

# Stage 2 Food and Hospitality – 2014

## External Assessment Cover Sheet

Assessment Type 3: Investigation

**SACE Registration Number:**

**Topic** Food Wastage in the Food and Hospitality  
industry is Unsustainable.

word count 2,000

This **investigation** is assessed using the following specific features:

Investigation and Critical Analysis	Evaluation
ICA1	E4
ICA2	
ICA3	

# STAGE 2 FOOD AND HOSPITALITY INVESTIGATION

**HYPOTHESIS: Food Wastage in the Food and Hospitality Industry is  
Unsustainable.**

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## Introduction

The Food and Agricultural Organisation of the United Nations estimates over 40% of food wastage occurs at the retail and consumer level.<sup>1</sup> Avoidable food waste has been defined by the “Love Food, Hate Waste” campaign “as food that has been disposed of because it has become inedible for one of several reasons, including overestimation of need and poor storage.”<sup>2</sup> With immense volumes of food waste sent to landfill each year, future food security is uncertain. This investigation aims to determine how food waste is generated and strategies to reduce food waste.

The topic is contemporary. It is an issue lending itself to debate and development of an argument. The topic allows for critical analysis.

## Scope of the Study

The scope of the investigation was kept within a succinct boundary through the development of 3 focus questions:

Focus Question 1: **What contributes to food waste in the Food and Hospitality Industry?**

Focus Question 2: **What are the ramifications of Food Wastage in the Food and Hospitality Industry?**

Focus Question 3: **How can food waste in the food and hospitality industry be reduced in the future?**

## Methodology

The focus questions are clear and each strongly linked to the food and hospitality industry.

Gathering evidence from primary and secondary ensured a balanced perspective. 51 surveys were conducted within the general public and 27 within the food and hospitality industry. Professionals in the field and 3 food venues were also interviewed. Secondary sources including websites, pdf's and magazines were accessed to eliminate bias.

Limitations which may generate bias include small sample sizes and a small geographic as all primary sources were accessed within South Australia. Therefore a perspective representative of a cross section of society could not be ensured.

<sup>1</sup> Hatz, D. (2014). *Home*. [online] Endfoodwastenow.org. Available at: <http://www.endfoodwastenow.org/> [Accessed 2 Sep. 2014].

<sup>2</sup> MASON, L., CORDELL, D., BOYLE, T., FYFE, J. and SMITH, T. (2011). *National Food Waste Data Assessment*. 1st ed. [ebook] Sydney: Institute For Sustainable Futures, p.16. Available at: <http://www.environment.gov.au/system/files/resources/128a21f0-5f82-4a7d-b49c-ed0d2f6630c7/files/food-waste.pdf> [Accessed 31 May. 2014].

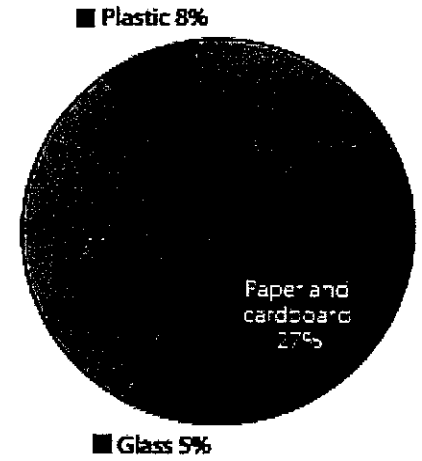
**FAQ1. What contributes to Food Wastage in the Food and Hospitality Industry?**

Sizing of meals contributes significantly to avoidable food waste in the food and hospitality industry. SA Health believes that ‘over the last 20 years the ‘regular’ serving size for many packaged, takeaway, and restaurant foods have increased.”<sup>3</sup>

Restaurant and Catering South Australia estimates 100,000 tonnes of food waste is generated by the South Australian food and hospitality sector annually, of which only 6,000 tonnes is recycled, making it the second largest waste product in this industry.<sup>4</sup> (refer to **Image 1**) Café Primo, a small restaurant, discards up to 100kg of food weekly due to customers not eating their entire meal.<sup>5</sup> Public surveys revealed only 31% of customers eat an entire meal when dining at a pub, 62% when dining at a fast-food outlet, 52% when dining at a restaurant and 57% when dining at a café.<sup>6, 7</sup> Of the 661,000 tonnes of food waste generated by restaurants annually, the Sustainable Restaurant Association (SRA) claims 30% comes directly from diner’s plates.<sup>8</sup> (refer to **Image 2**)

Consumer demand for large portions encourages wasteful practices amongst the food industry with businesses serving large meals to entice customers.<sup>9,10</sup> Sally Neville, chief executive of Restaurant and Catering SA, stated that,

*“On instructions by consumers, businesses are deliberately over-catering as meals are expected to be lavish with plenty of leftovers, particularly at buffets and special events such as weddings.”<sup>11</sup>*



**Image 1:** Typical composition of Café and Restaurant Waste Bins  
**Source:** NSW EPA, (2014). *Industry fact sheets – Cafés and restaurants*. [online] Available at: <http://www.epa.nsw.gov.au/resources/warr/120339bwstcafe.pdf> [Accessed 10 Aug. 2014].



**Image 2:** An audit of food waste conducted by the Sustainable Restaurants Association (SRA) identified three main sources of food waste.  
**Source:** Verghese, D., Lewis, D., Lockrey, S. and Williams, D. (2013). *The role of packaging in minimising food waste in the supply chain of the future*. 3rd ed. [ebook] Melbourne: RMIT University, pp.13,14,20. Available at: <http://www.rmit.edu.au/browse/RMIT%20News%2FNewsroom%2FNews%2Fby%20date%2FJun%2FTue%2025/> [Accessed 19 Aug. 2014]. [Accessed 19 Aug. 2014].

<sup>3</sup> Sahealth.sa.gov.au, (2014). *Portion sizes :: SA Health*. [online] Available at: <http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/healthy+living/health+tips/portion+size> [Accessed 11 Aug. 2014].

<sup>4</sup> Neville, S., Jones, T. and Thomas, A. (2012). *Green Partnership Targets Restaurant Sustainability*. 1st ed. [eb Waste SA, pp.1,2. Available at: <http://www.zerowaste.sa.gov.au/upload/REAP/91393%20ZWSA%20SnapShot%20RCSA%20WEB.pdf> [Accessed 25 Jun. 2014]

<sup>5</sup> Stage 2 Food and Hospitality, interview with Café Primo, 96 Ellen St, Port Pirie, conducted 24/8/2014

<sup>6</sup> Stage 2 Food and Hospitality, public survey of 35 people, conducted 15/7/2014

<sup>7</sup> Stage 2 Food and Hospitality, public survey of 21 people conducted 28/7/2014

<sup>8</sup> Verghese, D., Lewis, D., Lockrey, S. and Williams, D. (2013). *The role of packaging in minimising food waste in the supply chain of the future*. 3rd ed. [ebook] Melbourne: RMIT University, pp.13,14,20. Available at: <http://www.rmit.edu.au/browse/RMIT%20News%2FNewsroom%2FNews%2Fby%20date%2FJun%2FTue%2025/> [Accessed 19 Aug. 2014].

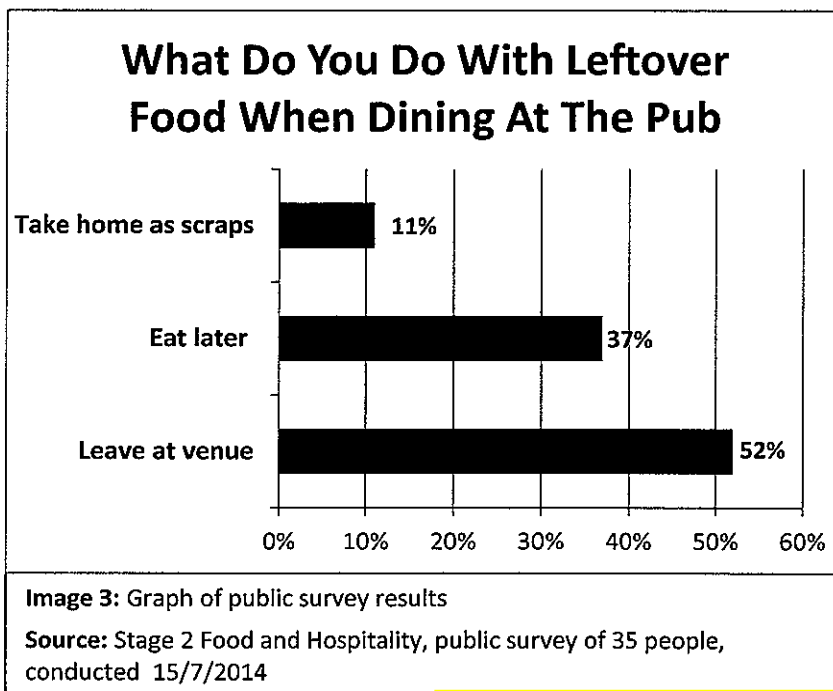
<sup>9</sup> Hatz, D. (2014). *Restaurants*. [online] Endfoodwastenow.org. Available at: <http://www.endfoodwastenow.org/index.php/issues/issues-restaurants> [Accessed 2 Sep. 2014].

<sup>10</sup> Stage 2 Food and Hospitality, survey of 27 Food and Hospitality venues, conducted 13/7/2014

ICA1 - Critical Analysis  
 Data is well synthesised, facts presented, linked to interview and survey. Interpretation and critical analysis of contemporary issue.

Buffets exacerbate food waste in the food and hospitality industry as the 'two hour/four hour rule' requires food exposed for longer than 4 hours to be discarded immediately due to potential food contamination.<sup>12</sup> Many charities will not accept food served in this self-service fashion due to potential consumer contamination.<sup>13</sup>

Customer negligence in recycling left-over food further amplifies food waste in the food and hospitality industry. Although 81% of businesses allow customers to take leftovers home only 48% of customers will.<sup>14</sup> (Refer to Image 3) Statistics from the SRA show 25% of customers are too embarrassed to request doggy bags, whilst 24% mistakenly believe doggy bags breach health regulations.<sup>15</sup> The Australian and New Zealand Food Standards Code prohibits donating consumer left-overs to charities, therefore if not recycled, left-overs are dumped at landfill.<sup>16</sup>



ICA2 - Perceptive analysis of information. The information presented is highly relevant and appropriate. Sources are acknowledged appropriately, are recent and relevant.

Expired and spoiled food constitutes 5% of food discarded by food venues due to over ordering and irregular stock rotations. (refer to Image 2).<sup>17</sup> Ronni Kahn, founder of Oz Harvest, believes inaccurate expiry dates are also responsible for avoidable food waste. She is initiating research into use-by dates to determine if they are trustworthy as 'we need to understand why there's a date when it's clearly possible to eat that product at least a week later.'<sup>18</sup>

Customer expectations regarding presentation of meals was another issue identified by Ronni Kahn pertaining to food waste. Food venues serve beautifully presented meals at the expense of "cutting off three-quarters of

<sup>11</sup> Interview with Sally Neville, Restaurant and Catering Chief Executive, conducted 12/7/2014

<sup>12</sup> Food safety in Queensland. (2012). 1st ed. [ebook] Fortitude Valley: State of Queensland (Queensland Health), pp.7, 8. Available at: <http://www.health.qld.gov.au/disaster/documents/food-safety-evac.pdf> [Accessed 12 Aug. 2014].

<sup>13</sup> Secondbite.org, (2014). *DONATE FOOD | secondbite.org*. [online] Available at: <http://secondbite.org/donate-food> [Accessed 28 Jul. 2014].

<sup>14</sup> Stage 2 Food and Hospitality, public survey of 35people, conducted 15/7/2014

<sup>15</sup> BBC News, (2011). *Why are Britons too embarrassed to ask for a doggy bag?*. [online] Available at: <http://www.bbc.com/news/magazine-15106212> [Accessed 13 Aug. 2014].

<sup>16</sup> Food Safety Programs for Food Service to Vulnerable Persons. (2008). 1st ed. [ebook] Canberra: Food Standards Australia New Zealand. Available at: <http://www.foodstandards.gov.au/code/userguide/documents/Std%20331-Food%20Safety%20Prog%20Vu!%20Pers-guideFNL1.pdf> [Accessed 14 Aug. 2014].

<sup>17</sup> Stage 2 Food and Hospitality, survey of 27 Food and Hospitality venues, conducted 13/7/2014

<sup>18</sup> Dingle, S. (2014). *Time to check the use by date: food wastage on the rise*. [online] Abc.net.au. Available at: <http://www.abc.net.au/am/content/2014/s4063238.htm> [Accessed 1 Aug. 2014].

a product to make a lovely pattern".<sup>19</sup> Preparation generates most food waste in the food and hospitality industry. (Refer to image 2) Food venues identified receiving damaged stock and cooking excess food as significant contributors to pre-consumer food waste constituting 74% of food waste discarded to landfill.<sup>20, 21</sup>

**FQ2. What are the ramifications of Food Wastage in the Food and Hospitality Industry?**

Severe environmental and economic ramifications are associated with food waste. Methane, a greenhouse gas 21 times more potent than carbon pollutants is produced from food waste decomposing in landfill.<sup>22</sup> According to the Australian Government Department of Climate Change and Energy Efficiency, 7.5 million tonnes of food sent to landfill between 2008 and 2009 generated methane equivalent to 6.8 million tonnes of CO<sub>2</sub>.<sup>23</sup> Food decomposing in landfill also leaches contaminants into water-ways and soil.

When discarded, resources used to grow, transport and prepare food are also squandered "costing us as an economy a great deal of wasted resources."<sup>24</sup> Discarding 1 kilogram of beef "wastes 15,000 litres of water."<sup>25</sup> Australia being prone to droughts makes this avoidable waste of water completely unacceptable.

Food waste generated from the food sector hampers efforts to eradicate poverty and starvation draining \$750 billion from the global economy annually.<sup>26</sup> (refer to Image 4) Jim Yong Kim, President of the World Bank believes reducing food waste is imperative to ensuring food security as the world population is predicted to reach 9.1 billion by 2050



**Image 4: Social impacts of food waste**  
**Source:** Bain, J. (2014). *How Food Waste Hurts Humans and the Planet*. [online] Pachamama.org. Available at: <http://www.pachamama.org/wp-content/uploads/2014/07/Screen-Shot-2014-07-22-at-10.21.51-AM.png> [Accessed 1 Sep. 2014].

<sup>19</sup> Dingle, S. (2014). *Time to check the use by date: food wastage on the rise*. [online] Abc.net.au. Available at: <http://www.abc.net.au/am/content/2014/s4063238.htm> [Accessed 1 Aug. 2014].  
<sup>20</sup> Stage 2 Food and Hospitality, survey of 27 Food and Hospitality venues, conducted 13/7/2014  
<sup>21</sup> Industry Fact Sheet Cafes and Restaurants. (2012). 1st ed. [ebook] Sydney: Environment Protection Authority, pp.1,2. Available at: <http://www.epa.nsw.gov.au/resources/warr/120339bwstcafe.pdf> [Accessed 4 Jul. 2014].  
<sup>22</sup> Know Food Fact Sheet. (2011). 1st ed. [ebook] Adelaide, pp.1,2. Available at: <http://www.zerowaste.sa.gov.au/upload/at-home/fact-sheets-for-home-users/91285%20Zero%20Waste%20Know%20Food%20Waste%20Fact%20Sheet%20WEB.pdf> [Accessed 4 Aug. 2014].  
<sup>23</sup> MASON, L., CORDELL, D., BOYLE, T., FYFE, J. and SMITH, T. (2011). *National Food Waste Data Assessment*. 1st ed. [ebook] Sydney: Institute For Sustainable Futures, p.16. Available at: <http://www.environment.gov.au/system/files/resources/128a21f0-5f82-4a7d-b49c-ed0d2f6630c7/files/food-waste.pdf> [Accessed 31 May. 2014].  
<sup>24</sup> Interview with Sally Neville, Restaurant and Catering Chief Executive, conducted 12/7/2014  
<sup>25</sup> Dee, J. (2012). *Food Donation Toolkit*. 1st ed. [ebook] DO SOMETHING! AND THE NSW ENVIRONMENT PROTECTION AUTHORITY, p.4. Available at: <http://www.foodwise.com.au/wp-content/uploads/2012/09/DoSomething-Food-Donation-Toolkit.pdf> [Accessed 23 Jul. 2014].  
<sup>26</sup> Xanthos, D. (2014). *Beyond the Culinary Binge: Addressing the Issue of Food Waste*. 1st ed. [ebook] National Centre for Sustainability, pp.1, 5. Available at: <http://www.swinburne.edu.au/ncs/journalncs/Beyond-the-Culinary-Binge.pdf> [Accessed 10 Aug. 2014].

necessitating food production to increase by 70%.<sup>27</sup> After his election in 2013, Pope Francis declared that “wasting good food is akin to stealing from the poor and hungry.”<sup>28</sup>

Businesses’ finances are impaired by food waste due to losses incurred from waste collection, disposal costs and discarding sellable food. Small businesses in the food industry lose up to \$200 a week due to food waste.<sup>29</sup> Discarding 3 kilograms of excess meat trimmings daily, cost a café \$26,000 in revenue annually.<sup>30</sup>

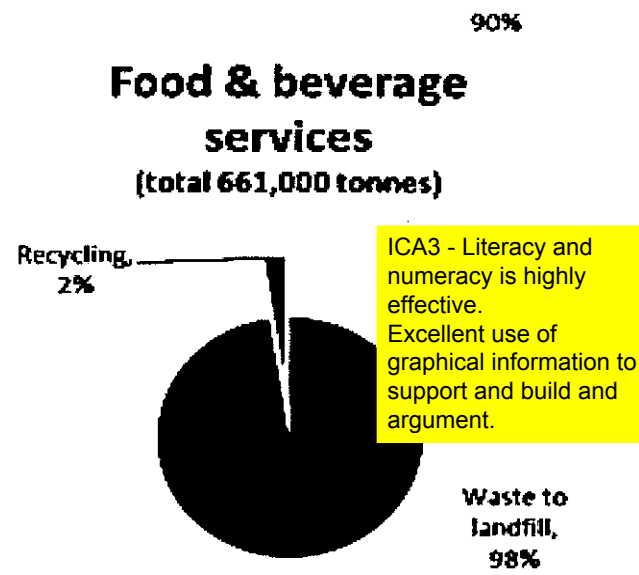
### FO3. How can food wastage in the food and hospitality industry be reduced in the future.

According to a report issued to the Australian Government the food service sector generates the most food waste in Australia sending 661,000 tonnes to landfill annually of which only 2% is recycled.<sup>31</sup> (Refer to Image 5)

Uneaten food is adequately recycled in “some businesses” which have installed sophisticated recycling systems including composts and worm farms.<sup>32</sup> However, such systems can be too expensive for smaller businesses with composters costing \$600 a month in rent or thousands of dollars to purchase.<sup>33</sup> Therefore, smaller businesses opt to give scraps to chickens or donate them to local farmers as animal feed.”<sup>34</sup> Despite these efforts, Sally Neville stresses that the food and hospitality industry needs to be more vigilant in reducing food waste.<sup>35</sup>

Kylie Kwong, passionate ambassador for the sustainable food

program Foodwise, recommends food and hospitality venues “purchase small amounts of food produce every



**Image 5:** Food waste produced and recycled by Australian food and beverage Services

**Source:** Verghese, D., Lewis, D., Lockrey, S. and Williams, D. (2013). *The role of packaging in minimising food waste in the supply chain of the future*. 3rd ed. [ebook] Melbourne: RMIT University, pp.13,14,20. Available at: <http://www.rmit.edu.au/browse/RMIT%20News%2FNewsroom%2FNews%2Fby%20date%2FJun%2FTue%2025/> [Accessed 19 Aug. 2014]. [Accessed 19 Aug. 2014].

<sup>27</sup> Hatz, D. (2014). *Home*. [online] Endfoodwastenow.org. Available at: <http://www.endfoodwastenow.org/> [Accessed 2 Sep. 2014].

<sup>28</sup> Xanthos, D. (2014). *Beyond the Culinary Binge: Addressing the Issue of Food Waste*. 1st ed. [ebook] National Centre for Sustainability, pp.1, 5. Available at: <http://www.swinburne.edu.au/ncs/journalncs/Beyond-the-Culinary-Binge.pdf> [Accessed 10 Aug. 2014].

<sup>29</sup> Stage 2 Food and Hospitality, Interview with Café Primo, 96 Ellen St, Port Pirie, conducted 24/8/2014

<sup>30</sup> Lovefoodhatewaste.nsw.gov.au, (2014). *Benefits for your business - Love Food Hate Waste*. [online] Available at: <http://www.lovefoodhatewaste.nsw.gov.au/business/love-food/benefits-for-your-business.aspx> [Accessed 3 Jul. 2014].

<sup>31</sup> Verghese, D., Lewis, D., Lockrey, S. and Williams, D. (2013). *The role of packaging in minimising food waste in the supply chain of the future*. 3rd ed. [ebook] Melbourne: RMIT University, pp.13,14,20. Available at: <http://www.rmit.edu.au/browse/RMIT%20News%2FNewsroom%2FNews%2Fby%20date%2FJun%2FTue%2025/> [Accessed 19 Aug. 2014]. [Accessed 19 Aug. 2014].

<sup>32</sup> Interview with Sally Neville, Restaurant and Catering Chief Executive, conducted 12/7/2014

<sup>33</sup> Bowling, D. (2014). Cutting down on food waste: top chefs share their tips. *Hospitality Magazine*, [online] p.1. Available at: <http://www.hospitalitymagazine.com.au/management/cutting-down-on-food-waste-top-chefs-share-their-tips> [Accessed 18 Aug. 2014].

<sup>34</sup> Stage 2 Food and Hospitality, survey of 27 Food and Hospitality venues, conducted 13/7/2014

<sup>35</sup> Stage 2 Food and Hospitality, Interview with Safavi Restaurant, 99 Florence Street, Port Pirie, Conducted 14/7/2014

day.”<sup>36</sup> Replenishing stock regularly enables businesses to keep up with demand instead of purchasing all their stock at once to discover they have over compensated. Although this strategy may be effective for urban food venues, unlike their metropolitan counterparts, rural businesses are not in close proximity to food warehouses or supermarkets. However, Kylie’s recommendation for venues to construct flexible menus, allowing edible leftovers to be recycled in dishes the following day, is a strategy that all food venues with an eye for sustainability could implement. From surveys it is apparent that customers also need to be more willing to save left-overs.

Edible food waste can be reduced significantly with donations to food charities. Fare Share, one of Australia’s leading food charities, redistributed 254 tonnes of food in 2007-2008 preventing methane production equivalent to 381 tonnes of CO<sub>2</sub> and saving over 14 million litres of water.<sup>37</sup> (refer to Image 6)

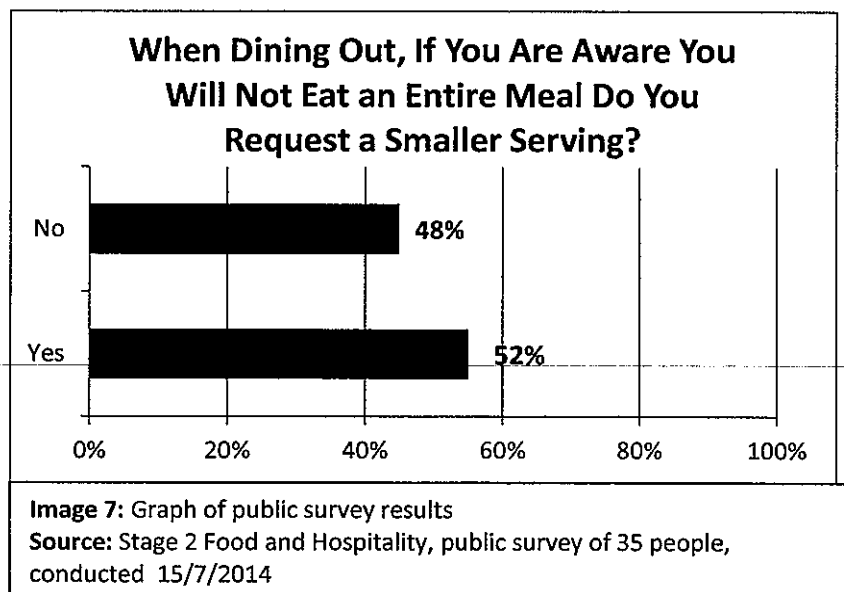
Food charity	Coverage	Food recovered (tonnes)			
		2007-2008	2008-2009	2009-2010	2010-2011
Foodbank <sup>25</sup>	NSW, ACT, Qld, SA, Vic, WA, NT, TAS	16,236	17,573	18,983	52,792
FareShare <sup>26</sup>	Vic, NSW	-	250	682	932
OzHarvest <sup>27</sup>	NSW, ACT, SA	711	-	-	711
SecondBite	Vic, Tas	144	Approx. 702	Approx. 880 <sup>28</sup>	1,582

Source: Figures for individual financial years obtained from annual reports.

**Image 6:** Tonnes of edible food recovered by major Australian food charities 2007 – 2008 to 2009 – 2010

Source: MASON, L., CORDELL, D., BOYLE, T., FYFE, J. and SMITH, T. (2011). *National Food Waste Data Assessment*. 1st ed. [ebook] Sydney: Institute For Sustainable Futures, p.16. Available at: <http://www.environment.gov.au/system/files/resources/128a21f0-5f82-4a7d-b49c-ed0d2f6630c7/files/food-waste.pdf> [Accessed 31 May. 2014].

Offering meals in varying sizes will enable food venues to better cater for customers’ appetites as currently 35% of businesses offer meals in one size. However, there is no guarantee customers will select the meal size appropriate to their appetite as only 52% of customers request a smaller serving if they are aware they will eat an entire meal.<sup>38</sup> (refer to Image 7) Reluctance



**Image 7:** Graph of public survey results

Source: Stage 2 Food and Hospitality, public survey of 35 people, conducted 15/7/2014

<sup>36</sup> Kwong, K. (2014). *Kylie Kwong on food waste and how we can curb it*. [online] Foodwise.com.au. Available at: <http://www.foodwise.com.au/food-waste-we-can-curb-it/> [Accessed 15 May. 2014].

<sup>37</sup> MASON, L., CORDELL, D., BOYLE, T., FYFE, J. and SMITH, T. (2011). *National Food Waste Data Assessment*. 1st ed. [ebook] Sydney: Institute For Sustainable Futures, p.16. Available at: <http://www.environment.gov.au/system/files/resources/128a21f0-5f82-4a7d-b49c-ed0d2f6630c7/files/food-waste.pdf> [Accessed 31 May. 2014]

<sup>38</sup> Stage 2 Food and Hospitality, public survey of 21 people conducted 28/7/2014



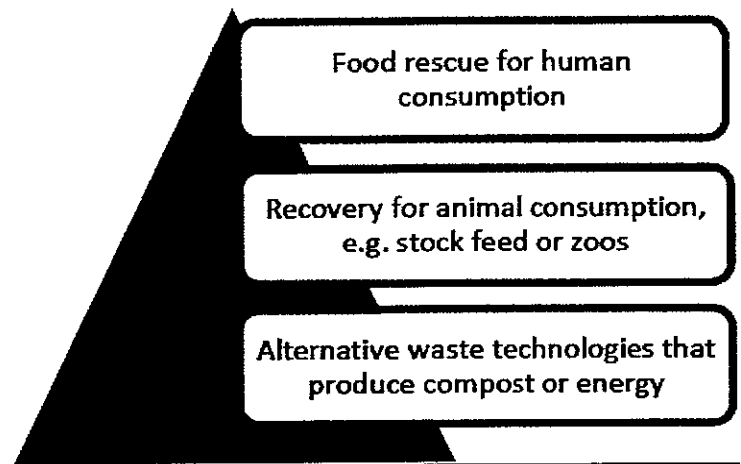
amongst businesses to offer meals in various sizes is consequent of ‘time restrictions in placing (the order) to getting the order’ and ‘people don’t expect to have smaller sizes available.’<sup>39</sup>

Food and hospitality venues serve large meals to remain competitive.<sup>40</sup> By reducing plate sizes, food venues can serve smaller portions, creating significantly less kitchen and plate waste, without causing customers to feel cheated about their serving. Eliminating buffets and cafeteria style trays could significantly reduce preparation and plate food waste as this will prevent over-catering and customers taking more food than they can eat. At such events when there are ample left-overs, customers need to be more willing to save left-overs.

It is becoming more widely recognised that food waste needs to be reduced by consumers and businesses in food and hospitality. Councils, governments and community groups across Australia have established campaigns including *Love Food Hate Waste* and *Love Your Leftovers* to educate businesses and consumers on the extent of food waste and provide cost-effective strategies to reduce and recycle food waste. (refer to Image 8) Such programs are already

proving to be effective with numerous food and hospitality businesses setting benchmarks to achieve sustainable food practices.

Introducing encouragement awards would provide an incentive for food services to improve their practices in relation to food waste. Already, several businesses have received sustainability awards and accreditations for their efforts in reducing food waste. In 2008, the Hilton Hotel in Adelaide joined Zero Waste SA’s Industry Program “hiring a waste contractor in the Recycle at Work Program” and monitoring volumes of food waste generated.<sup>41</sup> “Sending leftovers to the food charity Foodharvest” and conducting “a lot of recycling,” enabled the Hilton to reduce food waste by an exceptional 54%.<sup>42</sup> The Hilton’s achievements in developing environmentally sustainable practices have been recognised in receiving several coveted sustainability



**Image 8:** Hierarchy of recovery options for surplus food  
**Source:** Verghese, D., Lewis, D., Lockrey, S. and Williams, D. (2013). *The role of packaging in minimising food waste in the supply chain of the future*. 3rd ed. [ebook] Melbourne: RMIT University, pp.13,14,20. Available at: <http://www.rmit.edu.au/browse/RMIT%20News%2FNewsroom%2FNews%2Fby%20date%2FJun%2FTue%2025/> [Accessed 19 Aug. 2014]. [Accessed 19 Aug. 2014].

<sup>39</sup> Interview with Safavi Restaurant, 99 Florence Street, Port Pirie, Conducted 14/7/2014

<sup>40</sup> Stage 2 Food and Hospitality, survey of 27 Food and Hospitality venues, conducted 13/7/2014

<sup>41</sup> Stage 2 Food and Hospitality, Interview with Chris Ehmann, General Manager Hilton Hotel, 233 Victoria Sq conducted 13/4/2014

<sup>42</sup> Stage 2 Food and Hospitality, Interview with Chris Ehmann, General Manager Hilton Hotel, 233 Victoria Square, Adelaide, conducted 13/4/2014

awards.<sup>43</sup> More than half of consumers claim they would pay more for a meal in a sustainable restaurant providing another incentive for food venues to adopt sustainable food practices.<sup>44</sup>

Organisations including Zero Waste SA and Restaurant and Catering Australia have formed a partnership in assisting other businesses to achieve sustainable practices. Providing food businesses with grants to install specialized equipment such as compost systems will assist in reducing food waste whilst also improving economic and environmental performances.

The World Resources Institute estimates if food-waste world-wide were halved, by 2050, the world would require 1,314 trillion kilocalories less food annually.<sup>45</sup> This saving is approximately 22% of the 6,000 trillion kilocalories per year increase in food availability needed by the year 2050.<sup>46</sup>

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<sup>43</sup> Jones, T. and Hutcheon, A. (2009). *Hotel Reduces Ecological Footprint*. 1st ed. [ebook] Adelaide: Zero Waste SA, p.1. Available at: <http://www.zerowaste.sa.gov.au/upload/REAP/91392%20ZWSA%20UpClose%20Hilton%20WEB.pdf> [Accessed 13 Aug. 2014].

<sup>44</sup> Thesra.org, (2014). *Sustainability Factsheets | The Sustainable Restaurant Association*. [online] Available at: <http://www.thesra.org/what-we-offer/resources/sustainability-factsheets/> [Accessed 21 Aug. 2014].

<sup>45</sup> Wri.org, (2014). *Reducing Food Loss and Waste | World Resources Institute*. [online] Available at: <http://www.wri.org/publication/reducing-food-loss-and-waste> [Accessed 23 Aug. 2014]

<sup>46</sup> Wri.org, (2014). *Reducing Food Loss and Waste | World Resources Institute*. [online] Available at: <http://www.wri.org/publication/reducing-food-loss-and-waste> [Accessed 23 Aug. 2014]

## **Conclusion:**

Food and Hospitality businesses and consumers are equally responsible for food waste in the food and hospitality industry. Evidence suggests that as a society we have lost touch with the food we waste and take for granted the huge masses of food discarded due to our careless attitude towards food. Unrealistic expectations, poor management and bizarre social norms drive food waste in the food and hospitality industry. Through simply tossing food in the bin we have become detached from the places where this food is destined to be dumped. With 4.06 million tonnes of food sent to landfill in Australia each year it is apparent both business and consumer attitudes and behaviours towards food need serious adjustment.

Whilst many businesses are committed to reducing their environmental footprint by recycling, it is evident there is plenty of room for improvement. Composting and donating food to charities are plausible methods for reducing food sent to landfill, however, these strategies do not address food waste at its source and therefore fail to provide a sustainable outcome. Put simply, they are back-end solutions that do not actually reduce the generation of food waste.

Food waste can be more effectively minimised by raising awareness of the extent of the problem, collaborating with governments, corporations and other stakeholders to initiate food waste programs, provide incentives for businesses to reduce food waste and adjust society's expectations of food. Only by implementing these changes do we have the opportunity to address food waste at its source and thereby secure a sustainable food future.

**Word Count: 2,000**

E4  
In-depth evaluation of contemporary trends/issues is shown throughout. Conclusion reflects on the broader meaning of the evidence and suggests a solution based on evidence.

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Stage 2 Food and Hospitality, Interview with Sally Neville, Restaurant and Catering Chief Executive, conducted 12/7/2014

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Stage 2 Food and Hospitality, survey of 27 Food and Hospitality venues, conducted 13/7/2014

## Performance Standards for Stage 2 Food and Hospitality

	Investigation and Critical Analysis	Problem-solving	Practical Application	Collaboration	Evaluation
<b>A</b>	<p><b>In-depth investigation and perceptive critical analysis of contemporary trends and/or issues related to the food and hospitality industry.</b></p> <p><b>Perceptive analysis of information for relevance and appropriateness, with appropriate acknowledgment of sources.</b></p> <p><b>Highly effective application of literacy and numeracy skills, including clear and consistent use of appropriate terminology.</b></p>	<p>Astute identification and discussion of factors involved in problem-solving related to the food and hospitality industry.</p> <p>Sophisticated and well-informed decision-making about problem-solving and implementation strategies.</p> <p>Clear and very relevant justification of decisions about problem-solving and implementation strategies.</p>	<p>Ongoing and productive implementation of appropriate techniques, and sophisticated generation and maintenance of quality control in preparing and serving food.</p> <p>Productive and efficient organisation and management of time and resources.</p> <p>Logical selection and application of the most appropriate technology to prepare and serve food.</p> <p>Sustained and thorough application of safe food-handling and management practices.</p>	<p>Initiation of ideas and procedures, display of leadership within the group, and proactive and inclusive response to members of the group.</p> <p>Proactive and focused involvement in group activities and discussions to support healthy eating practices.</p>	<p>Insightful evaluation of the processes and outcomes of practical and group activities, including their own performance.</p> <p>Sophisticated appraisal of the impact of technology, and/or sustainable practices or globalisation, on the food and hospitality industry.</p> <p>Insightful explanation of the connections between research and/or planning, and practical application.</p> <p><b>In-depth evaluation of contemporary trends and/or issues related to the food and hospitality industry in a variety of settings.</b></p>
<b>B</b>	<p>Detailed investigation and well-considered critical analysis of contemporary trends and/or issues related to the food and hospitality industry.</p> <p>Well-considered analysis of information for relevance and appropriateness, with appropriate acknowledgment of sources.</p> <p>Effective application of literacy and numeracy skills, including mostly clear use of appropriate terminology.</p>	<p>Well-considered identification and discussion of factors involved in problem-solving related to the food and hospitality industry.</p> <p>Well-informed decision-making about problem-solving and implementation strategies.</p> <p>Mostly clear and relevant justification of decisions about problem-solving and implementation strategies.</p>	<p>Mostly productive implementation of appropriate techniques, and well-considered generation and maintenance of quality control in preparing and serving food.</p> <p>Mostly productive organisation and management of time and resources.</p> <p>Mostly logical selection and application of appropriate technology to prepare and serve food.</p> <p>Capable application of safe food-handling and management practices.</p>	<p>Initiation of some ideas and procedures, some display of leadership within the group, and thoughtful and active response to members of the group.</p> <p>Active and thoughtful involvement in group activities and discussions to support healthy eating practices.</p>	<p>Thoughtful evaluation of the processes and outcomes of practical and group activities, including their own performance.</p> <p>Well-informed appraisal of the impact of technology, and/or sustainable practices or globalisation, on the food and hospitality industry.</p> <p>Well-considered explanation of the connections between research and/or planning, and practical application.</p> <p>Well-informed evaluation of contemporary trends and/or issues related to the food and hospitality industry in different settings.</p>
<b>C</b>	<p>Competent investigation and some considered critical analysis of contemporary trends and/or issues related to the food and hospitality industry.</p> <p>Considered analysis of information for relevance and appropriateness, with generally appropriate acknowledgment of sources.</p> <p>Generally effective application of literacy and numeracy skills, including competent use of appropriate terminology.</p>	<p>Considered identification and discussion of some factors involved in problem-solving related to the food and hospitality industry.</p> <p>Informed decision-making about problem-solving and implementation strategies.</p> <p>Generally relevant justification of decisions about problem-solving and implementation strategies, with some clarity.</p>	<p>Competent implementation of appropriate techniques, and considered generation and maintenance of quality control in preparing and serving food.</p> <p>Competent organisation and management of time and resources.</p> <p>Appropriate selection and application of technology to prepare and serve food.</p> <p>Competent application of safe food-handling and management practices most of the time.</p>	<p>Some initiative with ideas or procedures, occasional leadership within the group, and generally active response to members of the group.</p> <p>Active involvement in group activities and discussions to support healthy eating practices.</p>	<p>Considered evaluation of the processes and outcomes of practical and group activities, including their own performance.</p> <p>Informed appraisal of the impact of technology, and/or sustainable practices or globalisation, on the food and hospitality industry.</p> <p>Considered explanation of the connections between research and/or planning, and practical application.</p> <p>Informed evaluation of contemporary trends and/or issues related to the food and hospitality industry in different settings.</p>
<b>D</b>	<p>Some investigation and basic description of one or more contemporary trends or issues related to the food and hospitality industry.</p> <p>Some consideration of information for relevance or appropriateness, with some inconsistent acknowledgment of sources.</p> <p>Inconsistent application of literacy and numeracy skills, with use of some terminology that may be appropriate.</p>	<p>Superficial identification and discussion of some factors involved in solving basic problems related to the food and hospitality industry.</p> <p>Some basic and inconsistent decision-making about problem-solving and/or implementation strategies.</p> <p>Some description and partial justification of one or more problem-solving and/or implementation strategies.</p>	<p>Basic implementation of one or more techniques, and some basic consideration of the generation and maintenance of quality control in preparing and serving food.</p> <p>Inconsistent organisation and management of time and resources.</p> <p>Identification and some application of technology that may be appropriate to prepare or serve food.</p> <p>Some endeavour to apply safe food-handling and management practices some of the time.</p>	<p>Some participation within the group, and some response to members of the group. Participation is often passive.</p> <p>Some basic involvement in group activities or discussions to support healthy eating practices.</p>	<p>Basic consideration of the processes and/or outcomes of practical and group activities, which may include their own performance.</p> <p>Superficial consideration of the impact of technology, sustainable practices, or globalisation on the food and hospitality industry.</p> <p>Some basic description of one or more connections between research and/or planning, and practical application.</p> <p>Superficial reflection on one or more contemporary trends or issues related to the food and hospitality industry, tending towards basic description.</p>



	Investigation and Critical Analysis	Problem-solving	Practical Application	Collaboration	Evaluation
<b>E</b>	<p>Limited investigation or basic description of one or more contemporary trends or issues related to the food and hospitality industry.</p> <p>Limited identification or acknowledgment of information that may have some relevance.</p> <p>Attempted application of literacy and numeracy skills, with attempted use of some basic terminology that may be appropriate.</p>	<p>Identification of one or more factors involved in solving basic problems related to the food and hospitality industry.</p> <p>Attempted decision-making about a problem-solving or implementation strategy.</p> <p>Attempted description of one or more problem-solving or implementation strategies.</p>	<p>Attempted development or implementation of a technique, and some awareness of the need for quality control in preparing or serving food.</p> <p>Limited organisation or management of time and resources.</p> <p>Limited identification or application of technology that may be appropriate to prepare or serve food.</p> <p>Emerging awareness of safe food-handling and management practices.</p>	<p>Some attempted participation in one or more aspects of group work, and occasional response to members of the group.</p> <p>Attempted involvement in one or more group activities or discussions to support healthy eating practices.</p>	<p>Attempted consideration of one or more processes or outcomes of a practical or group activity, which may include their own performance.</p> <p>Attempted description of an impact of technology, sustainable practices, or globalisation on the food and hospitality industry.</p> <p>Limited awareness of any connections between research and/or planning, and practical application.</p> <p>Some recognition of one or more contemporary trends or issues related to the food and hospitality industry.</p>