

**If you could make one major improvement on Local Government in the next 18 months what would it be?**

## **Education strategies in schools on food waste minimisation within the current waste system**

**Emerging Leaders Program 2020**



### **Group 4, Group Assignment**

**Due 3 December 2020**

Chelsea Bevitt – Acting Manager Leisure Businesses - Campbelltown City Council

Ryan Nelson - Project Engineer – Civil & Stormwater - City of Charles Sturt

Lucy Reynolds - People and Culture Administration Officer - City of Mitcham

Adam Cox - Senior Events & Activation Officer - City of Playford

Sandra Mann - Development Support Officer, City Development - Mount Barker District Council

Sam Alexopoulos - Arboriculture Team Member - City of Onkaparinga

Brendan Eckert - Team Leader of Maintenance – City Infrastructure - Rural City of Murray Bridge

## **Contents**

Executive Summary.....	3
Introduction .....	4
Methodology.....	5
Background .....	5
Community Education.....	7
Junior School Education .....	8
Senior School Education .....	10
Cost Analysis .....	11
Recommendations .....	12
References .....	14
Group Reflection .....	15

## **List of Figures**

Figure 1 – Comparison of waste generation by state .....	6
Figure 2 - 2020-25 waste framework.....	7
Figure 3 – Highbury Primary waste audit.....	9

## **List of Tables**

Table 1 - Overall volume collected at kerbside in SA.....	6
---	---

## **Executive Summary**

The focus of this report is improvements that the South Australian Local Government sector can make or influence in the next 18 months, to education in schools about minimising food waste. There are a multitude of reasons to focus on this topic, which include decreasing the cost of waste disposal to Councils, an associated decrease in landfill greenhouse emissions, and the ability to empower young people to bring about intergenerational change through the process of partnering with schools. The importance of focusing on this issue is also reinforced by the release of the Draft South Australian Food Waste Strategy, which has identified a range of actions for the next 18 months, including developing and implementing uniform education and awareness tools and programs that support food waste prevention.

Whilst each Council district is different, the recent increase in the solid waste levy by the State Government represents a large portion of Councils operating budgets. With a significant minimisation of food waste, there would be a reduction in waste disposal costs incurred by Councils. There have been several campaigns that prove implementing waste education strategies within our schools are effective in decreasing waste volumes. To evaluate the true financial cost of waste minimisation strategies will take time and effort beyond the scope of this report, however one thing is evident, continued expenditure on waste prevention initiatives in the present will benefit our environment and see a strong cost-benefit in the future.

Currently there is increased awareness on the volume of waste and being more sustainable. The next 18 months are ideal to capitalise on this, as people are spending more time at home, and they have a greater ability to implement the changes at a household level. Local Government is best positioned to implement the necessary changes at a local level to align with the overall South Australian strategy of minimising food waste, providing waste levy benefit to Council, and in turn rate payers.

It is recommended that Councils leverage their current waste collections systems and environmental resources, and work in partnership with local schools, KESAB and WOW to deliver better education on, and successful implementation of, the current three-bin system. The provision of composting bins and worm farms to schools, and facilitation of community gardens adjacent schools, will create small biological circular economies, and further reduce the creation of food waste.

## **Introduction**

There are many improvements that could be made in the Local Government sector in the next 18 months, however the focus of this report is the improvements the South Australian Local Government sector can make to education in schools about minimising food waste. The multitude of the reasons to focus on this topic include decreasing waste disposal costs to Councils, decreasing greenhouse gas emissions, and empowering young people to bring about intergenerational change. The importance of focusing on this issue now was reinforced by the release of the Draft South Australian Food Waste strategy identifying a range of actions for the next 18 months, including developing and implementing uniform education and awareness tools that support food waste prevention.

Under the South Australia Local Government Act (1999), Councils are responsible for providing waste collection services within their council area. Ultimately, any changes in the make-up or volume of waste will affect the Levels of Service provided by Council. In releasing the Draft South Australian Waste Strategy 2020-25, the Minister for Environment and Water David Speirs MP, outlined his “firm ambition to create local solutions to our waste and recycling issues”. Local Government is best positioned to implement the necessary changes at a local level within their Council area to align with the South Australian strategy.

Through review of publicly available reports and strategy documents, this report will explain the current situation and strategies in place within South Australia. Analysis of case studies from both primary and secondary schools will highlight the previous education initiatives that have worked and what can be improved on. Feedback from KESAB will also be incorporated in shaping the recommendations of this report.

## **Methodology**

The approach taken in gathering information for this report was to focus on local and state government resources, especially South Australian, to ensure they were relevant to the discussion. In addition to the review of publicly available reports and strategy documents, consultation was undertaken with several groups located across South Australian metropolitan and rural Council area, including:

- Primary and secondary schools
- Council waste officers
- Keep South Australia Beautiful (KESAB) staff
- Primary and secondary students

The consultation focused on what education strategies were already in place, barriers to implementation, what goals they would like to see achieved, why it was important to them, and if/how a coordinated approach could benefit the wider community.

## **Background**

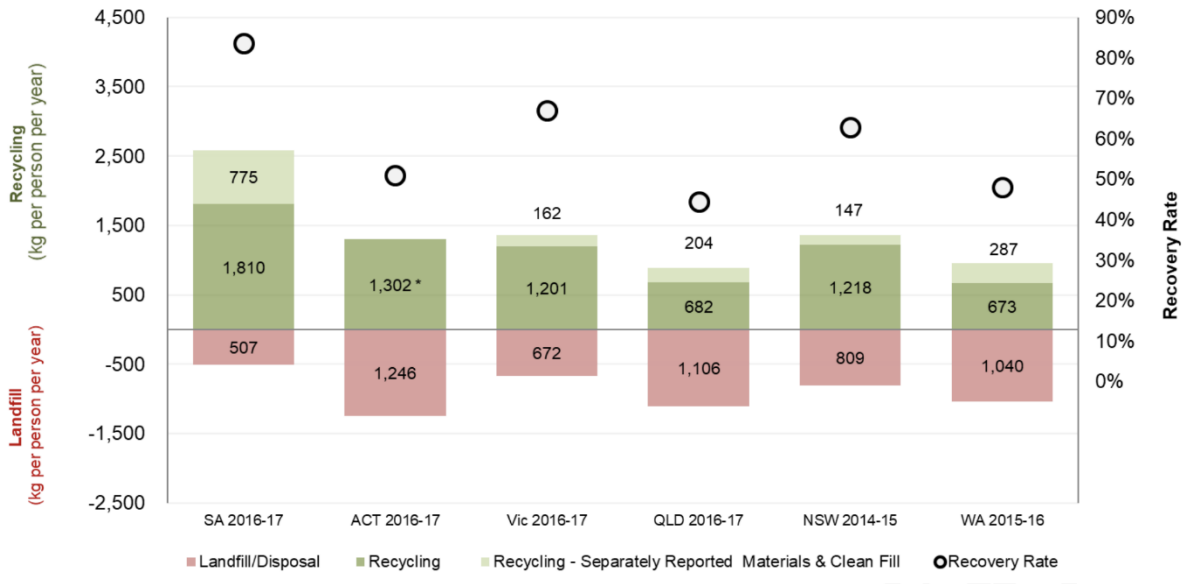
SA Councils collected over 530,300 tonnes of waste in the 2015/2016 financial year, and at that time the solid waste levy was \$57 per tonne. Since then, the waste levy has increased by 250% to \$143 per tonne. This cost is set by the State Government and passed on directly to local Councils, having a huge financial impact on the sector and residential rates. While each district is different, the waste levy represents a large portion of rates and councils operating budget.

Table 1 below, released by the South Australian Waste Strategy Consultation (draft) by Green Industries SA show how the state's kerbside waste collection has performed over recent years. It is worth noting that in 2007 diversion rate was 47% of its total waste from landfill.

Collection	2015-16	2016-17	% change
Residual waste	263,700	265,500	1
Organic	134,900	155,700	13
Recyclables	110,500	109,100	-1
<b>Total metropolitan materials</b>	<b>509,000</b>	<b>530,300</b>	<b>4</b>
<b>Recovery rate</b>	<b>48.2%</b>	<b>49.9%</b>	<b>1.7%</b>

**Table 1 - Overall volume collected at kerbside in SA**

Source: South Australian Waste Strategy Consultation 2020-25



**Figure 1 – Comparison of waste generation by state**

Source: South Australian Waste Strategy Consultation 2020-25

Figure 1 above shows that while SA may have the lowest landfill rates in Australia, it also has the highest waste generation per capita. This demonstrates that SA is good at recycling, however we pay little attention to the total volume of waste we generate. As a direct result of this, the 2020-25 waste framework, Figure 2 below, clearly shows the South Australian approach to tackle this problem, by shifting the focus to avoiding waste over recycling.



**Figure 2 - 2020-25 waste framework**

Source: South Australian Waste Strategy Consultation 2020-25

Aligning with the SA waste strategy, Local Government can position themselves as an industry leader in educating their communities to reduce their waste production while saving the impact on council budgets by reducing landfill costs.

Councils can leverage their current waste collection systems and environmental resources to partner with schools to deliver education programs. This aims to create lasting generational change with a payoff now from any immediate impacts the youth can take back to their homes, and in the future with intergenerational change.

### **Community Education**

Previous education strategies, such as a pilot program conducted by KESAB and the City of Playford - 'KESAB environmental solutions – City of Playford Food Waste Project' in 2015 show that intensive campaigns where education is conducted face to face have a high rate of success. In the project, residents were asked to pledge a commitment to making better decisions regarding waste. This was specifically targeting their habits and awareness around their green waste bins. They were also offered kitchen caddies to facilitate the transition of food waste from the general waste bin into the green organics bin. This project was fitting to reference now, as 2020 marks the year that free kitchen caddies

will be available to every household in metropolitan Adelaide, available through resources and funding provided to Councils by Green Industries SA. Additionally, this report strengthens the argument that education via traditional means such as TV and social media are not enough to trigger an emotional response, as a sector we need to think about waste in a more holistic way and leverage the resources and touch points we already have established.

Education strategies don't stop with techniques for waste avoidance. There are continued benefits to increasing the quality of waste in the current three bin systems. Food waste still makes up around 40% of residential waste after recyclables are removed, or over 150,000 tonnes per year. By diverting this away from landfill, not only do we reduce the excessive charges to Councils due to the high weight and liquid content in food waste, there are employment benefits also. In the 2020-25 South Australian Waste Strategy Consultation Report, Minister Speirs wrote *'We also know that for each 10,000 tonnes of waste recycled, 9.2 direct FTE jobs are created compared with 2.8 direct FTE jobs created for each 10,000 tonnes of material sent to landfill.'* The benefits of sustainable waste decisions go far beyond the immediate financial impact for Local Government and support our community and economy long into the future.

### **Junior School Education**

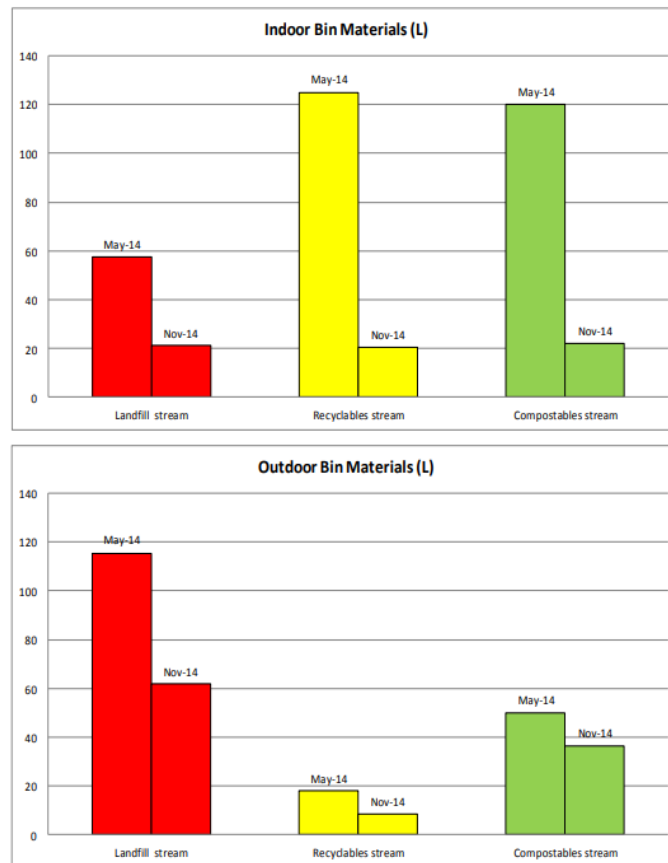
It is conservatively estimated that 35% of landfill in South Australia is food waste. If only half of this waste material was diverted to composting the average percentage recovery rate from metropolitan kerbside collections would rise by approximately nine percent and collective landfill gate fee savings for metropolitan Adelaide councils would be in the order of \$6.68 million (Green Industries SA, 2020). Young people have increasingly led environmental action. An estimated 1.6 million children in 125 countries hit the streets protesting climate change in early 2020, rumoured to be the largest climate protest ever (E Marris, 2020). Clearly, young and environmentally conscious children can be the key to motivating change on intergenerational issues.

In South Australia, KESAB reports most schools only offer waste (red lid) bins (Johnston, B. 2020). This inept system represents the unaffordability for schools to introduce green and recycling options. However, recent case studies show that education on the three-bin system to students will see transferable knowledge between school and home and overall reduction in waste levels.



The proposed education program would follow the Highbury Primary School case study “From Good to Great”. Highbury Primary commenced their waste journey with a bin audit conducted by Keep South Australia Beautiful (KESAB), an education initiative and program from the SA Government. This formed the basis of some recommended actions, and ultimately, a successful grant funding application to Zero Waste SA for green and recycling bins.

Other grant funding applicants who were unsuccessful, worked with their local Council on providing bins with great success. With the correct infrastructure, Highbury primary commenced education on waste, recycling and green waste/composting. With the combination of the new three-bin system, and more efficient utilisation of education options already available, the school found a remarkable 80% reduction in waste to landfill in only two terms, and halved collection of their waste skips (Wipe Out Waste, 2014).



**Figure 3 – Highbury Primary waste audit**

Source: Wipe Out Waste 2014

In addition to the clear benefit to schools, follow up studies show that students also taught their peers and families, with an average reach of 2.7 people per household. Neighbourhoods around the schools also report a positive impact on kerbside recycling contamination rates after education program delivery. (Cleanaway, 2020).

### **Senior School Education**

After developing a program to fight the landfill issues raised in their school, Golden Grove High School (GGHS) have been the front runners in waste reduction in South Australia. In 2011, a War on Waste (WOW) Bin Materials Audit found that over 1300 litres per day were going into landfill. Two years later, another audit showed that only 996 litres were going into landfill - a reduction of 33% (Green Industries SA, 2019). This shows that introducing a which bin program initially as starting point may have a similar effect within the schools.

Through Interview with GGH (Laura Carrington), as stated in the Junior schools, KESAB is key to get a program running in a school but also available grants from the Natural Resource Management (NRM) Board. Local Government will need to give more assistance in the set-up of green organics and yellow co-mingled recycling.

Following the blueprint that GGHS utilised, Local Government should help set-up a three-bin system within schools, and collaborate with WOW, KESAB, and their contracted waste collection provider to continue to help educate through the schools Environmental Action Team (EAT). The ABC (2019) showed that the positive impact WOW has with schools is crucial to implement change.

Onsite composting by provision of composting bins or worm farms, ideally combine with a community garden, helps to create a small biological circular economy. Local Government can encourage this by providing land next to or within walking distance from the school to have a community garden. Council Horticulture teams can work with schools to create and maintain these to help grow their own fruits and vegetables. These can then be picked by students and distributed to the canteen and catering classes for use. Utilising local councils' nurseries to donate trees for planting programs to help schools create pocket forests will allow students to see their trees grow over time.

At the other end of the spectrum is Victor Harbour High School (VHHS), who have had a challenge over the past three years to create a three-bin program that would be sustainable. Fiona Jelinek is an Educator there who has studied Environmental Management before teaching, and she uses her own knowledge for her teaching resources. Fleurieu Regional Waste Authority FRWA have provided some help to Fiona and VHHS in the past, but due to the lack of quality education and resources, it is difficult to get students to use the right bins and understand the principle behind it. This creates an ideal opportunity for the Regional councils to implement an educational program working with their Secondary schools, KESAB and WOW.

### **Cost Analysis**

The Australian economy spends \$20 billion dollars every year to cover the estimated 7.3 tonnes of food waste that is created by families and businesses (Green Industries SA 2020, p. 4). This significant figure shows the need for government sectors to seek opportunities to lower this cost, whilst also lowering food waste.

As previously stated, Highbury Primary School launched their 'From Good to Great' campaign in 2014 in conjunction with the South Australian Government's 'Keep South Australia Beautiful' (KESAB) initiative, which saw the school's waste reduced by a staggering 80% in a matter of weeks (Wipe Out Waste, n.d.). This campaign proves that implementing waste education within our schools can work, and in doing so could see significant benefits in behavioural and generational changes, both present and in the future. Additionally, another key benefit of the prevention of food waste is the added support to our local industries and communities, which can create more jobs. With it being estimated that by 2030, if we were to utilise a circular economy in which we prioritise reusing and recycling materials into new products, South Australia could see the addition of 25,700 jobs within the state (Green Industries SA 2020, p. 5). The sheer economic benefit of creating more jobs is on par with the profound benefit to our environment.

A significant prediction showcased in the Food Waste Strategy is the possible \$6.68 million savings for metropolitan Adelaide Councils if they were to half the estimated 254,742 tonnes of material that is sent to landfill each year. Moreover, it is stated within the report that "if only half of this material was diverted to composting operations through green organics bins the average percentage recovery rate

from metropolitan kerbside collections (currently 54%) would rise by approximately nine percentage points” (Green Industries SA 2020, p. 20). This supports the South Australian Government’s current solid waste levy – a significant financial disincentive to South Australian’s when disposing of their landfill (Green Industries SA 2020, p. 13).

To evaluate the true financial cost of waste minimisation strategies will take time and effort beyond the scope of this report. Factoring in all the different needs and expectations of households and businesses, as well as government sectors, is a complex and timely task. The Adelaide Metropolitan Area Kerbside Waste Performance Report 2016-17 echoes this conclusion, stating: “To build up a culture of waste minimisation and behaviour change takes time and requires reinforcement of the key messages... Costs can be reduced in the longer term by providing the same message to all households across all councils” (Green Industries SA 2017, p.4). One thing is evident – continuing expenditure on waste prevention initiatives in the present will benefit our environment and see a strong cost-benefit in the future.

### **Recommendations**

The findings above demonstrate that school-based education about waste is one of the most effective ways at implementing, and sustaining, intergenerational change. The positive behaviours demonstrated in schools are being transferred back home and will have a positive flow-on affect across Council areas. Currently there is increased awareness on the volume of waste, being more sustainable, and interest in getting involved in the garden. The next 18 months are ideal to capitalise on this, as people are spending more time at home, and they have a greater ability to implement the changes at a household level.

The Local Government sector is best positioned to implement the necessary changes at a local level within their Council area to align with the overall South Australian strategy of minimising food waste. To improve Education strategies in schools on food waste minimisation, it is recommended that Local Government do the following;

- Provide organic waste caddies and bags to schools and utilise the Local Government Association (LGA) to lobby the Department for Education to implement use of the three-bin system. This will encourage use of the three-bin system and provide greater alignment with the residential bin system, increasing the ease of transferring knowledge from school to home.

- Encourage bin audits in schools, either directly or via KESAB funding, to provide greater transparency about a school's current circumstances which can be used to set specific targets and predict the positive impacts of changes.
- Continue supporting quality educational resources independently, as well as in collaboration with KESAB, to facilitate education in schools.
- Encourage onsite composting by provision of composting bins or worm farms to schools, and ideally combine with a community garden to create a small biological circular economy.
- Develop community gardens within the school or on nearby Council land to help demonstrate the biological cycle of food from produce to waste to compost to food again.

These recommendations benefit local government both directly, as schools see fantastic waste diversion rates when the proper infrastructure is available, and indirectly, as on average, each student can then reach another 2.7 people per household, decreasing their household waste volume with transferable knowledge. This combined impact reduces the total volume of waste going to landfill, providing waste levy benefit to Council, and in turn rate payers.

## **References**

Cleanaway. (n.d.). *Waste education for schools and students*. [online] Available at:

<https://www.cleanaway.com.au/sustainable-future-hub/earth/waste-education-school-programs/>.

Accessed 24 September 2020.

Green Industries SA, 2020, Valuing Our Food Waste; South Australia's strategy to reduce and divert household and business food waste CONSULTATION DRAFT,

[https://www.lga.sa.gov.au/\\_data/assets/pdf\\_file/0038/697709/South-Australias-Food-Waste-Strategy-Valuing-our-Food-Waste.pdf](https://www.lga.sa.gov.au/_data/assets/pdf_file/0038/697709/South-Australias-Food-Waste-Strategy-Valuing-our-Food-Waste.pdf). Accessed 22 September 2020.

Green Industries SA, 2017, *Adelaide Metropolitan Area Kerbside Waste Performance Report 2016-17*,

viewed 14 October 2020, <https://www.greenindustries.sa.gov.au/publications-local-government>

Johnston, B. (2020). *Waste Education in Schools*. Accessed 24 July 2020.

'KESAB environmental solutions – City of Playford Food Waste Project', August 2015, internal document, Information provided by Kaarina Sarac. Accessed 31 August 2020.

Marris, E. (2019). Why young climate activists have captured the world's attention. *Nature*, [online] 573(7775), pp.471–472. Available at: <https://www.nature.com/articles/d41586-019-02696-0>. Accessed 19 September 2020.

NAWMA Annual Report, 2019 <https://www.nawma.sa.gov.au/wp-content/uploads/2019/10/NAWMA-Annual-Report-2018-2019.pdf>, Accessed 12 August 2020.

NAWMA Strategic Plan 2018 -2025 <https://www.nawma.sa.gov.au/wp-content/uploads/2018/11/NAWMA-Strategic-Plan-2018-2025-.pdf>, Accessed 12 August 2020.

Wipe out Waste. (n.d.). *Case Studies*. [online] Available at: <http://www.wow.sa.gov.au/case-studies.html> Accessed 8 October 2020.

### **Group Reflection**

This group project has brought about many challenges for our team, the 'Sustainability Warriors'. The effect that the COVID-19 pandemic has had on our team, as well as the whole Emerging Leaders Program 2020, has made the process of producing a project as a group a new and trying time for us all. With majority of our meetings to work through the project taking place in a virtual environment, it has seen an added emphasis on how we could enact our personal working styles in a new and complex team environment.

It was evident from the beginning that we were a team made up of strong personalities, however given the sheer absurdity of our 'new norm' we found a common ground that easily drew us together. We were unanimous in our decision to focus on sustainability for our project, however faced minor challenges in deciding on a core theme. Settling on waste management, we were quick to start the research process, with several team members taking the lead in organising our structure and expectations for the project. This was reflected in our relatively high scores for the team's innovation and organisation.

The majority of the scores for our team performance were over 75% which showed that our team was on the way to high-performance. However, there were a handful of scores in the range of 50-75% for promoting, developing and producing. These mid-range scores are easily reflected in how we approached the presentation for our project. It was difficult for the team to promote our ideas to one another in a virtual environment, which in turn made the development and production of our presentation more challenging. Despite these challenges, our team managed to adapt to our changing environment and move forward with the project.

In reflection, the Sustainability Warriors worked harmoniously together and adjusted well to the new and challenging circumstances we were faced with. Having strong advisors and innovators in our team helped pave the way for a successful working environment, which has been reflected in our team's performance during this group project.