastic bag in the drawer, moving the ones that were already in there to the front. All the vegetables are on the bench. Johannes finds plastic bags that they already have and puts the items into them and then into the fridge. He leaves out the radishes as they were an extra purchase and not on the list. Johannes says that Celeste will put these away so she knows they were bought as an extra item. Johannes is putting things away as quickly as possible. [Field notes, second shopping observation, H5]*

The agreed arrangement helped Johannes and Celeste use older items first, thereby decreasing the chances of them spoiling and being wasted.

Similarly, Sue, as the primary food caretaker in her home, rotated stock in her fridge and freezer when putting the shopping away. She was the person who accessed these storage areas, giving James food items as he needed them when preparing food for a meal.

*For those items that she put into the fridge, she took out the Tupperware containers and moved the older items, such as brussel sprouts to the front of the containers, and put the new items toward the back. She cleaned the spinach, cutting along the stalk rather than across it, to extract most of the leaf without the stalk. Once she had finished putting all the shopping away, she then cooked the spinach up and later put the cooked spinach in the freezer. This would save her time when preparing meals and would ensure no spinach was left uncooked. She also took the leaves of the head of cauliflower she had bought, and put them in a plastic bag with the spinach stalks, so that she could give them to her daughter who cooked up vegetables for the dogs. She then cut up the cauliflower into smaller florets, putting them into a Tupperware container, again rotating the older pieces to the front and putting the newer ones at the back. She cut off the stalk and threw that in the bin at the same time as she was telling me, “we don’t waste anything here”. (Note to self – confusion of saying not wasting but throwing away stalk. Don’t they eat the stalk?). Sue said the cauli bits will go to the bin outside. She said if she were to throw the stalks from the spinach away, she would put them into the green bin. Sue wants to recycle. James does not – he is not interested in recycling. He pays his rates and that’s enough. Sue told me that she used to work for one of the major*

*supermarkets when she was younger, and for nine months she had to revive fruit and vegetables that did not look their best. She said she knew all the tricks. [Shopping observation, H1]*

Angela and Peter removed the existing loaves of sliced bread in their freezers and put the newer loaves on the bottom, with the older ones on top. This ensured they used the older bread first.

*Peter – I try and get rid of the oldest thing first [Shopping observation, H12]*

By having a system of ‘oldest on top’, participants were able to be more confident in how long items had been kept and were more likely to use them, rather than discard them because of uncertainty.

#### **4.3.2.5 THRIFTINESS IN STORAGE**

Tony made the connection between the amount of money he spent on an item and needing to use it, especially if it had been sitting in the fridge for a while.

*Tony – Still to this day, where I could spend three times as much on the weekly shopping, I still economize on every single item and I still open the fridge and go ‘oh, those leeks need to be used, or those tomatoes need to be used up’, yeah, but sometimes it’s a financial driver in that, like I know bloody hell I spent \$6 on those leeks and they’re still sitting there, I need to use them up, you know. [Debrief interview, H7]*

Tony also liked to recycle containers, keeping them to store portions of food, while Claire recycled plastic bags, washing, drying and re-using them for as long as possible. Sue, Tony and Claire all referred to growing up in times where their parents used “everything” and they did not like wasting anything, meaning their thriftiness extended beyond the perishable items of food.

## 4.4 PREPARATION

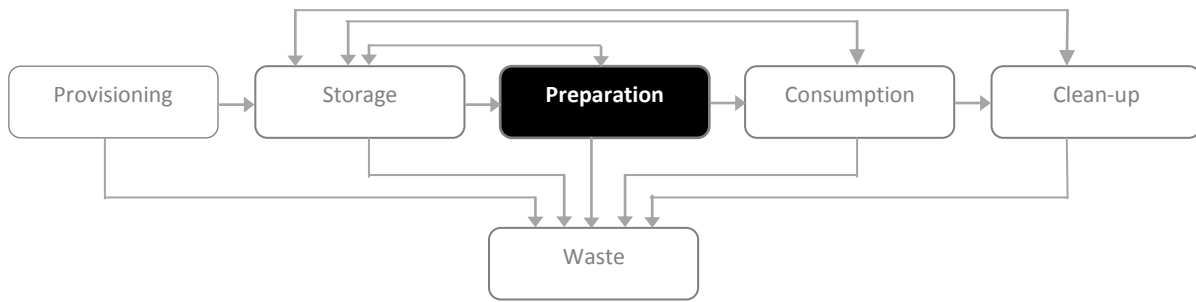


Figure 4.4: The preparation stage

This section presents food waste practices as they relate to the acts of preparing food for consumption. These acts involved accessing food from storage areas or the garden and preparing it for consumption. It included, but was not exclusively, cooking; it may have involved putting together a sandwich or dry ingredients for a snack or a light meal. Ingredients were transformed into food for a meal, either the proximate one or one to be had in the near future. Preparation of the meal often began with the decision, “what to eat?”

### 4.4.1 PRACTICES THAT GENERATED ‘FOOD WASTE’ IN PREPARATION

#### 4.4.1.1 DETERMINATION OF INEDIBILITY

Food that was regarded as edible food varied greatly among participants.

*Stephanie was cutting up and dicing the capsicum. I ask whether they eat the broccoli stalks, as I was curious after having a discussion about them with Household 1. They said yes. I followed their answer up with a comment that I have seen other people throw the stalk away. They then said that they do not give the stalk to the chickens either as the chickens do not have teeth. I then ask for clarification about what they mean by ‘not eating the stalk either’ and they say it’s too tough because the chooks don’t have teeth. Stephanie and Peter said they only give the broccoli to the chickens if it has been through a processor or something. Stephanie adds that this is too much effort. [Field notes, Weekend dinner observation, H12]*

*Violet (H14) is preparing some spinach, which she had bought that day, to add to the meal she is cooking. She takes the leaves in her hand, and keeping the plastic on the ends, cuts the stalks off using her hands. She puts the stalks in the bin. She says she is wasting the spinach and she knows this, but she can’t be bothered to cut it properly. She washes the spinach in the sink. She then puts it in a strainer on the bench and goes over to the stove to scoop more gunk or scum [my word] off the top of the boiling beans. [Weekday dinner observation, H14]*

This was perhaps the time where, reflexively, I was surprised at participants' perceptions of edible and non-edible food. Taste and time coupled with past experiences determined what was regarded as edible and what was thrown into the rubbish bin, the compost, or given to the chickens.

#### **4.4.1.2 PEELING PRODUCE**

Participants who peeled fresh produce, in particular vegetables, put peelings in the bin, the compost or gave them to the chickens. Participants who peeled their produce did not regard peelings as food (in contrast to section 4.5.2.3 – *Not peeling*).

James and Justin both made a big batch of Cornish pasties during my weekday and weekend lunch observations respectively. Both men peeled their vegetables, with James putting his in the bin and Justin taking his out to the compost in the backyard. James said that he did not always throw the peelings in the compost, sometimes he threw them straight into the bin.

During the Meet and Greet interview, Angela said that they had a compost area that was started by her father over 15 years ago, and they put scraps into it most of the time, feeling better for having done so. However, they did not use the compost in their garden.

*Researcher – so would you throw anything away?*

*Wayne – yeah I do,*

*Angela – if Wayne is here he will put it in the compost*

*Researcher – you have a compost?*

*Angela – yes, if I'm not in a lazy mood I would put it in the compost but probably I am the one who would throw it out more and Justin...composts...*

*Justin – That's mainly just peelings, vegetables, things like that. Very little actual food gets thrown out [Meet and Greet interview, H3]*

During a weekday dinner observation, while Justin and Angela were preparing the meal, they discussed where to put the rubbish. Angela said that the bag of rubbish

on the bench and half a loaf of bread would go to the compost. They did not have a set routine for taking things outside; it depended on who felt like it.

*Angela – I forgot to take out the vegetable peelings out today. I must have walked past it 50 times today.*

All participants except Tony called peelings ‘peelings’; Tony used the term “shit” when he would clean up food items from his benches or sink. Claire, Tony, Peter, Amelia, Violet, and Penelope put their peelings from vegetables and fruit such as watermelon and peaches into the landfill bin. Penelope sometimes used her green bin, having found out she could do this during the study. During a weekday lunch observation, Penelope gathered her peelings while she prepared food for a meal but her feelings governed which bin she threw them into. Her green bin was outside in the backyard, while her landfill bin was inside the house very close to the kitchen.

Penelope took some fennel out of the fridge, cut the tops off and cleaned the outer layers. She peeled some of the outer thicker parts of the fennel, saying it was stringy and then she cut it into pieces and put it in a bowl. She had a pile of peelings sitting on the sink and I asked her what she will do with them.

*Penelope – I put them in the green bin (smiling) when it’s not raining and I’m not lazy.*

I asked her what she did with the bits she cleaned off the chicken pieces earlier. She put those in the bin in the laundry because there was only a little bit of fat and sinew.

*Penelope – I never put meat stuff in the green bin. [Field notes, weekday lunch observation, H15]*

During the weekend breakfast observation, Claire became very excited when she learned she could put her ‘food waste’ into the green bin.

*Claire – I love it. I was putting it in the red [rubbish] bin anyway. I was doing the same thing. Now I can do it environmentally-*

Claire had read in the local newspaper that her Council was now collecting “food waste” in the green organics bin. She was slightly annoyed that the Council had not

informed residents about what they could and could not put in the bin, and that she had to discover it by reading the newspaper.

Angela, Celeste, Joan, Alice, Harry and Sally put peelings in a container for their own or someone else's chickens, or into a compost bucket that they emptied into their compost. Peter would only put peelings in a bag for his daughter's chickens when she came to stay with him, one weekend a fortnight.

*Harry put all his onion skins into the rubbish bin. When I queried why he did not give the onion skins to the chickens he replied that he never thought why. [Weekend dinner observation, H9]*

Certain food waste practices occurred habitually and were not questioned, unless another person triggered a question.

#### **4.4.1.3 TIME**

Preparing food for consumption took time and effort. When the food prepared was not eaten, the effort was seen as a 'waste' in addition to the food.

When I asked Alice if she was bothered by food being wasted in her home, she said she was, in terms of both the time and food.

*Alice – yeah, it does because, um, when Grace is not eating much it's just the time as well it takes to prepare as well as the fact that it just goes in the bin. I don't know how to describe, but it's a conscience thing. [Debrief interview, H8]*

When making biscuits, Joan considered trying to vary her father's recipe because of her time constraints but was reluctant to do so because the time involved would be wasted if they did not turn out, rather than the cost and throwing them away.

*Joan – I do it the next night still if it's still alright. But Dad said never let it stand two nights.*

*Researcher – Okay. Because it may just ruin the mixture?*

*Joan – don't know, I've got no idea why. I bet it's still alright if you did. If you do up a mixture and you do a thousand biscuits, if it doesn't work...It's not the money, it's just a waste of time. Because they're not very expensive. They're not very expensive at all. [Debrief interview, H6]*

Lack of time and busyness led to the purchase of ready-made or takeaway food, covered in section 4.2 Provisioning.

#### 4.4.1.4 PREPARING TOO MUCH FOOD

Preparing too much food occurred when entertaining, or if ingredients were not measured. Sometimes, not measuring ingredients resulted in having more food than could be consumed, and if this was thrown away, or kept in the fridge and then thrown away, it generated 'food waste'.

Celeste was judging by sight the quantity of lentils to put into the pot for her variation of a dhal recipe, given to her by a friend. She had boiled up dry lentils earlier in the day and ended up putting them all into the pot, saying she would not keep any leftover lentils.

*Celeste –... I sometimes judge, because I don't use all of it. Then I'll just put the rest into compost.*

*Researcher – You wouldn't keep-?*

*Celeste –..No, because, um, I'd be really the only person who would eat. Actually, for lunch, cause I like my protein at lunch, I would just normally eat tofu. So it's really rare- [Weekday dinner observation, H5]*

*Researcher – You didn't measure how much rice? Did you just kind of – guess?*

*Celeste – oh no, I just you know how it is, as a mum you eventually just get to- I am always making too much rice come to think of it. The only – no I always measure my brown rice. I do 2 cups of brown rice to four and a half cups of water. But not with my basmati. [Weekday dinner observation, H5]*

Celeste used her experience with basmati rice, rather than measuring, despite making a dish that only she would eat if it were left over. The issue of putting in the right amount of rice came up again during a weekend lunch observation, when Gerard asked his mum how much extra rice to put into the risotto he was making.

*Gerard – um, wait Mum, when I said, when you said how much extra rice how much did you mean?*

*Celeste – what does your recipe say?*

*Gerard – 340 grams? From memory*

Celeste – *I just do it by look*

Johannes – *What does 340 grams look like?*

Celeste – *I just look (overlapping talk)*

Gerard – *It looks like 340 grams (overlapping talk). I'll put in 340 grams*

Celeste – *340 grams I used before*

Gerard – *but the rice does swell a fair bit*

Celeste – *yeah but still you know how much you like risotto and how much you'll eat*

Gerard – *a fair bit*

Celeste – *yeah I'll say...*

Celeste – *I would have said 500, you know I can't tell until I-Gerard once you put it in the pot just call me okay because once I see it in the pot I'll know. And anyway, it's good to turn it. [Weekend lunch observation, H5]*

In this case, Celeste preferred Gerard to put in more rice, as the family liked risotto and she would rather there was more prepared than not enough. A little while later, Johannes filled the rice jar with rice from the plastic bag and commented on over purchasing rice.

Johannes – *I can't get my quantities right*

Gerard – *Do you ever?*

Johannes – *I over buy [Weekend lunch observation, H5]*

Johannes made the link between over provisioning and having too much food, even though rice was a staple food and lasts well in storage. He preferred to buy more rather than less.

When entertaining, it was common for participants to prepare more food than could be eaten for the number of guests, as the leftovers at Sally's house demonstrated:

*Sally had a variety of food left over from her husband's birthday celebrations the night before. It was important for Sally to have enough food, which I interpreted as 'plenty'. She kept all the food that was left over but knew that most of it would be thrown out or given to the chickens. She kept some items for a day, such as the pizza, others she kept and used them*



*all, such as the antipasto mushrooms or the carrot cake. She was initially embarrassed to tell me, but she also kept the pot of percolated coffee that she had made the previous night in the fridge, not wanting to tip it down the sink. She was happy to re-heat it and drink it during the day. [Weekend lunch observation, H10]*

When Peter ended up with more food than he and his guests could eat from his “boys’ night”, he did not use the left over ingredients, despite intending to do so. He woke the next day feeling “a bit seedy” and did not feel like eating. He gave them to Stephanie for the chooks because she was staying with him that weekend.

Violet also prepared ‘plenty’ of food for her guests, observed as part of the weekend dinner observation. She packed away the leftover homemade pizza, but threw the salad into the rubbish bin.

*George – Here, if you cook one or two serves extra you can eat them the next day. But if you have lots, like when people come over, that is worse. [Debrief interview, H15]*

Entertaining guests created an expectation that there would be more than enough food; despite efforts to eat food the following day or days, participants explained that they usually were ‘forced’ to throw out uneaten food.

#### **4.4.1.5 DETERMINATIONS OF EDIBILITY**

The quality of the produce, in particular how fresh it looked, was assessed during the Preparation stage with instant decisions made as to whether it would be worth using or should be thrown away.

*Johannes was helping Gerard prepare lunch and started preparing the salad. He took out the celery from the fridge. He cut off the bits he wanted and broke up the rest using his hands and put it into the compost bucket. The celery looked limp to me. I asked Johannes why he had thrown it away and he said that it won’t last anymore. [Field notes, Weekend lunch observation, H5]*

During a weekday dinner observation, Celeste was cleaning the lettuce in preparation for the salad. She placed some bits of lettuce in one of the compost buckets. I asked her why she did so. She replied

*Celeste – no, yeah, they were mou-no, soft, you know, not mouldy but yeah but not so really fresh. [Week day dinner observation, H5]*

During the Preparation stage, there were often small parts of food such as carrot or cucumber ends that were not used in the meal and were thrown away.

*James – You might have a little bit left over like pumpkin or something and you don't quite finish the bit of pumpkin, and it's too squishy for the dogs or anything, and you're putting it to one side, one side, and...*

*Researcher – you keep thinking what can I do, and then in the end you're just going to get rid of it*

*James – yeah, then then it just goes in the bin. But that's very very rare*

*Sue – very rare [Debrief interview, H1]*

*Alice – I cut the ends of the carrots – I don't know why I do that!  
[Weeknight dinner observation, without Grace, H8]*

Certain food-related practices were habitual and were not questioned; in some cases, participants explained they had seen their mothers perform the action and so they did the same.

#### **4.4.1.6 DISLIKE OF COOKING**

Few participants recruited to the study disliked cooking. Angela did, and would often cook for two nights, to save time. However, on the second night, she did not fancy what she had cooked previously and threw it into the rubbish bin.

*Angela – And I cook too much. What I try and do is I try and cook the vegetables so that I won't have to do it the next night. And then the next night I think oh, I don't fancy trombone and potatoes, so it sits, if Wayne hasn't come up because he's on shift work and eaten it, out it goes.*

*Researcher – So you try to cook more, like cook ahead.*

*Angela - Yes. And that's sheer laziness, because I hate cooking, so I think if I do that tonight, I just have to cook the chops tomorrow night, the vegetables are already done. I forgot to tell you, sometimes I'll buy vegetables, and then we don't eat them, they don't get cooked, because I don't feel like vegetables that week. [Debrief interview, H3]*

In Angela's case, trying to minimise doing a task she disliked, coupled to her own personal tastes, resulted in food wastage.

#### **4.4.1.7 “NOT GOOD ENOUGH TO SERVE MY FAMILY”**

Busy schedules sometimes meant food was not prepared in time and was wasted.

Sally - *I guess on the odd occasion, very odd, I might buy a roast and, because this did happen a few weeks ago, leave it in the fridge, and think oh yeah, I'll cook it in a few days, by then a few days go past and for some reason it doesn't get eaten, I look at it and I think that's not good enough to serve my family, and I put it in the bin, which happened a few weeks ago. Things like that are a waste but it's very rare. [H10 Debrief Interview, H10]*

Violet – *I think it's usually meat that we, like, yeah, that we end up throwing away, um, because I'll buy it – you know, I'll see a nice cut of whatever it is, and with the intention of cooking a certain thing and then it just doesn't eventuate and, you know, then it expires and think well, I'm definitely not going to serve that up to my family. So it tends to be the more expensive items in our, I think that's what bothers me [H14 Debrief interview, H14]*

Participants had shopped with a particular meal in mind. Intervening circumstances caused delays until they no longer thought it appropriate to cook the meat or poultry they had bought, preferring to put it in the rubbish bin rather than risk serving poor quality or even unsafe food to their families.

#### **4.4.1.8 FUSSY EATERS**

Taste, likes and dislikes, was an influence on those preparing food. Children, partners and one's own preferences were considered when deciding what food to prepare.

*During a weekend dinner observation, Stephanie was cutting off bits of chicken, which to me looked like fat. She seemed to be cutting off bits of chicken with the fat and this did not seem to worry her; more concern was displayed for the chicken breast pieces not to have any fat on them. She recounted a story as she prepared the chicken, of a time when she had gone on a school camp and the children were served chicken. The piece she ate had fat in it, as well as bones which she described as 'gross', and said she chucked her food in the bin. Peter explained that Stephanie's fussiness is taken from her mum. [Weekend dinner observation, field notes, H12]*

*I was watching Violet prepare two whole chickens for roasting. She removed them from their plastic packaging, and washed them. She then cut the thighs, legs and breast but took the whole centre piece of the chicken with the breast bone and put it in the bin, saying 'ideally, I'd make stock but-' She did not seem to be in the mood for making stock. Not being able to help myself I asked her why she did not eat that part of the chicken. She scrunched up her face and said "I don't like that. I think it's gross. My children wouldn't eat from that. If you had a daughter as fussy as mine, it's not useful. My mother never cooked that...If I'm in the mood I make stock but I'm not in the mood". [Weekend lunch observation, H14]*

*Violet starts to prepare Connor's lunch. She opens the fridge and sees an opened container of tuna from yesterday. She decides against it because*

*Connor already had tuna yesterday and he did not eat it all. She puts some butter on some sliced white bread and adds some salami. She says that Connor doesn't like the white bits of the salami but he will eat it on pizza. She is not sure if he will eat it. Sometimes he does and other times he doesn't. She cuts the crusts off and throws them in the bin because she said that he didn't eat the crusts. [Field notes, Weekday breakfast observation, H14]*

Ensuring healthy eating could be seen as catering for fussy eaters. Penelope made sandwiches for her own and George's weeknight dinner when it was the two of them. She cut the fat off the ham, saying they do not eat it because it was not healthy, and threw it in the bin. Their fussiness stems more from their desire to be healthy by not eating parts of food that they think are harmful to their health.

#### **4.4.1.9 CHILDREN NOT TURNING UP FOR MEALS**

One of the two households with adult children living at home demonstrated wastage of food during the consumption phase because those 'children' did not always come home for meals or inform other members of their household of their intentions.

*Celeste – So did Maryanne just say she's, did she say she was coming home at all?*

*Johannes – No, why would she? (laughing) She just said see you later.*

*Celeste – There you go then.*

*Johannes – Which means anything between now and 10 o'clock tomorrow morning. [Weekend dinner observation, H5]*

Celeste had cooked enough for Maryanne, and with her sudden non-appearance, Celeste had more food than she needed. Celeste had said that all the food she prepared was eaten by Johannes at breakfast the next day, or by their growing 14 year old son Gerard, affectionately called the "vacuum cleaner". The exception was salad because Celeste thought that all the "nutrients were gone" after it had been prepared for a meal and not eaten. However, I observed that if Johannes did not like the food or Gerard had tennis practice, then the surplus would not be eaten. Celeste commented that she had gone from cooking for six to five to four and now back to five people again, alluding to the fact that she had to change the quantities she cooked to match the changing numbers of people in her household. This need

to change practices to accommodate changes in lifestyle is one point where 'food waste' increases until adjustment takes place.

Johannes – *The other one is Maryanne. She'll have a period where she'll be, she'll be here every meal time.*

Celeste – *Then suddenly she's got a boyfriend*

Johannes – *so then you start making sure there's food for her. And then she'll have a week that she's not here for every meal time. And then there's quite a bit of waste that week. [Debrief interview, H5]*

During the debrief interview Johannes said that breaks in routine were "definitely" a factor that made his family waste more food.

#### **4.4.2 PRACTICES THAT REDUCED 'FOOD WASTE' IN PREPARATION**

##### **4.4.2.1 RE-USING FOOD ITEMS**

Re-using food items and transforming them into another meal was a common practice for Sue. When Sue and James had prepared more vegetables than they could eat as part of their dinner, Sue was excited because it meant she had food to make into 'bubble and squeak' the next day. She tried to have some leftover vegetables at least once a week, so she could make James 'bubble and squeak'.

Researcher – *what do you consider to be 'food waste'?*

Sue – *well, something that's gone bad, because you can't eat that*

James – *yeah*

Sue – *because James will eat anything that's left over. [James looking at Sue] Well we do*

James – *Jesus, love*

Sue – *No, darling, but we do. We fry it up, we, like we re-use it [Debrief interview, H1]*

Angela, on the other hand, would not usually re-use a food item and transform it into another meal. She was quite pleased with herself for using stale bread to make breadcrumbs.

Angela – *You would be very proud of me. I had a crusty loaf that was a bit old and I did not throw it out, like I normally would. I used it to make the*

*stuffing. [Weeknight dinner with son, H3]*

Intentions to re-use food on one day can be overruled on the next, depending on time, tiredness and effort required.

*Vivian – We're pretty- we eat most of our leftovers. I try to make, like most of the meals I try and make nowadays I'll try and make extra of and freeze some of it. So, you know, if we don't eat like the pasta, stuff like that, I would usually use the next day by heating it up.*

*Researcher –You don't cook it into a new meal or something?*

*Vivian – sometimes I do, yeah. It depends, yeah. The other night I made apricot chicken, and then I used that apricot chicken to make little filo rolls with some cream cheese in them, which was quite tasty. But yeah, it just depends on how much time I've got, really. And how creative I can be bothered to be. [Weekday lunch observation, H11]*

Flexibility in using ingredients also required a level of food knowledge and confidence.

#### **4.4.2.2 THE THREE-SECOND RULE – HOW LONG IS TOO LONG?**

Participants felt comfortable picking up items dropped on the floor while they prepared a meal, brushing them off and using them. Picking up an item as soon as it fell increased the likelihood of its being used.

*Gerard was responsible for cooking the lunch of mushroom risotto. He spent a long time cleaning the mushrooms. He himself said that it took a long time. As he was cleaning the mushrooms, one fell on the floor and he picked it up, wiped it off and kept going. When I asked him if he had thrown it away he said that he did not have enough for the mushroom sauce, so he preferred to 'just clean it up'... Johannes is standing in the doorway of his daughter's bedroom watching Gerard clean the mushrooms, talking to me. Gerard is dropping bits of mushroom on the floor and Johannes is picking up the pieces and comments that 'mum won't be happy' referring to the bits falling on the floor. [Field notes, weekend lunch observation, H5]*

For Tony, the type of item also made a difference.

*Tony – Well, if someone's watching me cook, like when I'm making stir-fry and a prawn falls out on the floor, I have to throw it in the bin but if it was just me and Dave, then I would use it.*

*Tony – A lot of people put ooh, chuck it in the bin. If it's a piece of onion that fell on the floor, well you are not going to want to eat it. [Weekend dinner observation, H7]*

Prawns were regarded as more valuable than onions. However, if someone other than Tony's partner saw the item fall to the floor, Tony would feel self-conscious using it in the meal he was preparing and the guest would be eating.

However, when children threw food on the floor, as Vivian's eldest son did during a dinner observation, it was not eaten by any adult and was not considered as wasted food. It was considered as a mess that needed to be cleaned up.

#### 4.4.2.3 NOT PEELING VEGETABLES

To a slightly lesser extent, peelings were another of those food items that were regarded differently across households, within households and even by the same participant.

Researcher – *Do you peel the beetroots when you add them to the salad vegetables?*

Johannes – *No, peel as little as possible. Takes too long to peel*

Researcher – *Is that right?*

Celeste – *Oh, yeah, most things [inaudible].*

Johannes – *Just wash it off and you...*

Celeste – *[inaudible] don't need to peel.*

Johannes – *No. Be here till next week if I had to peel the bloody thing!*

Celeste – *Well you know most people peel the potatoes I don't mind that's just [inaudible] you like the peel.*

Johannes – *Potatoes [inaudible]. Potatoes are pretty quick to peel, just why, why would you want to? It's just much - prefer them scrubbed clean. The skin is so thin anyway, so... [Weekend dinner observation, H5]*

However, he did peel certain fruit and vegetables, such as the pawpaw for breakfast or onions. When discussing the idea of avoidable or unavoidable 'food waste' as part of the debrief interview, the Swan family indicated that parts of food were not edible.

Celeste - *For example one thing that never goes into the compost bin or into the worms is orange skins. And I don't really see that as waste, because it's something that you couldn't eat anyway, and you can't do something with it, so... [Debrief interview, H5]*

I did not observe Celeste peeling the carrots or the cucumber she used in the salad during her dinner meal preparations.

*Of all the vegetables that Sue and James prepared, James did not peel the potatoes when he was making wedges. All the other vegetables were peeled prior to being prepared and eaten. [Field notes, weekday meal and lunch preparation, weekday dinner preparation, weekend dinner preparation, H1]*

James peeled only one type of vegetable for one particular part of a meal – potato wedges.

*As Vivian prepared the dinner meal I observed her not peeling her carrots. She went through the pieces of celery that she had taken out of the fridge and checked each one, taking the tops off, leaving them on the bench and adding the celery to the pile of vegetables by the chopping board. She cut the capsicum in half, adding one half to the vegetable pile. She cut up the zucchini and used half of that too, not peeling it. [Field notes, Weekend dinner observation, H11]*

Vivian carefully examined various vegetables she found in her crisper, but preferred not to peel any vegetables she did not think required peeling.

#### **4.4.2.4 USING ALL OF THE INGREDIENTS/PRODUCE/PRODUCT**

In some cases, participants made an effort to use up all the ingredients; if they did not, the alternative would have resulted in ‘food waste’.

*Sally – You know another point, if I, oh look, we’ll all be naughty at times, I won’t say it, but if I’ve got something in the fridge for example, a chook. This happened on the weekend, like an uncooked – because I bought a twin pack, and I made one straight away and I thought, oh, I won’t freeze the other one I’ll make it...*

Researcher – ...in a few days?

*Sally – ...a few days will be alright. That particular day I didn’t feel like a chook, but I’m like well, why are we going to-and it was a weekend, it was a Sunday, and Tom’s like, maybe takeaway. I’m like, well why 50 bucks, and there’s a perfect, and it’s not just the 50 bucks, that’s one of the reasons, but it’s like, why? That 50 bucks we can put into something else, when we’ve got food. I’ve got a chook; I can make a salad, whatever. So sometimes, I don’t even feel-but because of the waste, I’ll be like, no, we’re going to use it up. [Debrief interview, H10]*

During a weekday lunch observation with Penelope and George, Penelope left a saucepan of food cooking on the stove and took out two large bowls of shelled



walnuts from her pantry. She went to her laundry and from a cupboard took out some small plastic freezer bags, and started separating the walnuts into the bags, while sitting at the kitchen table.

Penelope – *How am I going to do all that?*

George – *you know what you should do? Get a towel and lay it out, and put the walnuts on it. That way, you can pick you the ones that don't look so good, you know.*

I ask George what he meant and he replied that Penelope can then use the ones that don't look so good but still taste fine in cakes and things. "They still taste OK, but are not as good for eating on their own". Penelope sighed and decided to put the walnuts back into the pantry, indicating that she agreed with George but would sort them out later, because that required more effort than she was willing to expend at that point in time.

#### **4.4.2.5 GETTING THE QUANTITY RIGHT**

Participants displayed a great sense of pride when they were able to use only the exact quantities required in their food and beverage preparation and their actions resulted in no wastage.

*James showed a great sense of achievement when he prepared coffee just before he and Sue started their meal preparation during a weekday lunch observation.*

James – *see that Vicki, not an ounce wasted!*

Researcher – *(very surprised) oh my gosh!*

Sue and James – *(laughing)*

Researcher – *I am going to make a note because that is quite impressive. Two coffees with the exact amount of milk. Because I can never do that*

Sue – *because that little bit you throw down the sink every time. Hmm...it adds up. [Weekday lunch observation, H1]*

I had arrived at their house just after breakfast and I asked if they had anything left over from breakfast.

Sue – *no (all laughing)*

*James – never! Hush your mouth child* [**Weekday breakfast observation, H1**]

Not wasting was taken very seriously in their household. All of their food practices were focused on minimising waste.

*Sue and James spent either a Friday or a Saturday morning each week preparing three meals for an elderly aunt. The delivery of the food was dependant on when the matches were on at the football stadium as they lived across the road and the traffic congestion made getting around rather difficult. The meals were delivered on either a Saturday or a Sunday. As they prepared the food, they kept a plastic bag in the sink, in which they collected their rubbish, including peelings from vegetables, egg shells and the stalks of the canned tomatoes. All recyclable containers were rinsed and Sue took them to the yellow-lidded recycling bin provided by their local council as they accumulated during the cooking process. Ensuring that the maximum quantities were obtained from James' preparation was obviously important to him. He made Cornish pasties as one of the meals for Aunty. He was concerned that he would not get two pasties out of one sheet of pastry and changed the size of the plate he was using as a template so that he could. He was using any leftover bits of pastry, rolling them up and making more pasties. [From field notes, weekday lunch and food preparation observation, H1]*

When shopping with Peter, he indicated that he knew how many tomatoes he would get through in a fortnight and would only buy that number. He had worked it out through a process of trial and error. Preparing the exact amount required was the result of experience, and of making or buying the same food often.

#### **4.4.2.6 PLANNING MEALS FOR THE WEEK**

During a weekday breakfast observation with Violet, after the children had been fed and taken to school, we returned to Violet's house to sit down, have a cup of tea and talk about food. There was a magazine lying open on her kitchen bench and Violet showed me the recipe she used for the previous night's dinner. After talking more generally about following recipes, Violet said that they helped her with planning her meals for the week, "If I don't plan, I find we waste food". She then started looking for yesterday's paper, saying that a weekday dinner recipe had caught her eye and she wanted to try it.

I have included this extract under Preparation, because the decision for the meal occurred in this stage and not as a trigger set off by the Provisioning stage.

## 4.5 CONSUMPTION

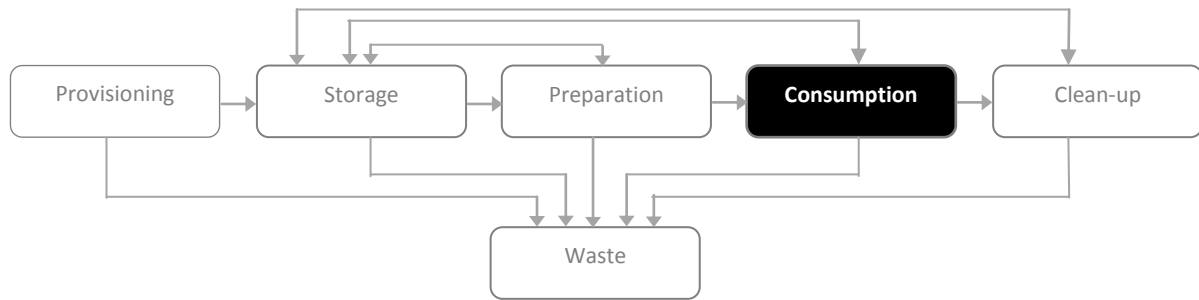


Figure 4.5: The consumption stage

This section presents food waste practices as they relate to the act of consumption. The primary purpose of the preceding three food-related activity stages—provisioning, storage and preparation—was the process of transforming ingredients and food items into a meal or snack for immediate or delayed consumption. Wasting food, wastage and ‘food waste’ were at times expected outcomes of eating, because not everything prepared for consumption was edible, such as chicken bones. While wasting food was an unexpected outcome of overall consumption practices, it did not usually occur as part of the consumption stage. The act of consumption was perceived either as eating to fuel the body or as an experience to be savoured. People within a household felt different emotions towards their meals and their responses during the act of consumption depended on several external and internal factors. This section will explore how the activities related to the consumption of food within the household contributed to ‘food waste’. Quantity and taste emerge as key themes contributing to ‘food waste’ related practices in this stage.

### 4.5.1 PRACTICES THAT GENERATED ‘FOOD WASTE’ IN CONSUMPTION

#### 4.5.1.1 CATERING FOR FUSSY EATERS

Feeding children presented a unique set of challenges, because food caretakers were concerned with providing adequate nutrition for their children, variety, and food that would be eaten and not thrown away. The consumption stage was the test of their efforts.

During Violet's initial Meet and Greet interview, she explained that the only person in her household who did not eat everything for breakfast was her daughter Gabrielle. During the weekday breakfast observation, Arthur was preparing breakfast for himself and Gabrielle and I saw him picking out the sultanas from the muesli, putting them into his bowl. He did this because Gabrielle did not eat them. While eating her breakfast Gabrielle found a sultana and threw out the remainder of her breakfast, refusing to eat any more. Arthur was left shaking his head.

*Arthur – The problem is too much food. The kids in Australia don't appreciate food. You know Gabrielle, one of the reasons your Pappou<sup>19</sup> eats all his food is because there were instances when he was growing up where he didn't have enough to eat.*

*Gabrielle – no, it's because he likes food*

*Arthur – no it's not. Maybe I'll put less next time. Maybe it was too much.*

**[Weekday breakfast observation, H14]**

In Peter's household, when his daughter Stephanie was staying with him, he made more of an effort for them to eat together, sometimes sitting at the table and other times in front of the television. During his debrief interview, Peter said that children tend to be more wasteful of their food, asking for watermelon, for example and then not eating it all, leaving him no other option than to throw it away. On a weekend dinner observation, Stephanie had a friend staying over and had welcomed the opportunity to cook for herself, her friend and her father. They sat at the table to eat and Stephanie had left some food in her plate. When I asked her why, she said that she did not want any more and that she did not like onion. She would still cook with the onion but would not eat it. She then ate another mouthful, pushing the onion to one side. Peter said that he hated mushrooms but would use them if a recipe called for them, picking them out afterwards while he was eating.

For Angela, her weekly shop meant she needed to buy enough food to last her family for the week. The time delay between shopping for the food and eating it meant that she did not always "feel like" certain items she had already purchased.

*Angela – I forgot to tell you, sometimes I'll buy vegetables, and then we*

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<sup>19</sup> Pappou is the Greek word for grandfather

*don't eat them, they don't get cooked, because I don't feel like vegetables that week. Whereas Mum always had meat and three veg every night. We probably don't eat all that healthily at times, do we? We don't have vegetables every day sometimes. [Debrief interview, H3]*

Sally prefers to cook the same type of food for herself, her husband and her daughter Anna, such as pasta with bolognaise sauce, but is happy to cook up different types of pasta because she did not like the type of pasta Anna requested.

*Sally is faced with a dilemma. She says "you're going to think I am mad". Anna wants spaghetti with her bolognaise. Sally doesn't feel like spaghetti. She says Anna goes through stages. She gets another pan out and adds a bit of salt from a glass jar which she took out of a high cupboard next to the stove. [Field notes, Weekday dinner observation, H10]*

Sally ended up making two types of pasta and both types were left over. Sally was confident that the pasta would end up in the chook bag she collected for her mother the following day.

Participants prepared food with the 'hope' that it may be consumed, even though they knew that the likelihood of consumption was variable. By preparing the food in a 'just in case' manner for consumption, they were invariably transferring the decision for 'throwing food away' to a different stage, particularly Storage, which made it more tolerable for them to make the decision not to eat that particular food.

#### **4.5.1.2 HEALTH**

Food preferences that had been altered for health reasons also implied a sense of 'fussiness' in that food caretakers had to cater for the changes in demand.

Sue and Penelope both cut the fat off the ham when making sandwiches, the former during a lunch observation and the later during a dinner observation. They both said that fat was not good for themselves or their husbands, implying it was not good for their health because it was a fatty substance. James had had heart bypass surgery and George had high blood pressure, therefore their wives encouraged healthy eating by removing fat from products like ham. If they did not remove the fat, these men were happy to eat it.

*Sue is cutting up ham; she cuts off the fat (ham off the bone) by putting it on a chopping board. She will make little parcels with this fat for the dogs. She says that if she didn't do this J would eat it and she doesn't want him to eat it. [Field notes, weekday lunch observation, H1]*

Celeste explained during a weeknight dinner observation that she had changed her family's whole way of eating about 17 years ago, after being influenced by someone back in South Africa. During a weekday dinner observation, she said that she loved to use raw corn in her salads, sometimes making too much salad. Her daughter Maryanne had said to her that she thought it was weird to eat raw corn. Celeste explained that it was extremely high in essential fatty acids. She believed that she should provide food that was nutritionally as good as possible, using raw ingredients, eating organic food, minimising their intake of red meat and poultry and not having processed sugar or flour in her house. Both she and Johannes encouraged their children to eat as much as salad as possible. The salad and the meal were plated up in the kitchen and the family sat around the table to eat their meal. Anyone in the family could go and serve themselves second helpings. Celeste did not believe in saving left over fresh salads because they lost their nutritional value.

*Celeste – Like us, we would never carry a salad over, because for us the nutritional benefits of the salad- it has to be made fresh. [Debrief interview, H5]*

Celeste implied that the nutritional benefits of the salad are no longer present once the consumption process is finished. These nutrients will not be available through the salad at the next meal, so she throws the salad into the compost bucket.

#### **4.5.1.3 NOT EATING ALL THE FOOD SERVED**

In some cases, leaving food on the plate meant that it was thrown away, whatever state it was in.

Throughout the study, Violet said that her daughter was a fussy eater and was the only one in the family who repeatedly did not eat all her food. During a weeknight dinner, Violet had received an unexpected tray of cooked lasagne from her mother-in-law, re-heated it and included it with what she prepared for dinner. She served

her son and fed him separately, saying that if he did not eat all his food, she or Arthur would eat it, but they would not eat Gabrielle's food.

*Violet – Because Gabrielle's food, once she's eaten, if there's any leftovers nobody touches it because once she's gone through it, nobody wants to touch it anymore. She'll put her hands through it and she wants to see if there's any marks on the produce and, you know, sometimes it goes in her mouth and then back into the plate and yeah, it's not appetising. Whereas Connor, you know, this is controlled. Gabrielle's is like eating though a petri-dish (laughing). [Weeknight dinner observation, H14]*

Harry and Ginny, during their debrief interview, said that their youngest daughter Audrey was not very good at judging quantities. Even though Harry encouraged her to take a small helping of something and return to take more if she was hungry, she would prefer to fill up her plate (Harry emphasised the word fill). Ginny and Harry commented that they did not know why Audrey did this, with Ginny speculating:

*Ginny – It's almost like she's scared it's going to run out, or someone else is going to take it, and so she'll, I particularly notice say when we've got friends over, and I'll do a snack, and she'll be the first one in, and she'll take like, say nearly all the strawberries or you know-I think she.*

*Female friend – She doesn't want the good bits to go.*

*Ginny – But I don't know what it is with, like the other night we had spaghetti and she just piled her plate up. We thought there's no way she's going to eat all that, and she didn't.*

*Researcher – So what happened with that, like do you recycle-?*

*Ginny – Well, we said..*

*Female friend – Chickens!*

*Ginny – No, you can have it tomorrow night, so I put Glad Wrap on it, but...*

*Harry – She didn't eat it.*

*Ginny – No. The chooks ate it. She won't go back and eat it.*

*Female friend – No?*

*Ginny – No [inaudible].*

*Harry – Because we're not tough enough.*

Harry then went on to recount a story from his own childhood about how he had to eat everything on his plate.

#### **4.5.1.4 NOT EATING FOOD BECAUSE UNSURE IF IT IS SAFE TO EAT**

Often the decision about whether food was safe to eat was made immediately before using the product, as part of accessing it from a storage area. Accessing ingredients for a meal occurred as part of preparation activities, while checking if a leftover was meal was safe to eat usually occurred just prior to consumption. Often the decision about whether to eat the food was made before the food was smelled or checked. Determining whether the product was safe to eat also happened when storage areas were cleaned. In all cases, the product was accessed from a storage area, therefore this practice is covered under the section 4.4 Storage.

#### **4.5.1.5 SELF-DETERMINED USE-BY DATES**

Peter, like other participants in the study, had self-determined time limits for how long to keep food after it had been cooked. During the week, I accompanied Peter on his shopping trip, where he bought extra items for a 'boys' night in' that he was having at his house at the end of that week. I went to Peter's place two days after the boys' night and saw that there were leftover ingredients for pizzas in the fridge and leftover pizza. Peter ended up putting the pizza pieces and the unused ingredients into the chook bag for Stephanie to take home with her. He said that he felt "pretty crook" the day after the boys' night and did not feel like eating the leftover pizza. He said that he had a rule of eating pizza within the next day; thereafter he would get rid of it. As Stephanie was "making up a session" with him, he decided to put it all in the chook bag for her to take home.

#### **4.5.1.6 SERVING PRACTICES**

I observed that more food was prepared when it was served in dishes at the table rather than plated, which resulted in uneaten food left at the end of the meal. The Potter and Andreou families served food at the table when they had guests over.

On the other hand, Penelope always prepared more food than she and George could eat, and always served some of the food at the table. Penelope commented that she could not prepare food for "just two people", whether she was preparing traditional, 'special' foods such as "pites" (spinach and fetta or cheese pies) and "piroshky" when her daughter and family came over for dinner, or the standard



weekday fare she prepared for herself and George. She implied that, somehow, having just enough food would be inappropriate. It was important to her that the table had “enough” food on it when she and George sat down to eat together; “enough” in Penelope’s eyes was more than I thought could be eaten by two people. All the food served on their plates was eaten, but there was always more food in a pot on the stove, which was packed into containers and stored in the fridge.

#### **4.5.2 PRACTICES THAT REDUCED ‘FOOD WASTE’ IN CONSUMPTION**

##### **4.5.2.1 EATING EVERYTHING**

Eating everything that was on their own or other people’s plates was one way that participants reduced food waste. Eating other people’s unfinished food often occurred when children did not finish their meal.

Vivian finished off what her son did not eat, saying that eating his uneaten food had become a bit of habit. In wanting not to throw away good food, Vivian would eat it.

Tony said that if Dave left uneaten food on his plate, he would eat the small amount of food left or return it to the main pot and then apportion serving sizes into smaller containers for freezing.

During a shopping observation with Peter, he commented that once he made a dessert with grapefruit from a recipe. The dessert tasted awful, but he finished it because it was edible. He would not make that recipe again. There was one grapefruit left in the fridge and he was looking for a decent grapefruit recipe so he could use it.

During a weekday lunch meal, Penelope had prepared three salads for herself and George; beetroot salad, tomato and cucumber salad and lettuce salad, and a cooked meal. When I asked what would happen to the uneaten salads, George made sure he finished all the lettuce salad, while the other two were thrown away.

In the Potter household there was a hierarchy employed in who ate the leftover food.

Ginny – *Because what we won't eat you eat (laughing). If I was by myself I would waste more than if Harry was not here. Because he will eat things that are older than what I would.*

Researcher – *I tried to eloquently describe that here but I might not have done you just- (All laughing)*

Ginny – *I have a garbage husband!*

Researcher – *So please feel free to correct that. But I thought that that was really, it was really interesting that there was a hierarchy of...*

Female friend – *There's another level now, the next door neighbour.*

Researcher – *So do you come in between Harry and...*

Female friend - *I'm between him and her. I'll eat anything that he will not eat, but then I know if there's something I don't like, he will eat it. [Debrief interview, H9]*

While Harry did not mind eating food that had been leftover, he also did not want to throw out food unless it was mouldy. Ginny, on the other hand, was more selective about which leftover food she would eat.

## 4.6 CLEAN-UP

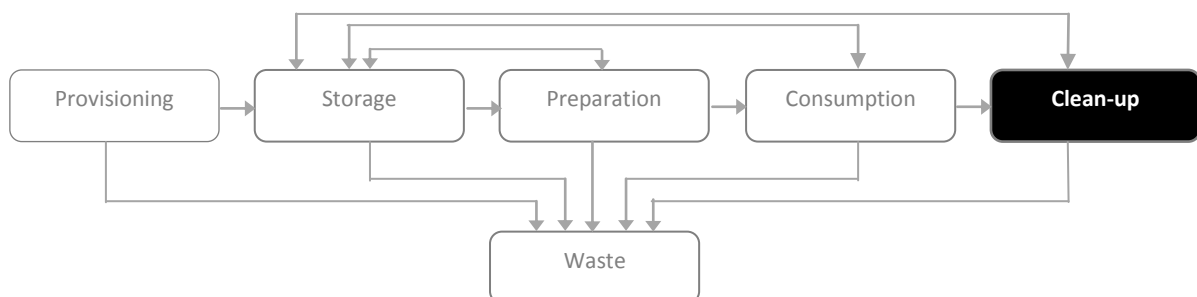


Figure 4.6: The clean-up stage

The Clean-up stage involved the process of clearing away dishes after a meal, scraping food off plates, and tidying up. While cleaning up occurred as part of every stage, this was not done in a systematic way. For example, cleaning up storage spaces was triggered by different events, such as grocery shopping, the time of food preparation or taking holidays from work and was discussed in section 4.4. Cleaning up also occurred as part of the food preparation stage and primarily was driven by what was being prepared. For example, if a meal was cooking on the stove or baking in the oven, the participant was able to keep an eye on the food while

cleaning and tidying up in the kitchen. The stages have been delineated in such a way that this section will focus on the cleaning up that occurred directly after consumption of a meal.

#### **4.6.1 PRACTICES THAT GENERATED 'FOOD WASTE' DURING CLEAN-UP**

##### **4.6.1.1 NOT WORTHWHILE KEEPING**

Ultimately, the aim of cleaning up post consumption was to return the kitchen and meal area to a state of order and to put away any uneaten food. This food may have been stored to eat later, such as a tub of butter or the remainder of a loaf of bread, or as a cooked meal, in part not consumed and deemed excess or left over. The food that was not to be kept was 'moved' into a non-storage channel, such as a bin or receptacle for compost, worms, chicken food or pet food. Participants who moved food into the rubbish bin – usually referred to as 'throwing' by the participants – or poured liquids down the sink regarded this as waste. However, for other participants not keeping food did not equate to 'throwing it away' if the food disposal was directed to compost, worms, chicken food or pets. Participants rationalised their method of disposal based on their values, knowledge and feelings at that time.

Sue and James did not, under any circumstances, like to waste any food. Sue cleared the table following a weekend dinner meal, with James doing the dishes. Sue picked up the small dish with leftover cranberry sauce that she had emptied from the jar when she set the table. There was no more than a teaspoon or so of cranberry sauce left in the dish. Sue discreetly threw the sauce from the serving dish into the plastic bag that served as the bin, looking over to see if I was watching and whispering to James. On the other hand, she stored the leftover bread in a plastic bag in the bread bin container, keeping it to eat later.

I inferred that Sue did not think that the small amount of cranberry sauce left after the meal was worth the effort of returning it to the now empty jar and conferring with James reinforced her decision to throw it away.

In Penelope and George's case, the combination of George's complaint at the end of their lunch meal referring to the "funny" taste of the beetroot salad and the small amount left were reason enough for her to throw the remainder of the beetroot salad away. By Penelope saying "there was not much left of the salad", "I've already washed the jar", which she did when she had set the table and George's comment that "the salad tasted so sour", I inferred that it was not worth keeping. Penelope was providing reasons to justify her actions. Penelope also threw away the uneaten tomato salad, putting all the uneaten food together with plate scraps into a pile on the sink, and asked George to take "this", referring to the pile of peelings and the uneaten food, outside to their green organics bin. When she looked out the window and noticed it was raining, she told George not to worry about taking the pile outside. He said, "no don't worry, put it all together and I'll take it outside". The rain was enough of a deterrent to stop Penelope from taking the scraps to the green bin while for George it did not matter. My presence as a researcher may also have prompted George to feel a sense of 'doing the right thing'.

Celeste and Johannes prepared one salad for their main dinner meal for their family during the weekday and weekend dinner observations. There was uneaten salad at the end of each dinner meal and it was put into the compost buckets kept on the raised bench in front of the sink. Celeste said they would not eat the leftover salad because it had lost its nutritional benefit, the primary reason for eating it.

*Celeste – We would never carry over a salad over, because for us the nutritional benefits of the salad – it has to be made fresh. Whereas I knew a friend which she, because not wanting to waste, would take the smallest bit of salad after a party and put it in the fridge. And I'm sure she actually did eat it. But, you know, to me, the next day it's lost a lot of its nutritional benefits*

*Gerard – And you generally don't eat salad the next day though*

*Celeste – so yeah, you're right, you can't take it on just, just how you dispose of it [Debrief interview, H5]*

Celeste's son, Gerard, indicated that eating salad the day after it has been prepared is not appropriate behaviour. He may also have implied that it is not good enough

to eat, with Gerard's and Celeste's comments providing justification in their eyes for throwing out the uneaten salad. Where food is not regarded "good enough" to be eaten later, or even "good enough" for pets or chickens, it is thrown away.

While Peter was cleaning up after a weekend lunch, I asked him if he put the food that was left over in the bin. He seemed surprised by my question, replying "if there was something worthwhile I would have put it in with the chickens", referring to the chook bag.

#### **4.6.1.2 MOULDY FOOD**

Harry said that they did not give mouldy food to the chickens. Mouldy food generated strong feelings for Ginny, who said that as a child she had to eat mouldy bread and as a result she could not stand the thought of it and always threw it away.

*Harry – Like that bread that you threw out last weekend, I looked at that and thought oh, that's a waste.*

*Researcher – Oh, okay, did you think that?*

*Harry – Yes, I did, yes, I did.*

*Ginny – Did you find it?*

*Harry – I saw you put it in there. I think I saw it, didn't I? Well, I saw it in the bag on the ground.*

*Ginny – I wasn't quick enough to put it in the other bin (laughing).*

*Researcher – So there's a bit of that is there?*

*Female friend – [inaudible] the cupboard. Oh, that's got mould on it, quick-*

*Ginny – Chuck it out before Harry sees it!*

*Female friend – can't see the mould when it's toasted, Ginny, that's what I hear.*

*Harry – I wouldn't make you eat mouldy stuff, I don't eat mouldy stuff.*

*Ginny – No, but you go off about it, all that waste!*

*Harry – yeah, I'll go off about it*

Her strong feelings toward mouldy food, especially bread and her 'need' to throw it away creates tension between her and her husband.

During the debrief interview, when I asked the Swan family (H5) what they regarded as 'food waste', they said that food that was mouldy was a waste and would not be given to the worms.

*Johannes – yeah, if food sticks around in the cupboard or fridge just to the extent that its...*

*Gerard – Something goes rotten or off*

*Johannes – ...got mouldy to the extent that you wouldn't give it to the worms or to the dog or to, the compost bin, you would just put it straight into the bin. I think as long as it's got a usage, whether it's going to the worms or to the compost bin, it's not waste.*

The state of inedible food also determined into which disposal channel it would be placed, especially for those that had multiple disposal channels.

#### **4.6.1.3 SELECTING INEDIBLE FOOD ITEMS FOR DIFFERENT WASTE CHANNELS**

Alice and Harry did not like to put any meat waste into their compost because they were afraid it would attract rats. During the debrief interview Sue also mentioned this, saying "Dad doesn't like it because it brings the rats" where Dad was her husband, James. Celeste said that she did not cook too much meat and this was not an issue for her, because she was mainly putting fruit and vegetable matter into her compost. Food it was thrown into the bin when it could not be given to pets, chickens or put into the compost. During a dinner observation with Vivian's family, Vivian's husband said the dogs had had a feast the previous night because Vivian had made roast chicken. There had not been much left over so the slops and stuffing went to the dogs, but the bones went to the rubbish bin, because dogs could not eat them. I asked Vivian if she put them into the green bin, because she had told me earlier that night that their council had just introduced collection of 'food waste' in the green organics bin. She said no, the bones went straight into the rubbish bin.

#### 4.6.1.4 THINKING OF CHILDREN

Children's fussiness toward food led to food not being eaten and subsequently wasted. In addition, leftover food that had been re-heated once was not re-used again, especially for children, as Alice explained:

*Alice – When I prepare a nice meal for Grace such as that chicken and ham that you just saw, and she only had a little bit of that and of course I can't give that to the chooks or the compost because that attracts rats, so, then that goes in the bin. That's like the bad end of it, when there's things I can't put back into the cycle. And then even when I do prepare food for Grace, sometimes like peas and corn and she won't eat that, I can't reheat it again, so on a slightly lesser level, if it's not consumed by humans, um, perhaps that is slight waste and then complete waste when it goes into the bin with the rest of the rubbish [Debrief interview, H8]*

In this extract, Alice did not put meat waste into the compost for fear of encouraging rats. She blamed her daughter's fussiness for having meat waste, which she felt "bad" about, whereas she did not mind to the same extent the food waste that went to compost or the chickens. The returns to her family from vegetables that grew as a result of compost rich in nutrients and eggs from her chickens were seen as part of a cycle of natural events.

Fussy eaters were another reason why the participant cleaning up, which was usually the food caretaker, would throw food into the bin. Fussy eaters tended to dislike certain foods, and therefore not eat them, but also picked through their food, leaving it in a state that others could not eat.

*Violet – Because Gabrielle's food, once she's eaten it, if there's any leftovers, nobody touches it because once she has gone through it nobody wants to touch it anymore. She'll put her hands through it and she wants to see if there's any marks on the produce and, you know, sometimes it goes in her mouth and then into the plate and yeah, its, it's not appetising. Whereas Connor, you know this is controlled. Gabrielle's like eating it though a petri-dish (laughing) [Weekday dinner Observation, H14]*

During a weekend dinner observation when Violet and Arthur had invited friends round for home-made pizzas, I saw Violet throw Connor's uneaten pizza crusts into the bin. The two pieces of uneaten pizza he had left on his plate were then stored in the fridge, with the intention of eating them later. In the extract above, Violet's mention of the "controlled" nature of Connor's food meant that he did not pick

over it like his sister and it was easier to retain uneaten and unspoilt parts of his meal as leftovers. As Violet was putting the pizza into a container and into the fridge, Arthur made the following comment:

*Arthur – the reality is that we are not good with leftovers. We throw them away. We chuck a lot of food. We will never eat chicken as a leftover meal. It is always thrown away. I don't take food to work. I should, hey, so as not to waste it, but I always end up eating out. I have a theory. I work so hard so I deserve a good restaurant meal every day, under \$10 mind you!*

**[Weekend dinner observation, H14]**

The following day, at the lunch observation at Violet and Arthur's house, there were two chicken wings left at the end of the meal that Violet threw into the bin along with all the bones. Violet said "my cat won't eat the chicken wings so I will chuck them out".

Children bring school lunchboxes home with uneaten food. Food caretakers discover this uneaten food when they unpack lunchboxes for washing and re-stocking. While Celeste said that her children ate everything that she packed in their lunchboxes, Ginny and Vivian would find uneaten food in their children's lunchboxes. During a weekday dinner observation, Violet cleaned out Gabrielle's lunchbox, shaking her head at finding an uneaten celery stick, cheese stick, home-made pastry and an unopened small container of yoghurt which Gabrielle claimed she was unable to find when she looked at school. All these items went straight into the bin.

*Violet – I left these lunchboxes so you can see that we throw away half our lunches from our lunchboxes (laughing) [Weekend lunch observation]*

The influence of other people present during clean up influenced whether food was kept or thrown away. While putting away the shopping, Angela commented on the gravy left over from the weeknight dinner observation I had attended, where her son Wayne was present. She said that when he was over for dinner, he would do the right thing, referring to keeping the gravy and re-using it, whereas if he were not there she would throw it in the bin. Celeste, on the other hand, did not know when her older daughter would be coming home for dinner and prepared for her 'just in case'.



*I ask about the compost buckets. Celeste won't empty them out tonight. She says "it's too hard, I'm a bit lazy". I say that I was only asking because I was interesting in observing the food leaving the home process. She says let's empty them no. She gets some stuff out of the fridge as well as whatever's left over on the dinner plates and we go outside to the compost bins. One is stewing and has leaves in it as well as food. Celeste empties the compost bucket into this one. I ask Celeste if she regards leftovers as food that they thought they would eat but didn't. Celeste said that having her daughter Maryanne home they now have more leftovers because she doesn't say when she will be home or not. Celeste used the term "made room in my fridge" by emptying some of this food out. She said that she went from cooking for six people; to five to four now back to five people again. With Maryanne home, they have a higher amount of leftovers. I understand this to mean more waste as well, since they don't always eat the leftover food. [Field notes, weekend dinner observation, H5]*

When not eating leftovers was regarded as an easy choice, the easy choice was preferred. Sally (H10) preferred to put the leftover food into the chook bag for her mother, rather than keep it.

*After the meal, Sally started cleaning up. She took the plates to the sink. She put the leftover salad into the chook bag saying "I'm utilising my chook bag. I will see mum tomorrow." She poured the vinegar dressing into the sink. She kept the spaghetti along with the rest of the pasta from the pan, in case her daughter wanted some later that night. If she doesn't eat it, it will end up in the chook bag, probably tomorrow before she goes to her mum's. She will do the same with the bread. Sally commented that her mother complains about how much food she brings for the chickens saying "how much food do you waste". [Field notes, weekday dinner observation, H5]*

Sally uses the visit to her mother's the following day as justification for putting the leftover food into the chook bag for her mother's chickens.

#### **4.6.1.5 FEELING TIRED OR LAZY**

After returning home from a shopping trip with Penelope and George, Penelope quickly put the shopping away and then starting preparing the lunch. She cut up cabbage and carrot and made a salad, leaving the peelings on the sink while they ate lunch, preferring to clean up after their meal. When they finished eating, Penelope put the peelings into the bin, saying that when she could not be bothered going to the green bin she puts the peelings into the rubbish bin. She said this was because her green bin was "very far in the backyard". If she had many peelings she said she would ask George to take them outside to the green bin.

Angela and Celeste also made a comment about ‘laziness’ and that if they were not feeling lazy they would have taken peelings or compost buckets outside to the compost heap. In Celeste’s case, she would take it out another day. Angela, on the other hand, might have thrown it in the bin or might have taken it outside.

#### **4.6.2 PRACTICES THAT REDUCED ‘FOOD WASTE’ DURING CLEAN-UP**

##### **4.6.2.1 PACKING LEFTOVER PREPARED FOOD TO EAT OR RE-USE LATER**

Participants from all households packed food left over at the end of a meal, usually storing it in the fridge but sometimes leaving it, covered, on a kitchen bench with the intent to eat or re-use at a later time.

At the end of a dinner observation, Vivian put the leftover food from the dinner meal she had prepared into a plastic container that she put in the fridge, saying there was not enough to freeze. She said she would use it for her children’s lunches the following day. Vivian’s intent during preparation had been to use up as many vegetables as she could and all the mince she had in the fridge, instead of cooking exact or set portions. Vivian explained that smaller leftover portions were stored in the fridge while intentionally prepared larger amounts were stored in the freezer. Peter, on the other hand, intentionally prepared double the amount of pad Thai he had for dinner with the intention of taking half the serving to work for lunch the next day. He did not measure quantities, but rather used his experience to guide him. In this case, he stored his ‘extra dinner’ or ‘lunch’ in a plastic container in the fridge, enabling him to “grab it and go” in the morning when he was leaving for work.

In contrast, Sue and James were aware of preparing the ‘right amount’ of food, especially meat or poultry, for their routine dinners and made a point of telling me this during the preparation and consumption stages. They did not mind having a few pieces of extra steamed or boiled carrot or broccoli or other vegetables that accompanied their dinner as Sue loved to fry them into “bubble and squeak” for James the next day. She would store these vegetables in a small bowl and cover them with plastic wrap, leaving them on the bench or putting them in the fridge.

Weeknight or routine dinners generated smaller portions of leftover food compared with dinner parties and cook-up activities, where there was a conscious intention to have more food than could be consumed during the meal. Sally had kept all the leftovers from Tom's birthday dinner, celebrated the previous night with their friends, using the fridge and the kitchen bench tops to store the leftover food. The Potter family had invited me to attend their weekly dinner party, where I observed Ginny clearing the platters of uneaten food from the table when everyone had finished the main meal and immediately placing the uneaten vegetables in a round serving dish and covering it with cling film and the corned beef in a plastic container. She re-arranged items in her small retro designed kitchen fridge to ensure this leftover food could fit. Laughing, Ginny explained that their second fridge was located at the opposite end of the house to their kitchen and that last week she had used the second fridge to store the leftover fruit from last week's dinner party. She had forgotten it was there and it had spoiled and she had to throw it in the rubbish bin. On this Saturday night, when she cleared the fruit platter from the table, I saw her pack the leftover fruit into a plastic container and make room for it in the kitchen fridge by throwing into the rubbish bin food that had previously been kept for their dog, which he did not eat.

Storing leftover food with the intent of eating it but not doing so was demonstrated during a weekend dinner observation where Violet put unused mushrooms into a container at the end of the meal, saying "I am probably going to make risotto tomorrow, so I will keep the mushrooms". The next day, during a lunch observation, I saw Violet use those mushrooms in a salad. She said to me with a shrug, "as if I am going to have time to make risotto!" remembering her comment from the previous night. In this case Violet was able to still use the mushrooms albeit for a different type of meal, but her comment demonstrated how intent does not always carry through to practice.

In the context of the clean-up stage, the practice of storing leftover, prepared food was perceived to reduce 'food waste'. Within the broader context of transforming food into 'food waste', the intent to re-use or eat leftover stored food that had been packed away was not always carried out and examples of such practices have

been provided under section 4.4.1 Practices that generated 'food waste' during the Storage stage. As Arthur and Sally both separately alluded to, the practice of keeping food at the end of a meal often resulted in it being thrown out anyway, after the food had 'sat' through the Storage stage.

There was always leftover food when participants were entertaining, but not for routine meals, unless intentional, 'extra' amounts were prepared. Penelope and George took their routine main meal of cooked food at lunchtime and generated leftover cooked food, but otherwise I did not observe leftover food being generated during breakfast and lunch meals. Of the food laid out on the kitchen table, Penelope re-used items that they did not eat. The whole loaf of bread was served on the table but the parts that were not eaten were returned to storage for the next meal. Pickles, such as beetroot, tomatoes and salad were stored in a large jar in the pantry; cheese, served on a plate, was returned to a container in the fridge, or covered in plastic wrap and kept in the fridge. Leftover food was stored in glass or plastic containers in the fridge and re-heated at a subsequent meal. In contrast, uneaten food prepared for breakfast was not regarded as left over in Alice's home, and was put in the compost bucket or the bucket for the chickens. In all cases, this was food that Grace had not eaten.

#### **4.6.2.2 GIVING FOOD AWAY**

The redistribution of leftover food during the clean-up stage by giving it to people outside the household, where it occurred, was a practice that reduced 'food waste' within the observed households.

While cleaning up, Celeste placed a serving of dhal from the pot, which was still sitting on the stove, onto a plate. She explained that she would take this food to a friend with whom she did a class later that evening. The remaining food in the pot was stored in a container in the fridge and eaten by Johannes the following day. In this case, Celeste had purposefully made extra food because she intended to give some to her friend.

In contrast, Penelope “always” cooked ‘extra’ food on Tuesday evenings, because her daughter’s family came over for dinner. At the end of the meal, as Penelope was cleaning up, I observed her packing away leftover food from the saucepan into two Tupperware containers. While giving one container to her daughter, Penelope said “take it home for the kids to eat tomorrow night”. She put the other container in the fridge. Penelope also put some homemade piroshky into another container, giving those to her daughter as well. Her daughter explained that she was not sure that her kids would eat them. Penelope seemed annoyed at this comment and said “if the kids eat them good, if they don’t...” and did not finish her sentence. She seemed annoyed that she had gone to great effort to make this food and it was not appreciated or wanted.

#### **4.6.2.3 UNEATEN FOOD TO CHICKENS/PETS/WORMS OR COMPOST**

Sue, Angela and Justin, Celeste, Joan, Alice, the Potters, Sally, Vivian and Peter all channelled some of their ‘food waste’ to pets, compost, worms or chickens. They did not view their actions as wasting food when it went into one of these channels.

*Alice - I think there’s a little bit of magic involved in feeding the scraps to the chickens and getting back these beautiful eggs that you can give as gifts as well as, um, you know put in beautiful cakes and all that sort of...*

Only Alice and the Potters kept chickens on their property, but Joan, Sally and Peter collected food scraps for chickens at another property. Joan collected her uneaten food in plastic bags kept in the laundry for her daughter’s chickens. She would scrape the plates straight into the bag at the end of each meal, making sure that the food was appropriate for the chickens to eat. According to Joan, and also reiterated by Harry, there were some types of food regarded as unsafe for chickens to eat, such as avocado. Joan (and Harry) always ensured that no avocado went into the bag.

During the warmer weather, Joan kept the bag in the fridge because she did not want to the food to spoil, creating a danger for the chickens. Karen, Joan’s daughter, found this practice disgusting, but Joan’s concern for the chickens outweighed her daughter’s disgust. On the other hand, Sally always kept the plastic

bag of food for her mother's chickens in the fridge, regardless of the weather or the season, scraping uneaten food from the plates straight into the bag.

While Joan and Sally took bags of food for chickens to their respective daughter and mother, Peter relied on his daughter to take the bag with her when she returned to her mother's house after spending the weekend with him. Peter would start a plastic bag the night before Stephanie's visit, scraping food from his plate or clearing out his fridge so that she would have a bag to take home with her to the chickens. The biggest issue was Stephanie remembering to take the bag home. If she forgot the bag, it went straight into the bin because Stephanie lived a half-hour drive away, too far for Peter to take the plastic bag with food for the chickens. Peter also said that he was mindful to put only one day's food into the bag because the people in the house where the chickens were kept also fed them.

Apart from chickens, participants collected food for pets, particularly dogs.

*Vivian - This is our slops bucket for the dogs. So anything that is left over during the day that's bitsy – we just put in there, and then it goes into their food at night. So this morning, the kids ate all their breakfast, for once, but generally half the Weetbix ends up in there, and then as the day goes by if I come across leftovers or if the kids don't eat their sandwiches and they leave the crusts I'll go, right, just put that in there, and then put it out for the dogs for dinner. So they like that.*

Researcher – *And it just lives on your sink?*

Vivian – *Yep. [Weekday lunch observation, H11]*

Where participants had multiple alternatives to the rubbish bin such as compost and dogs, they implemented a hierarchy of dissemination for uneaten food, as Vivian explained to me while she was preparing the evening meal.

*Vivian - It depends what it is again. Sometimes it goes into the dog's food. Because they eat raw meat and leftovers, so if it's a sauce or something I sometimes tip it onto their food or-.*

Researcher – *Okay. And if it doesn't go to the dogs, where does it go?*

*Vivian – Yeah, oh, we also have a compost, so if it's compostable we will compost [inaudible].*

Researcher – *Okay. And do you put scraps and things in there?*

Vivian – *Yep. All our veggie peelings and things.* [Week day dinner observation, H11]

At the end of that night's dinner observation Vivian scraped uneaten food from the plates into the dog's slops bucket. Looking into the pot still on the stove, Vivian decided to keep the small amount of food left in it, putting it into a container and into the fridge, intending to use it the next day.

The Potters also use a hierarchy when deciding which 'waste' channel to move uneaten food into, making this decision at the point of eating rather than at the clean-up stage, as described in section 4.6.2.1.

Whenever uneaten food went to chickens, compost, worms or pets, the participants could feel morally good about their actions. Alice explained that uneaten food going to compost or to the chickens has a purpose and she felt less guilty than if that food went straight into the bin and not going "back into the cycle".

## **4.7 SUMMARY**

Food waste practices were observed at five key food activity stages. These practices contributed to the generation or mitigation of food waste. They existed as part of a range of food practices and, in some instances, were part of everyday household practices, such as emptying waste buckets as part of cleaning the house. In this chapter, I presented 60 of these practices, structured as those that generated or mitigated food waste at each of the five key food activity stages. I observed and identified more practices, but the ones presented here are the ones I believe were the most significant.

Provisioning practices that generated food waste included how participants shopped, what they bought and how they managed grown food or unexpected food coming into the household. Provisioning practices that contributed to reducing food waste included shopping patterns, how money was spent during purchasing, taking others' eating preferences into consideration, making lists or planning meals for

those that used such tools, and following behavioural patterns remembered from childhood or other significant influences on one's food practices.

Food waste practices observed and discussed around the act of storing food that generated food waste included incorrect storage, placement of food and discarding food after a self-determined time period. When participants used their fridge or freezer, or knew of other methods of extending the life of their food, they demonstrated practices that reduced food waste.

Several practices generated food waste in the preparation stage. These included determining the acceptability of eating an item, preparing too much food and catering to children's tastes. Practices observed to reduce food waste as part of preparation included planning, getting quantities right and re-using items.

As part of the consumption stage, practices that generated food waste included catering for fussy eaters, not eating all the food served and the way in which food was served. The practice that contributed to food waste reduction was eating everything. As part of the clean-up stage, the practice of not keeping small amounts of leftover food or food not considered suitable because of safety or feelings of laziness contributed to generating food waste. Packing away leftover food or giving food away reduced food waste during the clean-up stage.

Deconstructing food waste practices into practices that generated or reduced waste for each stage highlighted that while some practices were stage specific, such as buying in bulk, they were affected by practices in other stages, such as storage and preparation and even consumption. It also highlighted that it was more than the practice itself that resulted in food being wasted or thrown 'away'. Food waste practices were outcomes or symptoms of everyday food consumption practices, not targeted outcomes of excessive consumption as highlighted in some of the literature reviewed in Chapter 2.

The following chapter will examine the underlying mechanisms that drove all the observed practices and will demonstrate that practices and underlying generative mechanisms do not necessarily correlate neatly. Through a conceptual analysis and



discussion of those practices that generated and mitigated food waste, I will draw on social theorists to explain the generative mechanisms of food waste in household settings and provide an answer for research question 2. I will focus on the specific theoretical concepts of social construction, practices, and consumption in order to 'think with theory' (see (A. Y. Jackson & Mazzei, 2012, p. 5) p. 5).

## **5 DISCUSSION – THE FOUR FACES OF FOOD WASTE**

### **5.1 INTRODUCTION**

This chapter will address research question 2 and will identify the cultural behaviours, decisions, values and attitudes of why people waste food. I will present and discuss the generative mechanisms that drove the observed practices for each of the five key food activity stages presented as a “thick” description in the previous chapter. Through a combination of thematic analysis and an understanding of various social theorists (based on the literature reviewed in Chapter 2), I was able to attribute four overarching themes which act as generative mechanisms for food waste practices and underpin the findings of the previous chapter (see Appendix 9 for a list of codes to themes). The process of data analysis was described in Chapter 3. The conceptual themes identified were:

**1. Constructing organic matter as edible or inedible**

**2. Identification and prioritisation of value in food transformation**

**3. Situational impediments and the rhythms of everyday life affecting food waste**

**4. Perishability and risk**

Essentially, breaking up the analysis of my findings into practices and concepts has allowed me, as a researcher, to demonstrate my interpretation of the participants’ interpretations of their social worlds (Danermark, Ekstrom, Jakobsen, & Karlsson, 2002). According to Danermark et al. (2002) an “ontological gap exists between what we experience and understand, what really happens, and – most important – the deep dimensions where the mechanisms are which produce the events” (p. 39). Although we may never “really know what happens”, through our observations we can interpret and give meaning to the practices that people themselves exhibit. As a researcher, my ability to explain the social world demands an understanding of the significance and meanings of actions and events to the people studied (Danermark et al., 2002). Furthermore, in order to provide a deeper understanding and explanation of my interpretation, as a researcher my role is to produce concepts

which transcend common sense, known in social science as the double hermeneutic.

This chapter addresses the second research question, namely, identifying the cultural behaviours, decisions, values and attitudes of why people waste food. Where relevant, gaps in the literature identified in Chapter 2 will be addressed throughout this discussion.

I will use a range of theoretical 'lenses' to analyse the themes I have interpreted through the observation and discussion of practices that mitigated or generated waste. I use ideas developed by the theorists Bourdieu, Giddens and Beck as well as those of practice theory. I will also delve into anthropological literature and the ideas of Mary Douglas, Thompson's Rubbish Theory, and the sociology of consumption in search of concepts that capture the dynamics of the themes developed. Aspects of critical realism will be used where they aid the interpretation of meaning and help to answer the research questions.

The themes will be presented in a particular order, because their layering adds to the depth of understanding. The first theme, constructing organic matter as edible or inedible, provides a definitional cultural context for one of the key generative mechanisms of food waste. The second theme, identifying and prioritising of value in food transformation, demonstrates how we imbue food with different values, giving the edible or inedible food a purpose through our justifying its use or not, providing a social context. The third theme of situational impediments and the rhythms of everyday life affecting food waste highlights that our definitional context, imbued with a range of values occurs within the rhythms of our everyday lives, providing a temporal context. Food itself has agency as it changes, goes soft or off, but we ourselves have agency as we choose to eat it. The fourth theme, perishability and risk, therefore explores the material perspective of food. The four themes work together and do not exist in isolation. As generative mechanisms, their inter-relatedness demonstrates the complexity associated with 'food waste' practices.

## 5.2 CONSTRUCTING ORGANIC MATTER AS EDIBLE OR INEDIBLE

I observed that the perception of edibility was one of the key generative mechanisms contributing to ‘food waste’. Participants classified food into the categories of edible and inedible, as shown in Figure 5.1. Edible food included raw and processed food.<sup>20</sup> It was consumed either in the state in which it was brought into the house, or it was manipulated in some way through a suite of transformations, such as cooking, freezing or reheating, which often resulted in a meal. Inedible food was food not considered suitable for consumption, but may have been considered edible at some point, such as a rotten banana. Edible and inedible foods were both part of what I have termed ‘organic matter’, a term used to keep with the epistemological position of this thesis that reality is socially constructed and to distinguish it from food packaging, for example. Organic matter in this analysis refers to substances which were part of the organic component of food, such as the ‘tops’ of beetroot or orange peel and does not include packaging materials, nor does it imply the food was grown using particular agricultural methods. Non-food was not considered edible or inedible, and will be discussed further below.

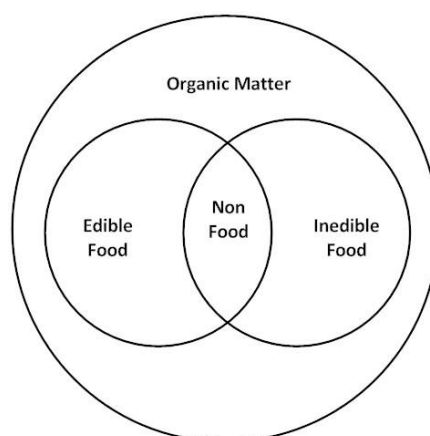


Figure 5.1: The relationship between inedible and edible food

‘Food waste’ as a term did not resonate with participants and they did not use it during the observation period. Participants referred to food waste as “scraps”, “peelings”, “rubbish” or “shit”, and the practice of throwing away edible food as

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<sup>20</sup> Processed food in this study encompasses manufactured and cooked food.

“wastage” or “wasteful”. In introducing the term during the debrief interviews, participants explained that food waste (as an object) occurred by others and not themselves; only upon further discussion and disassociation of the practice from the object did participants admit to being wasteful “on occasion” (except for Arthur, who openly admitted “we waste a lot of food”).

The perception of edibility/inedibility was influenced by cultural attitudes and values expressed through language. Participants were in general agreement about what constituted inedible food, often discussed during their debrief interview. While most participants agreed that citrus peelings or chicken bones were inedible, I observed Sue using lemon zest in her apple pie and Violet’s guest chewing and eating roast chicken bones. M. Thompson (1979) argues that objects are socially malleable in that they have the qualities they do as the result of a social process of endowment. As discussed in Chapter 2, what is considered edible is moulded by cultural representation, and social, psychological and biological factors. All considered chicken bones inedible except the guest who enjoyed them as a tasty treat. Other participants did not even consider them as food, depicted as the overlap of the two circles in Figure 5.1. “We only perceive as food that which we deem food” states Fiddes (1995, p. 133). Therefore, that not deemed as food by participants was subsequently disposed of and not thought of as ‘food waste’.

Danermark et al. (2002) argue that in speaking we reproduce a reality “already conceptualised and defined of other people’s varied practices and experiences and the relative conditions of power and dominance between them” (p. 30). The spoken words provided justification for food moving from the edible to the inedible category and then moving into waste.

Fiddes (1995) argues that our choices of what we consider edible are a result of our socialisation, through ‘family, friends, teachers, peers, media and figures of authority’ which have driven what is acceptable or ‘normal, natural, legal, decent, healthy and prestigious’ (p. 131). The social theorist Pierre Bourdieu developed the term *habitus* to explain the internalised dispositions people had learned through family, schooling, and their social class and which determined, for example, their

food tastes (Bourdieu, 1990b). While preparing or eating a meal, participants often recollected what their parents used to do while they were growing up. They would refer to how this influenced their own practices and attitudes toward what was regarded as acceptable 'food'. Stephanie remarked that the removal of all visible "disgusting" fat from the chicken breast was because fat was not healthy, a message she had received through her home economics class. Taste preferences may be determined by symbolic principles (P. Falk, 1994) and operate within the parameters of social acceptability (McCorkindale, 1992), reinforcing Bourdieu's notion of the *habitus*.

While Fiddes (1995) states that "no two individuals will conceive of any foodstuff in exactly the same way, owing to their own personal histories" (p. 137), it appears that it is more than upbringing that helps to define that which is regarded as edible food. Participants always made distinctions between edible and non-food through some past action, or memory of childhood – the influence of their *habitus* – yet participants had an interest in learning from peers or those with expert knowledge, such as following recipes or cookery books. Participants commented on the influence of their extended families (Sue), looked to food-related media for inspiration (Violet) or changed what they considered edible and appropriate following the addition of children to their household (Sally and Vivian) when inferring what types of food were acceptable to eat. Bourdieu's use of *capital*, especially social and cultural capital, may be useful to explain how work, education and the social groups to which participants belonged also influenced their dispositions. While contemporary critiques argue that *habitus* can be changed (King, 2000), the notion of habitus being determined through our upbringing drives much of our acceptance regarding edible food.

Bourdieu's theory of the logic of practice may provide insight to account for apparently irrational practices, such as cutting the tops off carrots or cucumbers, which seemed ineffective to participants, especially when questioned. Those participants that reflected on this particular practice all stated, laughing, that they did not know why they did it; "it was something that my mother used to do". Therefore, entrenched food practices were habitual, where not only the edible

(object) but also the wasting of (practice) some parts of food was taken for granted. The subsequent awareness of, or change in attitude towards, a habitual practice does not necessarily lead to a change in what people consume (Southerton, 2013). Domestic consumption and practice are intimately linked in reproducing what people take to be a normal and ordinary way of life (Shove, 2003). In terms of the object, Munro (1995) uses the term inevitable 'waste', referring to production related waste that cannot be avoided. In effect, preparation was observed to be part of the production part of the meal cycle within the home and participants conveyed a sense of inevitability toward waste of this type. Waste as a result of non-consumption is referred to as hedonistic 'surplus' (Munro, 1995).

I observed the notion of taste playing a role in the construction or definition of edible and inedible food. As discussed in Chapter 2, the variation in taste of different individuals is accepted only if it does not exceed the parameters of social acceptability (Marshall, 1995). When taste was acknowledged as the reason food was moved from the edible category to the inedible, namely, 'I don't feel like it', it contributed to waste. It is argued in the literature that taste on its own is not a driver that determines food choice, but it does seem to be relatively strong in preferencing food as inedible. It may be that choosing *not* to eat something is more likely to support the alimentary code of acceptability (Douglas, 1972; P. Falk, 1994), where the results of the choice are wasted food.

In as much as food choice represents a part of our identity, as discussed in Chapter 2, choosing not to eat something may also represent part of our identity. I do not mean in terms of the vegetarian from household 7 who does not buy meat therefore he cannot waste it; rather, cutting the fat off chicken or ham is linked with the 'only eating chicken breast' or the 'I'm looking after my/my husband's health' type of person. Therefore, what we do not eat plays a role in our identity formation and reinforces our place within the social group just as what is edible and what is eaten is related to our identity formation.

In this study, I observed that information acquired through social and cultural capital was able to alter the inedibility status of food, especially where the changed

state (to edible) aligned with a participant's values. Sue, excited at seeing a chef reuse pastry ends, readily adopted the practice because it was congruent with her existing set of values and alleviated the guilt she had previously felt when throwing them away. However, cauliflower stalk was considered inedible most of the time. In 'normal' circumstances, the stalk was thrown out, because it was not food – it could not be cooked and given to the dogs, as the leaves were, nor could it be eaten.<sup>21</sup> Sue's reaction was the result of her *habitus* experienced through her social field, because she had referred to 'never having eaten it in the past' and made comments about those people who removed the stalk at the greengrocer, leaving it behind. The transformational repertoire that made the cauliflower food did not exist for Sue where the non-food could not be turned into food. With the change to her *habitus* and her social field through employment, and exposure to Asian influences in a multicultural city (Symons, 2007), her tastes and James' diversified. Non-food became food under one very specific set of circumstances, in a stir-fry meal. She accepted the changes to identity formation through consumption but she herself did not use the stalk or make stir-fry; her task was to throw it out after returning home from shopping. Despite knowing that it could be eaten, it was only edible under a very specific set of social circumstances.

While "not knowing" may be a reason not to use food, feelings of disgust also determine why certain parts of food are not viewed as edible. For example, Stephanie would only eat chicken breast meat, refusing to eat any other part of the chicken because she did not like it. She recounted an incident at a school camp where she threw away her dinner because the chicken had bones in it. Her father, in only buying chicken breast meat, reinforced her construction of what constituted "edible" chicken. Stephanie knew that other parts of the chicken were edible but chose not to eat them; however, in contrast to her disgust toward the fat on the chicken, the undesirable parts were not even regarded as food, possessing the status of non-food depicted in Figure 5.1. Stephanie's response to the fat on the chicken, compared with Harry's admiration of the positive effect of marbling in

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<sup>21</sup> Sue was cutting the stalk off the cauliflower and throwing it into the rubbish bin while telling me she did not waste anything.



beef, shows that fat is not universally accepted as non-food, and disgust is socially constructed. To paraphrase the words of Mary Douglas, what is not dinner is dirt.

Despite categories of food being socially constructed, all food classified as edible was eaten and food classified as either inedible or non-food was disposed of. In Thompson's *Rubbish Theory* (1979), his example of art as a material object falling into the category of art or non-art highlights that in order for a candidate (in our case food) to fall into one or other category, the criteria used to assign it to the category must be explicit, unambiguous and universally agreed upon. Inedible or non-food are criteria that are universally agreed, explicit and unambiguous, resulting in 'getting rid of' the food. Therefore, if food is inedible or non-food, however culturally or socially determined, it will be destined for disposal. Subsequently, what is regarded as edible, at the moment of consumption, will be consumed.

Food was both a natural and a social construct and participants associated greater guilt with wasting cooked food than raw. There was a sense of inevitability about waste occurring in the preparation process, often involving raw food. Not consuming cooked food, however, carried a sense of hedonistic 'surplus' (Munro, 1995). (Lévi-Strauss, 1966) argues that cooked food is a cultural transformation of the raw, whereas rotten is a natural transformation. His concept of the culinary triangle has a corner corresponding to each of the categories raw, cooked and rotten. He argues that cooking does not reveal anything specific about society; only through observation can one discover what 'raw', 'cooked' and 'rotten' mean. I will return to this notion when discussing Perishability and Risk, but for now, it should be noted that the construction of edible and inedible was affected by the state of food – raw, cooked or rotten.

### **5.2.1 SUMMARY OF EDIBLE–INEDIBLE CONSTRUCTION**

The term 'food waste', invoked as an object, did not resonate with participants as much as the practice of wasting food. As indicated in Chapter 2, the definitions of food waste are problematic at an etic level, let alone an emic one. Participants constructed edibility/inedibility at each of the five key food activity stages, and

channelled food deemed inedible into a conduit of disposal. If food was edible, but not eaten, participants externalised the reasons for their choice through language. The determination of edibility was consistent with the social constructionist view that food was socially and culturally defined, and supported the literature that food choice was influenced by social and cultural factors, and psychological, economic, and biological ones (Chapter 2). These constructions varied depending on the food activity stage (storage, preparation, consumption) and the nature of the food (raw, cooked, rotten), and in turn, influenced whether food was eaten or not. Food waste could be viewed as the shadow of consumption, implying that it was part of food, but through the practices of preparation and eating, it became disassociated from food. While the notion of edible and inedible food may appear as a simple binary, there were a number of competing influences, all tugging at the values held by participants and influencing their food waste practices, which will be further analysed in the next section.

### **5.3 IDENTIFICATION AND PRIORITISATION OF VALUE IN FOOD TRANSFORMATION**

*People in different cultures may value different things, and they may value the same things differently, but all cultures insist upon some distinction between the valued and the valueless. (Thompson, 1979, p. 2)*

As examined in Chapter 2, value refers both to the price of foods and to the objects we value or hold dear. The findings presented in Chapter 4 highlight the myriad of aesthetic and economic values influencing ‘food waste’ practices and showed how concepts of value acted as generators or mitigators of waste. Monetary or exchange value, resource value, novelty value and the value of social relations will be discussed below as generators of food waste, while skills and knowledge along with an ethical or moral position will be examined as mitigators of food waste.

#### **5.3.1 MONETARY OR EXCHANGE VALUE**

Participants made food-related purchases based on price, which influenced their ‘food waste’ practices. Food held an economic value for participants; where that value was seen to be high, efforts were made to consume food bought and waste

was minimised but not eliminated. Where food was regarded as cheap to purchase, it was perceived to have low economic value, resulting in surplus food being bought and not consumed, and wastage. In both cases, there was potential for waste, but generative mechanisms behind the behaviour and associated attitudes were different. The term 'value for money' had different meaning for George than for Tony, for example.

Tony reflected that he considered it false economy to buy extra items on special, but he would actively hunt out the specials, purchasing more than one item, especially if the item had a long shelf-life, thereby minimising the chance of wasting it. The type of item justified his contradictory behaviour. D. Miller (1998) cites an example in his *A Theory of Shopping* where a participant reasoned that buying a more expensive lettuce would reduce waste, making the higher priced lettuce better value. However, when George bought extra lettuce on special, Penelope felt she 'had to eat them', knowing that there was a chance they would not eat them all before they turned bad. George spent more on six cheap lettuces than if he had bought one or two of a better quality. I observed that spending more money on a product did not always lead to its use, and on occasion resulted in wastage. Contradictory behaviour of spending less money on a product but buying more of it also did not always translate to its use, resulting in wastage. In part, this could be explained by the notion that once a good or a service is paid for, all obligations felt by the purchaser to the producer are discharged (Roustang, 1996). In Penelope's case, it may be that the value of home-made food and the associated work to produce it was higher than the simple exchange value of bought tomatoes, even if they were bought fresh from a farm.

Economists deal with actions related to the use of resources in terms of the maximisation of utility for individuals who are held to be 'rational' (Bauman & May, 2001). They argue that people make rational decisions about what food to buy based on the food items that give them the best value for money or the greatest benefit relative to cost (Sloman & Norris, 2002). Bourdieu argues that economic theory converts the immanent law of the economy into a universal norm of proper economic behaviour. This conceals the fact that the 'rational' *habitus*, which is the

precondition for appropriate economic behaviour, is the product of a particular economic condition, the one defined by possession of the economic and cultural capital required in order to seize the 'potential opportunities' theoretically available to all (Bourdieu, 1990b, pp. 63-64) . Vivian's decision not to purchase a head of broccoli because she would not get through it in time reflected rational decision-making.

I observed rational behaviour at the point of purchase as one aspect of the exchange value that influenced 'food waste'. In this case, the intention was to consume the food, but the practices associated with the food in the home led to 'food waste'. The other aspect of exchange value that influenced 'food waste' practices occurred when a food item was used and decisions were made about whether to keep or discard a partly used or deteriorating item, for example. Participants provisioned to have adequate food supplies, making decisions to waste less food, while at the point of use the same participants made decisions not to waste food in a manner removed from the act of purchasing. The value of items could change for participants; other drivers such as taste could override the initial price driver, which affected how the item was valued and whether it was used or discarded. That is, the value system accessed by participants in provisioning was not always re-accessed during preparation or consumption. For example, George bought a box of tomatoes because they were cheap, yet Penelope ate her bean soup for a week because she did not want to throw any of it away.

According to economists, as income rises demand for basic goods rises a little and people switch from buying cheaper butter, for example, to butter that is more expensive (Sloman & Norris, 2002). This was not observed in Tony's case, where despite his earning capacity being higher than ever before, financial motivation and price was still a deciding factor in his purchasing decisions and consequently his food practices and food waste practices. By one definition, economics is the study of incentives; in this case, financial incentives affect human behaviour and decision-making by encouraging purchases rather than encouraging waste minimisation. Perhaps the economic system is not so rational after all?

In addition to the economic capital associated with food purchase, food has symbolic capital, creating an interplay between the need to have enough, as a representation of wealth or security, as opposed to appearing miserly. Douglas (2003 [1973]) argues that food conveys a statement of values whether there is too much or too little food, and this was seen in the study. However, the type of food that was wasted was valued differently. Perishable items such as fruit and vegetables spoil more quickly than processed food and there is an air of resignation associated with their spoilage; leftover, cooked food is valued more highly and participants demonstrated more remorse when such food spoiled. A study conducted in South Australia by Law et al. (2011) found lower socio-economic groups did value fresh food but lacked access to it, indicating that structural impediments influence value and highlighting that assumptions cannot be made from observations alone.

Coupled to economic and symbolic capital is the notion of time. While buying more at cheaper prices satisfies feelings of “having enough”, the perishable nature of food is evident with the passing of time despite technological innovations such as fridges and freezers. Time will be addressed below in the section “rhythms of life”.

### **5.3.2 RESOURCE VALUE**

Through this research, I found that people regarded organic matter that went to alternative waste channels such as compost, worm farm, chicken or pet food differently to organic matter that went to the landfill bin. People did not consider the recycled organic matter as waste, referring to it as a resource returned to a natural cycle. The purpose of the inedible and the conduit of disposal created value in objects that would otherwise have been ‘waste’.

Thompson’s framing of value in his book *Rubbish Theory* may be useful to explain the differentiation of value expressed by the participants, as illustrated in the quote at the beginning of this section (p. 157). In terms of value, he defines three categories of possessable object, the valuable, valueless and negatively valued (M.

Thompson, 1979). Thompson uses the example of a riddle<sup>22</sup> to highlight how an object that is negatively valued can be made valueless through an intended action and its location. In a similar way, moving organic matter into different waste streams can change its value. Organic matter in the rubbish bin may be considered valueless. If it is identified as 'food waste' it is negatively valued until it is removed, but moving organic matter into the compost makes it valuable and therefore not 'food waste'. In this case, the conduit of disposal and the purpose of re-use justifies the action of non-consumption.

This explanation does not explain *how* the appropriation of value is made; only that it *is* made. Thompson uses differentiation and the understanding that the qualities of objects are conferred on them by society to describe three categories comprising a system of waste. "Durable" objects increase in value over time, "transient" objects decrease in value over time, while the third, covert, category is rubbish, which has a zero and unchanging value (M. Thompson, 1979). Most consumer goods would be in the transient category and Stevengraphs, antiques or art in the durable, but food, as part of nature and a perishable object, cannot be assigned to the durable category. Furthermore, although organic matter decays it does not lose value; the transformation in value is shown in the care taken by participants to sort it appropriately for compost (no meat), worms (no orange peel), chickens (no avocado) or pets (no mouldy food), making it a useful resource. Organic matter has high value because it is a resource and it becomes valuable through its intended use and subsequent re-use.

Councils supplied bio-bins to two households in the study and large (usually 240 litre) landfill bins to all households. Other organic waste receptacles in and around the home were created or bought by householders and put in place by someone within the household. As participants mentioned, such a practice indicated that re-use of organic material had high value for them. Furthermore, it could be argued

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<sup>22</sup> *Riddle*: What is that the rich man puts in his pocket that the poor man throws away?

*Answer*: Snot (p. 1) Using this riddle, the possessable objects that Thompson refers to are assumed to be valuable; the category 'objects of no-value' is invisible whose existence is only noticed and pointed out by the riddle. In this riddle, snot is of negative value – it is an object which should be thrown away, yet the rich man in moving snot from his nose, which is negatively valued to his pocket, makes it valueless.

that the observed location of these receptacles expressed this value. Receptacles holding waste designated for rubbish were referred to as “bins” or “rubbish bins”. Participants would keep these out of sight, for example in a cupboard under the sink or in a room separate from the kitchen (such as a laundry), while some participants did not have a bin inside the house and preferred to put waste into plastic bags as needed and throw these directly into the council-supplied domestic waste bin. In contrast, receptacles for compost were often small buckets, referred to as such and kept in visible locations such as on kitchen benches. The organic matter collected for chickens was called “food for the chickens” and was collected in household bowls or small buckets when the chickens were on the property, and in plastic bags kept in the fridge, on the bench or in the laundry for those collecting chicken food for other people. As explained in Chapter 2, alternative conduits of disposal provide a revealing indicator of waste relationships within society. In this case, the efforts of twelve households to use or create alternative waste organic streams indicate that, when “left to their own devices and operating only according to the logic of exchange”, citizens “may decide to build alternative economies, for example by transforming the redundant resources of capitalist abundance into useable goods” (O'Brien, 2013, p. 206).

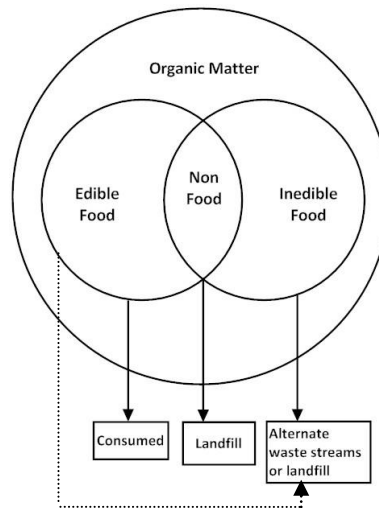
There are two points here. Firstly, bins, buckets and waste receptacles in the home influenced waste practices, and secondly, the type and location of these receptacles influenced how organic waste was perceived in the household. The placing of the non-rubbish (non-landfill) buckets in visible and easily accessible places reinforced their value to the participants. Metcalfe et al. (2013), in examining food bins in the UK, found that bins have symbolic, relational and material agency through their presence affecting waste practices. In that study, households received bins that were designated as food bins for food-related waste. The participants in the present study who practised re-use and recycling did this of their own accord. Interestingly, when discussing collection of food waste by councils, James and Tony expressed resentment about them, despite their avid use of the existing paper, can and bottle recycling scheme. Vivian was pleased to have a bio-bin from the local council, and intended to use it for her own compost. Multifaceted programs can cater for those

who show initiative and those who prefer structurally assigned solutions (food waste collection by the council).

When reading the local newspapers, I discovered that a food waste collection service had been introduced as part of the green organics recycling in three of the council areas where I was conducting research. I raised this during participant observations. Penelope and George were rather hesitant to use the system, despite recycling paper, cans and bottles and being one of the two households with compost, believing their local council had not adequately informed them. Bourdieu, in quoting Weber, states that the 'social agents obey a rule insofar as their interest in following it outweighs their interest in overlooking it' (p. 115 Bourdieu and Wacquant, 1992). In James' case, he was reluctant to put his food waste into the green organics bin, saying he paid enough money in rates to the local government authority and did not want to pay more. Bourdieu and Wacquant (1992), would refer to such indifference as "to be moved by the game" (p. 116); in James' case the game would be to re-direct food waste from the landfill bin to the green organics bin. On the other hand, Claire was excited and after double-checking was very keen to use the service, which tapped into her already existing values. While participants had rules surrounding what they did with their food-related waste, these could change. What made the rule operative in each case was a combination of the *habitus*, learning new knowledge (either through social or cultural means) and a system (or receptacles and timing) that worked for each participant.

The different waste streams held different meanings and values for participants. In this study, inedible food is suitable for all waste streams, landfill, compost, chicken food and as food for pets and worms. Mary Douglas's 'matter out of place' is useful for explaining why edible food found in bins creates such a moral dilemma. Similarly, when what is inedible to one household member and non-food to another (food for the chickens) is found in the fridge it creates feelings of repulsion and disgust because it appears to be matter out place (Douglas, 1966 [2002]; P. Rozin, Haidt, McCauley, & Imada, 1997).





**Figure 5.2:** The different categories people assign to food, consciously or subconsciously, influence which waste channels are preferred.

The definition of ‘food waste’, begun in the previous section on edible/inedible, now takes further shape through the conduits of disposal and its attributed purpose or meaning. Participants used the terms “scraps”, “peelings”, “rubbish”, “shit”, “this”, “for the chooks” among others to denote what was essentially organic matter that was not to be ingested by humans. They referred to organic matter going to the landfill bin as rubbish or garbage. Participants who recycled organic material did not see it as ‘food waste’ but as a resource that went into the natural cycle. O'Brien (2013) uses the term ‘discard’ as an explanatory concept of how the value of ‘food’ along all stages of the pre- and post-consumption cycle is being realigned and reconstructed as an energy resource. ‘For this realignment to occur, to discard something can no longer mean to get rid of it, shed it or abandon it, as now discard must mean use for another purpose’ (O'Brien, 2013, p. 198). From my observations, I would argue that because an alternative waste channel was in place, the organic matter intended for it was not perceived as a discard, but rather as a resource. Waste was not waste or even a discard if it was used again. Participants who used alternative channels of waste disposal had altered its meaning.

The term ‘food waste’ was not used at any stage during the observations by the participants; they preferred to use the term ‘wastage’ or ‘wasteful’ if they were referring to food that could have been eaten but was not and subsequently discarded. As researcher, I introduced the term ‘food waste’ during the debrief interviews. Food that was edible but not consumed and subsequently ‘thrown out’

was considered wasteful, such as extra food that had been cooked and was left over at the end of a meal, or half-eaten food. Inedible food such as scraps, bones, or skins and peelings were not considered food to start with. Inedible food was screened prior to placing it into alternative waste streams, with the non-compatible food being thrown in the bin. All leftover food was put in alternative waste streams where they existed, except for mouldy food that was thrown in the bin. Thinking of the organic material in this way alleviated the guilt that was felt and expressed when leftover food was not consumed. Those who had no alternative waste streams and threw out food felt some guilt but accepted it as part of the nature of food.

As already shown, food placed in visible receptacles such as slop buckets, compost buckets or chook bags was not seen as discards but as a resource. O'Brien (2013) explains that waste transpires; it is not a by-product or a residue, nor is it a good. At the one time, it is all three, a by-product, a residue and a good. It is that which is produced intentionally and that which is produced unintentionally. Moral feelings of wastefulness are overcome by feelings of righteousness; the feeling is also valued, not just the object. Those feelings are claimed to have been felt initially, but by channelling the discards into a resource-based channel rather than a landfill one, actions of discard are justified. Therefore, the object 'food waste' was thought of differently depending on its use value, which was determined by the method of disposal.

### **5.3.3 VARIETY AS NOVELTY VALUE**

Participants sought variety in the food they ate, expressing their desire not to eat the same food repeatedly. It also encapsulated the buying or making of new food items that were not often eaten. It is related to taste and to the spontaneity of choosing what to eat and is discussed in Chapter 2.

W. Rathje and Murphy (2001) stipulated a number of principles surrounding food waste as part of their garbology study. The First Principle of Food Waste stipulates 'the more repetitive your diet, the less food you waste' and evidence from this study supports their claim. S. Mennell (1985) argues that people always like the

food they are accustomed to, that is, *habitus*, and while this was particularly true for and observed in the older participants in the study, one impact of globalisation has been an increase in food choice and availability. For Sue, the thick part of the broccoli only became food when used in an Asian stir-fry, a novel food for her and James. O'Brien explains that central to understanding the generative mechanisms of 'food waste' are the questions of meaning and value that take place in a structured and specified world of actions and relationships (2013). In Sue's case, the more adventurous James cooked the novel food, reinforcing his role in preparing food, while she preferred to cook food that was familiar and comfortable.

I observed that the wish for variety in the food eaten acted as a generator of waste, but was justified by a discourse of variety. Variety was highly valued by food caretakers in particular, who wanted to provide varied food options for their families. DeVault (1991) and (Lupton, 1996) both refer to this as an expression of love and care. For Alice, Sally and Vivian, who had young children, variety was highly valued both nutritionally and pedagogically to provide adequate sustenance and teach young children to eat different foods. This variety came at the cost of increasing the likelihood of 'food waste' because the young children did not always like what was offered and did not eat it. Food considered 'defiled' because a child had picked at it or spat it out, was not palatable and the parent did not eat it, preferring to throw it out. In Violet's case, she did the same with her 12-year-old daughter Gabrielle's food, because the "picking" process she exhibited made the food disgusting to Violet.

Food caregivers provide options not only through what they make but also through purchasing new items. Sally and Ginny both said they bought familiar items that their children had eaten before, only to have them lose interest, further reinforcing their perception that variety was important to keep the offerings interesting. Furthermore, they bought new and novel items thinking their children might like to try "something different". If it was not successful, they each had an avenue for "getting rid of" the item in question. Sally ate it or Ginny took it to the kindergarten she worked at and gave it to the children there. Interestingly, the Cornell Food and

Brands Lab found that 93% of those polled bought things they never use (cited in Bloom, 2011).

Food caregivers also practise variety when they prepare a new recipe from a magazine or similar. According to Warde (1997), one feature of contemporary social life is the positive value attached to new experiences. Violet and Peter sourced items they did not usually buy or have in store to follow a recipe. The success of the recipe and associated taste of the food determined whether they would eat the item completely and use any remaining ingredients. In Peter's case, he kept the grapefruit, hoping he would find a use for it, but stated that he would probably throw it away. Bourdieu's work on capitals reinforces our thinking of them as value, but in this case, the value of providing variety is actually a cost. If we were to think of capitals as costs, an interplay of emotions and behaviours comes to the fore, manifesting itself in contradictory practices.

Furthermore, Baudrillard (1988) suggested the concept of a "universal curiosity" (p.48). "Everything must be tried: since man [sic] as consumer is haunted by the fear of "missing" something, any kind of pleasure"; one might expect that meal planning restricts this curiosity and spontaneity. Warde (1997) talks of foreign cuisines and cites a decrease in numbers of consumers trying new things. In this case, the novel is not just in the foreign. Violet followed recipes from a magazine; Sue claimed on the one hand not to follow cooking TV shows nor buy magazines, but she had cookbooks in the house and discussed different ways of preparing food, including the Asian stir-fry. As P. Jackson (2013) argues, "we are simultaneously attracted to and distrustful of novel foods" (p. 17).

While the discussion in Chapter 2 highlighted that food choice is influenced by a number of factors and not simply by taste, aversion of the edible (or making something inedible) was influenced by taste. I observed that the desire for a particular food caused an over-estimation of how much was needed, resulting in over-buying and over-preparing. Once taste was satiated, desire diminished and was replaced by a new desire, often for a different type of food. Those who

displayed a sense of discipline (which can turn into habit) to override the sensory element of taste were able to “tolerate” food they would not otherwise like.

Taste is a perceived contributor to food being considered inedible, and may override other influencers. Food was avoided where there was a high chance of a meal not being ‘liked’, despite the ingredients being on hand and needing to be consumed because they were deteriorating. According to Fischler (1988), the selection of food is made not only according to physiological requirements, but also on the basis of cultural and social representations. In a study of food preferences and habits among rural Australian couples, Lupton (2000) found that food preferences were structured through social group membership and cultural affiliation.

I observed that identity formation was linked to what participants chose to eat and subsequently what they chose to waste. In every observation there was a participant who reminisced or linked a practice, action or attitude with past experiences, often linking not only like or dislike with a particular food from childhood or a previous relationship but also the practice associated with consumption and post-consumption. Vivian’s end of the week dish was one her mother used to make, using an assortment of unappealing leftover vegetables. In so doing, she also felt she was cultivating her children’s tastes to like such a dish. Vivian referred to growing up in an environment without too much money, implying that such a dish reduced food wastage out of necessity and was not based on taste. When her circumstances changed from being married, childless and with a stable income to being on maternity leave with young children at home and less money, she felt forced to look at ways to minimise food waste and save money. She adopted a food practice familiar to her from her own childhood.

#### **5.3.3.1 SOCIAL RELATIONS**

In this section, I will explore how the symbolism associated with food sharing is modified for leftovers and how notions of self and interaction with others further refine the definition of ‘food waste’.

Humans are social beings, dependent on others and necessarily involved in social practices (Sayer, 2011), with food playing a key role in our relationships with each other and ourselves (D. Miller, 2008). What we choose to eat, and how we choose to organise food within the home, offer a powerful but everyday vehicle through which social relations and divisions are symbolised, reinforced and reproduced (Gregory, 1995). This extends to the type of food we choose to share with people who live in the home or with guests. Waste is generated when social relations are valued more highly than waste minimisation. Barthes (2013, p. 24) writes:

Food...is not only a collection of products that can be used for statistical or nutritional studies. It is also at the same time, a system of communication, a body of images, a protocol of usages, situations and behaviour

I found the behaviour, attitudes and subsequent practices of the food caretaker<sup>23</sup> regarding food waste differed towards the family and other household members and guests. For example, I observed that food provided as part of a dinner party was always made or bought 'fresh' (not leftover food), often required more time to prepare and was provided in greater quantities and in more variety than could be or was normally eaten. According to Douglas (2003 [1973]), a statement of values is conveyed through food, whether there is too much or too little food.

In Harry and Ginny's case, they had tied their need to over-cater (therefore, appear to be good hosts) to using the leftover food for meals during the week, specifically for Harry. The children did not eat leftover food because they did not like it. In Penelope's case, over-catering and appearing a good host was her first priority; while she intended to eat the leftover food, it was not turned into another meal and as much as possible was consumed within the self-determined eat-by date. Any food left outside this period was thrown into the rubbish bin. Over-provisioning was seen as socially responsible. According to (M. Thompson, 1979), objects are either transient, durable or rubbish. 'Step outside these limits and one sees that the boundary between rubbish and non-rubbish moves in response to social pressures'

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<sup>23</sup> Role of the caretaker – de Vault; Duruz – Gastronomica article – haunted kitchens

(p. 11). Certainly, the Moore and Andreou families valued getting together with friends above the need to eat all the food in the home.

Eating with others generated more food that increased the potential for 'food waste' but decreased it when participants discussed what to do with leftovers. Preparing and eating alone generated 'just enough' food and was less likely to result in waste. Keeping intentionally prepared surplus food to eat later was highly valued and the food was likely to be eaten. Unanticipated leftover food was less likely to be eaten and more likely to be thrown out. According to (Blythman, 2006), eating together fosters non-food benefits, such as improved social skills. I would argue that such a practice has ramifications for reducing food waste because the social setting provides an opportunity to discuss whether food should be kept or thrown out, thereby combining knowledge and taste of food with social relations.

Through this research, I found that food waste increased when food relationships were not negotiated between members of a household. Examples of lack of communication leading to wasted food included adult children living at home and not informing their parents of their absence for a meal, or parents wishing to expand the food repertoire of their children and making assumptions or using past experiences to choose their food. Bauman and May (2001) draw on Mary Douglas' work in stating that boundaries are not simply negative but also positive, because rituals enact forms of social relations that enable people to know their societies. For households that valued the ritual of eating together, 'food waste' was the price paid for the lack of communication. According to Douglas (1972), 'if food is treated as a code, the messages it encodes will be found in the pattern of social relations being expressed' (p. 61).

Food caretakers valued providing adequately for young children, giving them variety and 'proper' food, but were aware of minimising wastage by preparing food that was 'liked' or had a higher chance of being eaten. Often, food caretakers compromised their own tastes and preferences to achieve 'food harmony'. In learning about different foods, children exhibited changing and highly variable tastes. Food caretakers had to adapt and change offerings as children's tastes

changed. Where provisioning and preparation had catered for a specific taste and that taste changed, another person in the household was unlikely to eat the food, especially if children had “polluted” it (P. Rozin & Fallon, 1987). When children are old enough to know what they do not like, they will often exercise their implicit right not to eat the food served to them; they would much rather throw the food away when their taste had been compromised.

The behaviours identified in Chapter 2 to reduce food waste include list making as a means of wasting less. However, this planning process removes the spontaneity associated with food, based on taste and time. According to (Banwell, Broom, Davies, & Dixon, 2012) meals no longer have to be planned, because the ‘when and where’ of a meal is not limited. While Angela did use a list, meal planning did not work for her; coordinating one person’s likes in advance was difficult enough, let alone those of a whole household. Archer (2000) argues that humans evaluate things and are not sentient beings.

Through this research, I found that while food contributed to identity formation, so did those foods that were not eaten and subsequently disposed of. Food is central to our sense of identity (Fischler, 1988) providing a multidimensional character of the human relationship with food. Peter’s attempts to be healthy diminished when he did not eat the ‘healthy’ food and threw it away. Sue and James’ repeated statements of their belief that they did not waste *any* food was accompanied by disdain at the people who piled high their plates at the buffet of the ‘local’ and did not eat it all. It is possible to extend this to ‘food waste’ also, in that any human group eats to assert its diversity, hierarchy and organisations, and at the same time, both its oneness and the otherness of whoever eats differently (Fischler, 1988). I would argue it does so with what is not eaten as well. While Bourdieu explains that our *habitus* and a combination of our economic, cultural and social capital is what provide us with our ‘taste’ by way of our class, in what is acceptable to eat within the social group membership and cultural affiliation, I would argue also that wasting food could also be regarded as an extension of our class.



I observed that participants reacted differently toward what they perceived as 'wasteful' while preparing or clearing away food depending on whether they were alone or other people were present in their kitchen. Tony had no qualms in picking up a dropped food item from the floor and using it in his meal preparation; he said he would have behaved differently if a guest was watching, but even that would depend on whom the guest was. Violet threw away more salad leaves when guests were present than when she was making a meal for the four household members. Goffman's (1959) work provides a basis for people behaving differently when others are present. This is different to the Hawthorne effect created by a researcher's presence, as discussed in Chapter 2.

#### **5.3.4 MORAL AND ETHICAL VALUE**

Wasting food attracted indignation and moral protests by participants. In part, this may have been because the people recruited had high moral standards about food. Morality is defined in terms of the "good, right, or proper way to live, informed by one's religious beliefs or by some other socially approved code of conduct" (P. Jackson, 2013, p. 139). In this section, I will explore how notions of morality can reduce food waste.

Ethical considerations exercised during food purchasing decreased the likelihood of wastage. A strong desire to eat all the biodynamic eggs or not to waste organic meat was evidence of the interplay of economic, cultural and symbolic capital held by some participants.

Participants such as Justin, Claire, Celeste, Harry and George all stated that they valued freshness in their food; this value was especially strong with Harry and George who grew some of their own food in their gardens. According to Foster and Lunn (2007), thinking about where food has come from and looking at the origin of foods, including animal welfare, sustainable production and the environmental impact of food production, have become important to some consumers. Valuing freshness suggests a moral conflict about food waste reduction. Food items grown by participants had high value, attributed to the inputs required to produce the food such as water use, the idea of farming, and their own work and effort in

growing the food. Conversely, the excessive amounts produced were not consumed before spoiling, which led to wastage despite efforts to preserve or give away fruit. Harry and George both expected there would be waste, even if they did not like it. There was a sense that items had to be finished off, even if they did not look fresh, to avoid intentional waste.

For Penelope in particular, her concept of “freshness” worked against preserving food in the freezer or refrigerator. Penelope expressed a link between her past and her present. According to Freidberg (2004), access to fresh food is regarded as a luxury. While Penelope was happy to use the freezer for items she made, such as “pites” (traditional spinach or cheese pies), or items bought on special such as legs of lamb, she had a preference for food, including meat, to be fresh if possible and not frozen. She would never consider freezing portions of leftover food, for example, in order to extend their life and almost guarantee the chance of their being eaten. In contrast, Tony or Claire packed and froze portions of leftover food that they re-heated when required and did not have any wasted food. Penelope kept food in the refrigerator and while she attempted to re-heat and serve it, the fact it was no longer fresh contributed to her wish to throw it out if it was not consumed in time. The concept of fresh for participants in this study was an important criterion for determining the edibility of food.

The sense of moral obligation felt by caretakers highlights the moral value associated with caring or providing for others. DeVault’s study (1991) reinforces this finding, giving equal weight to the huge effort of consciousness involved in planning, considering and taking account of the complex and often contradictory demands made upon the “housewife” [*sic*]. She found that the bulk of decision-making is orientated to others and involves constant self-sacrifice by the “housewife”, who does not give her own preferences any special weight. I observed the food caretakers expressing feelings of obligation toward themselves and others in the household when choosing food and thinking of meals. The actions of buying healthy food, especially for children, or trimming fat off ham or chicken for health reasons, were based on caretakers’ own codes of what was acceptable. In addition, those with children tended to cater for them in meal choices, in many cases

sacrificing the caretakers' own tastes to have a meal eaten completely, that is, no waste. Both outcomes were highly desirable and highly valued. However, as observed, concessions were made by parents wanting to reduce stress and tension, which they also valued highly and was in conflict with the 'minimise waste' value.

I found that gifted food carried a high moral value and participants felt an obligation to use and eat it, even at the displacement of other food. Bourdieu refers to gift exchange, where gifted food, as whole food or a prepared meal, holds the highest value, inciting described feelings of obligation ranging from anxiety, evident in gestures, facial expressions and re-thinking how to incorporate the gifted food into the everyday meal to a matter of course and expectation (Bourdieu, 1977). When the gifted food is an unknown food, guilt is alleviated through passing it on to the 'waste as resource' channel of compost or chicken feed. Reciprocity is only possible through economic capital accessed by virtue of social capital.

### **5.3.5 VALUE – SKILLS AND KNOWLEDGE**

In this study, I observed knowledge of food and associated practices played an influential role on what was wasted. Knowledge encompassed what a person already knew about food, having learned it as part of their upbringing, their *habitus*, and knowledge expanded through education, media, brochures, or friends. Acquired knowledge was seen as an increase in cultural capital obtained either through one's own accord or through the social field. In part, acquired knowledge reflected self-efficacy and motivation. It referred to technical knowledge, such as that related to food safety, but also to general all-round food knowledge, such as storing certain food in the refrigerator.

I observed that the food knowledge held by food caretakers was influential in shaping the consumption practices of other household members. In turn, food caretakers were also influenced by the food demands of other household members, in some cases expanding their own food knowledge. In as much as caretakers influenced eating practices, this influence extended through to what was regarded as edible leftovers or waste.

In this study, I observed that the acquisition of food-related skills increased the confidence of participants who cooked or looked after food, which had a mitigating effect on food waste. A confident and skilled cook, like Sue, was more creative and could use different items to make a meal, improvising from recipes and substituting items to reduce waste. Skilled cooks did not require meticulous meal planning; a rough idea was enough for them to use what was available in their pantries and cupboards.

Of particular note, however, are the ways in which skills were acquired and the readiness of participants to adopt them. If the knowledge came from an authority figure, such as a chef in Sue's case, or even me as a researcher, it carried weight and was given due consideration. Adoption of the changed practice was guaranteed if the advice also concurred with the participant's agreed set of values. Participants such as Angela who disliked cooking, were ambivalent about throwing away cooked food. Cooking required an investment of effort both in the action of cooking itself and in learning how to cook. When that investment was not made, there was a perceived likelihood that preparation of food would fail, resulting in waste. Eating, on the other hand, was highly valued and necessary, despite the aversion to cooking.

I observed participants following a recipe and including ingredients that they did not like and would not subsequently eat. Warde (1997) argues that with the increased precision of recipes, food has entered into 'expert discourses' that present cookery as a matter of technical rationality rather than practical judgement. When participants like Stephanie hesitated to vary a recipe, it could indicate a lack of confidence in skill and creativity. She threw out parts of the meal that she did not like (onions) after cooking, instead of making the meal without them or substituting another item.

### **5.3.6 VALUE SUMMARY**

In addition to determining the edibility or inedibility of food, participants imbued food with a range of values. Money, novelty and social relations were more highly valued than waste minimisation, although price in provisioning contributed both as

a generator and mitigator of food waste. Ethical and moral value coupled with skills and knowledge were valued highly as contributors to waste minimisation. Waste valued as a resource was placed into alternative conduits of disposal and not viewed as waste. The tension between the various values tugging at a core central value system prevented clear operationalisation of the concept of food waste, and this was subsequently influenced by the temporal dimension of food waste, examined below. Value represents the social dimension of food waste with a cultural overlap.

#### **5.4 RHYTHMS OF LIFE**

David Evans (2011) uses the term rhythms of life to denote the socio-temporal context of food practices. Participants had to allow time at each meal to decide what to have, prepare and consume, often in a habitual manner. Consumption may be theorised in relation to the dynamics of everyday life and the social organisation of practices (Evans, 2011; Shove, 2003; Southerton, Warde, & Hand, 2004). Changes to household routine upset the habitual nature of organising food, often resulting in the generation of food waste.

I observed participants expending a great deal of effort extolling the virtues of leftovers as “time savers”. Tony, Sue and Claire tried to *save* time by preparing extra food when they had *more* time, to be stored in the refrigerator or freezer. They then ate this food when they had very *little* time, because all that was required was heating or de-frosting of the meal and minimal time to consume it. Participants who stored portions in this manner were most likely to eat them in full.

The exception to this approach was Angela, who, wanting to save time because she disliked cooking, prepared enough vegetables to eat over two nights only to “not feel like” those vegetables the following night, and not eat them. Arthur summed up his family’s attitude in that they thought leftovers were great and saved time but they did not end up eating them.

Participants such as Penelope or Ginny who prepared more than they needed to ensure they had “enough” did not use the freezer to extend the life of the leftover

food, preferring to use the fridge. All except Sally used the refrigerator with the intention of consuming leftover food within its 'eat-by' time frame. Leftover food was available to make life easier; it was not necessary for it to be consumed.

Even where participants knew they would not eat the food, they still kept it 'just in case'. To me, it appeared easier for them to throw out spoiled food rather than food that was edible. Storing it for later did make an inevitable decision easier. The value of the food decreased with the passage of time.

Throughout this study, I observed how food organisation and management practices were affected by the rhythms of life through time pressures. These can range from lack of time leading to disorganisation and in turn 'food waste', or the busyness of everyday life, ensuing tiredness and subsequent lack of motivation impacting on household food management practices which in turn led to 'food waste'. The lack of time or the busyness of life often led to forgetfulness, and the intent (of re-use or using all) not carrying through to practice. Bourdieu explored the practical logic of everyday life and social action. In addition, his work on reflexivity may be useful in providing some insight on the influence of the rhythms of everyday life in the generation of 'food waste'.

Social organisation of food practices, where a food caretaker was responsible for feeding the members of the household, was influenced by busyness and tiredness. These factors influenced the type of meal presented for consumption, which then had flow-on effects for waste. I observed how the pressure on food caretakers to provide timely meals created tension between their roles as individuals and as caregivers, influencing the generation or mitigation of food waste.

In order to diminish the impact of time pressures, people put strategies in place to streamline their practices. Often these strategies revolved around an external or structural element, such as removing food that would not be eaten from the fridge on "bin night", organising major cleaning of food storage areas to coincide with annual leave from work, or moving older stocks forward and putting newly purchased groceries behind them immediately after shopping. Such strategies may

work because they are periodic, where an external factor exists to trigger their action and they occur with other everyday household practices. They also involve a sense of discipline, where acting on the trigger results in the clean out, for example.

I observed that some participants generated food waste despite using lists and planning meals. Participants used lists to remind them what they needed to buy, either keeping a running list during the week as items ran out or they remembered, or writing a list just prior to shopping. Food waste campaigns encourage people to keep lists and plan meals to reduce food waste. However, planning meals up to a week in advance removes the spontaneity often associated with food and driven by taste. Meal planning a few days in advance had a higher chance of being successful and not creating food waste. Organisational practices assisted time management more than food management. Making a list can help a person to be organised but is contradicted by everyday occurrences at the point of preparation.

#### **5.4.1 CHANGES TO ROUTINE**

Unexpected changes to household routines resulted in 'food waste'. Changes in routine may be structural in nature, the result of work commitments or school holidays, where food designated for a specific purpose is not consumed in time. Enduring changes include the addition of a child or a separation of partners. Changes in routine may be of a personal nature, such as dislike of cooking, being more tired than normal or changing one's mind, which in turn lead to wastage of food by preferring to use takeaway food rather than what is in the fridge. The way food caretakers and other members of the household felt toward the pressure of time were significant influencers of what was 'wasted' and what was consumed. The changes in routine resulted in alterations to decision-making at the preparation stage, where the decision on what to eat was made. Bauman and May (2001) state the length of time an action is carried out gives it authority; in this case the change of routine is contrary to the habitual practice, therefore denying the authority accorded to everyday practices.

Drawing on the point made above, I found that a change in household routine occurring after provisioning but before consumption contributed to the higher

likelihood of food wastage. Giddens (1990, p. 16) writes in *Consequences of Modernity*,

[T]he dynamism of modernity derives from the *separation of time and space* and their recombination in forms which permit the precise time-space “zoning” of social life; the *disembedding* of social systems (a phenomenon which connects closely with the factors involved in time space separation); and the reflexive ordering and reordering of social relations in the light of continual inputs of knowledge affecting the actions of individuals or groups.

Giddens’ work may be useful in understanding that the time–space separation between food purchase and consumption plays a role in generating ‘food waste’. Furthermore, the passing of time diminishes the intent of an action and contributes to not carrying it through to practice. This is where other drivers of consumption such as taste may come into play, which will be explored further in the section on taste.

Giddens (1991) also suggests the notion that lifestyle risks being corrupted by consumerism and trivialised by marketing. In the context of this study, this could mean that shoppers were influenced by marketing and retailers’ push to buy more, buy on special or buy what is not needed, as discussed in Chapter 2. A retailer can order stock from a supplier and in the course of business alter the order after the supplier has provisioned for and prepared it (O'Brien, 2013), but households cannot change or cancel orders after provisioning. Therefore, food caretakers provisioned for what was expected; when the unexpected occurred, they had to accommodate the food or resign themselves to throwing some of it away. O'Brien (2013) states that the intended items are no longer wanted and shift to the category of ‘waste’. However, I observed that the shift of category was not immediate; the passing of time, which affected the food itself by changing its nature from edible to inedible, coupled with the pressures imposed on everyday practices through lifestyle choices, made the decision to throw it away easier.



Giddens (1991) argues that lifestyle implies choice within a plurality of possible options and is 'adapted' rather than 'handed down'. Participants adapted their lifestyles to changing life circumstances; their food practices and subsequent food waste practices often accommodated changes through trial and error. Practices were modified to suit the current lifestyle, such as having children, getting divorced or moving house.

#### **5.4.2 SUMMARY OF RYTHMS OF LIFE**

In addition to determining what is edible and inedible food, meaning is attributed to each category of food through a value system, which has conflicts at times because it exists within the rhythms of our everyday lives, creating tension with the core value system. The 'time' allocated to the practice of consuming food was in proportion to how important it was in the participants everyday life and was often used as a justification for wasteful practices.

Food exists in our routines but we also alter our routines to accommodate food. Where changing food practices accommodated changes in lifestyle, waste was observed to increase until the adjustment phase took place. Waste was 'accommodated' rather than forcing changes to routine.

The temporal dimension of food waste within this theme has centred on participants' agency. The following section will use examples to show that food also has its own agency.

#### **5.5 PERISHABILITY AND RISK**

Food is a source of pleasure (Sue saying how much she and James love to cook together) and anxiety (Sue being cautious after a food poisoning incident in her household; "I'm a bit thingy about chicken"). It has powerful symbolic value and life-sustaining and sometimes life-threatening material properties (Griffiths & Wallace, 1998). Throughout the study, I observed how participants believed the passing of time made food inedible. They perceived food as a perishable object that would decay. Participants believed that equipment such as refrigerators and freezers and innovations in food technology extended the shelf life of food,

potentially indefinitely in the case of highly processed food. Food considered past its best was more likely to become inedible.

In this section, I examine how participants used a range of risk symbols as drivers for throwing out food not regarded as safe to eat, where to throw it, the role of food caretakers in minimising risk, perceptions of cleanliness and the placement or storage of wasted food, using the work Mary Douglas and Ulrich Beck.

### **5.5.1 RISK SYMBOLS**

Participants used a variety of risk symbols in their assessment of whether food was safe, which in turn determined where they threw away that food. These risk symbols included use-by dates, smell, taste, and visual cues such as colour and whether mould was visible on the food. Participants used these risk symbols in different ways to make decisions to keep or discard food or a food-related item, depending on the food item in question. Items such as yoghurt or milk were kept past their use-by date if they smelled or looked “okay”. However, food caretakers in households with young children did not want to take any chances with potentially unsafe food and threw out these items if they were past the use-by date. The risks were perceived as objective and real with the response mediated through social and cultural processes (Beck, 1992).

For food items without use-by dates, visual and sensory cues were used in conjunction with knowledge about particular food items. Mushy vegetables might be used, depending on what was being cooked, or thrown away if they looked too unappetising. For cooked food, all participants used informal “eat-by” dates that varied, again depending on the food. For example, where I observed cooked chicken forming part of a meal, all food caretakers except Penelope threw leftovers into the rubbish bin; food caretakers thought it would likely be unsafe to eat. Eat-by dates varied; participants adopted blanket rules of no food kept past a day, or the more common scenario of some food kept, dependant on the type of food. I observed Penelope and Sue keeping and eating food up to a week after it was made. Practices appear contradictory. Bourdieu, in his theory of ‘logic of practice’ explored the concept of contradictory practices, where individuals can have ‘logic without having

*logic* as its principle'. In this case, the lack of rational logic determines that which the individual considers practical (House & Coveney, 2013). Alternatively, nothing is a risk; it is only constructed as such through discourse (the governmentality perspective of risk based on Foucault's writings on voluntary participation of citizens to modern society) or, the participants are seen to cause risks as well as be responsible for their minimisation (Beck, 1992; Giddens, 1990).

Douglas (1966 [2002]) argues that risk perception depends on shared culture and not on individual psychology and that not all dangers can be attended; rather anxiety is selective as was observed in the study households. In stating that risk is like a taboo, Douglas explains that arguments about risk are highly charged, morally and politically, and that naming a risk amounts to an accusation (1966 [2002]). This was observed in the study when participants cleaned out their fridges, throwing away items past their use-by-date before I arrived at their house, in case I "looked in the fridge". The associated discourse was one of guilt and sometimes blame; it was also one of justification.

The potential for a stranger to view a risk that was private and otherwise invisible to the outside world (an out-of-date item) prompted the disposal of the offending item. It became inedible because by its date it represented the 'rotten'. Similarly, the actions of cleaning or tidying up cupboards prior to my arrival, in case I looked inside, reflected how participants wanted to be perceived. Identity formation through the visible aspects of food practices was strong.

### **5.5.2 WASTE CHANNELS**

The cultural and social meanings associated with risky food items determined how participants disposed of them. A mouldy item, regarded as 'wasted food' by all participants, went in the landfill bin irrespective of the effort in procuring or making the item and whether the participant channelled other food-related items into compost or to chickens. Similarly, broccoli stalks not eaten by household 12 were not fed to the chickens because of reasons including "I don't eat it, why should they?" While moral value may account for not giving mouldy food or broccoli stalks

to chickens (“it’s not right”), participants also expressed a risk value, not wanting to create illness among the chickens.

Participants who did pass on food to chickens were not troubled at feeding them bits of uneaten chicken, smiling when they explained their actions. They argued that the amounts were small, the chicken was cooked and these actions negated their feelings toward cannibalistic chickens. Cooked food, in the vein of Lévi-Strauss, has been transformed (“elaborée”) and is a different object to its raw form.

Participants’ biggest concern was for the safety of the chickens. Their choices of what to exclude from the chicken food included avocado because this was extremely “bad” for chickens, reflected their desire not to channel inedible food that may cause harm into this alternative ‘disposal’ stream.

### **5.5.3 THE ROLE OF THE FOOD CARETAKER**

Food caretakers assumed responsibility for ensuring the food served was deemed safe, in addition to ensuring variety, adequate amounts and food that met the tastes of those they were feeding. Food caregivers who were responsible for feeding young children adhered strongly to the risk symbol of use-by dates.

Beck (1992) argues that a defining feature of the risk society is the way in which uncertainty of expertise results in decision making becoming increasing individualised and “thrown back” to the consumer. Consequently, knowing about and handling the risks associated with food has become “part of the ambivalent experience of modern everyday life” (Halkier, Katz-Gerro., & Martens, 2011, p. 22). In this study, the person responsible for preparing food had responsibility for ensuring the food was safe, thereby individualising the ‘safety’ decision-making process. While Douglas’ theoretical approach to risk has been influential in providing a firm basis for going beyond the individualistic to a shared, cultural and symbolic approach to risk, the observed behaviour and responses of the food caretakers demonstrated an individualised approach to decision making. Lupton (2006) argues that Douglas’ approach tends to be somewhat static because it is typical of functional structuralist analyses of socio-cultural phenomena with little

explanation provided in Douglas' accounts about how things might change, or risk, purity and danger.

#### **5.5.4 CLEANLINESS – THE LOCATION OF WASTE RECEPTACLES**

Participants who collected food for chickens, which was organic matter (such as peelings) or cooked food (such as pasta) that participants would not eat, did so in buckets, bowls or plastic bags. The receptacles were kept at room temperature, especially if the collected food would be fed to the chickens within about 24 hours, or in the fridge if the weather was warmer or when it was collected weekly for someone living outside the household. Those participants who kept the "food for the chickens" in the fridge did so because they said they were anxious not to cause harm to the chickens in providing them unsafe food, the same reason why participants did not give mouldy food to chickens or pets.

When this "food for the chickens" was placed in the fridge, it caused anxiety for people like Joan's daughter Karen, who referred to seeing the plastic bag in the fridge as "gross"; the bag symbolising the 'rotten' as described in Lévi-Strauss' culinary triangle (1966). In mixing safe raw and inedible cooked food, Joan transformed waste into food suitable for chickens, taking the time and effort required for collection. Keeping it in the fridge maintained its safety. Yet, for Karen, this food should not have had a place in the fridge; this was the domain of human food and the social order associated with food had been disturbed. Using cross-cultural examples in hygiene, Mary Douglas, in *Purity and Danger*, argues that dirt is the symbol for matter out of place (1966 [2002]). The chicken food was matter out of place; for Karen it was akin to dirt. Coleman (2011), in referring to Douglas' work, states that the structured opposition between pure and impure foods is a way of ensuring the social order and the contrasts are culture-specific. The placement of food not for human consumption into the fridge disrupted the social order and caused anxiety for Karen.

#### **5.5.5 SUMMARY OF RISK**

There is a range of factors mediating consumers' experience of food risk, including the role of experience, the timescale in which risks operate, their severity, incidence

and salience, the perceived effectiveness of personal risk management strategies and trust in sources of information and regulatory systems (Shaw, 2004). In turn, food waste arises because people must constantly juggle their concerns surrounding food storage and safety in relation to their everyday lives (Evans, 2011). Participants determined risk on a per item basis. Strategies used included:

- strict observation of use-by dates (if it's past the date, I throw it out)
- leniency toward use-by dates (I just use my nose)
- setting of eat-by dates for home-cooked food (two-day rule)
- aesthetic evaluation (it's gone mushy) meaning that food has its own rhythms of time and is perishable
- removal of a contaminated part while keeping part of an item
- disposal of the whole item
- knowledge of storage practices.

As in Evans (2011) study, there was an understanding across all households that food had the potential to cause illness and judgements were most likely to err on the side of caution.

## **5.6 SUMMARY – THE FOUR FACES OF FOOD WASTE**

The cultural, social, temporal and material dimensions of food waste practices that were discovered through this research influenced the perception of food as edible or inedible. The manner in which these four dimensions came together provided the rationale for food to be eaten or discarded. People conceptualise food as edible 'Can I eat this?', 'Do I want to eat this?', or inedible 'I don't want this'; 'I can't eat this'.

Not all food was perceived simply as edible or inedible, although such a stark contrast may have been evident at the actual point of disposal. In a given state, food was or became edible; similarly, food was or became inedible. Differences in how food waste was perceived stemmed from the ways participants constructed their ideas of food, waste and food waste in their social worlds and households. The construction of what constituted edible or inedible food was the foundation from which food waste practices were carried out. If food was deemed inedible, a set of

socially acceptable disposal practices would result. If the food was deemed edible but not eaten, a different range of disposal practices would be used.

Disposal methods were usually accompanied by a discourse of justification and the resulting wastage was externalised. The reflective commentary of “I didn’t know”, “The kids won’t eat it”, “It’s mouldy”, “I have no time”, showed that people exerted more effort to justify the decision to waste than not. Such a commentary may explain why people say and do different things but may also be, in part, a reflection of having a researcher in the house.

If food was determined as edible, a range of other mechanisms came into effect, influencing whether the food was disposed of or eaten. Where food was regarded as edible but was not eaten, an associated discourse was provided, justifying the generation of waste: “I value variety” or “I want the children to develop their tastes” or “We value eating with friends more than eating leftovers”. Furthermore, in seeking convenience, waste is legitimised; the trade-off is made. Loss of skills and knowledge is also a result of convenience.

While there was general acceptance among participants of what was socially accepted as ‘food waste’, the variation demonstrated by participants indicates that food waste was socially and culturally constructed. Why is it that in the case of meat, we do not eat just any animal? Why did one participant eat chicken bones, while another removed every trace of fat from the chicken breast, the only part of the chicken eaten? Our actions are in part a result of our *habitus*, but also part of our social field.

This group of people placed a high moral value on waste, identified through their own words such as “we don’t waste” and the connotations that such a practice was regarded poorly. They believed they were ‘good’ people and did not waste. The default state of food is to be eaten; therefore, it may be expected that an associated discourse to explain the contrary behaviour is provided. Most participants stated that they tried to minimise waste, that they were not wasteful persons and were moral (toward wasting food at least). However, my interrogation

or interaction brought their contradictory behaviour into the open. This was often met with laughter as a way of their recognising the contradiction. On the contrary, participants such as Arthur, who freely admitted to knowingly keeping edible food that will be thrown into the rubbish bin were rare.

In cases where participants had alternative disposal channels, the food waste justification discourse extended to the disposal method “well that can go to the chickens” or “the dog will have that!” Inedible food was regarded as waste to be thrown away but for those who had access to alternative waste channels, such as compost or chicken food, inedible or uneaten food was not viewed as waste.

Waste was created through the interplay of the dynamic and fluid nature of the food itself and the everyday lives of people within the home. The materiality of food, different to other material objects because of the associated perishability and risk, denotes that food itself has agency. Simultaneously, people eating the food have agency in choosing what type of food to eat. The structural elements within and available to the agents within the home, such as the types of bins used, the waste channels engaged, the frequency of municipal bin collection and the ability to replenish food stocks also impact on the wastage of food.

While Bourdieu’s framework may account for why certain foods are favoured or familiar, it does not account for changes to preferences, other than through the accumulation of capital. A person’s circumstances were not static and capital accumulation may change over time. Bourdieu may be useful in accounting for the social and cultural dimensions of food waste practices; his framework does not explain variations of temporal and material dimensions. Hawkins (2009) and Gregson et al. (2010) have engaged extensively with consumer culture where the matter that is wasted is an agent to the situation where it becomes waste.

Through its transformable nature, food is perishable; it is fluid and dynamic and does not exist in one static state (unless of course it is so highly processed that one has to question whether it is actually food). The construction of food as edible or inedible, coupled with the value attributed to the food item and the impact of



participants' own rhythms of everyday life were confounded by their understanding and action toward the risk that the food item carried. A combination of the four dimensions, of cultural, social, temporal and material perspectives, acted as generative mechanisms for food waste.

## **6 CONCLUSIONS**

In this chapter, I will address the significance of the research findings to the literature and to food waste practices. I will provide an account of the strengths and limitations of this research and underscore the potential for further research.

### **6.1 ADDRESSING THE GAP IN THE LITERATURE**

As discussed in Chapter 1, the downstream components of the supply chain (retail and household) are responsible for large amounts of food waste in the developed world (Godfray et al., 2010). In Australia, an estimated AUD \$5.2 billion of food is wasted (Baker et al., 2009). Some studies have identified food waste behaviours that contribute to these levels of waste, yet there is little evidence providing insight into the generative mechanisms of food waste. Using ethnographic methods, this study has provided further insight into the generative mechanisms of food waste in the socio-cultural context of Adelaide household settings on a number of levels.

Because of climate change and food security the issue of food waste has been central in the political discourses for longer than it has been an academic concern (Watson, 2013b). Waste in general has been studied in the academic literature more extensively than food waste and this has provided insights into wasting behaviours; the works of M. Thompson (1979), Hawkins (2006) and Gregson (2007) provided initial guidance. Waste as a topic of study was previously the concern of environmental policy researchers and planners and has only recently begun to attract consumer researchers. Across the social sciences and humanities, waste research is now found in the areas of human geography, sociology, anthropology, social history, cultural studies, philosophy and aesthetics (Gregson, 2011), and these related studies reinforce the need for a multidisciplinary approach to the topic of waste.

As discussed in Chapter 1, attitudes to food and food consumption have been the subject of extensive research and discussion in the academic literature, as demonstrated by the varied disciplines that study it, such as history, food marketing, food technology, psychology, nutrition, public health, economics,

agriculture, and most recently food studies. Yet these disciplines have focused almost entirely on consumption. Studies have ranged from how food is consumed to the effects of consumption, leaving the area of food non-consumption and associated food waste as peripheral, , or as an outcome of over-consumption. Certainly consumption as a driver 'not to waste' food has not been explored in the academic literature. In the area of public health, the focus on non-consumption has been in terms of its impact on consumption and its associated effects, predominantly from nutrition to food security. For example, instruments, such as the Ottawa Charter for Health Promotion<sup>24</sup> have highlighted food and sustainable resources as two of the prerequisites for health<sup>25</sup> focusing on consumption. It has only been in recent times that consideration has been given to the effects of wasted food on climate change. This study has demonstrated the benefit of understanding how insights surrounding food waste can add to our understanding of consumption practices.

The term "practice" commonly refers to doing something compared to theorizing or thinking about it. For researchers, practice refers to being alive to the lived experience of doing (Watson, 2013a). While Evans' (2011; 2012) ethnographic food waste study used a practice approach revealing the complex social relations from which food waste emerged, this was undertaken in a UK setting. His study is significant in providing an understanding of the micro-scale processes and practices of food becoming waste. The work of Evans has demonstrated the value of using interdisciplinary research into food waste, adding a contextual layer to the figures (Watson, 2013b). This thesis provides further insight into the micro-scale processes and practices of food becoming waste and has demonstrated the benefit of understanding how insights surrounding food waste can add to our understanding of consumption practices in an Australian setting.

Food practices are ingrained into routines and conventions of the pleasurable and mundane of everyday life with food waste practices even more so. Whether at the

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<sup>24</sup> An international agreement signed at the First International Conference on Health Promotion, held in Ottawa, Canada in 1986 and organized by the World Health Organisation.

<sup>25</sup> The prerequisites for health are: peace, shelter, education, food, income, a stable eco-system, sustainable resources, social justice and equity.

point of provisioning, storage, preparation or as part of cleaning up, food is stored, re-stored, prepared, re-prepared or disposed. Food waste practices are then, for the most part extensions of food practices. They make little sense when viewed in isolation or on their own. In this way they also invoke the constitution and reproduction of social order (Watson, 2013a), or according to Reckwitz (2002) practices are at centre stage and embedded into the social order. The “routinized behaviours”, as explained by Reckwitz (2002) which are interconnected by several elements which include bodily and mental activities, the use of “things”, background knowledge (understanding), know-how, states of emotion and motivational knowledge (249) exist as a pattern which can be filled out by a multitude of single and often unique actions . This makes the practice something that can be meaningfully talked about (Watson, 2013a).

## **6.2 SIGNIFICANCE OF RESEARCH FINDINGS**

This thesis used a quasi-ethnographic approach to examine in detail the everyday practices associated with food waste in the context of food and everyday life. I used observational and interview methods with participants *in situ* and photographs to gather data; food maps, developed with input from participants, to identify the key activity stages of food in their homes; and vignettes to triangulate the observations and interviews with the participants.

I demonstrated my interpretations of the participants’ view of their social world through examining the practices of food waste, as distinct from the theoretical concepts. Rather than focus on food that had already become waste, in this research I wanted to understand the processes and mechanisms through which food becomes categorised as waste. Identification of distinct key food activity stages allowed me to identify food waste practices as a bundle of practices rather than distinct and individual praxes. From Provisioning, to Storage, Preparation, Consumption and Clean-up, I classified practices as either generating or mitigating food waste. Based on a thematic analysis of these practices, four overarching themes were conceptualised.

### **6.2.1 THE CONSTRUCTION OF 'FOOD WASTE' – THE CULTURAL FACE**

One of the reasons offered in response to the complexities associated with measuring waste, as discussed in Chapter 2, is that the term is contested and not fixed; there is no clear definition. The lack of clarity surrounding definitions is further reflected in everyday food practices at the household level. This research has highlighted that while participants were aware of the term 'food waste', they did not use it in their explanations or conceptualisations of everyday food practices.

The term 'food waste' did not resonate with participants, who preferred the use of terms denoting both specific types of waste and the practice of wasting. In reflexively discussing the term food waste, introduced by the researcher during the debrief process, people were reluctant to draw parallels between the term and their behaviours and practices, implying that the term itself is morally laden. This was reflected in their description of 'food waste' as the edible food which could have been eaten but was not.

Participants defined food waste as an action 'done by others'; their practice may be 'wasteful' but they preferred to determine if food was edible or inedible before carrying out the associated practice of 'disposal' through various conduits. Therefore, what they regarded as 'food' also determined what they 'wasted' and how they disposed of it.

Terms such as 'avoidable' and 'unavoidable', also discussed in Chapter 2, were not observed. Rather, the taxonomy of edible or inedible was used and in turn affected how food was disposed of, thrown out or 'moved on' out of the kitchen.

Classifications of edible and inedible are more meaningful for participants than using the term 'food waste' in their everyday actions. The classifications are often made in the context of value appropriated to the food item itself or through maintaining the social order by relying on routine (Giddens, 1984) or past choices (notably parents) and to a lesser extent taste (in the form of embodiment and manifested through knowledge). Furthermore, food waste practices are also extensions of everyday household cleaning practices; cleaning out storage areas are triggered by such things as cleaning days or bin nights.

This research has revealed that the way food is defined as edible or inedible has implications on how messages from public health authorities and waste reduction authorities are received.

### **6.2.2 THE DETERMINATION OF VALUE – THE SOCIAL FACE**

Participants imbued food with a range of values which resulted in often contradictory practices toward food waste. Food waste practices were constructed as purposeful when the resultant action was perceived to have resource value. Food waste practices were also only discussed meaningfully when the resultant action was perceived to have resource value. Negatively perceived food waste practices were justified through valuing the corresponding action or behaviour more highly than the food item itself.

The word waste implied morally inappropriate behaviour, especially when it related to food. Uneaten food siphoned to compost or as pet food was presented as a nobler practice. Landfill was hardly discussed and only in terms of 'other people's or organisations practices'. There was an acceptance by most participants that there was always going to be 'some' waste and it was going to go 'somewhere'.

Money, novelty and social relations were more highly valued than waste minimisation, although price provisioning contributed both as a generator and mitigator of food waste. Ethical or moral value coupled with skills and knowledge were valued highly as contributors to waste minimisation. Waste value as a resource was placed into alternative conduits of disposal and not viewed as waste. Value represents the social dimension of food waste with a cultural overlap.

The differentiation between nobler and morally inappropriate practices suggests an intrinsic reward offered by the re-framing or re-naming of waste to that of 'resource'. It also implies that food waste practices are a bundle of practices (Shove, Pantzar, & Watson, 2012) which either expand or contract to suit emerging systems of recycling or gifting. Furthermore, the meaning attributed to the practice through the associated discourse provided justification for the practice at that particular moment in time.

### **6.2.3 THE CONFLICT WITH TIME – THE TEMPORAL FACE**

Certainly the tension that was created between the core value system and the rhythms of everyday life added to the determination of what was regarded as edible or inedible and subsequently, not eaten. Food exists in our routines but we also alter our routines to accommodate food. Where changing food practices accommodated changes in lifestyle, waste was observed to increase until the adjustment phase took place. In this regard, waste was ‘accommodated’ rather than forcing changes to routine.

Food practices are mostly of a habitual nature; food waste practices even more so. An awareness of habitual practices, making the food and associated waste practice salient was an enabler to waste reduction. In examining the stages of food provisioning, storage, preparation, consumption, and clean-up separately, this finding is reinforced.

At the outset, it appeared that the primary goal of consumption was to consume food rather than to minimise waste. how that primary goal came to bear was rationalised differently at various times by the same person, as observed throughout the study. Observed behaviour and attitudes indicated that waste minimisation was a competing goal, alongside the desire to ‘have food to eat’ in the provisioning stage in particular, and less so in the storage stage. The preparation stage showed the greatest conflict between the goals of consumption and food waste minimisation, where the way the food type was valued, the time at hand, the state of the food itself and the perceived risk were all part of the considered process to determine whether the food was suitable to be presented for consumption.

### **6.2.4 THE ROLE OF RISK – THE MATERIAL FACE**

Food itself has its own agency, in addition to that exercised by participants. The passing of time made food inedible; participants perceived food as a perishable object that would decay. Some participants sought to prolong its life through freezing and even refrigeration of food items. Such practices were exercised by those who valued time and convenience over those who valued freshness.

Participants used a range of risk symbols in determining whether food was safe to eat. These risk symbols were both external, such as use-by-dates and internal, such as smell, taste and sight. These risk symbols were used in constructing food as edible or inedible as well as influencing how the food was disposed when it was deemed inedible. While the practice of recycling uneaten food was not deemed to be a(s) wasteful practice, the state of the inedible food played a role in where it was placed. Terminal disposal was perceived to be landfill and was the most morally laden. The intersection of the social and the material disrupts the social order where the placement of the recycled material presents a greater taboo than the material itself.

When using risk symbols, food waste practices appeared contradictory. This was exacerbated when the food caretaker made decisions for others. In all cases, the 'keeping' or 'throwing' of food dilemma was associated with a justification discourse. Here, the interplay between the material and the social is not always a derivative of a clear action. The understanding across all households that food had the potential to cause illness meant that judgements were likely to err on the side of caution. In this regard, public health through the promotion of food safety and waste management are at odds.

### **6.2.5 IMPLICATIONS FOR PUBLIC HEALTH**

As identified in chapter 2, waste systems stem from the drivers of public policy control of communicable and preventable diseases. However, the recognition of the contribution of waste in landfill to potential climate change has added a further dimension to the discussion on the role of waste and that of public health. That is, the ramifications of climate change will serve to affect the general public health. It appears that public health has found an ally in sustainable waste management.

It is important to reflect that the key to sustainable waste management has been waste minimisation and many policy drivers have been employed to this end. The development of the waste hierarchy, discussed in chapter 2 is one such example. Certainly the effects of such policy drivers were observed through the study, with participants often modifying purchasing practices to minimise packaging or to



ensure packaging materials were recyclable. While inorganic materials such as these were not the focus of the study, the attitudes toward organic material, while similar such as avoiding the purchase of a product if product would not be consumed 'in time' also showed some differences. For example, when social relations were of more value, waste avoidance was not considered; rather quality and quantity of product was more important.

Gregson (p32-33), in referring to waste as the shadow of contemporary consumer culture (Gregson – p. 32-33) implied that society will never be 'waste free'; a shadow will always exist because consumption will always exist. This begs the question, 'are our policy drivers the right ones and if so, are they engaging appropriately?' If not, how can they link with the 'reframing the waste debate' concept to ensure capturing the resource rather than loss of it into the system?

For public health research, the implications of these findings could be contrasted with existing programs to minimise waste behaviours. Behaviour change programs seek to change the focus of 'consumption' which surrounds food practices to that of 'consumption in order to minimise waste'. Waste campaigns encourage practices such as list writing or meal planning, and while these may help people who value these devices, they will not help others who do not value their contribution as a waste mitigation tool.

Practices are always in transition, therefore a focus on how food and food waste practices relate to each other rather than individual behaviour may provide more insight for a more engaging campaign. For example, if municipal council collection of waste triggers clean-outs of storage areas, especially the fridge, reminders to use the recycling service may be timely. The elimination of food waste completely from household food practices did not seem possible to many participants. Those who used alternative waste streams felt a sense of 'deprivation' if there was no food waste passing through that channel. The sense of recycling a readily available resource became part of the justification discourse but also made participants feel better about their actions.

Food waste has four dimensions that work together to transform edible food into inedible waste. Rather than food waste being an output or product of food-related practices, it is an integral part of those everyday practices. The material, social, temporal and cultural dimensions that characterise the transformation of food into waste or the edible into the inedible suggest food waste behaviours will be resistant to change. The imposition of etic typologies such as 'food waste', that make sense to policy makers, may disengage those whom food waste reduction programs are trying to reach. This finding encourages the use of social research when dealing with 'wicked problems',<sup>26</sup> such as that of food waste.

Food waste is fundamentally about food. That is, food waste must be considered within the context of consumption. The two are mutually constitutive and productive. Therefore, for those who through their work seek to look beyond simply consumption, production and aesthetic appreciation of food, a consummate understanding of food consumption requires that food waste practices are included and not targeted in isolation. Conversely, waste researchers and policy makers will not have an integral understanding of food waste without consideration of consumption practices. Knowledge from both fields provides not only improved understanding of the problem, but also an opportunity for finding effective solutions to the issue of food waste.

One of the key findings is that the meaning of waste is socially and culturally derived. What constitutes waste is not explained from an individualistic perspective (Shove, 2010). The role of food waste is integral to the role of food. Food waste should therefore be conceived not as an output of behaviour such as buying too much but rather as a social practice, embedded in the flow of everyday life and influenced by the social structure (in terms of rules and resources) (Delormier, et al 2007, Giddens, 1984 and Evans, 2011).

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<sup>26</sup> Originally used in social planning, 'wicked problems' describe those problems that are difficult or impossible to solve because of incomplete, contradictory and changing requirements that are often difficult to recognise. Wicked is used to mean resistance to resolution (Australian Public Service Commission, 2007)

An additional perspective to the generative mechanisms of food waste is gained when the relation between practice, meaning, concept and language is explored, as meaning is never fixed. Many different and sometimes conflicting practices and interests exist alongside parallel conceptual frameworks and different and sometimes competing interpretations (Danermark et al., 2002). In using combined theoretical approaches, this study has provided greater insight into the generative mechanisms of food waste in Adelaide households.

### **6.3 STRENGTHS**

Similar to Evans' ethnographic research, insight has been gained into the relationships between household members and the structural elements influencing food practices that in turn influence food waste practices. I too found that food waste is caused through competent, everyday domestic practices rather than irrational excess. To date, and to the best of my knowledge, no ethnographic research into food waste practices and their generative mechanisms has occurred in South Australia. These findings add further to the body of food waste research.

This study used a range of methods to ensure rigour and quality in the research process (Popay et al., 1998), checking throughout the analytical process with my supervisors, and with participants themselves through food maps and vignettes.

From a methodological perspective, this study has demonstrated the value of observational techniques to qualitative research, especially in the area of public health.

The anthropology-based methodology lent itself to cultural immersion within my own field. Anthropologists traditionally seek immersion to understand how those they are studying view their world. Sociologists, broadly speaking, split into those who use empirical evidence to guide their theory building and those who use theory to understand the social world, provide a theoretical framework with which to understand a particular issue or problem. In designing this research question, with a specific limited scope of understanding the generative mechanisms of food waste in

household settings, I used a combination of theoretical frameworks and methods from the disciplines of anthropology and sociology.

## **6.4 LIMITATIONS AND FURTHER RESEARCH**

### **6.4.1 REFLEXIVITY**

It is paramount to acknowledge and discuss the ways in which the process of this research has affected the data collection and interpretation. After all, this thesis has largely been about me, the researcher, interpreting the meaning of others. This does not happen in a void or a vacuum. As much as I might wish to put aside my own meanings and understandings of food-related practices, I brought these understandings with me to the research process (Layder, 1998). Those using ethnographic methods must be reflexive and aware of the effects of their position and prejudices. These extend to the design and interpretation of this thesis as well as to the way participants engaged with the research process, how information was shared between participants and the researcher (Bourdieu, 1990a) and how trust and rapport were built.

### **6.4.2 METHODOLOGY**

It may be argued that the range of participants involved in this study was of higher socio-economic status and I was unable to obtain a good spread of practices through a more divergent sample, such as people under the age of 25 living on their own. Ethnographic research does require a significant investment of time on the part of participants. Galea and Tracy (2007) found that certain types of individuals are attracted as research participants. Those recruited tended to be people who were already interested in food. In addition, I encouraged snowball sampling, which had the potential to encourage further similarity of participants. Of all participants, only two households were known to each other.

Despite these difficulties and potential biases, I did aim for a demographically diverse sample, seeking out people from different social and economic backgrounds, different ages and stages of life, people with children and without. Gathering data from no more than four households at any one time allowed me to

process and analyse information before recruiting or commencing with the next cohort of participants. This evaluation allowed me to diversify the sample and reflect on my behaviour within their homes. Sampling continued until saturation of data occurred and no more participants could be found.

Further ethnographic research, with more purposive sampling, targeting young people as well as those from lower socio-economic backgrounds, would be useful to determine if there were major discrepancies between this sample and those not captured in the recruitment process. In addition, further ethnographic research into the food waste practices of people from other Australian cities would provide a more complete picture of socio-cultural differences between cities.

### **6.4.3 FINDINGS**

Building on these initial ethnographic findings, the next logical steps would be to determine how to take these findings and translate them into practice through the application of social marketing and public awareness campaigns and then examine their effectiveness. This could run in parallel to a critique of existing behaviour change programs against these ethnographic findings. Information on how to engage people in a particular behaviour change program, especially those people for whom the program does not resonate seems crucial to further assist organisations that employ such behaviour change programs.

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## **8 APPENDICES**

Appendix 1: Search Strategy

Appendix 2: Forms Produced for the Project

2a: Flyer

2b: Letter of Introduction

2c: Information Sheet

2d: Information Sheet for 7–15 Year Olds

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2g: Consent Form of Child

2h: Meet and Greet Semi Structured Interview Questions

2k: Debrief Semi Structured Interview Questions

Appendix 3: Fieldwork Site and Participant Information

Appendix 4: Participant Information Generated as Data

4a: Participant profiles

4b: Food Maps

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Appendix 5: Dates of Interviews and Observations

Appendix 6: Example of transcript/notes

Appendix 7: Initial Codes Applied to Data Gathered

Appendix 8: Categorisation of Codes into Five Key Food Activity Stages

Appendix 9: Conceptual Thematic Analysis

## APPENDIX 1: THE FIRST STAGE OF THE SEARCH STRATEGY

	SCOPUS	PUBMed	Web of Science	Sociological Abstracts	PSYCHInfo
"Food Waste"	1921	420	1433	8	25
"Food Refuse"	37	4	19	1	0
"Food Disposal"	9	4116	3	0	2
"Food Wastage"	11	32	50	0	4
Divestment	738	31	486	54	53
"Food Divestment"	1	1	0	0	1
Disposal	131512	43274	42816	1010	1422
Food*	829204	500934	485649	11394	61857
Scrap	37689	501	7614	68	89
Binning	2413	685	16013	6	26
Food Consum*	129692	9539	80440	2571	2389
Dispos*	223372	95924	107160	6414	1457
Non consum*	113176	369	48223	1623	0
"Food provision*"	1145	109	652	76	166
"Food sav*"	19	53	14	2	0
"Post consum*"	1609	3	834	10	47
"non food"	1916	700	1286	28	258
food stuff	11376	1008	8842	213	42
Wast*	483102	97792	227724	2796	3498
Peel*	28066	10185	21926	225	333
"Food Wastage"	73	32	50	0	4
"Waste composition"	626	124	329	2	0
Compost*	23379	13078	19566	279	88
Domestic	183378	61382	109830	15981	21027
House*	324207	136709	220282	35489	38854
Home	354812	169861	228525	29596	82610
Homes	354812	51855	228525	29596	20731
Family	1225206	848882	907298	156571	243074 (35801)
Composting + "food waste"	60	138	338		0

## **APPENDIX 2: FORMS PRODUCED FOR THE PROJECT**

Appendix 2a: Flyer

### **RESEARCH PROJECT**

#### **FOOD AND YOU – ATTITUDES AND BEHAVIOURS IN HOUSEHOLDS**

##### **EMAIL ADVERTISEMENT/FLYER**

Participants are sought for a study on food attitudes and behaviours as they occur in a household setting. The study is part of a PhD in the Discipline of Public Health at Flinders University.

Food and eating absorbs a great deal of our time. A research project is being carried out to look at the relationship South Australian households have with all aspects of food. Specifically this project would like to know how food is thought about, how it is purchased, how it is brought to the home, how it is stored, prepared, consumed and thrown away.

If you would like to share your food journeys and assist the project by inviting a researcher into your home to talk with and observe your interactions with food, please email [mavr0043@flinders.edu.au](mailto:mavr0043@flinders.edu.au) for more information.

The project will require consent from all members of your household, and will involve an initial meeting with the researcher in your home, an interview with the person responsible for most of the food-related activities and a series of 6 observations during a morning, mid-day and evening session (one each on a week day and a week-end day) repeated three times throughout the year.

You may withdraw from the research at any time and any information provided will be treated in the strictest confidence. None of the participants will be individually identifiable in the resulting thesis, report or other publications.

A small token of thanks for your efforts will be provided if you choose to participate in the form of a \$50 Westfield gift voucher.

Many thanks

Vicki Mavrakis



## Appendix 2b: Letter of Introduction

## Appendix 3



**Professor John Coveney**  
**Flinders Prevention, Promotion and Primary Health Care Cluster**  
**School of Medicine, Faculty of Health Sciences**  
Health Sciences Building, North Ridge Precinct  
GPO Box 2100  
Adelaide South Australia 5001  
Tel: +61 8 7221 8419  
John.coveney@flinders.edu.au  
<http://som.flinders.edu.au/FUSA/PublicHealth>  
CRICOS Provider No. 00114A

Dear Sir/Madam

This letter is to introduce Ms Vicki Mavrakis who is PhD student in the Discipline of Public Health at Flinders University. She will produce her student card, which carries a photograph, as proof of identity.

She is undertaking research leading to the production of a thesis or other publications on the subject of "Food and You – Attitudes and Behaviours by Householders".

She would be most grateful if you would volunteer to assist in this project. This would involve all members of your household agreeing to participate in an initial meeting where Vicki will outline the project and you will have an opportunity to ask further questions. An initial interview will take place between Vicki and the person in the house responsible for most of the food related activities where they will discuss specific details about food entering and leaving your house. We do not anticipate any personal questions being part of the research. You do not have to talk about anything you do not want to. Vicki may also ask you if she can accompany you on a food shopping trip. Vicki will ask if you would allow her to observe your household "in action" when preparing, storing, consuming and throwing away food.

The initial meeting with all members of your household will take about half an hour. The interview discussing the food trail in and out of your house will take about an hour. The observations will vary depending on how your household purchases, prepares, stores and eats food and Vicki will discuss how best to carry these out for your household at your first interview. Vicki would like to observe a morning, mid-day and evening session during the week and over a weekend. Ideally Vicki would like three repeated visits of each morning, mid-day and evening session into your home during the week and over a week-end.

Be assured that any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting thesis, report or other publications. You can decide to pull out of the research at any time and you don't have to answer any questions you don't want to.

Vicki may use audio (tape recording) or video the observations if you prefer and in this case she will seek your consent, on the attached form, to record the observation, to use the recording or a transcription in preparing the thesis, report or other publications, on condition that your name or identity is not revealed.

A small token of thanks for your time and inconvenience will be supplied on completion of the observations. This will be in the form of a \$50 Westfield gift voucher.

Any enquiries you may have concerning this project should be directed to me at the address given above or by telephone on 7221 8419, by fax on 7221 8424 or by email

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([john.coveney@flinders.edu.au](mailto:john.coveney@flinders.edu.au)). You can call me before or after you have met Vicki and any contact will remain confidential.

Thank you for your attention and assistance.

Yours sincerely

Professor John Coveney

Associate Dean  
Discipline of Public Health

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number INSERT PROJECT No. here following approval). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email [human.researchethics@flinders.edu.au](mailto:human.researchethics@flinders.edu.au).*



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CRICOS Provider No. 00114A

## PARTICIPANT INFORMATION SHEET

Food is intricately connected to many other central processes of social life. Food preparation activities such as shopping, planning, storing, cooking, serving and clearing up absorb huge amounts of time and are the regular activities that enable people to feed themselves and their families several times a day. On the other hand food production is an enormous industry, with over 140,000 people in South Australia employed in food related industries.

The project *Food and You – Attitudes and Behaviours by Householders* is seeking to examine the relationship that people within a South Australian household have with food, that is how people think about, shop, prepare, store, consume and throw away food. It is hoped that through observing these activities in practice and talking to people about them as they occur, a greater insight into what people think and do can be obtained. Food practices can provide information on the consumer and generally of social behavior of individuals and families in our community. It is such food related behavior that this research project aims to study.

The research project is seeking participants to take part in a study where their attitudes and behaviours around food and food related activities are examined. The researcher will do this through speaking with members of the household about food and related activities and watching and observing behavior around food and related activities. For example, the researcher may ask to accompany you on a food shopping trip, watch the preparation of a meal in your house or observe members of the household having a meal together and cleaning up afterwards.

Different types of households will be part of the study. All members of the household should agree to participate in the study prior to its commencement.

### Why observations?

Evidence has shown that people report different things to what they actually do. Rather than asking participants to fill in food diaries or fill in questionnaires, and to overcome the potential risk of people saying one thing and doing another, this research is seeking to observe people within their households and the relationship they have with food.

### What will be required of you?

An initial meeting with the researcher, you and the other members of your household will take place in your home. This meeting will give all household members an opportunity to meet the researcher, ask any questions about the study and return the signed consent forms if everyone is happy to participate. At this meeting, the members of the house will nominate the person responsible for most of the food related activities. This person (let's call them the "food caretaker") will have a follow up interview with the researcher at a time convenient to them.

At this interview, the researcher and the food caretaker will discuss and map the trail of food into and out of the house and who is responsible for what food related activities. During this time the researcher and the food caretaker will identify the times and dates most suitable for the observations and discussions for the household. Characteristics to be discussed that will influence how and when the observations will take place include:

- does the household eat differently on weekdays and weekends;
- does the household eat shared meals;
- do household members eat alone;
- does one person in the household do the shopping;
- who puts away the food when it is brought into the home;
- how is food prepared for a meal;
- what is a typical meal;
- who cleans up;
- who cleans out the fridge or the pantry (if there is one).

The researcher would like to base the observations on the following time periods:

Morning session	7:00am to 11:00am
Mid-day session	11:00am to 3:00pm
Evening session	4:00pm to 8:00pm

The researcher would like to observe a morning, a mid-day and an evening session for three (3) weekdays and three (3) weekend days spread throughout the year.

The researcher will work with you or the food caretaker to ensure the time periods for the observations and discussions suit your household. These times will be based around the key food related activities in your home during each of these time periods (morning, mid-day and evening) taking into account the characteristics above. This may include a shopping trip with the person designated to shop for food as well as observations and discussion around putting the food away, preparing it, consuming it and cleaning up. At the end of the project, the researcher will make a time with you to debrief and discuss some of the findings. There is no direct payment for your participation in this study but a small token of appreciation will be provided to thank you for your time and inconvenience.

The total time commitment required from you and your household will be about 75 hours over a period of 12 months.

**What will the researcher be doing?**

The researcher will take notes during the interview and produce a map of food related activities for your house.

The researcher will take notes during the observations and may ask you some questions to clarify what you are doing (for example, do you always store your fruit in the refrigerator?). The researcher may record with your permission some of the conversation and transcribe the notes at a later stage.

Any notes taken or recordings will be made available upon request.

The researcher may request to take some photos of food related spaces in the house. A photo release consent form is provided for the cases where a photo may be taken and used as part of the study (for example a photo of the refrigerator, or the garden). Participants may discuss the use of the photo with the researcher at any time. The researcher intends to use photos and recordings primarily as a tool to assist memory recount.

Information and behavior from notes, transcripts and photos will then be coded and analysed. NO PARTICIPANT OR HOUSEHOLD WILL BE ABLE TO BE IDENTIFIED IN THE STUDY.

#### **Consent**

All members participating in the study will be required to sign a consent form agreeing to be part of the study.

If there are children in the household who are under 16 years of age, their parent or guardian will be required to sign a consent form. These children or young persons (between 7 and 15 years of age) will also have the opportunity to provide their assent to being part of the research and separate information sheet will be provided for them.

It may be the case that during an observation, people who do not normally reside in the house drop past or visit. If their visit coincides with a food related activity, the researcher will seek permission from the household and the guests to continue with their observations, with either the host or the researcher explaining what is taking place

People may withdraw from the research at any time with no implications to them whatsoever as a result. Participants may request to see field notes and any recorded material at any time during the observation phase.

Individuals within the household may choose to not participate where other members have agreed. In this case, it is more than likely that the household cannot be used as part of this study.

The researcher may be reached at anytime via email ([mavr0043@flinders.edu.au](mailto:mavr0043@flinders.edu.au)) or prospective participants may email a suitable time and contact number for the researcher to call them to discuss their participation further.

How can I find out more information?

Any enquiries you may have concerning this project should be directed to John Coveney at the address provided on the front sheet or by telephone on 7721 8419 or e-mail [john.coveney@flinders.edu.au](mailto:john.coveney@flinders.edu.au).

This research is funded by the Australian Research Council and has been approved by the Social and Behavioural Ethics Committee at Flinders University. If you have any concerns about the manner in which the interview or observations have been conducted you are advised to contact the Executive Officer of the Ethics Committee by telephone on 8201 3116 or by e-mail [human.researchethics@flinders.edu.au](mailto:human.researchethics@flinders.edu.au).

## Appendix 2d: Information Sheet for 7 - 15 Year Olds

### Appendix 6



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**School of Medicine, Faculty of Health  
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[mav10043@flinders.edu.au](mailto:mav10043@flinders.edu.au)

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CRICOS Provider No. 00114A

## PARTICIPANT INFORMATION SHEET FOR 7-15 YEAR OLDS

### FOOD AND YOU – ATTITUDES AND BEHAVIOURS IN HOUSEHOLDS

Food is a very important part of our everyday lives. What we choose to eat, where we eat, with whom we eat, how we eat and what we don't want to eat take up a part of our day.

The project **Food and You – Attitudes and Behaviours in Householders** would like to carry out research to understand why people make the choices they do about food. A researcher will be invited by you to come along to your home and observe your behaviours and attitudes around food. This might include going along with you to the supermarket when the shopping takes place or watching someone in your home prepare a meal and even observe who cleans up and what they think as they are doing that. This project has decided to use research observations as a way of collecting data. This is because people often say they do different things to what they actually do. This research would really like to understand what people think and do when it comes to food.

#### What will you have to do?

You will be part of an initial meeting between the researcher and people in your house where you will meet the researcher and have an opportunity to ask further questions about the research.

The researcher will organise to meet the person who does most of the food activities in your house to map out how food comes into your house, what happens to it when it gets there and how it leaves.

The researcher is interested in the following:

- Do people in your house eat differently on weekdays and weekends?
- Do people eat all together or at different times?
- Who goes shopping for food in your house?
- Who cooks in your house?
- What do you do with food that is left-over?
- What do you do when you don't like the food?

The researcher will ask to visit your home during the morning (from 7am to 11am), during mid-day (from about 11am to 3pm) and during an afternoon or evening (4pm to 8pm) to observe activities around food. The researcher will do this during the week and over a

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achievement

School of xxxxxxxx  
GPO Box 2100  
Adelaide SA 5001  
Tel: 08 xxxxx xxxxx  
Fax: 08 xxxxx xxxxx  
Insert your email address  
Insert web address  
CRICOS Provider No. 00114A

week-end day. It is hoped the researcher can repeat these observations three times during the year.

What will the researcher be doing while in my house?

The researcher is interested in food and food related activities. She will be talking to you and other members of your house about food, taking notes and she may record some of your conversations. In some cases she may take some photos.

**Do you think you could help?**

If so, you will need to agree to participate in this research. A form is attached for you to sign. You can talk about this information sheet and the project with a family member or an adult and you can ask the researcher for more information.

You will not be able to be identified as part of the research. That means your real names will not be used in any of the writings about the research.

You are able to withdraw from the research at any time. If you choose not to be part of the research then your house will not be included in the project.

You may email the researcher at [mavr0043@flinders.edu.au](mailto:mavr0043@flinders.edu.au) at any time for more information.

**CONSENT FORM FOR PARTICIPATION IN RESEARCH**

**FOOD AND YOU – ATTITUDES AND BEHAVIOURS BY HOUSEHOLDERS**

**(by interview and observation)**

I .....

being over the age of 16 years hereby consent to participate as requested in the 'Letter of Introduction' and the 'Information Sheet' for the research project on **Food and You – Attitudes and Behaviours by Household**ers.

1. I have read the information provided.
2. Details of procedures and any risks have been explained to my satisfaction.
3. I agree to audio/video recording of my information and participation where necessary and agreed upon.
4. I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.
5. I understand that:
  - I may not directly benefit from taking part in this research.
  - I am free to withdraw from the project at any time and am free to decline to answer particular questions.
  - While the information gained in this study will be published as explained, I will not be identified, and individual information will remain confidential.
  - I may ask that the recording/observation be stopped at any time, and that I may withdraw at any time from the session or the research without disadvantage.
6. I have had the opportunity to discuss taking part in this research with a family member or friend.

Optional

7. I agree to the use of photographic and or video material to be collected and I understand that I will not be able to be identified through this material

Agree

Disagree

**Participant's signature.....Date.....**



I certify that I have explained the study to the volunteer and consider that she/he understands what is involved and freely consents to participation.

**Researcher's name**.....

**Researcher's signature**.....**Date**.....

*NB: Two signed copies should be obtained. The copy retained by the researcher may then be used for authorisation of Items 7 and 8, as appropriate.*

8. I, the participant whose signature appears below, have read a transcript of my participation and agree to its use by the researcher as explained.

**Participant's signature**.....**Date**.....

9. I, the participant whose signature appears below, have read the researcher's report and agree to the publication of my information as reported.

**Participant's signature**.....**Date**.....

**PARENTAL CONSENT FORM FOR CHILD PARTICIPATION IN RESEARCH**

**FOOD AND YOU – ATTITUDES AND BEHAVIOURS BY HOUSEHOLDERS**

**(by observation)**

I .....

being over the age of 16 years hereby consent to my child .....  
participating, as requested, in the Information Sheet for the research project on  
Food and You – Attitudes and Behaviours by Household.

- 4. I have read the information provided.
- 5. Details of procedures and any risks have been explained to my satisfaction.
- 6. I agree to audio/video recording of my child's information and participation where necessary and agreed upon.
- 4. I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.
- 5. I understand that:
  - My child may not directly benefit from taking part in this research.
  - My child is free to withdraw from the project at any time and is free to decline to answer particular questions.
  - While the information gained in this study will be published as explained, my child will not be identified, and individual information will remain confidential.
  - My child may ask that the recording/observation be stopped at any time, and he/she may withdraw at any time from the session or the research without disadvantage to him or herself, or negative repercussion to the researcher.

Optional

6. I agree to the use of photographic and or video material to be collected and I understand that I will not be able to be identified through this material

Agree   
Disagree

**Participant's signature.....Date.....**

I certify that I have explained the study to the volunteer and consider that she/he understands what is involved and freely consents to participation.

**Researcher's name.....**

**Researcher's signature.....Date.....**

*NB: Two signed copies should be obtained. The copy retained by the researcher may then be used for authorisation of Items 6 and 7, as appropriate.*

7. I, the participant whose signature appears below, have read a transcript of my participation and agree to its use by the researcher as explained.

**Participant's signature.....Date.....**

8. I, the participant whose signature appears below, have read the researcher's report and agree to the publication of my information as reported.

**Participant's signature.....Date.....**

**ASSENT FORM FOR PARTICIPATION IN RESEARCH**

**FOOD AND YOU – ATTITUDES AND BEHAVIOURS BY HOUSEHOLDERS**

**(by interview and observation)**

I .....

being between the ages of 7 and 15 years agree to participate as requested in the 'Information Sheet' for the research project on **Food and You – Attitudes and Behaviours by Householders**.

7. I have read the information provided.
8. Details of procedures and any risks have been explained so that I feel comfortable with the explanation.
9. I agree to audio/video recording of my information and participation where necessary and agreed upon.
4. I am aware that I should keep a copy of the Information Sheet and Consent Form for future reference.
5. I understand that:
  - I may not directly benefit from taking part in this research.
  - I am free to withdraw from the project at any time and am free to decline to answer particular questions.
  - While the information gained in this study will be published as explained, I will not be identified, and individual information will remain confidential.
  - I may ask that the recording/observation be stopped at any time, and that I may withdraw at any time from the session or the research without disadvantage.
6. I have had the opportunity to discuss taking part in this research with a family member or friend.

Optional

7. I agree to the use of photographic and or video material to be collected and I understand that I will not be able to be identified through this material

Agree

Disagree

Participant's signature.....Date.....

I certify that I have explained the study to the volunteer and consider that she/he understands what is involved and freely consents to participation.

Researcher's name.....

Researcher's signature.....Date.....

*NB: Two signed copies should be obtained. The copy retained by the researcher may then be used for authorisation of Items 7 and 8, as appropriate.*

8. I, the participant whose signature appears below, have read a transcript of my participation and agree to its use by the researcher as explained.

Participant's signature.....Date.....

9. I, the participant whose signature appears below, have read the researcher's report and agree to the publication of my information as reported.

Participant's signature.....Date.....

**SEMI-STRUCTURED INTERVIEW QUESTIONS**

**FOR RESEARCH PROJECT**

**FOOD AND YOU – ATTITUDES AND BEHAVIOURS IN HOUSEHOLDS**

The first interview will take place with the person that takes care of most of the food-related activities within the household.

Questions will focus on:

- does the household eat differently on weekdays and weekends;
- does the household eat shared meals;
- do household members eat alone;
- does one person in the household do the shopping;
- how often do you shop;
- who puts away the food when it is brought into the home;
- where is food stored;
- how is food prepared for a meal;
- who prepares food for a meal;
- do all people eat the same things;
- what is a typical meal;
- who cleans up;
- who cleans out the fridge or the pantry (if there is one);
- where do you throw away food from a meal; from the fridge
- do you keep left-overs;
- do you look at use-by-dates and best-before dates;
- do you have a pet;

## Appendix 2i: Debrief Semi Structured Interview Questions

Set myself up – ask adults to fill out questionnaire together (I will collect it before I go).

Explain that I will tell them the main focus of my study followed by a series of questions that we will discuss. At the end I will explain why I've chosen this area of study and how this information will be used (part of a larger project, looking to help inform programs around getting people to waste less). Informed by real evidence.

### Questions

1. Main focus is on food waste
2. What do you think about that?
3. From our observations, it seems like (vignette style stuff)...
4. I have drafted a short vignette (snapshot of what observed, focusing on one thing, in this case food) – talk about leaving this with them, making some comments on it – sending it back to me/picking it up.
5. What do you think – does it sound right?
6. Can I ask you some specific questions about food waste today?
  - a. What do you consider food waste?
  - b. How bothered by it are you?
  - c. How much do you care? Why do you care? Why don't you care?
  - d. Do you think food waste is a problem? Why/not?
  - e. Do you think you waste a lot of a little?
  - f. Do you think there is any unavoidable waste in your home?
  - g. Any avoidable waste that you know you waste?
  - h. What kind of things do you think make you waste more food?
  - i. What kind of things do you think make you not waste so much food?
  - j. What else do you think your food waste/rescue is influenced by? (friends, family, finances, etc)
  - k. We have been using the phrase food waste. Does this make sense in your house? I.e some people say scraps, etc. Are there any other terms you use? When would you use them?
  - l. Here is the food map we put together at our first meeting. Let's see if we can try to put food waste into the picture....
  - m. So far, I've noticed [insert findings about invisibility, ineffability (inexpressibility), etc]. Do you agree? y/n
  - n. Are there any times when you would disagree/agree [choose opposite answer so you have a devil's advocate question].
7. Explain why I've chosen this area of study. Explain why food waste is such a big issue – environmental concerns, food security concerns
8. Explain how this information will be used – importance of understanding the whole food chain in the home, and why.
9. Do you mind if I contact you in the next year if there is anything I need to clarify?

## APPENDIX 3: FIELDWORK SITE AND PARTICIPANT INFORMATION

### Site (fieldwork) and participant information

Location of fieldwork: Greater Adelaide, South Australia (the capital city of the state)

Number of households: 14

Number of participants: 37 at the commencement of fieldwork; 38 at the end of fieldwork

Number of adults: 26 (including adult children)

Number of children: 13

#### Ages of participants\*:

<18	18–25	26–35	36–45	46–55	56–65	66–75	>75
13	2	4	7	4	3	5	–

\*Age not provided for one participant

#### Ethnicity:

White Australian, White South African, German, Greek, Cypriot, Germanic background, Greek Background, Italian background

#### Education (by highest qualification):

Not provided	Primary School	Secondary School	TAFE/Technical	University
2	2	3	3	13

#### Housing tenure:

Owner occupiers: 10

Renting: 4

#### Waste disposal streams

Domestic waste bin	Recycling bin	Green organics bin (for FW)	Compost	Worms	Pets	Chickens on property	Chickens off property
14	14	2	6	1	1	2	3



## APPENDIX 4: PARTICIPANT INFORMATION GENERATED AS DATA

### Appendix 4a: Participant Profiles

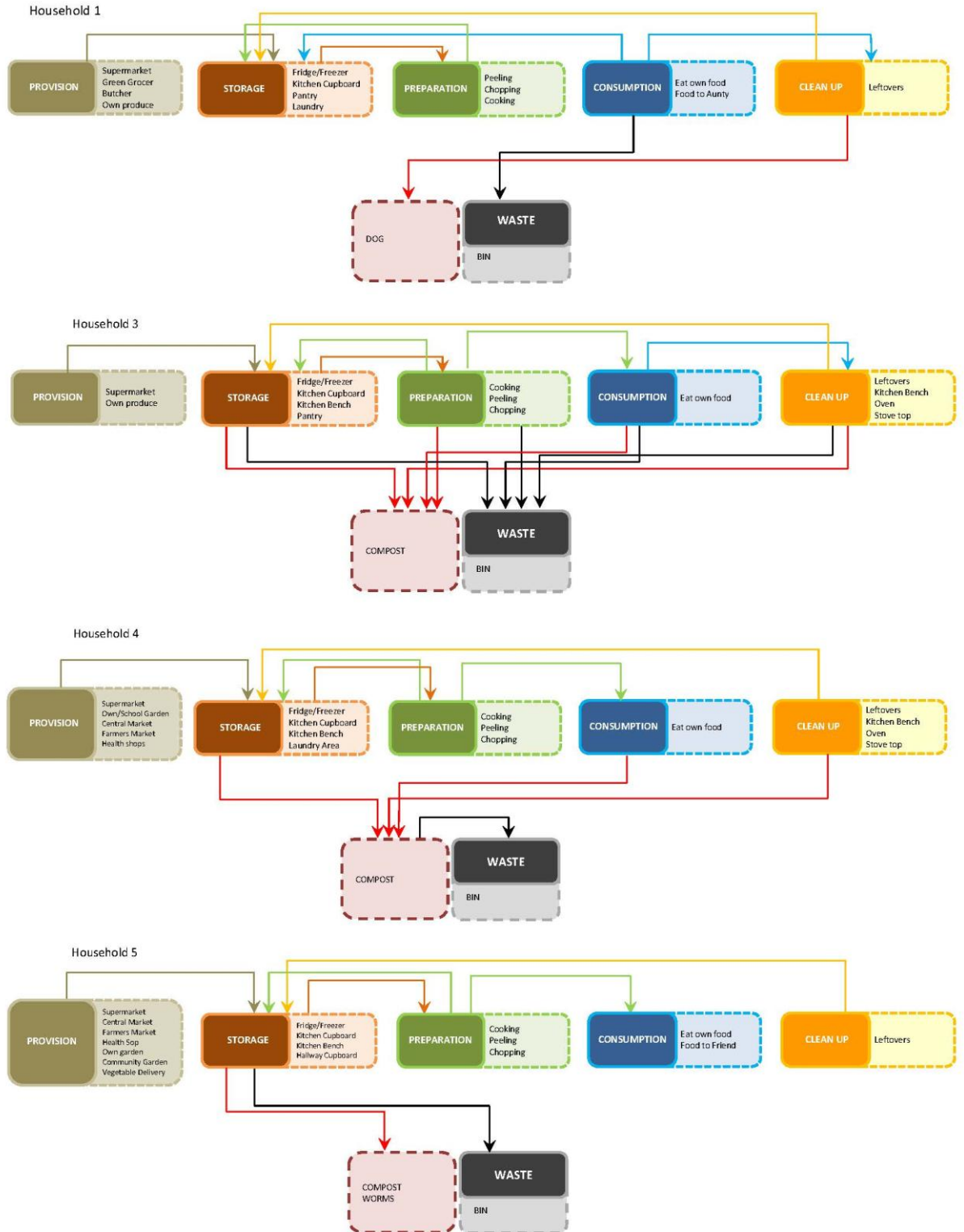
Household	Participants	About the household
1	Sue Jones, 70; James Jones, 71. Married, retired.	Retired couple who built and love the very orderly house they live in. Both love food, including preparing and eating it. They are very regimented, always shopping once a week and would much rather prepare a meal rather than purchase takeaway. They prefer to improvise and use up ingredients they have in storage rather than go out and buy a missing ingredient. They like to do all food things together including shopping, preparation and eating. Sue regards herself as the food caretaker although she takes James' tastes into account.
3	Angela Thomas, 66; Justin Thomas, 70. Married. Wayne Thomas, adult child, moved out of home during the study.	Angela is retired but has gone back to finish Year 12 while Justin works as a consultant. Justin and Angela own their home. Wayne still drops past his parents' house, often joining them for meals on the nights he is not working. He will often bring organic vegetables with him, which Angela loves. She thoroughly enjoys the family cooking together and dislikes cooking on her own.
4	Claire Freemont, 54. Single, living on her own, working. Partner sometimes stays over on weekends.	Claire works as a contract and relief secondary school teacher teaching Home Economics. She has a deep understanding and knowledge of food built up over many years. She had previously owned a whole food grocery store and has completed studies in Food and Nutrition. Her health has been a driving force behind her food awareness, and she prefers to shop for organic and GM free food.
5	Celeste Swan, 50; Johannes Swan, 57; Married with four children. Three, Maryanne, 21, Gerard, 14 and Jennifer, 9 currently live at home. They also have a dog.	Johannes works full-time with Celeste only recently returning to work after having looked after the family and the children. Celeste is the primary food caretaker. Johannes is the secondary food caretaker. This family made significant changes to the way they eat 17 years because of Celeste's strong interest in health and nutrition and they have maintained this way of eating. There is a connectedness to food in this home that extends to the family as well. The family migrated to Australia 11 years ago.

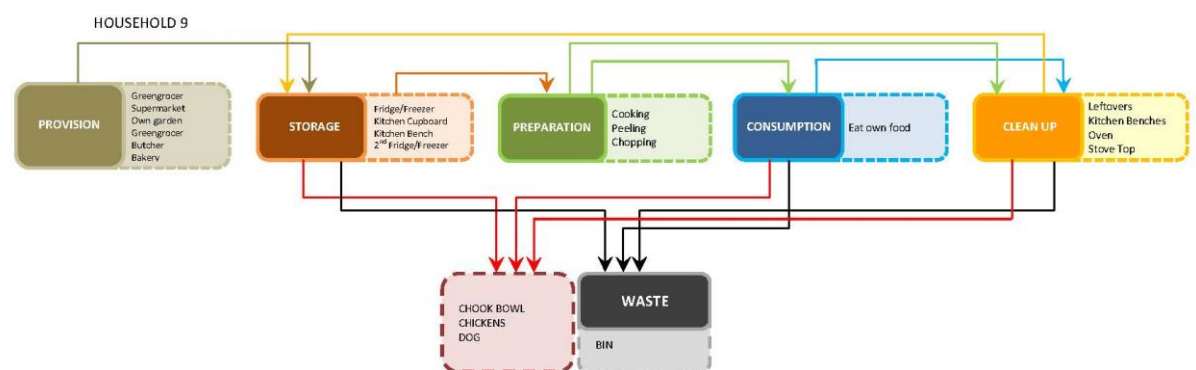
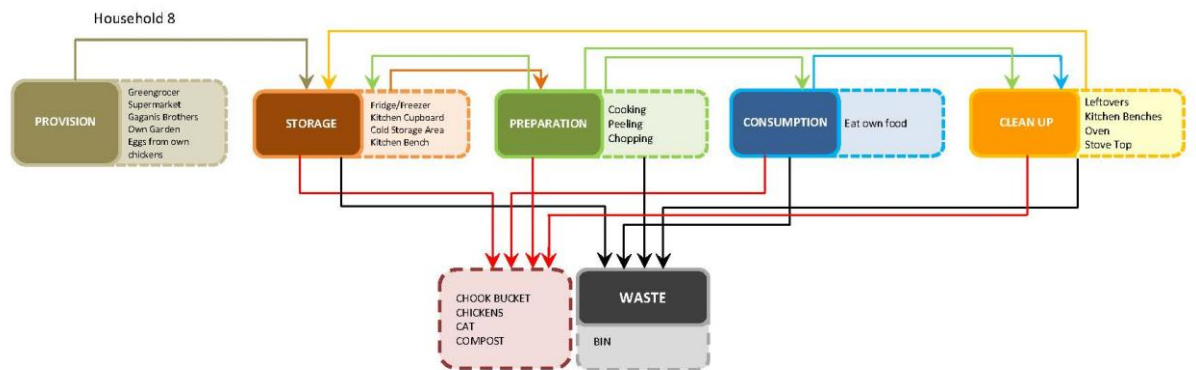
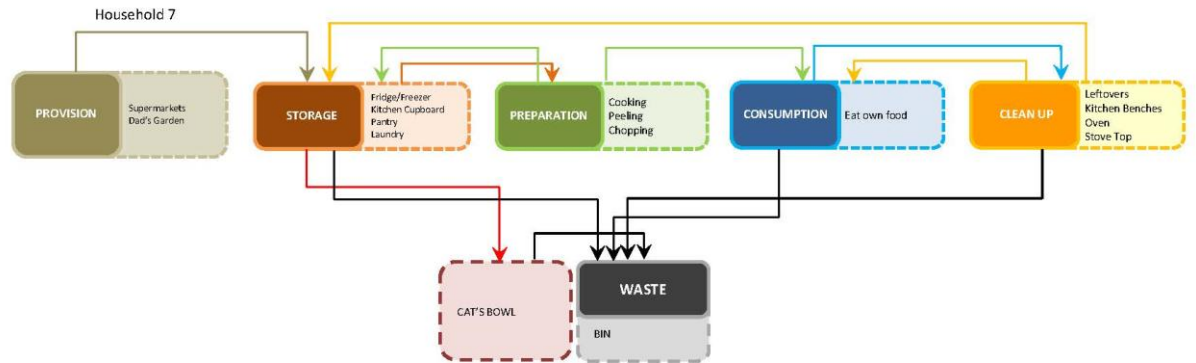
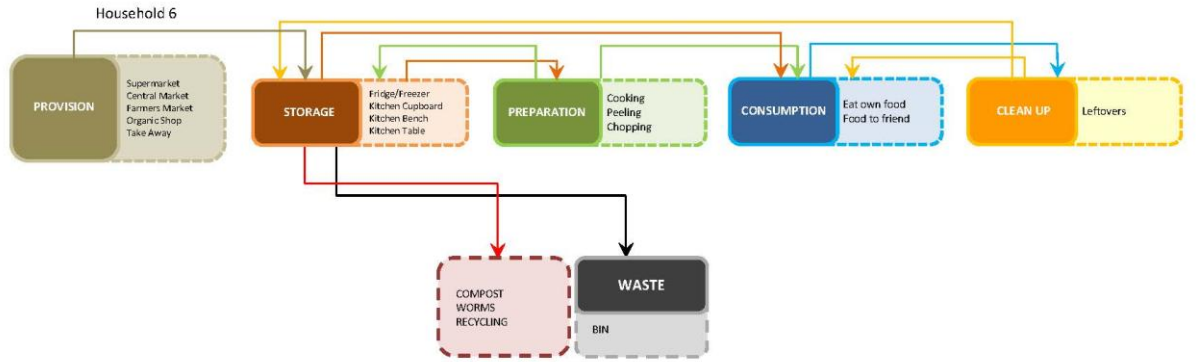
Household	Participants	About the household
6	<p>Joan Lockley, 58;            Karen Lockley, 23.            Working single female with adult daughter living at home.            Has a cat.</p>	<p>Joan is the primary food caretaker.            As an Executive, Joan worked long hours. While Joan's daughter, Karen was living at home, she was hardly ever there. Karen both studied at University and worked. Both Joan and Karen were "food aware", making an effort to read about issues related to health and food in magazines and newspapers. Changes to the types of food eaten or the way food is heated up are usually a result of Karen's influence from something she has read about.            German background.</p>
7	<p>Tony Demasi;            Dave Collins.            Couple living together.</p>	<p>Tony is a full time student            Dave is working full-time. Tony has returned to study after having worked full time for over 10 years. He has assumed the food responsibilities in the home, which he enjoys, reflective of his half-Italian heritage. He is thrifty by nature, seeking out specials when shopping but also trying to make use of all the ingredients in his fridge. Dave refers to himself as a "try hard" vegetarian. Tony tailors his shopping and preparation practices to accommodate Dave. They live in a rental property.</p>
8	<p>Alice Schumacher, 33;            Steven Schumacher, 33;            Grace Schumacher, 2.            Married couple with one child.</p>	<p>Steven was born in Germany but came to Australia with his family when he was five.            Alice and Steven live in their own home in an outer area of Adelaide (Hills) with their daughter Grace, their cat and five chickens. Alice refers to herself as a domestic engineer; she has given up work to stay home and look after Grace. She finds less time to spend on cooking for pleasure since the addition of her daughter to their family. Breakfasts are the only meal where the family sits together during the week, and Alice and Steven try to have one Grace-free night per week. Alice likes to plan the meals for her week ahead, and the acquisition of a new Thermomix has caused changes to the way Alice provisions and cooks.</p>

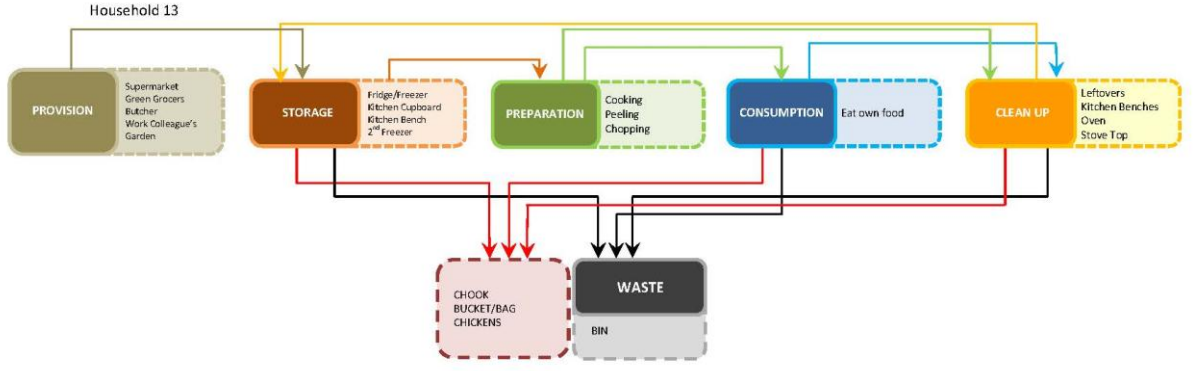
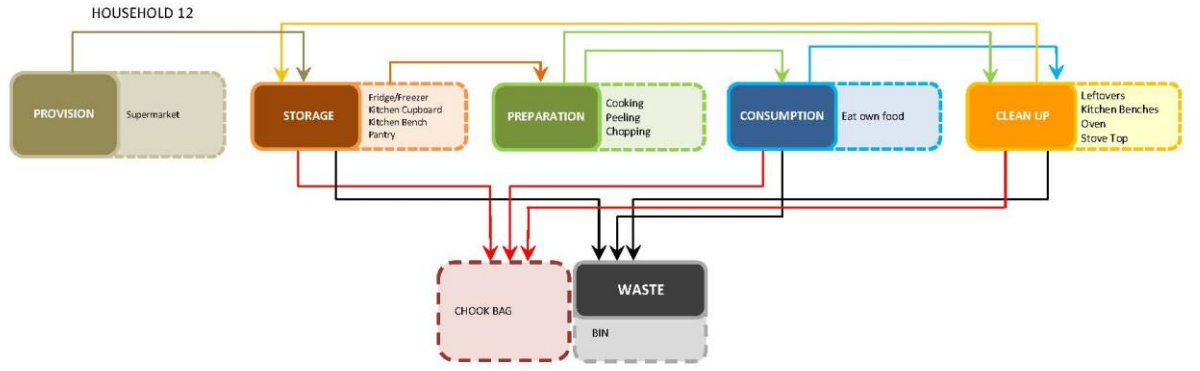
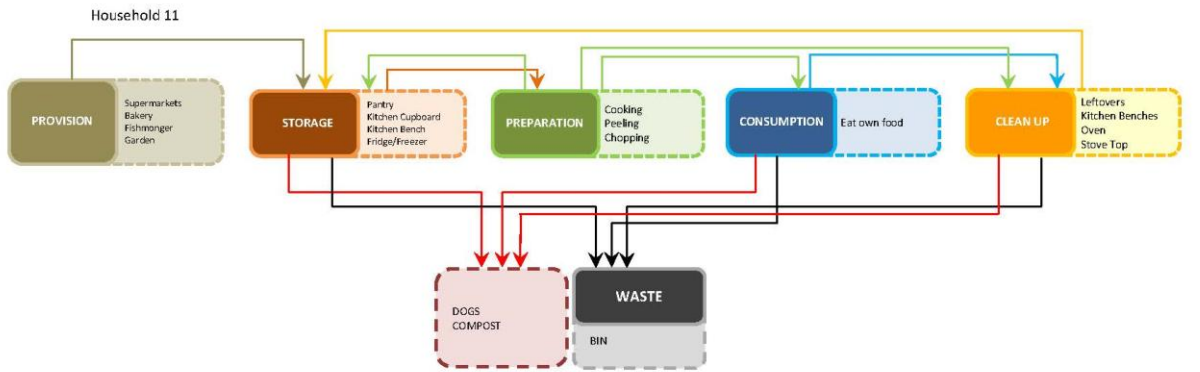
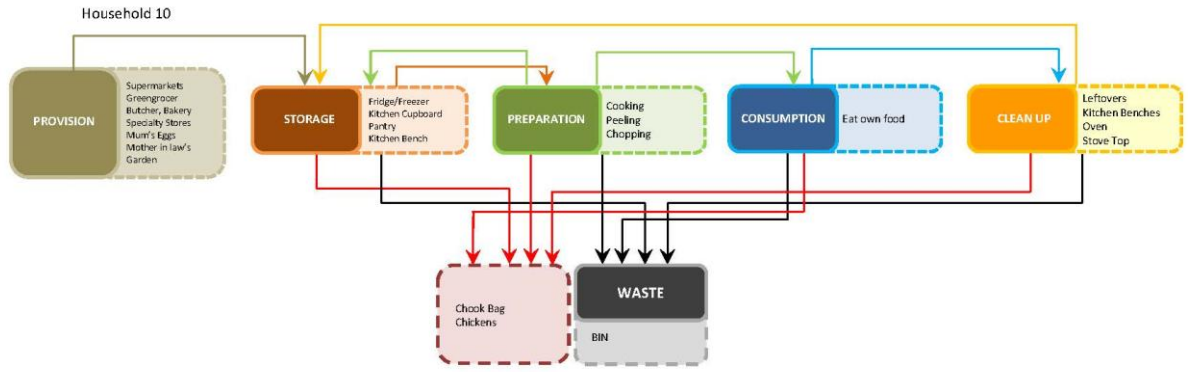
Household	Participants	About the household
9	Harry Potter, 48; Ginny Potter, 49. Married, two children (Samantha, 13 and Audrey, 11). Both adults work full time.	Harry and Ginny own their own home, living there with their two daughters, their pet dog and two chickens. Food is important to the Potter family, but their busy lifestyle and the girls' tastes have forced an element of convenience in many aspects of their food relationship. They have adopted a more informal approach to food during the busy week, eating in front of the TV, while on weekends they are more formal. They will sit at the table and often entertain on Saturday evenings. School holidays are more relaxed and create different lifestyle patterns. They have a designated night once a week as "take-out" night.
10	Sally Moore, 37; Tom Moore, 39. Married, two children (Anna, 6 and Mark, 6 months). Italian background.	Sally and Tom often entertain and get together with friends. During the observation period, Tom had injured his hand at work and their normal routine was somewhat changed. They have a fully functioning kitchen outside, where they spend time entertaining during the warmer months. Sally is the main food caretaker in the home, and also shops for her mother. The family's meals are predominantly driven by what their daughter Anna will eat because Sally does not like to cook separate meals for her. Sally collects uneaten leftover food for her mother in laws chickens.
11	Vivian Holmes, 35; Roger Holmes, 37. Married, three children (Bethany, 4, Danny, 2 and Oliver <1) living in own home.	Vivian and Roger live with their two children, which became three during the study, and their two dogs, one of which loves vegetables, sometimes straight from Vivian's garden. Vivian has always enjoyed cooking food but she has found that the addition of children to their family has decreased the amount of time she can spend thinking about and creating things she likes in her kitchen. Food choices are driven primarily by what her children will eat, preferring to cook one type of food that everyone will eat. Vivian plans her meals out for the week, but her shopping is dependent on her children's needs. They also have a compost of sorts in the garden, with uneaten leftover food being shared between the compost and the dogs.

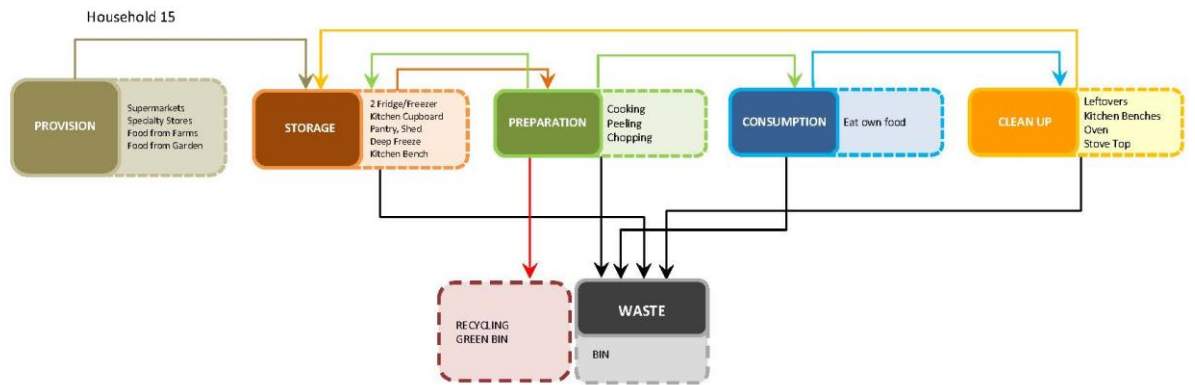
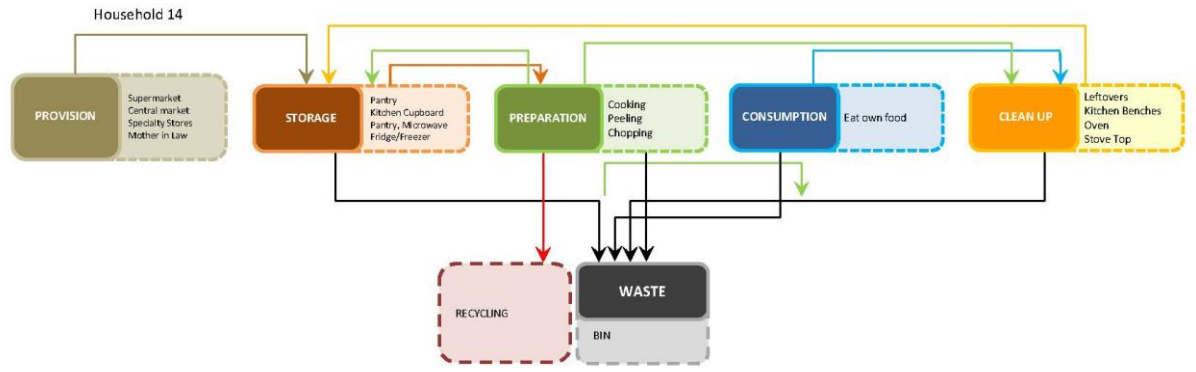
Household	Participants	About the household
<b>12</b>	Peter Bowles, 37. Divorced single male. Daughter Stephanie, 14 staying over every second weekend.	Peter is renting his current house, contemplating a move interstate. He shares custody of his daughter who stays with him every second weekend. When he is alone, his food practices tend to be comfortable and more relaxed, with meals consumed in front of the computer or the television. When he is joined by Stephanie, he tries to make more of an effort to eat at the table. He encourages Stephanie's love for food and cooking and will allow her to cook and make a variety of food when she stays with him, supervising her in the kitchen. Peter likes to use and is confident in his own judgement about what food he buys and prepares.
<b>13</b>	Amelia Lockheart, 38	Amelia is currently renting her unit, living on her own. Being healthy and eating well are embraced in Amelia's culinary pursuits as she constantly builds her food knowledge. She is vegetarian which influences her food choices and she derives comfort from food in her very busy life. She will use food as a way to manage the stresses associated with her job. Amelia loves to compost and garden but her current landlord accidentally killed all the worms in the compost, creating a dilemma for her about where to place her organic waste.
<b>14</b>	Violet Andreou, 40; Arthur Andreou, 39. Married, 2 children (Gabrielle, 11 and Connor, 10). One child has a disability.	Arthur was born in Cyprus and migrated to Australia as a high school student; Violet is of Greek background, born in Australia. Violet and Arthur are currently renting, having recently returned to Adelaide from a move interstate. They have a cat. They are often invited out to friends and also often entertain, with Violet searching for inspiration leafing through magazines. Violet tries to plan her meals for the week on a Sunday night, and weekdays tend to be busy and routine.
<b>15</b>	Penelope Milo, 65; George Milos, 69. Married, retired. Emigrated to Australia many years ago.	Penelope and George own their home, and are both migrants from Greece. Food is central to their lives, with George tending a large garden and Penelope spending many hours cooking up treats and meals in the kitchen. Variety of food is important to them, as is freshness of ingredients, with their food preferences and their approach to sharing food reflective of their Greek heritage. They often buy food items in bulk and have ample storage space in their home.

## Appendix 4b: Food Maps











## Appendix 4c: Vignettes

Household 1	The Jones Family
<p>The home on Siesta Court opened its doors nine times over the winter months of 2011 to be part of a food study looking at the relationship of its occupants with food. The home was built by and belongs to James and Sue who display great care and love in looking after their happy home. The things that make up this home sit in their assigned spaces and can be accessed at a moment's notice. The kitchen space is separated from the family room by the kitchen bench, on which sits a lovely photo of their granddaughter, her partner and James and Sue. James and Sue are a retired couple, who love food. They love eating and preparing food and prefer to cook up a meal rather than get takeaway, since, as James says, "it only takes 20 minutes".</p> <p>The kitchen space is open to other places of the home, with the computer and the television both within watching distance from the kitchen sink, which sits under the breakfast bar. A small table sits at the end of the breakfast bar which serves as a hub when coffees are served and is used for meals by James and Sue when they are alone (always breakfast, a light lunch and cooked dinner). The fridge and the oven stand opposite the kitchen sink, nestled around the pantry and other cupboards where many but not all foodstuffs are stored. The kitchen space seems to fit both James and Sue comfortably when they are preparing food, but they each often say that they get in each other's way.</p> <p>James and Sue will go for their weekly shop together, list in hand, and collect all the things they need to keep their well-stocked pantry and fridge. Stops at the supermarket, the fruit and veg store and a specialist butcher provide the food they bring into their home with no top up shops to replenish anything that finishes. One of their fridges is stocked with fish, caught by James on his annual sojourn up the coast. Goods are only replenished on a weekly basis. On returning home after their food shop, James will make lattes using the coffee machine, while Sue, to ensure the pantry is kept in an orderly state, prefers to put the shopping away. Their three fridges are organised in such a way that there is a supply of protein and vegetables at all times. This enables meals to be prepared very quickly and easily.</p> <p>What they eat has changed considerably to accommodate changing health concerns. James will often cook and Sue will gladly support him in the kitchen, with both of them involved in all aspects of food preparation and cooking. They both like variety. Travelling in the caravan was a much loved pastime and cooking food was an important part of their lives through their travels. This was James's domain and if travelling companions wanted to share in the meal, they would eat what James had prepared. They no longer travel in that way, but James still enjoys cooking both for him and Sue and for others.</p> <p>They both convey their love of food through cooking for others, both in and out of their home and each week will prepare at least three dishes and a dessert to take to an elderly aunt. In addition to taking her food, they will cook a meal at her house and share this with her. They think about what food to make as they think that tastes, texture and variety are very important for Aunty. Treats are always well received, and often Aunty will share a new product she has received through her shopping with James and Sue who are happy to try it out and share the results of their endeavours with her. They will also cook for the family</p>	

and enjoy it when they all get together.

With such a focus on food preparation there is little waste generated. As meals are prepared, a small plastic bag sits in the sink, accumulating rubbish, of which a very small portion is foodstuffs. This bag is taken out to the landfill bin as it fills, and if necessary, another one takes its place until the meal preparation is finished. In some instances, food is saved for the “grand dogs”, as their granddaughter’s dogs are affectionately called, frozen in small containers, in little treat bundles and handed over. Any food that has been prepared and not eaten is kept and eaten at a later time or gladly re-cooked by James into “bubble and squeak”. Sue will wash all the recyclable containers putting them into the recycling bin.

**Household 3**

**The Thomas Family**

The home in Adelaide’s north opened its doors five times over the winter months of 2011 to be part of a food study looking at the relationship of its occupants with food. Angela and Justin have lived in their house for many years, with their son John only recently having moved out into Angela’s mother’s house after her passing. However, John still finds himself dropping past his parents’ house, often joining them for meals on the nights he is not working. Food is important to the occupants of this home. Justin and John enjoy preparing meals, especially for others, but Angela is not a big fan of preparation, enjoying eating food much more than preparing it.

All food is stored in the new kitchen, mostly in the pantry, freezer and fridge with cooking and eating utensils housed in the adjoining cupboards. These areas sit opposite the kitchen sink and bench areas that are used for meal preparation. A small breakfast bar separates the kitchen from the meals areas, sitting opposite the stove and oven. This breakfast bar also serves as a serving area for meals where everyone helps themselves to what’s on offer, and is also where the microwave and coffee machine can be found.

Angela finds she cooks between four and five nights a week, especially when John is coming for tea. She doesn’t like cooking at all, much preferring the process of eating. Usually, they will have a fairly simple meal, sometimes even eating leftovers, with people helping themselves to something to eat served up on the breakfast bar. They don’t often entertain but will cook up something when their daughter and son-in-law come over for dinner. But it’s Tuesday nights that come closest to Angela enjoying cooking, where both she and Justin along with John will cook up a special meal of “different bits and pieces” that they haven’t made before to share together. In part, this is to keep the tradition going in memory of Angela’s mum, where she used to make jelly with bananas. John has now taken over making this and will serve it up often on Tuesday evenings. Angela also cooks up a meal for a special occasion such as a birthday, preferring to cook more of what she is good at rather than cooking lots of different things.

During the day, meals are more ad hoc and people help themselves, with Justin waking, eating and often leaving the house before Angela is up. Angela will make herself some breakfast when she gets up and if she is home will have a light lunch. Justin will sometimes be home for lunch or if he’s out, will take something with him to eat during the day. Both Angela and Justin enjoy eating out and will do so about once a fortnight.

Peelings and food scraps find their way into the compost out in the backyard, started by Angela’s father around 15 or so years ago. They are either collected in a bag or wrapped in

newspaper and emptied out. Justin will bring the newspaper back and put it in the bin but John will put the paper in the compost as well. Angela says that because they don't grow things, they don't really use the compost but she is happy that the scraps are not going into the landfill bin. Some food things do inadvertently find their way into the bin, but not many. Justin had mentioned that there were some fruit trees on their property but food comes into the home primarily through shopping via the supermarket, with reference made to the spinach growing outside not being a great success. Angela is the main shopper in the home, often making a list, usually the night before she goes shopping. Her shopping day is usually on a Friday afternoon and she normally goes to Coles at St Agnes but will also pop out to Woolies to check prices of things, especially when she is getting her hair done or to pick up items they have run low on such as milk. Shopping is not an enjoyable experience for Angela, regarding it as a chore, requiring a cup of coffee at the coffee shop before braving the supermarket aisles. Angela is happy to substitute one brand of product for another for her things, as she doesn't like to stand too long in one spot, making quick decisions and moving on. However, she will seek out specific branded items of the things that have been requested of her, mainly from John. On the occasion that Angela is not feeling well Justin will take her list and do the shopping for her. This is not an enjoyable experience for him but a necessary one nonetheless. Justin will often shop for his own vegetables when he is making up a special dish, especially for the Pony Club, such as Cornish pasties or a big pot of soup.

Prior to reaching the checkout, Angela will have her cards for payment ready in her hand to make the process as quick and orderly as possible, even placing the items on the conveyer in the order that she wants things packed. Angela normally stops at the same coffee shop for another coffee prior to returning home and putting the shopping away. Angela doesn't like putting the shopping away saying this is the worst part of shopping. In her pantry, Angela has an easy access section and a section of things that are used mid-week. Some items are hidden to ensure they last for their designated purposes, such as bananas intended for a banana caramel pie for John's birthday. The things bought for others tend to sit on top of the microwave so they can be seen and picked up. She will separate out items such as fish and meat, re-packaging and freezing them so that she has more than one meal from each of them. Packets are emptied out into Tupperware containers with the packaging collected up to be taken to the recycling bin outside. She tends to put the fruit in the fruit bowl, an easily accessible and visual spot, commenting that people won't see food unless it "jumps out and screams at them". As she finishes this not so pleasant task, Angela puts the kettle on to make herself a cup of tea.

Household 4	The Freemont Family
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The house on Lewis Street in Adelaide's west opened its doors to the food study during the winter months of 2011. Entering into the home through a well-kept garden, Claire welcomed me into her kitchen, the hub of all food activity in the home, where I sat at her round kitchen table. Claire has a deep understanding and knowledge of food built up over many years. From the days of owning her own whole food grocery to her studies in Food and Nutrition to her work in home economics, Claire's knowledge of food and food ways has changed and continues to evolve as she constantly seeks information regarding food and in particular genetically modified foods. Claire's health has also been a driving force

behind her knowledge and awareness of food in general, having suffered from chronic fatigue syndrome for many years. Claire works as a contract and relief teacher for the Department of Education. Food comes into the home from a variety of sources. Claire buys organic and food that is free from genetic modification even though she says that this can be hard. While she has some fruit trees in her backyard, she orders the majority of her fruit and vegetables from Joyeata once a week, but will also source out organic produce from the Central Market or Glenelg. She bulk buys her meat and nuts so that they last her through the school term, and while she roasts her own nuts, these are not organic. She keeps nuts in glass jars in the kitchen cupboards above the stove, and will store meat in the freezer in portion sizes ready to be cooked. The laundry also serves as a store for some of her foodstuffs, and this is where the fridge can be found. She refers to herself as an opportunistic shopper, and being generally aware of her supplies at any given time, will often get things she needs on the way to or from somewhere else. Quality and price are both important to Claire and she will look for these elements as she shops. Her patterns vary on the days she is at home and on the days she works, with work days forcing her to be more organised. Claire will always pack her lunch of a salad and some form of protein with her, such as tinned fish, and take some nuts for a snack. In winter, she also makes a lot of soup and will take this with her to work. She enjoys piecing things together, making things from scratch and will use leftovers when she can. When she is home, she will prepare something other than a salad. Claire likes to ensure that she can put her meal together quickly and easily.

As Claire uses her freezer quite extensively, she needs to think about what she will cook the day before, creating a level of organisation around planning and preparing meals. She will often cook more than she could eat in one sitting, then storing food in either the refrigerator or freezer, reinforcing the efficiency that orderliness and organisation brings. Claire naturally separates out her garbage, with a stainless steel bowl sitting in the white cupboard under the sink where the food that is not used in preparing a meal – the “non food” – is kept, to be emptied out in the landfill bin. This separation is the legacy of having had a compost bin in the past. During the course of the observations, Claire found out that she could put this food that was not used into the green organics bin and was very excited by this news. She had three spaces in her cupboard for waste, separating out her paper and plastics for recycling, keeping it in a cardboard box until it was time to empty it out into the large bin and her stainless steel bowl for the non-food that initially went to landfill but later was re-directed to the green organics bin. She also had a spot for those things that went to landfill. Claire has an awareness of her impact on the environment and does not feel good about wasting things.

Household 5	The Swan Family
<p>The home on Oraston Avenue in Adelaide’s south opened its doors nine times over the winter months of 2011 to be part of a food study looking at the relationship of its occupants with food. Celeste and Johannes have three of their children (aged 9, 14 and 21) and their dog living with them in the home and one child (aged 24) living interstate. All members have an interest in food. There is a connectedness to food in this home, which extends to the family itself. There are elements of sharing—both in the parts that constitute the running of the home, such as orderliness and food preparation but also in the</p>	

recounting of days and stories and interesting things. This is in part due to the family sitting around the table for mealtimes.

The family made a significant change to the way they eat and what they eat around 17 years ago due to Celeste's strong interest in health, and have maintained and refined their way of eating. Food and nutrition are a very important part of this family's food life, with the family preparing most of the food they eat. Celeste has educated herself in the ways of nutrition over many years and believes she is providing the best that she can for her family, despite some objections from family members along the way. This is also driven in part by health issues (a number of the family are coeliac but this is not the real reason for eating real food) of which incidentally their dog also suffers (health issues not coeliac), and which limit the majority of what the householders can eat. It also limits what leftovers can be given to the family dog.

Many whole foods are purchased which are then made into a meal including lots of vegetables, fruits and pulses, although tinned tomatoes are kept as a back-up and used in cooking. The sourcing of food happens in multiple locations over the course of the week, with visits to the Adelaide Showgrounds Farmer's Market occurring fortnightly. The shopping is mainly done by Johannes, armed with a list of unusual items needed for meals cooked over the weekend. Celeste undertakes the visits to the two health shops that she prefers. The family grows vegetables and herbs, including sprouts, in their backyard and at the community garden. The family always has a raw salad that contains a variety of vegetables with their meal. Celeste refers to their meals as being "basic", meaning they are not fancy, but they seem to provide adequate nutrition, flavour, texture and warmth for those consuming them. She uses her Sunday afternoon to make healthy sweet and savoury items for the week ahead and baking a loaf of gluten-free bread, so that the children will have things in their lunch boxes for recess and lunch and Johannes will have morning tea. She also prepares everyone's lunch in the morning, ensuring they all have food they can eat during the day.

Food comes into the home in a variety of ways and is stored in close proximity to the kitchen that sits in the centre of the house, acting as a hub, extending the warmth of those who reside in the home. The family have remarked at the smallness of the kitchen with two people often bumping into each other as they carry out their tasks. The kitchen is a thoroughfare through which all members of the house must pass if they wish to sit down to eat, watch TV or go to their rooms. Drawers and cupboards surround the fridge, sprouts and compost buckets sit on top of the bench overlooking the sink with the oven and stove standing opposite. A bowl with some of the breakfast fruit can be seen through the kitchen "window" on the bench overlooking the dining table.

A tub sits in the sink to collect water from any food preparation activities (such as washing salad leaves) or washing those dishes that are not washed by the dishwasher. The two compost buckets are used to collect the food that is not consumed and taken out to the compost. These buckets are emptied out when full or on home cleaning days into the compost bins outside in the backyard. It is in these bins where the worms live, turning uneaten food into soil. There is also a worm farm out in the front garden for left-over scraps. Some food scraps end up in the bucket for the landfill bin, and these are usually bits which the worms cannot eat, such as onion or orange and mandarin skins.

Celeste prepares the evening meals during the week serving the youngest to the oldest.

Johannes prepares the fruit breakfast each day and assists with lunch on Sundays. Alfred and Eva (the youngest children) occasionally take turns deciding and preparing Sunday lunch. Saturday nights usually involve a more elaborate meal as there is more time for Celeste to prepare it. The family will sit down together to eat their breakfast before going off to school and work. As Celeste prefers the children to eat early, the weekday evening meal is eaten by Celeste and the younger children. Johannes eats after he returns home from work. With two growing children, there is little food left over. If there is, it is stored in the refrigerator “for later” or often shared with a friend outside the home.

If food is not consumed it is because it has been kept in the fridge for too long, forgotten as more than was eaten had been prepared. Salad is not kept. Celeste assesses what will be retained and what will be thrown away. Much attention is given to preparing and consuming the food, but following on from the meal, the connection with the food is severed, with individuals attending to other tasks. But very little if any food ends up in landfill, with most uneaten food recycled.

Household 6	The Lockley Family
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The home on, in Adelaide’s north opened its doors three times over the spring months of 2011 to be part of a food study looking at the relationship of its occupants with food. In this home, Joan lives with her daughter, 23 year old Karen and her cat. Joan works long hours and even though Karen lives at home, there are many times when she is away from home as was the case during the periods of the observational research. Both Joan and Karen are food aware, with Karen making an effort to read up on issues related to health and food. Karen seems to enjoy reading up on food and health related issues and as a result of her readings will make changes to the way they eat in the house. For example it was Karen reading about the microwave not being “very good for you” that has resulted in food being heated up in the oven now, which Joan doesn’t think takes that much longer. It did take some convincing for Karen, however, but Joan seems to have succeeded in that.

The kitchen is a fairly small space, with the fridge, freezer and oven directly opposite the sink area, which in turn overlooks the dining area through a small internal window. The stove is nestled in the corner adjacent to the laundry door with some bench space directly opposite. The food is mostly stored in the kitchen area but some food is hidden away from Karen by Joan to ensure a steady supply of items bought in bulk, especially snacks which Karen eats and which Joan doesn’t.

Food enters the home from a variety of sources. When Joan is at work, she will get most of her fruit and veg from the fruit shop at North Adelaide as it has very good quality produce. She will visit the supermarket at Ingle Farm, usually on a Friday night, at around 8pm as it is the least busy during this time but she does shop on other days, such as Sunday if Friday turns out to not be convenient. Joan is happy to buy some fruit and veg from the supermarket, always on the look-out for specials and bargains. In most cases eggs are delivered by Monica, Joan’s eldest daughter who lives on a property and has chickens. If for some reason there are no eggs, such as young chicks being hatched, then Joan is forced to buy eggs, something that she doesn’t really like. She also is given radishes and other fruit that is in season from one of her work colleagues. She has just bought a peach tree and will plant that in a big wine barrel out the back, as a start to replace some of the fruit trees that grew very old and stopped producing fruit.

Once the food has come into the house, Joan unpacks the shopping bags, putting things into storage cupboards in the kitchen, or into the fridge or freezer or in Joan's secret storage place. Joan is planning on cleaning out her freezer and is using this as an opportunity to go through and use items that have been stored in there. So some of her decisions about what to make for dinner will be driven by what is left in the freezer.

Food is prepared in the kitchen area, using the benches, the stove, oven or grill. Joan prefers quick and easy meals during the week when she is working, and it is mainly weekday dinner meals that are prepared at home. Joan always eats out with friends on a Wednesday night and will often use this opportunity to eat something that she will not eat at home. She says that Karen is very fussy with her food and will only eat certain things, and because Joan doesn't want to cook separate meals at home, she will often cook something that Karen will also eat. Breakfast consists of a piece of fruit for Joan with any peelings going into the chook bucket. Karen doesn't eat breakfast. Joan and Karen both take a salad to work for lunch, which Joan has prepared the night before. Joan's salads have a bit more variety than Karen's. Weekends see both Karen and Joan usually out and about. Joan is happy to grab a meal at or take something with her to the home ground footy games during the winter months or at either the cricket or soccer during the summer months. Other times she will eat and about.

Dinner meals need to be quick and easy for Joan so she can prepare them quickly once she has returned home from work. If there are leftovers, she will eat those, heating them up in the oven. Joan aims to have her ideal meal ready in 20 minutes. If Karen is home, she and Joan will eat together, but if Karen is not coming home, Joan will eat on her own, saving Karen's for later. Dinner will often consist of chicken with some rice or noodles or some vegetables. When the grandkids visit, they will either eat a sandwich or what Joan eats if they visit during the week or over the weekend Joan may give them a can of something like Wiggles noodles which they don't get at home and seem to love eating at her place.

Sunday night sees Joan boiling up 10 eggs that she has been given by Monica in preparation for the salads and the week ahead. Peeling fresh eggs can be a bit of an issue as the fresher the eggs the harder they are to peel but Joan loves that the eggs are fresh. She will also cut up all the bits and pieces she will use in the salad, such as cucumber and store them in containers in the fridge making it easy to assemble the lunch salad the night before. Saving time and spending less time in the kitchen is important for Joan. Joan has a rule that she won't cook on weekends and she has had this rule since she got married, with the only exception being if she had invited people over for a meal during a weekend.

Joan's planning leads her to waste little food in her home. Most things that are not consumed end up in the chook bucket, which Monica has dropped off with the exceptions being avocados and things like onion skins. Joan will put egg shells in the chook bucket but not chicken! If the bucket is forgotten, Joan will use a plastic bag to store the food in instead, dropping it off at Monica's over the weekend. In the warmer months, Joan will keep the bucket or bag in the fridge, concerned that she doesn't want to make the chooks sick. Karen is horrified when she sees the bucket or bag in the fridge.

Household 7	Tony Demasi and Dave Collins
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The rented home of Tony and Dave in Adelaide's north opened its doors four times over the spring months of 2011 to be part of a food study looking at the relationship of its occupants

with food. The responsibility for food rests with Tony and this is something he enjoys, reflective of his half-Italian heritage. Dave refers to Tony having “always been a bit more dominant in doing the shopping because that’s his nature”; Tony reinforces this by saying he likes it, and so they have agreed that it is Tony’s job to do this – at least while he is studying. And Dave will take responsibility for paying for the food purchased, commenting that he is currently earning more than he has ever earned before which allows for quite a bit of leeway in how much he can spend on these things. Food is important in their household with Tony speaking of thriftiness and being taught from an early age by his parents to be careful, aware of costs and using things up. He says that Dave has had a different upbringing and when it came to shopping for groceries, he wouldn’t know the price of things. Work plays a big part in their lives, with both having very driven careers over the past 11 years, and this continues to influence the timing and the way they eat. Dave refers to himself as a “try hard” vegetarian, something that Tony is mindful of when he is cooking for both of them; when Dave is away from home, Tony will almost always make up food that he exclusively likes.

Food comes into the home from the Foodland supermarket at Fairview Green. At the moment Tony and Dave shop once a week, but in the past have shopped fortnightly and even monthly, depending on their circumstances. Prior to going grocery shopping, Tony will check the cupboards, pantry and laundry area and the fridge adding things to his list as needed. He likes to keep a backup of what’s in the cupboard, commenting that in the past he used to go overboard and buy more of things when they were on special. Now he is happy to just fill the shelf space. His list sits on the microwave and items are added to it during the week both by him and the cleaners as needed. Dave drives (Tony did not drive at the time but has since got his driver’s licence) to the supermarket and will sit in the café in the supermarket doing work while Tony shops. Tony uses his list while he shops, rarely deviating from it.

Tony starts at the pet food aisle trying to work out what his fussy cat will eat. Dave’s step-niece works in the deli section of this supermarket, providing more of an incentive to shop from here. Tony is very specific about the amounts of things he orders from the deli section, not wanting to be served more food than what he has ordered. There are some things that he can’t get from this supermarket so he will go to Woolies to get those at another time. Tony reads labels and is very specific about the types of things he buys. He is concerned about price, but also the fat, sugar and sodium content of foods, and how and where they are made. While grabbing a bargain and being able to save on products is important to Tony, he will not buy those items for which there is not much choice, such as tofu or vegetarian bacon, on price. Items such as eggs are also not bought on price, chosen solely on an ethical and taste basis. Tony will pick up Dave when he finishes and they will move together to the checkouts to pay with Tony putting things onto the conveyer belt in a very methodical and organised manner.

Usually they go straight home and Tony unpacks the shopping. Dave says he leaves this to Tony as Tony is very particular about the way things are put away in their respective storage spaces. The food is carried through the front door, past the lounge on right toward the kitchen, which is located to the rear and left of the house. A kitchen bench divides the space from the dining area. Food is kept in the cupboards above the stove, in the pantry section and in the laundry, with obvious stockpiles of food, all ordered and neatly placed.



Quick meals are prepared and eaten late during the week as they are both working, getting home fairly late. Both will also travel as part of their work and this determines when Tony will cook, something he decides on a week-by-week basis. He will do a big cook up of a big batch of sauce maybe once every two months, and will freeze portions of it in recyclable plastic containers, or in a re-used 2 litre ice-cream container which he will then take out of the freezer and spoon out the quantity of sauce he wants and putting the rest back in the freezer. When this has all been consumed, he will then organise to make another batch on the next available weekend. He doesn't follow a recipe for this sauce, but for things he bakes, like the huge bowl of rice pudding he often makes, he will be very prescriptive in following the recipe. When he cooks, he brings the bin over from its place by the side of the fridge and puts peelings and anything else that is rubbish straight into it during his preparation phase and ensures he cleans as he goes, tidying things up and putting things away as he uses them. During his big cook up, Tony prepared the lunches for the next day. When we started the observations, Tony would prepare his lunches during the morning before he would go to work, but during the process, Dave decided he would eat more healthily and decided to take his lunch from home. Tony now found himself having to prepare the lunches from the previous night as he needed more time. Tony would prepare sandwiches for Dave and rolls for himself, although the type of bread he bought varied. These would go in the fridge along with the peeled raw vegetables that Tony loves and would take with him during the next day. He would cut the ends and tails off them in the morning, as this kept them fresh a bit longer. If he didn't have time he would take a tin of baked beans, whereas Dave was buying his lunch instead. On weekdays, lunch is now a meal that is prepared at home. When they travel, they eat out. On weekends, there is more time, so breakfasts are more relaxed, often turning into brunch, and Dave will often make his eggs. If they are home, they will make lunch and are often found grazing for most of the day. They get pizza once a fortnight, and always get more to have some leftover, as Tony loves cold pizza. They eat out about once a week. They won't entertain during the week, but sometimes friends may drop round. There is always food for them if they do as there are usually frozen food portions made up in the freezer. They occasionally entertain for special occasions and in these circumstances, they will set the table and go to more effort for the meal. When it's just the two of them, they will eat either in front of the TV or sometimes Tony has his meal in his study. Their meal preference is for one-pot type meals rather than meat and three veg.

Variety is important, as is ease of making something and taste. When Tony cooks, he likes to make enough to have leftovers so he can have another meal. Tony comments that he was brought up to eat all the food on his plate, while Dave will stop when he is full. If there is a small amount left on Dave's plate, Tony will eat it; sometimes it will go back in the pot and be divided up into the portions to be frozen or stored in the fridge to be eaten the next day. Not much food is thrown away. Peelings and food that may have gone off because it was forgotten in the fridge will get thrown out, but this is rare, according to both Tony and Dave. The cat's food is what is thrown out most often, being chucked out if it is not eaten on the day.

Tony calls himself an environmentalist, recycling before it became fashionable. He will collect all the recycling in a pile next to the bin, saying that it is amazing how high the "recycling mountain" can go. It is taken out on bin day, irrespective of whether the

recycling is collected or not. He rinses the containers, saying that is a bad habit he must get rid of, as someone has told him it's not necessary to take the tops off containers or rinse them. Their council area does collect food waste in their green organics bin but they don't think they waste enough to warrant doing this, saying they "just don't have the waste".

**Household 8**

**The Schumacher Family**

The home on Spring Gully Road opened its doors five times over the spring months of 2011 to be part of a food study looking at the relationship of its occupants with food. Steven, Alice and their nearly-two year old daughter Grace live here with their cat, Tibbult and their five chickens in the backyard. They even looked after Alice's mum's (slightly psychotic) cat during some of the visits while she was away, demonstrating the strong bonds between family members – even four legged ones! While food is important to the Schumacher family, and its preparation has provided Alice with great satisfaction in the past, the addition of their daughter has changed how Kate feels about food preparation. It is now "one more thing to fit into the day" and has expressed that she does not always "feel good about being a domestic engineer".

Due to requirements of a young toddler and a busy lifestyle, the Schumacher family has found that breakfasts are one of the key meal times where the family will sit at the table and share a meal and some time together. Grace's need for routine and consistency in her meal times has meant that the family eats at fairly similar times each day, whether it is a week day or a weekend. The only time this differs is when Steven and Alice have a "Grace free" night – about once a week – as Grace spends a day and a night with her Umi and Opa. This night off from the necessities of caring for a toddler give the couple a chance to do some work around the house, experiment and maybe try new things with food, eat later or take a night off and go out to dinner or a movie.

There is a large amount of planning that Kate does for her week ahead, going through her cookbooks or her recipes, or even looking things up on the internet to work out what she will like to cook for the week ahead. She also factors in if they will entertain or go out of the home to friends, children's birthdays or family outings. She has taken to using a meal planner to help her with this planning and keeps previous weeks' plans to help her vary the meals. The addition of a new piece of food equipment, a Thermomix, has had a huge bearing on Alice's approach to food preparation, resulting in a re-think of many food practices, including shopping. Alice has reflected that it has resulted in their buying more whole foods. The Thermomix has also meant less time spent cooking, which has made the cooking process much more enjoyable.

Alice likes to shop for the food that she will use in the Thermomix from the Central Market, or Gaganis wholesaler. She likes to buy her fruit and veg from the Fruit Barn at Hahndorf, often after dropping Grace off at her grandparents on a Tuesday. She will pick up odds and ends from the supermarket. There is no routine to her shopping, with Alice saying it is "all over the place", however, she prefers to shop without Grace. Sometimes Alice returns home to put her shopping away, while other times she may go to visit a friend, and would take the shopping with her, ensuring it is kept cool parking her car in the shade or using a cooler bag.

Alice will always keep a shopping list on the fridge, scribbling things down during the week. On our shopping trip to the fruit and veg shop, Alice, with list in hand, first picks out a box

in which to store her shopping, from the front of the store. Some purchases are influenced by price, some by the recipes that Alice would like to make this week. She doesn't stick exclusively to her list, as her buying a tray of mangoes highlights. While the whole tray was definitely more than they would use, Alice liked the price and the look of them saying that some will be eaten fresh, and what would not be consumed would be made into sorbet or frozen to use later when mangoes were not so plentiful and cheap.

The food comes into the house through the back door after Alice has unloaded it from the car and she begins to put things away immediately. The open plan area of the kitchen, meals and family room are centrally located in the house. Some of Grace's toys can be seen in this space. The kitchen area is separated from the meals area by a wide and waist high bench that extends across the kitchen parallel to the kitchen window. Sitting on the bench is the Thermomix, and next to this the coffee machine butts up against the pantry which forms a corner of the kitchen space. Behind the coffee machine sit three different sized bowls full of seasonal fruit. The stove sits perpendicular to the pantry and kitchen bench, with some small plastic buckets – one for collecting food for the chooks and one for the compost – sitting in the corner on the bench. Opposite the kitchen bench is the sink, and the dishwasher and next to this is a floor to ceiling cavity housing the oven, the microwave and Alice's recipe books in plastic folders. Some cookbooks also sit up on the shelf above the oven. Next to this space sits the fridge.

Alice takes out the crispers from the fridge and begins to put her shopping away. She keeps the netted bags from some of her produce to wrap tulip bulbs. During the process, Alice cuts and shares one of those beautiful mangoes she bought and begins to make herself a quick sandwich for lunch. When she is in a hurry, she leaves some things out on the bench to be put away later when she returns, such as the lettuce.

Food preparation takes place on the kitchen bench, and over the sink and on the stove and in the oven. Alice will prepare the evening meal and has fed Grace well before Steven returns home. In wanting to be independent, Grace will try and feed herself, inadvertently spilling food on the floor. She may not like what is offered to her, making this very clear and will ask for other things such as yoghurt or avocado. And Alice, in wanting to make sure she has had enough to eat, will provide.

In most cases in the evenings, Alice will eat with Steven at the table after he comes home, inviting Grace to join them more so for her company as she has already eaten her dinner. On their Grace-free night, routine is relaxed and much more time is spent preparing and eating their (on this occasion) German-inspired meal of maltaschen, with the tasks shared between the adults, something they don't often do. These experimental dinners may result in more food being prepared than was anticipated – the result of trying a new recipe – but this food is consumed as a newly created meal or re-heated the next day.

Trying new recipes does result in preparing more than they could eat in one sitting, but they quite enjoy having leftovers, as Steven often takes them for lunch at work and one meal a week at home is made up of leftovers. Alice says that Steven has a stronger stomach than she has when referring to how long she will keep leftovers. Alice pulls a face when she recounts Steven liking cold leftover food (a trait that Grace seems to have picked up), and even eating pizza the next day – something that she doesn't really like. Food that is not consumed and not taken as lunch from leftovers, such as the beetroot that Alice's mum passed on prior to her leaving for her holiday, gets given to the chickens. Other food that

the chickens don't eat goes to the compost which then is used to put over the plants and some of the herbs that Alice grows. There is a great deal of satisfaction derived from feeding the chickens food not eaten or putting scraps on the compost as "it's not really waste" because the chickens give the family "back" eggs and the compost is used on the garden. In addition to the daily tasks of taking out the chook and compost buckets, Wednesday nights provide an opportunity for a purge of things in the fridge, leaving Alice with a cleansed feeling. Thursdays is bin day, and so the evening before, Alice will empty out anything that needs to go from the fridge and in some cases, things that the chickens won't eat or is not appropriate for the compost (such as onion skins) will make its way to the bin.

Household 9	The Potter Family
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The home on Water Street opened its doors five times over the spring months of 2011 to be part of a food study looking at the relationship of its occupants with food. Mark and Lily live with their two daughters Hermione and Fleur, aged 13 and 11 respectively, their dog, Biscuit, and two chickens that live at the rear of a well-kept backyard. The fish live in an outdoor fishpond passed on the way to the living area. While food is important to the Potter family, their busy lifestyle and the girls' tastes have forced an element of convenience in many aspects of their food relationship.

The kitchen and meals area are located at the end of the long hallway, in the same open space as the living area all at the rear of the house. A breakfast bar separates the kitchen from the dining area, with the kitchen-facing bench space used for preparing meals. A relatively small sized fridge containing a small (not so great) box freezer – that Lily is forced to clean out every four months or so – sits at the entrance into the kitchen space. The oven sits nestled between the fridge and the pantry and storage cupboards with the sink and the microwave sitting directly opposite. The stove and some more bench space are directly opposite the breakfast bar. Another fridge sits at the front of the house in the spare room that also serves as Lily's office.

The busyness of their lives has forced different eating and meal preparation patterns between the more informal approach of eating in front of the TV on weekdays and the more formal approach of all sitting together at the table on weekends. Each person leaves in the morning to head to work and school then returns home in the late afternoon or early evening. School holidays (which find Lily at home with the girls) create different lifestyle patterns and James commented that things are more relaxed and run more smoothly during this time.

Everyone helps themselves to breakfast over a certain period of time in the morning as other tasks –such as piano practice, walking the dog or tending to the large garden with some 20 fruit trees – are also undertaken during this time. James is responsible for making the girls' lunches and cleaning up the breakfast dishes as Lily is the first to leave for work at an earlier time than the others. Lily will prepare some lunch to take with her to work, as does James. James's lunch is often a dish made up using the leftovers from one of the weekend dinners, which he packs in a cooler bag affectionately referred to as his "Herman Munster" bag.

On returning back to the home (often around 6pm), Lily's priority is to get a load of washing into the washing machine and dinner started, with the choice of a meal driven primarily by

something that the girls will eat. While the kids' tastes are simpler (referred to as "nursery food"), James prefers more gourmet tastes. As a result of their fussiness he will not prepare weeknight meals for the girls anymore but will prepare something for himself if he doesn't like what Lily has prepared, often still doing this after the girls have finished eating.

When the meal that Lily has prepared is ready, the girls help themselves and take their plates to the lounge, opening up their little table and eating while watching TV. After school or work activities also dictate what can be prepared in the available time, as Lily's priority is to get the girls fed and homework done within reasonable timeframes. Time is crucial and there is often not enough of it. Thursday nights have been designated as the "take-out night", but takeaway may be purchased on other nights if, for example, Lily has had a very bad day at work.

While Lily has responsibility for feeding the girls during the week, James will often take the lead in cooking up the weekend dinner meals in particular. The Potters often entertain on weekends. On these occasions, food is served at the centre of the table where it may be accessed and shared by all. There is always food left over, which is then turned into a dish (such as quiche or shepherd's pie) during the week becoming James's lunch. The girls don't often eat meals prepared with leftovers.

Preparation occurs on the kitchen benches between the stove and the microwave, in the sink or near the sink area, and the bench underneath the breakfast bar. James and Lily share the cooking for their weekend dinners, with James taking care of the meat dish. Lily usually cleans up at dinner times, both on weeknights and weekends. Biscuit the dog assists with cleaning up also, eating the crumbs off the floor or from where the kids have eaten their meal. Things are put away as they are used while peelings, for example go straight into the chook bowl. If there are lots of peelings as a result of, say, weekend dinner preparations, then multiple bowls are used and stored in the fridge until needed. The chook bowl usually lives inside the microwave and is emptied out by being fed to the chickens no more than once a day by James in the morning. This is to ensure that as much of the food as possible is consumed by the chickens as any leftover food in the chicken coup attracts vermin. Not all things end up in the chook bowl, with food that is mouldy or not appropriate for the chickens (such as onion skins or avocado peels) thrown in the bin. James indicated that there was a hierarchy of disposal of food in their home in the following order of suitability – James, Biscuit (the dog), the chickens then the bin.

Lily is the primary shopper in the home and keeps a notebook in her handbag compiling a shopping list, often while she drives. On a Saturday morning, after having a breakfast of lovely pastries from the French bakery down the road – which James visits prior to everyone waking up – Lily sits down at the dining table and consolidates her list. She will then head off to one of two preferred supermarkets (Woolworths or Coles), despite a Foodland supermarket being literally next door. This is affectionately referred to as the pantry, and accessed in most cases in an emergency when they have run out of anything. Lily and James don't like the quality of the produce from this Foodland and will not shop from there for their main food shops. Lily likes to do her fruit and vegetable shopping from the fruit shop at Erindale and does this when she does her banking. Other times she buys the fruit and veg from the supermarket. She visits the butcher and the bakery at the shopping complex where she does her grocery shopping.

Lily plans the meals for the week, doing a large general shop, also picking up anything that

James might need for his meals whereas James does not plan or keep a list, not even for the weekend dinners, preferring to shop for what he needs. James is happy to head out to the shops to pick up things he needs for his meals. Shopping routines do vary depending on activities over the weekend with Lily, in some instances, also purchasing food items as needed for a weekend meal. In this case, she still does her larger shop at another time. In most cases, on her return home, Lily will unload the shopping from the car bringing it into the home in stages, as she is mindful that the dog does not get out of the front door. After the arduous job of moving all the bags to the kitchen area, she immediately begins unpacking the bags, filling up Tupperware containers and putting things in one of the two fridges. Lily is limited by the fridge's capacity and as a result, buys things of a particular size so that they will fit. Cardboard and paper packaging is collected for the trek down to the front of the house and placed in the recycling bin. The compost bin in the backyard is mainly for the prunings from James' extensive garden and food doesn't get a chance to make its way into it.

Household 10	The Moore Family
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The home on Findon Road opened its doors five times over the spring months of 2011 to be part of a food study looking at the relationship of its occupants with food. Tom and Sally live with their two children, Anna aged 6 and Mark aged 7 months and their fish. Food is very important to this household who often entertain and get together with friends. The normal routine of the house was a little changed during the observational period due to an injury sustained by Tom, which had him at home from work for a few days.

The kitchen is a central place in the home where food preparation and storage occurs. The fridge sits opposite the sink, stove and kitchen cupboards, with a low bench sitting under the window in the kitchen with two chairs. Next to this sits the pantry. The breakfast bar is directly opposite the window, with the kitchen-facing bench used in food preparation. In summer however, the family do a lot of outdoor entertaining especially BBQs, and they have a separate fully contained kitchen (including a sink and even cutlery) in their garage area which they "practically live in" during the warmer months.

Sally is the main caretaker of food in the home. There are no set days that Sally shops on, often sending Tom down to the shops to get top-up items like bread and milk. Food comes into the home from a variety of sources, namely the supermarket (not limited to but usually from across the road), the fruit and veg shop, the butcher, the eggs from Sally's mum's chooks, vegetables from Tom's mum's garden and if it's a special occasion other specialty shops. Sally will also shop for her mum, and this may be from the supermarket close to home, or close to her mum's home.

Sally comes straight home after shopping to put things away, especially the items that need to be refrigerated. She puts things away in the pantry, the kitchen cupboards or the fridge or freezer, all housed in the kitchen. Items bought for her mum are packaged in a shopping bag and put it in their designated spot in the study for collection on Saturday. Sally will visit her mum on one of the weekend days, depending on their social activities, staying on for dinner in the evening.

The family will all have breakfast, with Tom normally eating and heading off to work before anyone is up. Sally will feed Mark, then gets Anna her breakfast while picking at things and getting the school lunch ready. Whatever Anna doesn't eat gets offered to Sally and usually

ends up in the chook bag. Sally keeps a chook bag (two bags, one inside the other, in case they leak) in the fridge where all the food not eaten ends up and is taken to her mum's at the weekend. As a result, the household ends up with their "nice beautiful eggs". Tom might take some lunch with him, if there are leftovers and he has remembered to take them. For lunch, Sally will often grab something at home, while feeding Mark. It is often the same as what he has, only prepared differently, say in a wrap with mayo or sweet chilli sauce, or she might just have a sandwich. Anna will have her lunch packed by Sally in the morning, made fresh and she will eat some fruit when she gets home from school.

Dinners are early in the Moore household as both adults are active members at their gym. In addition to wanting to feed Anna early, eating early dinners help fit in with attending the gym. Tom starts work very early, so he is home early and it makes sense to serve dinner at around 5pm or so. Dinners are shared at the dinner table, with Mark also joining them in his high chair, although he is the only one who has separate meals. When the family eats separately, the adults usually sit at the bench in the kitchen by the window, Anna may sit in front of the TV, and Mark will often sit in his high chair or his parents' lap for his milk. Dinners however are a time when the family all sit together at the dining table.

Most of the leftover food comes from dinner meals. They are usually only kept for one day, for Tom or Anna to pick at or eat later if they are hungry, or maybe eat the next day. They are not kept for more than one day and will go into the chook bag if they haven't been eaten by this stage. Dinners are driven primarily by what Anna will eat, as Sally does not want to cook separate meals for her, and they are pushed for time during the week.

For special occasions, such as Tom's birthday, Sally will make sure there is ample food available for their friends. Due to Tom's injury the decision to call friends over was made on the day of Tom's birthday, and as a result, Sally claims that she didn't go overboard this time. There were leftovers from the birthday celebrations.

Despite being very busy both during the week and more so socially during the weekends, food is a central and important part in the Moore household, who will always put food on when friends come round. Having enough food to feed guests is important to them. Often there is food left over and the family is happy to eat food the next day. However, having young children, Sally doesn't want to risk keeping food for too long. Any food that is not eaten is kept to be given to the chooks, and in return they receive beautiful eggs. The warmer weather, especially summer, sees them spending more time eating outdoors.

Household 11	The Holmes Family
<p>The home in Adelaide's north east opened its doors five times over the summer and autumn months of 2011 and 2012 to be part of a food study looking at their relationship with food. Vivian and Sherlock's family of four turned into a family of five during the study, with the addition of baby Oliver during summer. Their other children include Bethany who is 4 and Danny who is nearly 2. They also have two dogs, one of which loves to eat vegetables, sometimes even straight from Vivian's garden, which she finds terribly frustrating. With three young children under five years of age, there is a significant focus on food in this household. While Vivian has always been interested in, and enjoyed cooking food, she has found that the addition of children to their family has decreased the amount of time she can spend thinking about and creating things she likes in the kitchen. Her previous "fancy" food creations have been replaced (to an extent) by food choices driven</p>	

primarily by what the children will eat. She prefers to cook one type of food that they all eat, rather than separate meals, but this is evolving as the children's tastes and palates also evolve. For example, with baby Oliver starting solids during the time of this research project, Vivian has started to prepare separate and appropriate food for him.

Vivian has a veggie patch that she actively tends, growing items such as tomatoes, spinach, celery, potatoes, zucchini, cucumber and strawberries. She even has a mulberry tree, and likes to make a mulberry crumble when she can pick the mulberries. The family also likes to pick fruit from their other trees, peach, plum, apricot, lime and lemon, especially before the birds get to the fruit.

Vivian will plan out her meals for the week. Vivian doesn't have a set day that she shops; she will shop when she can, depending on what she needs and how easy or hard it is with the children. She will often need to visit the supermarket more than once a week. She prefers not to take the children shopping with her, as this takes more effort and time on her part. It also means that Vivian does not have much time to compare products, specials and so on. More often than not they are in tow, which also influences which supermarket she can go to. There are three main supermarkets that Vivian will shop from, depending on her mood and what she needs. She will purchase most of her food items from one of these, but will sometimes go to the bakery, the greengrocer and she will purchase her fish from a fishmonger. The days of visiting and shopping from the Central Market once a month seem to have temporarily disappeared, and now Vivian is trialling a shop late on Friday night after the kids are in bed, and treating herself with a coffee from "Macca's" on the way home. Food is put away, preferably as soon as Vivian gets home, but will often be between a feed and a nappy change for Oliver.

Vivian *needs* to have her list with her when she shops and says that they are getting better at having set things each week, as in the past she and Sherlock used to be more "random shoppers". She is big on specials as long as they are not out of date. She will often make her choice of whether to purchase an item close to its use-by date based on whether the family can get through that item in the short amount of time before it should be used. Now that Vivian has children, she has become fussier with the use-by dates on items, not taking the same risks she would have taken before she had kids. She is more concerned with items such as yoghurts and creams, but how she makes her decision really depends on the item in question. She has an absolute time limit of three months for anything before she will dispose of it. She is also often given food by her mother-in-law that is very near or past its use-by date, which seems to frustrate her a little, as given her desire to minimise household food waste she feels pressured to do something the food items.

All food is stored in the small kitchen area, in cupboards, on the kitchen benches, in the pantry or in the fridge or freezer. Vivian will often buy larger quantities of those items she can portion and freeze, such as mince. A list is kept near the microwave and items are added to it as they run out. It is supposed to be a shared list, but Vivian finds she is the only one adding to it. In instances where items that Sherlock is responsible for, such as dog food, are left off the list this has resulted in the dogs not having any store bought food but relying on dry food and leftovers from the family's meal. Food is prepared on the limited bench space in the kitchen, and space, particularly storage and pantry space, is an issue for Vivian. Meals are an important part of the day for this household. Oliver seems to have priority in the feeding stakes, being breast fed. Vivian will often feed him prior to commencing food-



related activities for the rest of the household so that food preparation is uninterrupted. Sherlock will eat breakfast and head off to work prior to the rest of the family. Vivian will prepare cereal adding some fruit or sultanas, yoghurt or milk in the kitchen. Then, as with all meals where the kids are eating inside at home, she gathers them at the dining table to sit and eat. Even Oliver will sit in his high chair. Now that he has started solids, he will also have something to eat. Vivian will eat with the children. Danny will often throw some food around, but Vivian tries to get most of it in him before that happens. On the days that the two older children are in child care, Vivian will make herself something to eat, like a bruschetta or she'll have some leftovers and sit down to enjoy her lunch with a cup of coffee. When the children are home, they will all eat together. Dinners are usually a cooked meal, which Vivian will start preparing in the afternoon when Oliver is asleep and the two older kids are playing together. However, there is a good possibility that Oliver will be awake and the other two children will not be playing happily, as happened at our dinner observation. Vivian then worked around everyone to prepare a cooked dinner and have it on the table at what she considers a reasonable hour. In most cases Sherlock is home in time for dinner with the rest of the family, otherwise he will eat later after he gets home. Vivian may cook up more of the dinner meal to either freeze or put in the fridge for the kids to eat the next day. Any leftovers are kept for a couple of days and Vivian is happy to make a new meal out them. For example, leftover roast chicken may become part of a pasta dish. More often than not, Vivian and Sherlock will eat the leftovers, saying that "nothing is wasted" in their home. If for some reason this food is not eaten, it is given to the dogs. Vivian has a slops bucket for the dogs, which she adds to during the day, and will feed them at night, saying the dogs eat "anything and everything" except onion and chocolate, which is not good for them. She also has a compost bucket that she fills with peelings and other foodstuff and takes out to the compost outside. The council dropped off a bio bin, and she uses this for the compost material, rather than collecting food waste and putting it in the green bin. Food that is not put in the dogs' slops bucket or the compost bucket, such as cooked chicken bones that the dogs cannot eat, ends up in the rubbish bin, housed under the sink.

Despite Vivian running after three kids, in what she says is a small house, constantly feeling tired and hungry (the later she attributes to breastfeeding), she makes an effort to ensure the children are eating well and have an appreciation of food. There is a preference for using food that is not consumed as a resource, either as food for the dogs or as compost material that then goes back on their garden.

Household 12	The Bowles Family
<p>The home on Netherby Avenue opened its doors five times over the summer months of 2012 to be part of a food study looking at the relationship of its occupants with food. Peter is currently renting, while contemplating moving interstate. He lives alone most days with his daughter Stephanie joining him in most instances every second weekend. When he is alone his food practices tend to be comfortable and more relaxed, with meals consumed in front of the laptop or the television. Working and getting home quite late during the week help foster this more relaxed attitude toward eating. When Stephanie joins him, her presence and love of cooking encourages more interaction and the eating of food at the table, with Peter overseeing and providing advice as required. When it comes to food</p>	

matters, Peter likes to use, and is confident in, his own judgement about what he buys and how and what he prepares.

Food is brought into the home by Peter via a fortnightly shopping trip to the supermarket, but top up shopping trips (occurring in a variety of places, driven by convenience) are undertaken as needed for things that run out during the week or on weekends. Peter doesn't use a list as he tends to know what his staples are and buys those, although if he is making a special meal for friends or trying a new recipe, which he likes to do, he will invariably write a few things down on a piece of paper. Even with a list, there are things he will buy that he didn't anticipate at the start of the shop. Peter has a good sense of the quantities he needs, which determine what type of product he buys (loose or pre-packaged). As the quantities he buys are fairly small, price doesn't influence Peter's decisions too much; rather he looks for things that don't require so much effort and he seems to know what things and amounts will work for him. He does remark that packaging is often an issue for someone who wants to shop for one.

Peter will come straight home after shopping and put all things away, bringing the food into the home through the rear of the house. His kitchen is at the back of the house and overlooks the dining table and meals area on one side, with a breakfast bar separating the two spaces. Below the breakfast bar is bench space and next to that the sink area, under which the rubbish bin is kept. Following on and sitting perpendicular from the sink area is the stove and oven space with the pantry sitting on the corner separating the cooking area from more bench space and the microwave. The fridge butts up against this bench and cupboard space, in a sense closing off the kitchen area, which also overlooks the family room. Most food is stored in the pantry, fridge and freezer area with minimal under bench cupboards utilised for food storage. Items such as bread or meat or poultry are divided into smaller, single serve portions, packaged and put into the freezer. This is done on the day they are brought home. Items to be used for that night's meal are left out on the bench areas that are also used for preparation; when all items are put away Peter prepares his dinner meal.

Peter tends to be very busy, especially during the week and is often required to travel for work. He lives a considerable way from his workplace which results in him getting home fairly late during the week. He will often look to make himself a cooked quick meal for dinner, cooking enough to be able to have a serve for lunch which he might eat the next day or even the day after, saying that "it seems stupid to make one serve". While most days he will take food prepared at home to work with him, he may not end up taking what he has cooked for lunch citing he "doesn't feel like it the next day" as a reason. He may instead take ingredients to make a sandwich while he is at work, or maybe even indulge and eat out. Weekends tend to allow for more relaxed meals where the pressure of time restrictions is forgone. Breakfasts are minimal or non-existent and Peter admits that he would like to try and have a better attitude toward food.

While healthy food is important to Peter and he tries to avoid quite fatty foods, his actions don't always match his intent. He only started cooking a variety of food after he met his now ex-wife. He particularly loves cooking Asian food. He likes to try the odd new recipe from a magazine or if he has eaten something interesting while he's been dining out. He will often keep a store of pre-prepared things such as lemongrass, which he uses if he is cooking just for himself, saying "who can be bothered" but if he is cooking for friends he

will make the effort and use fresh ingredients.

Rubbish, such as offcuts from chicken or eggshells for example are thrown into the bin under the sink while recyclable material is taken to the bin outside. On the days that Stephanie is staying with him, Peter will put most foodstuff that is not used (and would otherwise end up in the bin) into a plastic bag kept in the fridge which is destined for the four chooks which live with Stephanie. Often Peter will do a “fridge dump” into this plastic bag a day prior to or on the day that Stephanie is staying over. The type of food that is given to the chickens is the type of food they themselves will eat, so if the food is not palatable for Peter or Stephanie it will get thrown in the bin and not given to the chooks. Stephanie will take this bag with her when she goes home and feed the food to the chickens. If Stephanie or Peter get distracted as Stephanie is leaving, and the bag is forgotten in the fridge, it is thrown in the bin.

Household 13	The Lockheart Family
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The rented home of Amelia in Adelaide’s east opened its doors four times over the summer months of 2012 to be part of a food study looking at her relationship with food. Amelia lives on her own with food playing a very important role in her home and in her life. Being healthy and eating well are both elements that Amelia embraces in her culinary pursuits, having built up her food knowledge over time. While being vegetarian influences her choices around food, there was a time in her life when it was easier to not be vegetarian. It was during this time that she experimented with food and built up her food knowledge and her confidence using her cookbooks. She doesn’t use her cookbooks much anymore, as she feels that she can now whip things up easily and finds cooking with vegetables very easy. Amelia derives comfort from food in her very busy life, and will use food as a way to manage the stresses associated with her job, reflected in her love of Nigella Lawson’s cooking.

Food comes into the home from a variety of sources and in a variety of ways, almost daily. Amelia will often shop during the day while she is grabbing something for lunch, from places like the market or a cafe where she eats her lunch. She shops from the organic store near her house and will usually go to the supermarket for things that she can’t get from the other places. Amelia may go down to the Farmer’s Market but not often – mainly heading down that way if she wants something specific. She did mention that she is happy to buy more things from places that take credit cards, such as Goodies and Grains at the Central Market.

When the shopping comes home, it will be unpacked and put into the cupboards or the fridge. If Amelia is very tired or not in the mood, she will often add the new things she has bought into her fridge. On days when she has some more time, and is in the mood, she will sort the items she has bought and empty out those things in the fridge that she feels have been in there for too long. She will often bundle the things she uses together, for example all the ingredients which sit in the fridge for her green smoothies will go into one bag, making it easier to find and retrieve them. Sometimes, when she doesn’t feel like eating what she has, she will order takeaway (such as a Thai curry) and as the serving sizes are quite large, will often split them to have some the next day. She will often bring home part of her lunch meal that wasn’t consumed, like a salad, commenting on the large portion sizes and is happy to incorporate that into part of her dinner meal.

Amelia is often thinking one meal ahead when it comes to putting food together for a meal, which is why using leftovers from large portions of lunch meals or cooking a bit extra or making a larger curry (from which she can get 4-5 meals when she knows she will have a busy week) at work fits in with her routine. This also allows her to eat healthily and have some variety in her meals, as both of these things are important to her. In summer, Amelia prefers to cook minimally, preferring lighter foods and salads in the summer months. She says she will go through stages where she really likes something and will have it all the time, and then after a while, prefers to have something else.

While Amelia's work takes up much of her time and her weekday routine is quite different to her weekends, the type of meals and the times she eats are fairly similar. Living in a small unit means that the lounge area is re-arranged to accommodate her yoga practice on weekdays prior to breakfast. Once she is finished she rearranges the moved furniture back into position and heads to the kitchen to prepare breakfast. Breakfast is a meal that Amelia cooks, combining cooked basmati rice, oat milk, spices and fresh grated fruit. She usually has enough rice in the fridge to make a few breakfasts, but once she puts the meal together, not much is leftover. She will nearly always sit and read a book when she eats at home, usually on the lounge or at the kitchen table (if it's a big book) but does also stand in the kitchen and eat her breakfast. Lunches are eaten out but sometimes on a weekend she might eat at home – this is determined by what activities she might have and if she is out and about during the day. Dinner's during the week are eaten at home in most instances but weekends tend to be a time for eating out and catching up with people, although eating how she would like is trickier when done this way.

Amelia loves gardening, and collects food material that is not consumed for the compost. She enjoys doing this because gardening gives her pleasure and the compost is used on the garden, reinforcing her positive feelings. Currently the compost, which is located out the back, isn't operational as her landlord inadvertently killed all the worms by dumping lawn clippings into it. This has presented quite a dilemma for Amelia as she feels very unsure with what to do with food that can't be eaten and would normally go to the compost – she will have to throw it out and this is unsettling for her. She feels terrible about throwing it in the bin, and while I was there, kept food longer than normal trying to work out what she was going to do with it. In the end she realised she would have to throw it in the bin. Food for the rubbish bin is kept in a plastic bag in the kitchen area and taken outside as needed. Amelia has a box on her kitchen floor in which she keeps her recycling which is taken out when it gets full.

While Amelia tries to minimise the amount of food not eaten, there will inadvertently be things that have been forgotten in the fridge because she has been too busy, or felt like something different or had a change of plans. Amelia commented on having a job that affords a lifestyle to be able to eat what she wants and this is the most important part of the food equation for her.

<b>Household 14</b>	<b>The Andreou Family</b>
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The rented home in Adelaide's South opened its doors seven times over the autumn months of 2012 to be part of a food study looking at their relationship with food. Arthur and Violet have recently moved back to Adelaide from Melbourne with their two children Gabrielle aged 11, Connors aged 10 and their cat. Food plays a very important role in their

lives, as being healthy and eating well are both evident in their approach to food. While Violet is the primary food caretaker in the home, Arthur does help with nutritious breakfasts for him and Gabrielle and will often help out when they entertain. Violet will often leaf through magazines to look for inspiration for her meals as variety is important to her and she doesn't like to cook the same thing over and over again. At the same time, she is fairly limited in what she can prepare for Connors as his food needs are quite specific due to his autism. Despite this, variety and health are still paramount and drive the choices around food.

On the whole, Violet plans her meals for the week on Sunday night, including what the kids will take for their school lunches. Their weekends are more relaxed, as they might have takeaway, have invited friends over or be invited out, or even have friends drop in. They will also go to Arthur's parents' house for lunch over the weekend. Sometimes, Arthur's mother will send prepared food home with Arthur. These elements of unpredictability may cause Violet's food plans to go awry and she may end up not cooking something she had planned to. In most cases, she is able to salvage the ingredients. In the cases where she isn't, she will then throw the items in the bin. As there is always extra food prepared, leftovers are kept and in most cases are eaten the next day. Leftovers are kept for a maximum of 2 days. After this point they are thrown in the bin, a pet hate of Arthur who doesn't like to throw food away.

Food comes into the home through a variety of sources including supermarkets, the Central Market, specialty stores and occasionally Arthur's mother. The frequency of shopping varies, with at least two shops a week, and top up shops for milk and bread throughout the week. Violet usually comes straight home after her shopping trip, and puts most things away, leaving those items out that she will use in the next meal she will prepare. Fruit is kept in the fridge; the cooler weather means the heating used to keep warm also causes the food to spoil quickly if it is left out. Most things are put away in the pantry area. The microwave is also used to store items, such as bread, which is removed when the microwave is needed. Shopping can be a chore, especially if it's taking place in the local area. To overcome this, Violet will often shop in areas not close to home, but that provide greater variety and a nicer ambience, making the whole experience more enjoyable. While Violet makes herself a list of items she needs for the next few days, she will often buy items not on her list but that look very enticing, such as strawberries that "looked exceptionally red" and inviting. Sometimes, these impromptu buys, while they look appealing, don't taste nice, such as the pre-packaged apples, and end up being thrown away.

Violet has started to look at where products are made and where the ingredients are sourced from, something she wasn't doing a lot of prior to the commencement of this research project. Use-by dates are looked at but it depends on the product as to whether Violet will keep it a while longer or whether she will throw it in the bin. For example, the dates for poultry and meat are strictly observed, as there is a safety concern if these items pass their use-by date but items such as flour or tea might be kept past their use-by dates. While Violet likes to prepare lovely food she finds the busyness of weekdays and weekends (each different in their own way) limits her available time to prepare which can result in cooking being more of a chore than a pleasure. Simplicity in meals is now the norm, but taste and flavour are equally important.

Weekdays require a little more organisation, and Arthur will help to get his and Gabrielle's

muesli ready. As they leave first, their breakfast and Gabrielle’s lunch is Violet’s priority. She will seek Gabrielle’s input into lunch and recess preferences to try and maximise the chances of food being consumed. All food not eaten is returned home and in most cases what is not eaten is thrown in the bin. Violet may eat items such as passionfruit, but cheeses and yoghurts will definitely go into the bin, especially after spending the whole day out of the fridge. Once Gabrielle and Arthur leave for school and work respectively, Violet will prepare Connor’s breakfast and will often feed him, in between making his lunch. She returns from taking him to school just after 9am, and then can make herself a cup of tea and something to eat, enjoying the peace and quiet before she continues with her other tasks for the day. When she is home, Violet will make herself something to eat for lunch, such as a roll with tuna and a cup of tea or she might have some leftovers. In most cases, she will begin preparation for the evening meal before she picks up the kids from their respective schools as a way of ensuring they eat at a reasonably early hour. Sometimes unexpected things do happen, and she is unable to prepare dinner until after she returns home from the school run. This means that the family may end up eating later than she’d like. The children will often eat earlier than the adults, with Connors eating while playing on the computer and Gabrielle enjoying her dish in front of the TV. Arthur and Violet will, in most cases, eat dinner together after Arthur has come home or been to the gym and after the kids have eaten. Leftovers are kept to be eaten or made into another dish and are stored in the fridge. With weekends being more relaxed, Violet has more time to prepare beautiful meals if they are entertaining, but will just as easily whip up something quick and tasty, like home-made pizzas. There is always enough to cater for unexpected guests who drop in and who are always welcome in their home.

Household 15	The Milos Family
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The home in Adelaide’s West opened its doors six times over the autumn months of 2012 to be part of a food study looking at their relationship with food. George and Penelope are a retired couple who live in their own home. Food is central to their lives, and much of their time is spent sourcing and preparing food to be enjoyed either on their own or with others, especially their children and their family. Penelope is the main food caretaker in the house with George assisting in the purchase of food, as Penelope doesn’t drive. Variety is very important to them, as is freshness of ingredients. They were both born in Greece and migrated to Australia many years ago. Their food preferences and their approach to sharing food reflect their Greek heritage.

Food comes into the home from a variety of sources. They have a large vegetable garden in their backyard, planting vegetables on a seasonal basis, with items such as tomatoes, eggplants, beans, zucchini, and even sunflowers. During the research project, George removed the last of the tomato plants from the garden, putting all the green waste matter into the green bin. George also has a number of fruit trees that include lemon, peach, apricot, nectarine, quince, mandarin, plum and feijoa. There is always an oversupply of fruit when it ripens, and they give as much fruit away to friends and family as they can. They will pick up fruit off the ground if it is in good condition, but they both say they tend to have a fair bit of waste due to rotting fruit. The only fruit they will process into a sweet is the quince.

George and Penelope will often bulk buy shelf-stable goods such as tinned tomatoes or

passata from the local supermarket, while frequenting wholesale stores such as Gaganis Bros for their olive oil, cheese and flour bulk purchases. They shop as they need things, not having a set day anymore as Penelope used to when she worked. Penelope will make a list for the things that she needs and sometimes she will accompany George and other times, George will go and purchase the items Penelope needs. If they find specials for the products that they buy, they will stock up on them, even if they are not on their list, for example the tinned tomatoes were on special when we went shopping at Foodland so they bought a dozen.

They also pay for bulk (a box full of) tomatoes and cucumbers an ad hoc basis from a person who goes out to Virginia and brings them back to sell. He will often bring other items, such as onions, beans or capsicums and they will often purchase these as well. They sometimes share these things with a friend who lives close by; other times, they keep the boxes for themselves. If they happen to visit the Riverland (as they did during the research project), where George once had a 30 acre fruit block, they will bring back bulk supplies of whatever is in season. On this occasion, they were given a box of oranges and they bought a box of persimmons and a 10kg bag of walnuts, saying they are fresher, cheaper and this of season.

Food is stored both inside and outside the house. They have two fridges with freezers, one inside their small kitchen and one in the shed. Out in the shed they also have a deep freeze chest. It is outside in the shed where they store much of their shelf-stable bulk buys (tinned tomatoes, passata) and their bulk buy fruit and vegetables. Inside, Penelope has a very neat and ordered pantry, keeping most items here, in the fridge and in some of the kitchen cupboards. Some utensils and pots and pans are kept in the laundry, right next to the kitchen. The freezer is used to store many fresh items that are bought or made in bulk and can be frozen.

Food preparation is almost constant in this house, with Penelope thinking of things to cook and prepare daily. Breakfasts are simple, consisting of a cup of Greek mountain tea or Greek coffee and some home-made biscuits. The food preparation begins almost as soon as breakfast is completed, when Penelope begins to prepare lunch. Lunch is their main meal of the day and is a substantial cooked meal, where food is served on the table, where a tablecloth has been laid, and other food items are also put out on the table to be shared along with the meal, such as salad or two, bread and a variety of cheeses. Dinner is a much lighter meal, consisting of toasted sandwiches with a cup of tea or leftovers from a previous day. Tuesday is the day their daughter and her family comes for dinner, and George will pick the grandchildren up from school on this day. Penelope will have spent quite a lot of time in the kitchen preparing all sorts of tasty things and a more elaborate dinner meal. On this day, George and Penelope have a lighter lunch. Having their daughter round for dinner or going out on the weekend is the only real variation to their routine.

With the quantities of food that come into the home, there are instances of food not being consumed. Penelope will preserve some things, pickling things like tomatoes or roasting capsicums and freezing them. She will also make sweets, trying some things for the first time, as a way of using up most ingredients. She has satellite TV, watching cooking shows from Greece and taking on board some new ideas and varying recipes she has made for a long time. Other times she will also cook up lots of spinach and fetta or fetta cheese pies, for example, freezing all but the one they eat that day. She will often give food away to her

daughter or they are happy to eat leftovers with George. Penelope will look at use-by dates of things she has in the home and when she shops, but it depends on what the item is as to whether she keeps it or whether she throws it away, happy to trust her nose. Their local council area does collect food in their green bin and Penelope will sometimes take the peelings out to the green bin, especially if there are a lot of them. Sometimes if she can't be bothered or the amount is small, she will throw them in the bin that goes out to landfill. The green bin is located quite a distance away in the backyard and this distance often drives the decision of whether the peelings end up there or not. Meat, meat products, and leftover food are not put in the green bin; these items go straight into the landfill bin. They don't mind throwing some of their vegetables and fruit away as they purchase it so cheaply. They do try not to waste food, but sometimes due to the quantities they buy or have, this inadvertently happens.



## APPENDIX 5: DATES OF INTERVIEWS AND OBSERVATIONS

	Household 1	Household 2	Household 3	Household 4	Household 5	Household 6	Household 7	Household 8	Household 9	Household 10	Household 11	Household 12	Household 13	Household 14	Household 15	
Meet & Greet/food map interview	1	04/05/2011	Did not continue past first interview	17/05/2011	27/05/2011	05/06/2011	07/06/2011	23/07/2011	23/09/2011	07/10/2011	21/10/2011	23/11/2011	27/01/2012	01/02/2012	19/02/2012	09/03/2012
Shopping observation 1	2	12/05/2011		24/06/2011	22/07/2011	18/09/11	30/09/2011	17/09/2011	15/11/2011	15/10/2011	14/11/2011	10/05/2012	02/02/2012	18/02/2012	07/06/2012	06/06/2012
Breakfast Weekday Observation	1	08/07/2011		N/A	08/07/2011	29/06/2011	N/A		03/11/2011	18/10/2011	01/11/2011	19/04/2012	N/A	07/02/2012	15/03/2012	
Breakfast Weekend Observation	1	07/08/2011		01/10/2011	23/07/2011	18/09/2011	N/A		?	15/10/2011	?	N/A	N/A		N/A	17/03/2012
Lunch Weekday Observation	2	17/06/2011		N/A	N/A	06/07/2011	N/A	N/A	23/09/2011	N/A	03/11/2011	15/02/2012	N/A		08/03/2012	24/05/2012
Lunch Weekend Observation		03/09/2011		01/10/2011	23/07/2011	14/08/2011	N/A			N/A	N/A	N/A	05/02/2012	18/02/2012	17/03/2012	
Dinner Weekday Observation		25/05/2011		31/05/2011*	21/06/2011	27/06/2011	25/10/2011	03/11/2011	29/11/11*	01/11/2011	11/11/2011	N/A	02/02/2012	15/03/2012	03/05/2012	29/05/2012*
Dinner Weekend Observation		10/09/2011		4/07/2011					30/11/11							06/06/2012
Dinner Weekend Observation		10/09/2011		N/A	02/09/2011	31/07/2011	N/A	23/10/2011	W/out child	22/10/2011**	N/A	01/06/2012	11/02/2012		16/03/2012**	
De-brief interview	1	07/10/2011		30/11/2011	17/11/2011	07/10/2011	01/12/2011	08/05/2012	07/02/2012	24/11/2011	02/12/2011	07/06/2012	17/02/2012	11/05/2012	10/06/2012	11/06/2012
Number of interactions with each household	9		7	8	10	4	5	7	7	6	6	6	6	8	7	
Total Interviews Conducted	28															
Total Observations	68															

\* these households eating patterns were not different based on weekday vs weekend; rather, they had a more elaborate meal when adult children were invited to dinner (H3, H15) or a young child was absent (H8)

\*\* these meals included invited guests to the households (H9, H14)

## APPENDIX 6: EXAMPLE OF TRANSCRIPT/NOTES

Field notes and transcriptions were kept in a variety of ways. The extract below is a combination of activities that I was observing, audio that I had recorded and transcribed and matters that had potential to be of significance at the time.

25<sup>th</sup> May 2011 – Weekday dinner observation – Household 1

Observation started at 1605

Time	Activity	Audio	Significance
1605	Researcher arrives. Have guests/friends over who are just leaving and who had dropped in unexpectedly. Researcher is introduced and told that the guests know all about research project. Guests depart. Sue remembers that I only drink one coffee a day, after James has offered me a coffee.	J – [coffee?] S – Only had the one haven't you. Oh, this morning	Sense of pride in participating in research project?  It seems important to them to extend offer of hospitality.
	Talk about how many coffees J has had today. Discussion around food-related activities that have occurred in the last week - daughter coming in for breakfast and on Monday the next door neighbour dropped in for a coffee. Background noise – cleaning coffee machine	S – our daughter comes in for breakfast on a Wed morning because her partner does night shift J – Monday was the next door neighbours [Sally laughs] Tuesday was Bob [Sally laughs]. S – they always ring and say, can we come for coffee? V – so that's coffee is it? S – laughs	They have a coffee machine that makes café style coffees.
	Clearing up after friends leave. J washing up, S wiping coffee cups. Had a container with coffee dregs on bench. I asked where that gets emptied – response was in the garden, for plants.  S wiping dishes.	V – So what do you do with the coffee dregs? J – put them in the garden V- Oh yeah, my dad says for me do that all the time but I forget. Do you water them down or anything or just put them on the soil as they are? J – Put them on the soil and dig them in S – yeah V – fresh outside today	Seeing how meticulous J is with making coffees, I wonder if he always puts the dregs in the garden?

	<p>Getting all things out for dinner. From fridge - chicken, Tupperware containers with vegies in them.</p>	<p>J &amp; S – ohhh  S – I just went out there then, oh it is SO cold. Fortunately there’s no wind.  V – misty rain, though all day  S – I noticed that when I was with Tanya. Winter and all  V – almost like it’s snowing, but its not  Doing things  V –So are you going to go away this winter?  S – No, we don’t go north anymore. Cause John doesn’t have an immune system to fight it. When he was so sick, his immune system broke down. So we can’t go north because of the...  V – mozzies and things  S – yeah, yeah  V – mum just told me one of her friends, they live up near the river, both her and her husband have Ross River virus  S &amp; J – OHHH!  S – oh my god  V – not too good, a bit achy and sore  S – I remember going back years when I was on counter and I had this lady and she said to me can she have a make-up. And I said yeah. I’m free now or do you want to book back in. She said I’d really love it now. While I was doing her face she said to me I haven’t been really well. She was being treated. How have you been. You know how you chat on. She said I’ve got Ross River Virus. And I had never had heard of it. And she had it for two years, and it was her first outing in two years.  V – Not go out for two years.  S – She was too sick! It was like a fatigue syndrome with her. I thought you poor, that was her big day, she had her make up, then her husband came and picked her up, she was exhausted. They were from the country]</p>	<p>Making conversation to build rapport; using my own food knowledge, experiences with food.</p> <p>S takes everything she thinks she needs out of the fridge before she starts peeling or cooking. There is a strong sense of organisation; of knowing how things ‘get done’.</p> <p>S has worked in the past. Was empathetic.</p> <p>Linking her story to my reference to ‘country’ as opposed to city.</p>
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## APPENDIX 7: INITIAL CODES AND THEMATIC ANALYSIS

This is an alphabetical listing of all the exploratory codes used in the initial stages of coding.

Accessing organic - difficult	Decision	Freezing food	Morality	Presentation of food	Spaces
Advice from others	De-stress time	Frequency	Naming of things	Preserving food	Special dinner
Appearance	Different meals for hh members	Freshness	Natural	Price	Special meal
Assisting others (as part of meal)	Difficult to make a decision	Frozen	No artificial anything	Pride	Special Occasion
Attitude	Disagreeing	Frustration	No planning	Purist	Stand-by meals
Automatic	Disappointment	Fussy eaters	Non-Australian food	Putting things away	Staple
Avoiding something because it is harder work	Discipline	Given food (not bought)	Not eat all	Quality	Storage spaces
Avoiding something not liked	Do what's easy in a different way	GM free	Not having enough	Quality and Safety	Stress
Barrier or Enabler	Doing things to save time	Good quotes	Not knowing Doubtful	Quantity	Substituting item
Behaviour	Don't know why do something	Guilt	Not liking something offered (offence)	Quick easy	Surprise
Being careful	Each person gets their own food	Habits	Not telling people ingredients used	Rather get extra sleep than prepare food	Takeaway
Belief	Eat the next day	Hates cooking	Not that organised	Rationing ingredients to last certain number of days	Taste
Bin	Eating	Having enough food or ingredients	Not tidying up as you go	Reading labels	Thriftiness
Branded product	Eating food and drink while preparing	Health	Nutritious	Ready to eat food brought into home	Throwing food in bin
Branding	Eating it all	Hiding food (something special)	Offer of food or drink to researcher	Recycling	Tidying up as you go
Busy-ness	Eating on own	Hierarchy for who gets leftovers	Opportunistic shopping	Reference to Class	Time
Buy irrespective of cost	Eating out	Home Brand	Orderliness	Reference to family	Time - not enough time
Buying in bulk	Eating together (household members)	Household members eating separately	Organic	Reference to past	Timing of when to eat
Buying on special	Educating others about food	Households known to each other	Organisation	Reference to past re food practices	Top up shops
Cheat's recipe	Education	If tired don't cook	Other	Related to money	Treat
Choosing food or meal	Eggs from chooks	Importance of food	Others bringing food into home	Relaxing to cook	Trusting own instinct
Class	Embarrassed - something not tidy	Impulse Buying	Others choosing fruit and veg	Re-use	Trying new things

Clean	Emotional reaction	In the kitchen forever	Out of sight	Ritual	Unexpected change to order of things
Clean out of storage areas	Enjoy cooking	Influence OF others	Out of the ordinary for home	Roles	Unusual to researcher
Cleaning up	Enjoy eating	Influence of researcher	overcook	Safety	Use-by dates
Cleanliness	Enjoying preparing food	Influence of Weather	Packaging	Satisfaction	Use it all
Compost	Equipment	Influencing others	Patterns	Saying something different to what observed	Using hands
Conflicting feelings	Feeding children	Insights into people's social world	Patterns with kids or no kids	Scraps attracting vermin	Using stale bread
Convenience vs Choice	Feeding others in home	Instructions	Patterns work days vs non work days	Seasonality	Using time
Cook books	Feelings	Keeping food for later	Peelings	Second helping	Value
Cook for self	Following instructions	Keeping food uncooked to be cooked later	Pets	Serving places	Variety
Cook what are good at	Following recipe	Keeping things warm	Picking at food once left the table	Shopper	Varying recipe
Cooking	Food for others (out of home)	Keeping things warm until served	Picking things up off the floor	Shopping	Waste
Cooking as work or chore	Food for pets that is not leftover (it is cooked or bought)	Knowing Awareness	Places of eating	Shopping as work or chore	Waste - liquid
Cooking for later	Food from garden	Lazy	Planning	Shopping for others	Wild caught fish vs aquaculture
Cooking for later	Food given to hh member	Leftovers	Practical	Shopping for specific meals	Work
Cooking more to eat later	Food gone bad	Lifestyle	Precision no recipe	Shopping patterns	
Cooking Not following recipe	Food prepared at home to eat outside the home	List	Preference for not going out of way to shop	Shortage of ingredients	
Cooking vs going out	Food served in centre of table	Manners	Preparation	Size of food portion	
Country of Origin CoOL	Food to pets and animals (chooks)	Measuring out	Preparation spaces - sink	Smell	
Cultivated or grown	Forgetting had food	Mood	Prepared too much	Snack or Pick me up	

## APPENDIX 8: FIVE KEY FOOD ACTIVITY STAGES

Using the food maps I aligned codes to the five key food activity stages. This process formed the basis of analysing food waste practices as either generating or mitigating food waste.

ACCESS OF AND TO FOOD	STORAGE	PREPARATION	CONSUMPTION	CLEAN-UP	UNASSIGNED
Branding	Clean out of storage areas	Assisting others (as part of meal)	Different meals for hh members	Clean	Automatic
Branded product	Freezing food	Cheat's recipe	Eating	Cleaning up	Avoiding something because it is harder work
CoOL	Frozen	Cooking	Each person gets their own food	Cleanliness	Avoiding something not liked
Home brand	Hiding food (something special)	Cook for self	Eat the next day	Putting things away	Being careful
Choosing food or meal	Keeping food for later	Cook what are good at	Eating food and drink while preparing	Tidying up as you go	Education
Cultivated or grown	Keeping food uncooked to be cooked later	Cooking as work or chore	Eating it all	Picking at food once left the table	Advice from others
Eggs from chooks	Keeping things warm	Cooking for later	Eating on own	Scraps attracting vermin	Education others about food
Food from garden	Keeping things warm until served	Cooking more to eat later	Eating out		Knowing/Awareness
Food for pets that is not leftover (it is cooked or bought)	Packaging	Cooking NOT following a recipe	Eating together (hh members)	Waste	Manners
Freshness	Preserving food	Cooking vs going out	Food prepared at home toe at outside the home		Feelings
Given food (not bought)	Storage spaces	Enjoy cooking	Household members eating separately		Conflicting feelings
Food given to hh member	Use by dates	Hates cooking	Size of food portion		Disappointment
Others bringing food into home	Cook books	Overcook	Snack or Pick me up		Embarrassed – tidiness
Having enough	Following	Food for others	Timing of		Emotional

ACCESS OF AND TO FOOD	STORAGE	PREPARATION	CONSUMPTION	CLEAN-UP	UNASSIGNED
food or ingredients	instructions	(out of home)	when to eat		reaction
Rationing ingredients to last certain number of days	Following recipe	If tired don't cook	Enjoy eating		Frustration
Shortage of ingredients	Measuring out	Instructions	Feeding children		Guilt
Natural	Varying recipe		Feeding others in home		Mood
GM free	Not tidying up as you go		Food served in centre of table		Pride
No artificial anything	Precision no recipe		Fussy eaters		Satisfaction
Wildcaught vs aquaculture	Preparation		Not telling ppl ingredients used		Stress
Seasonality	Enjoying preparing food		Not eat all		Surprise
Influence of weather	Preparation spaces – sink		Not liking something offered (offence)		Frequency
Shopping	Prepared too much		Offer of food or drink to researcher		Habits
Buy irrespective of cost	Rather get extra sleep than prepare food		Places of eating		Discipline
Buying in bulk	Spaces		Serving places		Don't know why do something
Buying on special	Equipment		Presentation of food		Reference to family
Impulse buying	Stand-by meals		Second helping		Reference to past
List	Substituting item		Treat		Reference to past re food practices
Others	Use it all		De-stress time		Thriftiness
choosing fruit and veg	Using hands				Households known to each other
Reading labels	Using stale bread				Importance of food
Shopping as work of chore					Influence OF others
Shopping patterns					Influence of researcher
Accessing organic – difficult					Insights into people's social world
Opportunistic					Lifestyle –

ACCESS OF AND TO FOOD	STORAGE	PREPARATION	CONSUMPTION	CLEAN-UP	UNASSIGNED
shopping					patterns with kids or no kids
Preference for not going out of way to shop					Lifestyle patterns work days vs non work days
Shopper					No planning
Shopping for others					Non Australian food
Shopping for specific meals					Not that organised
Top up shops		Relaxing to cook			Other
Takeaway					Out of the ordinary for home
Ready to eat food brought into home					Pets
Waste – barrier or enabler	Waste – barrier or enabler	Waste – barrier or enabler	Waste – barrier or enabler	Waste – barrier or enabler	Practical
	Bin	Bin		Bin	Purist
	Compost	Compost		Compost	Reference to class
Food gone bad	Food gone bad	Food gone bad			Ritual
	Food to pets and animals (chooks)	Food to pets and animals (chooks)		Food to pets and animals (chooks)	Roles
Forgetting had food	Forgetting had food	Forgetting had food		Forgetting had food	Saying something different to what observed
	Hierarchy for who gets leftovers	Hierarchy for who gets leftovers		Hierarchy for who gets leftovers	Busy-ness
		Peelings		Peelings	Time – not enough time
	Recycling	Recycling		Recycling	Using time
	Throwing food in bin	Throwing food in bin		Throwing food in bin	Unexpected change to order of things
	Waste – liquid	Waste – liquid		Waste - liquid	Unusual to researcher
Appearance		Appearance		Appearance	Work (job)
		Convenience vs choice	Convenience vs choice	Convenience vs choice	Role of work
Difficult to make a decision					
Disagreeing		Disagreeing			
Health		Health	Health		
	Lazy			Lazy	



<b>ACCESS OF AND TO FOOD</b>	<b>STORAGE</b>	<b>PREPARATION</b>	<b>CONSUMPTION</b>	<b>CLEAN-UP</b>	<b>UNASSIGNED</b>
Lifestyle – patterns – special dinner		Lifestyle – patterns – special dinner	Lifestyle – patterns – special dinner	Lifestyle – patterns – special dinner	
		Lifestyle – special meal	Lifestyle – special meal		
Special occasion		Special occasion	Special occasion		
Morality		Morality	Morality	Morality	
Naming of things	Naming of things	Naming of things	Naming of things	Naming of things	
Not having enough		Not having enough	Not having enough		
Not knowing Doubtful	Not knowing Doubtful	Not knowing Doubtful	Not knowing Doubtful		
	Orderliness			Orderliness	
	Organisation	Organisation			
	Out of sight				
		Picking things up off the floor			
Planning	Planning	Planning		Planning	
Nutritious		Nutritious	Nutritious		
Organic					
Quality		Quality	Quality		
Safety	Safety			Safety	
Quantity	Quantity	Quantity	Quantity	Quantity	
Quick easy		Quick easy	Quick easy		
Related to price		Related to price			
		Re-use	Re-use	Re-use	
Smell	Smell	Smell	Smell		
Staple	Staple	Staple			
Taste		Taste	Taste	Taste	
Doing things to save time		Doing things to save time			
		In the kitchen forever			
	Trusting own instincts	Trusting own instincts			
Variety		Variety	Variety		

## APPENDIX 9: CONCEPTUAL THEMATIC ANALYSIS

Practices that mitigate or generate waste	Key emergent themes
<i>Provisioning</i>	
Low cost of and ease of access to food	Value
Purchasing cheap food or food in bulk	Value
Over-purchasing – buying more than needed	Value, Social relations
Buying blind – Purchasing food chosen or pre-packaged by others	Risk, Knowledge, Value
Purchasing food for others	Social relations
Shopping patterns and changes to routine	Rhythms of life
Gifting – the influence of unanticipated food coming into the home	Social relations, Value
Growing food	Value, Knowledge
Last minute take-away purchase	Rhythms of life,
Saving money	Value
Expensive nature of some organic foods	Value
Influence of upbringing	Social Relations, Value, Taste
Purchasing food with others	Social Relations, Rhythms of life
Making lists	Knowledge
Meal planning	Knowledge, Rhythms of life
Freezing and bulk buying	Knowledge, Value
Shopping routines	Rhythms of life
<i>Storage</i>	
Forgetting food in the fridge	Rhythms of life, Time, Indirectly - value
Storing food incorrectly	Knowledge
Storing food for too long	Risk, Knowledge, Rhythms of life
Unsure if food is safe to eat	Risk, Value, Knowledge, Social relations
Self-determined eat-by date	Time, Risk, Value, Knowledge, Taste
Clearing or cleaning out storage areas	Social relations, Time,
Food kept in visible locations – making it invisible	Time, Lifestyle
Change of routine	Rhythms of life, Knowledge
Changing storage practice as a result of a previous experience	Value, Knowledge
Using the fridge or the freezer	Knowledge, Rhythms of life
Preserving as a means of extending shelf life	Knowledge, Value
Using tactics to keep on top of items in storage	Knowledge, Time, Value
Thriftiness in storage	Value, Social relations, knowledge
<i>Preparation</i>	
Determination of inedibility	Value (food, non food), Time, Social relations
Peeling produce	Value, Taste, Time
Time	Time, Value (effort), Knowledge
Preparing too much food	Social relations
Determinations of edibility	Value, knowledge, social relations
Dislike of cooking	Taste, Time, Value
“Not good enough to serve my family”	Risk, Value, Taste, Social relations
Fussy eaters	Taste, Social relations,
Children not turning up for meals	Social relations, rhythms of life
Re-using food items	Knowledge, Rhythms of life, Value

The three-second rule – how long is too long?	Value, Social relations
Not peeling vegetables	Value, Time
Using all of the ingredients/produce/product	Knowledge, Rhythms of life, Value
Getting the quantity right	Knowledge, Value
Planning meals for the week	Knowledge, Value, Rhythms of life, Taste
<i>Consumption</i>	
Catering for fussy eaters	Taste, Social relations, Value
Health	Value, Risk
Not eating all the food served	Value, Taste
Not eating food because unsure if it is safe to eat	Risk, Taste, Value
Self-determined use-by dates	Risk, Taste, Value
Serving practices	Social relations
Eating everything	Taste, Value
<i>Clean-up</i>	
Not worthwhile keeping	Value
Mouldy food	Risk, Knowledge
Selecting inedible food items for different waste channels	Value, Knowledge
Thinking of Children	Risk, Value
Feeling tired or lazy	Time, Rhythms of life
Packing leftover prepared food to eat or re-use later	
Giving food away	Value, Social relations, rhythms of life
Uneaten food to chickens/pets/worms or compost	Value, Risk