FOODSERVICE SECTOR ACTION PLAN OVERVIEW

ENDFOODWASTE AUSTRALIA

Australian Government
Department of Industry, Science and Resources

AusIndustry
Cooperative Research Centres Program

Australian Government
Department of Climate Change, Energy, the Environment and Water

Table of Contents

List of Figures

List of Tables

1. Purpose

This report provides an overview and introduction to the Foodservice Sector Action Plan (SAP). It describes why, and how, SAPs are developed. It also outlines how the foodservice sector has been categorised to deliver a suite of SAPs and addresses some food waste themes common to the broader sector.

Foodservice SAPs will initially be developed for:

- Catering
- Cafes
- Quick Service Restaurants (QSRs)
- Aged Care
- Hospitals

Each SAP is presented as a longer report and a summary of the key findings and recommended actions. The reports describe the research and development of each SAP in depth and detail. The summaries present these findings as practical guides on how to reduce food waste in the Australian foodservice sector.

2. Food Loss and Waste

Overview

Globally, one third of all food produced goes to waste (FAO, 2011). In Australia, food waste totals a staggering 7.6 million tonnes each year (enough to fill the Melbourne Cricket Ground ten times over), and 70% of which is edible (FIAL, 2021).

Food waste has impacts on people, the planet and industry profitability. Food waste is responsible for 8-10% of global greenhouse gas emissions (Mbow, et al., 2019). Food waste costs Australia $36.6 billion each year (FIAL, 2021). Australia produces enough food to feed 75 million people every year, while at the same 1 in 6 adults and 1.2 million children go hungry regularly in Australia (Foodbank, 2022).

The National Food Waste Strategy (Australian Government, 2017) provides a framework to support action to halve Australia's food waste by 2030, aligning with Sustainable Development Goal 12 to ensure sustainable consumption and production patterns. Avoiding food waste or repurposing it, follows a circular economy approach, where resources are kept in use for as long as possible whilst minimising negative impacts.

Defining food waste

In Australia, food waste is defined as:

- solid or liquid food that is intended for human consumption and is generated across the entire supply and consumption chain.
- food that does not reach the consumer or reaches the consumer but is thrown away. This includes edible food, the parts of food that can be consumed but are disposed of, and inedible food, the parts of food that are not consumed because they are either unable to be consumed or are considered undesirable (such as seeds, bones, coffee grounds, skins, or peels).
- food that is imported into, and disposed of, in Australia.
- food that is produced or manufactured for export but does not leave Australia.

The Food Loss and Waste Standard (WRI, 2016) defines 'food loss and waste' (FLW) as materials that have been diverted from the food supply chain. Food waste can also be characterised by its end destination.

Reducing food waste

Three types of activities are recognised as avoiding food waste:

- Preventing food waste through efficiency and optimisation at all points of the supply and consumption chain;
- Repurposing food waste streams into new food products; and
- Redistributing surplus food within the food system (food rescue).

The 'Food Recovery Hierarchy' (figure 1.) identifies ways to manage and prioritise potential food loss and waste reduction. Waste prevention is the best option. If waste cannot be avoided, then it should be repurposed or upcycled into new products or donated to food rescue and redistribution to people in need. Waste prevention also includes repurposing food waste into animal feed, so it remains in the human food chain, as most farmed animals and animal products are destined for human consumption.

Material going to recycling, recovery or disposal (the interventions below prevention) is considered food waste. Initiatives to move food waste up the hierarchy, such as anaerobic digestion and composting, are still valuable as waste initially destined for disposal is diverted to a higher value activity and is kept out of landfill. However, they do not contribute towards Australia's target to halve food waste by 2030.

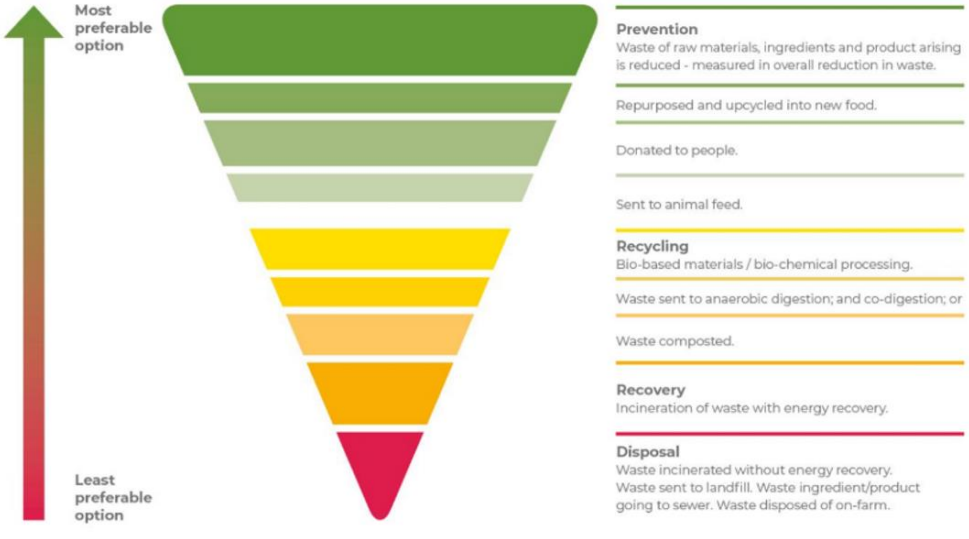

Figure 1. The Food Waste Hierarchy

The National Food Waste Baseline (Arcadis , 2019) quantified food waste in Australia across the entire food chain from primary production through to end use by the consumer. The National Food Waste Strategy Feasibility Study (FIAL, 2021) updated this baseline and developed a recommended scenario to meet the target of halving Australia's food waste by 2030. This scenario recommends combining policies that support and stimulate the private sector with voluntary, industry-led initiatives to produce the combination of 'levers' with the best chance of halving food waste by 2030 within a feasible investment range.

Some of the key recommendations for industry included:

- For businesses across the supply chain to sign up to the voluntary agreement (Australian Food Pact) and relevant Sector Action Plans (SAPs). This intervention is designed to help businesses work together in a pre-competitive collaborative environment to address shared and systemic challenges causing food waste.
- For the hospitality and foodservice sector to contribute to a SAP to reduce food waste and improve profitability in the sector, starting with (but not limited to) implementing food waste measurement technologies and processes.
- For peak industry bodies to encourage and oversee the cascading of good practice across their sector, so that impact is scaled beyond the signatories to the voluntary agreement or the SAP participants.

3. End Food Waste Australia

End Food Waste Australia (EFWA) is the nation's leading organisation for food waste action. EFWA is leading the delivery of Australia's National Food Waste Strategy to halve Australia's food waste by 2030. EFWA aims to create a more productive, sustainable, and resilient Australian food system by ending food waste and food insecurity.

EFWA conducts world-leading research through the End Food Waste Cooperative Research Centre, funded by the Australian Government's Department of Industry, Science and Resources. EFWA leads innovative and collaborative industry action through the Australian Food Pact and Sector Action Plans, supported by the Australian Government Department of Climate Change, Energy, the Environment and Water.

Since 2018, beginning with the formation of the Fight Food Waste CRC (now known as the End Food Waste CRC) and with the addition of Stop Food Waste Australia (now known as End Food Waste Australia) in 2020, EFWA has formed one of the world's largest public-private partnerships of more than 100 organisations focused on addressing Australia's $36.6 billion food waste challenge.

4. Sector Action Plans

As previously described, the National Food Waste Strategy Feasibility Study (2021) identified industry participation in Sector Action Plans (SAPs) as a key recommendation to halving food waste by 2030.

EFWA is developing SAPs to address major food waste hotspots in Australia's food system. Hotspots in the food system are where several factors combine to create situations where there is:

- High amounts of food loss or wastage
- High environmental impact from the wasted food
- High value foods are wasted

SAPs are developed by engaging with key stakeholders across a food industry sector or food commodity to understand where food waste is generated, why it occurs and what can be done to reduce it. By taking a sector-based approach, multiple stakeholders can come together in pre-competitive collaboration to address specific food waste challenges that are too significant for individual organisations to solve alone. By actively involving people working across the sector, impactful action plans can be co-designed by providing an opportunity to prioritise actions and develop a workable plan to reduce food waste in the food system.

Stakeholders may include producers, processors, policy makers, distributors, foodservice companies and employees, retailers, researchers, food rescue, packaging and logistic companies, peak bodies, waste contractors, and consumers. Each SAP is co-designed with the key stakeholders who are most able to directly control or influence the root causes of food waste hotspots and to take actions to reduce or eliminate food waste in the value chain.

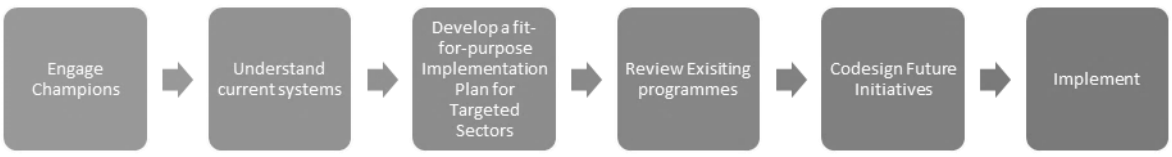

Figure 2. Stages in SAP development

SAPs provide a systems-based approach to reducing food loss and waste. They apply a bottom-up, fit-for-purpose approach with 'solutions' emerging from the analysis and stakeholder co-design processes. The initiatives of a SAP can be categorised under five action pillars (Figure 3). The shape of each SAP and the balance of interventions between these pillars, will depend entirely on the focus of the plan, the willingness of stakeholders to undertake specific initiatives and the priorities emerging from the co-design process.

Figure 3. Five pillars of a SAP

5. The Foodservice Sector Action Plan

The foodservice sector is extremely heterogenous with many different types of venues involved in the provision of food to customers. The sector is commonly divided into commercial and non-commercial sectors based on their activities. The commercial sector includes hotels, restaurants, cafes, canteens, and catering. The non-commercial sector comprises accommodation and food service in institutions like schools, universities, healthcare, and other establishments, where providing hospitality services is not the main function of the organisation and profit from hospitality services is not the key consideration. There is some cross over between the two, for example large catering companies which fall into the commercial sector, maybe responsible for the provision of food at institutions in the education or health sectors.

For the purpose of developing this SAP, the commercial and non-commercial sectors have been further sub-divided.

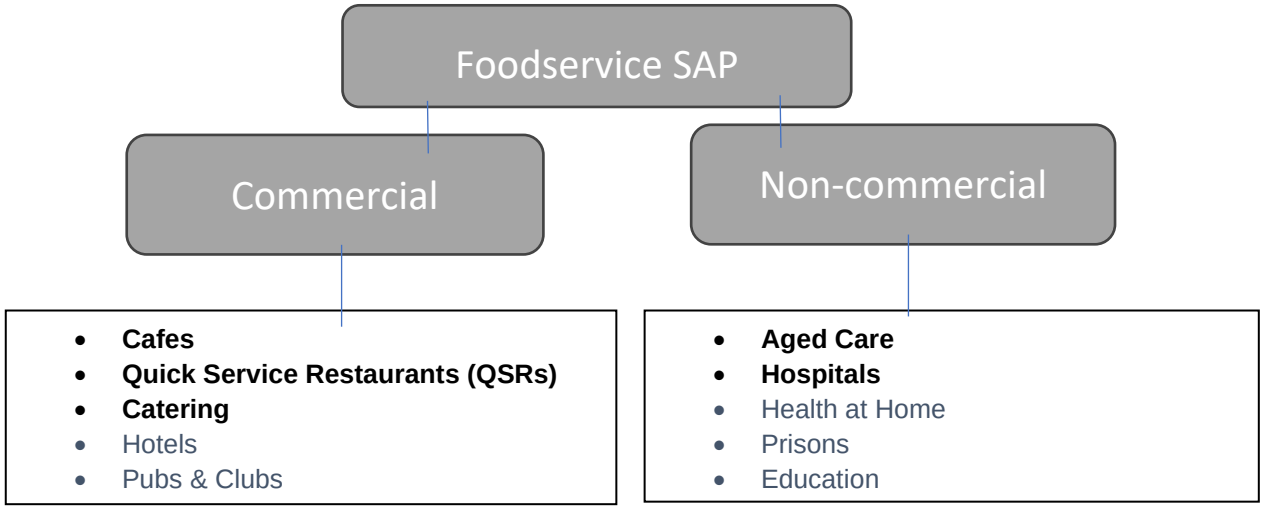

Figure 4. The foodservice sectors

Whilst there is much overlap in aspects of food waste generation between these different sub-sets, there are nuances. For instance, while cafes and restaurants can consider food rescue donation, hospitals may not have that option due to the risk of infection. There are many overlapping stakeholders between the sectors, but some are also unique to a particular sector. Hence, it is necessary to develop sector specific action plans.

Australia lacks data on how much food waste each sector generates. Aggregated and international data is available. However, each sector is different in its food provision model and international practice may not accurately reflect the Australian context.

The sectors in bold have been addressed in this initial Foodservice SAP as the sectors where impact can be most readily achieved.

The Foodservice SAP has been coordinated by the EFWA SAP team and a core research team. Signatories to the Australian Food Pact have provided valuable input into the catering SAP and research by the End Food Waste CRC's Reduce program has underpinned the cafes, QSRs, aged care and hospital SAPs.

Each SAP is presented as a longer report and a summary of the key findings and recommended actions. The reports will describe the research and development of each SAP in depth and detail. The summaries present these findings as practical guides on how to reduce food waste in the Australian foodservice sector.

6. Food Waste in Hospitality and Foodservice

In Australia, the hospitality and institution sectors are responsible for 16% and 3% of the annual food waste respectively (FIAL, 2021).The breakdown of food waste in Australia across the food value chain is:

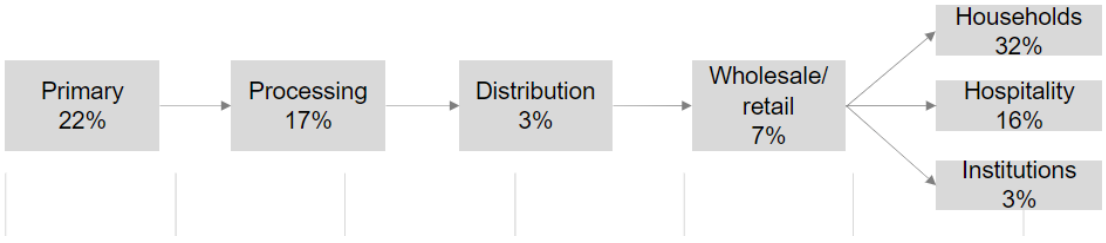

Figure 5. Where food waste occurs in the supply chain

Foodservice food waste contributes $6.4 billion (17.6% of total waste by value) to Australia's food waste (FIAL, 2021). In June 2020, there were more than 96,000 food service businesses (ABS 2021), so on average a business could lose $66,740 annually due to food waste, yet only 23% of foodservice business regularly audit their food waste (McGrath, 2021).

Studies in the UK have found that the hospitality and foodservice sector wastes around 18% of food purchased or one in six complete meals (WRAP, 2013a). Three quarters of this food waste is avoidable (WRAP, 2013b) and hence foodservice is a prime target for reducing food waste. To date there has been limited local data and this action plan will help to provide important Australian context.

The foodservice industry is extremely heterogeneous, and the composition and volume of food waste is affected by the size of venue and service provided. Food waste varies due to type of establishment, style of dining and the occasion. However, there are many common elements across the foodservice sector and all enterprises follow a general linear workflow when provisioning food.

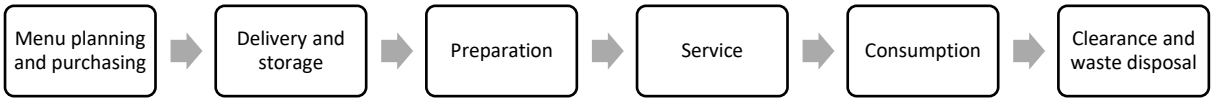

Figure 6. Stages of foodservice

Many challenges and opportunities for food waste prevention will have commonalities across these sectors. However, the type of food and the service provided vary widely creating specific issues requiring more tailored solutions.

Where does food waste occur?

Working out where food waste arises is key to being able to tackle the issue. A UK study (WRAP, 2013c) investigated where food waste occurs and estimated the total waste per cover for a variety of hospitality businesses. The following definitions are provided by the Sustainable Restaurant Association (SRA):

- Spoilage: produce that has gone off or has been contaminated and is unusable
- Preparation: food waste generated as part of the menu preparation and cooking process, including items that could be used but are thrown out e.g. peelings or off cuts for stock. This includes meals cooked for customers that don't get served (overcooked or ruined etc)
- Plate: prepared food that comes back from the customer, including meals that have been untouched.

	Spoilage waste %	Preparation Waste %	Plate Waste %	Total Waste g/cover
Basic dining	22	32	46	170
Casual dining	21	50	29	380
Fine Dining	16	61	23	310
Catering	26	38	36	150
Average	21	45	34	220

Table 1. Where food waste occurs in the UK hospitality sector

The study illustrated that food waste arises differently in different types of commercial kitchens. The SRA (2010) estimated that restaurants generate 65% of food waste in kitchens while customer plates and spoilage account for 30% and 5% of wastage, respectively. Winnow (2018) demonstrated that over 70% of food is wasted in food service provision before it even reaches

customer plates, which is due to over-supply of ingredients, over-production of meals and human errors when handling and cooking food. Focussing on where the waste is generated allows appropriate interventions to be selected. In certain settings such as buffets, it will be of value to consider a separate category of serving waste, food that has been prepared for the customer and offered but not taken by the consumer.

The type of venue has an important effect on the amount of food waste generated and where it occurs, reflected in the separate SAPs. Menu service generally leads to less waste than buffet service. The type of dishes served influences the volume of preparation waste. Fine dining leads to greater preparation waste since more dishes are prepared from scratch and total waste is high due to food needing to meet rigorous quality and aesthetic standards. QSRs tend to generate more plate waste, possibly through consumer behaviour due to relative affordability of food and larger portion sizes. Studies have found that more waste is generated at social occasions (Pirani & Arafat, 2016) rather than in work canteens, where eating has a more utilitarian function. Most of these observations are from international studies; the research to underpin this action plan will provide a more local context.

The production of food waste in foodservice does not necessarily indicate bad operating practices, as it occurs for various reasons whether they can be avoided or not. There are multiple factors and variables that affect the production of food waste in commercial kitchens. Understanding the causes of food waste generation, its volume and origin, is critically important to allow selection of appropriate interventions and effective food waste management.

Effects of COVID-19 and staff shortages

The hospitality industry in Australia employs 946,600 people (Australian Government, 2023). The global pandemic had devastating effects on this sector. Social distancing, reduced capacities of venues, prohibited air travel, cancelled events, and working from home have changed the face of hospitality. At the height of the pandemic, 85% of hospitality workers had their hours cut or were not working, including 58% who lost their jobs or were stood down (Hospo Voice, 2020). Many of these workers have not returned to the industry.

Catering industry revenues have almost returned to pre-pandemic levels (IBISWorld, 2022). In the 2021 Benchmarking Report, the Restaurant and Catering Association (R&CA) noted an optimism for the future, with most operators confident that their sales, number of employees and profitability would go up. This was completely opposite to the previous year, where the outlook had been extremely pessimistic. However, international visitor arrivals are unlikely to return to pre-pandemic levels until 2025 (AFAB, 2023).

The COVID-19 restrictions have irreversibly changed the way that Australians purchase food and the way that operators sell it. Businesses initially moved to takeaway services and delivery platforms to cope with restrictions, but many are now seeing it as a permanent change.

Catering companies serving the corporate sector have had to adapt to changing work patterns, workers are spending less time in the office with hybrid working conditions and flexible hours. A survey found that 72% of office workers want premium food services (Sodexo, 2022) and customers are demanding more flexibility and home delivery.

Staff shortages and skills shortages are a major concern for the food service sector, with 51% of food businesses struggling to find suitable staff to fill jobs (ABS, 2022). Nearly three-quarters of businesses indicated that it was harder to fill positions during 2020-2021 than during the previous financial year (R&CA, 2022). The pandemic exacerbated problems with staff shortages due to the lack of overseas labour. Hospitality is now facing a labour shortage of up to 100,000 workers (AFAB, 2023). The reintroduction of working restrictions on international students, limiting working hours, will also reduce numbers of available staff. The shortages are most acute amongst the highly skilled occupations of chefs and cafe/restaurant managers and has increased dramatically in recent years (R&CA, 2022). Chefs are ranked at number 8 of the top 20 in demand occupations nationally (AFAB, 2023).

Even with the lack of availability of skilled workers, in-house training of hospitality workers remains limited. Nearly 60% of businesses do not have a structured or formal staff training program (R&CA, 2022) although 58.2% would use a low-cost online induction/training course if it was available to them when hiring new staff.

Current knowledge gaps

Despite the substantial magnitude of the challenge of food waste in food service provision, there is little academic research, especially in terms of providing empirical evidence on the major drivers of wastage as well as the determinants of effective mitigation. Research has focused on household and retail food waste to be able to inform waste management policy. Due to the lack of empirical studies, it is difficult to establish the precise magnitude of food waste in foodservice. The lack of research is largely attributed to the challenges of primary data collection. Most managers or supervisors are aware of food wastage in their establishments but are unable to accurately track or quantify it. In many cases, the assessment of food waste in foodservice is restricted to estimates of the volumes. There is sometime reluctance to share food waste data, partially due to perceived commercial sensitivity of the topic of food waste, with the potential it holds to damage business image and reputation if the data becomes public. Also, the aggregation of primary data on food waste is challenging due to the diversity of food service provision, the data on the quantity and the character of wasted food from one establishment may not represent the rest of the sector.

There are many studies and strategies to mitigate food waste proposed in the literature, but these are scattered across journals as diverse as hospitality, waste management, sustainability and nutrition. There are also a variety of nonacademic studies and reports, but little integration between these and academic research. Often there is a difference between recommendations from academic and practical studies. For example, financial incentives and penalties are more strongly supported by academics than practitioners, maybe through fear that they will affect the customer negatively.

Studies are rarely accompanied by a systematic assessment of their impacts, and strategies may suggest diametrically opposed recommendations, for example using fresh ingredients with varying and diverse menus can reduce plate waste but the opposite applies to reduce storage waste. Portion size reduction is supported by exploratory, causal and correlational research. However, other interventions, like food waste measurement and engaging staff which are two of the most widely supported strategies, have little robust scientific data to illustrate the impact of such interventions.

Outcomes from the Foodservice SAP development

The Foodservice SAP aims to address some of these knowledge and data gaps and provide solutions and actions within the Australian context. The EFWA SAP team, with support from Australian Food Pact signatories and partners, and EFW CRC researchers, through extensive and in-depth stakeholder engagement with actors across the supply chain and hospitality industry, will apply academic and practical lenses to the challenge of food waste in foodservice to develop sector specific action plans. Foodservice SAPs will initially be developed for:

- Catering
- Cafes
- Quick Service Restaurants (QSRs)
- Aged Care
- Hospitals

Implementation of these plans will reduce food waste in the foodservice sector and help Australia meet its target of reducing food waste by half by 2030.

7. Acknowledgements

EFWA would like to acknowledge the funding provided by the Australian Government's Department of Industry, Science and Resources and Department of Climate Change, Energy, the Environment and Water to facilitate the development of this SAP. EFWA would also like to acknowledge the support of partners and Australian Food Pact signatories involved in the development of this suite of Foodservice SAPs.

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