



Coolamon shire
council

COOLAMON SHIRE CASE STUDY:

Positive Aspects for FOGO Service & Composting
Facility Implementation Shire-level Case Study
for Regional Applicability

April 2017

reroc
waste forum



THIS ASSESSMENT AND REPORT
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This study is founded on the experience of the people in the REROC region and especially at the Coolamon Shire Council. JustWaste would like to thank the following for their time and dedication assisting the facilitation of this project.

- **Tracey Cornell (REROC)**
- **Julie Briggs (REROC)**
- **Tony Donoghue (Coolamon Shire Council)**
- **Jesse Rapley (Coolamon Shire Council)**
- **Jason Mitchell (Coolamon Shire Council)**
- **Samantha Jennings (Coolamon Shire Council)**
- **Colby Farmer (Coolamon Shire Council)**
- **Darren Wallett (EPA)**
- **Stephanie Todd (EPA)**
- **Sian McGhie (EPA)**
- **Greg Ewings (Cootamundra-Gundagai Regional Council)**



SUMMARY

JustWaste Consulting was engaged by Riverina Eastern Regional Organisation of Councils (REROC), to conduct a study into the introduction and continued delivery of a Food Organics and Garden Organics (FOGO) service as well as the construction and management of a small composting site in Coolamon Shire. The aim of the study was to identify the key aspects associated with its success and to provide practical and relevant information to other councils in regional areas.

Common perceived barriers to introducing an organic kerbside service are that the collection costs will exceed the costs saved by diverting from landfill. Further, it is often argued that the community might be reluctant to sort waste (food specifically) due to assumptions around inconvenience, odour and vermin. Finally, it is sometimes assumed that processing organic material into compost can be labour intensive and need to comply with state environmental standards, which carry additional costs. However, if a FOGO service is planned, implemented and managed thoughtfully and in conjunction with the community, these perceived barriers can be shown to be incorrect.

The purpose of this project is to use Coolamon as a case study to examine and describe the process of planning and introducing a FOGO service into a small rural local government area. This project has involved reviewing the existing documents and processes associated with the initial cluster trial and the deployment of the FOGO service in Coolamon Shire. Further, JustWaste interviewed the key stakeholders of the project to identify what aspects and specific details have assisted in the service's successful introduction. From this regional-specific example, we identify drivers for successful organic waste service provision in other small rural communities.

Key recommendations:

- **Make use of existing funding for establishing FOGO services and compost facilities.**
- **Begin with a trial prior to a full roll-out of the FOGO and composting process and service.**
- **Conduct surveys prior to introducing the service.**
- **Include door knocking and personal contact in the education package.**
- **Change the residual bin to a fortnightly collection and the FOGO bin to weekly collection.**
- **Use the low-cost and low-risk composting option of open windrowing, providing feedstock (incoming material) is likely to remain low.**
- **Establish a scale specific composting area that adheres to environmental standards, relative to its size.**
- **Establish a regular, manual compost monitoring procedure based on reaching consistent results from initial vigorous laboratory testing.**
- **Use the composting product within council to save land management costs and to generate connection and ownership between the process and use of the compost.**



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1. INTRODUCTION

JustWaste Consulting was engaged by Riverina Eastern Regional Organisation of Councils (REROC) to conduct a study into the introduction and continued delivery of a Food Organics and Garden Organics (FOGO) service as well as the construction and management of a small composting site in Coolamon Shire. The aim of the study was to identify the key aspects associated with its success and to provide practical and relevant information to other councils in the Region and rural councils in NSW

Coolamon Shire is a member of REROC which encompasses nine councils and two water county councils. At the time of the Study Coolamon was the only council with a complete, operational three-bin service including FOGOs.

- **RESIDUAL BIN ONLY**
Bland Shire, Temora Shire
- **RESIDUAL AND RECYCLING BINS**
Greater Hume Shire, Lockhart Shire, Snowy Valleys
- **RESIDUAL, RECYCLING AND GARDEN WASTE**
City of Wagga Wagga
- **RESIDUAL, RECYCLING AND FOOD AND GARDEN WASTE**
Coolamon Shire, Junee Shire (late 2017) and Cootamundra-Gundagai (July 2017)

Commonly perceived barriers to introducing a kerbside organics' service, are that the collection costs will exceed the costs saved by diverting from landfill. Further, it is often argued that the community might be reluctant to sort waste due to assumptions around inconvenience, odour and vermin. Finally, it can be assumed that processing the organics into compost can be labour intensive and need to comply with state environmental standards, which carry additional costs. However, if a FOGO service is planned, executed and managed

thoughtfully and with the community these perceived barriers can be disproved.

This report uses Coolamon Shire as a case study to examine and describe the process of planning and introducing a FOGO service in small, rural Local Government Areas (LGA). The project involved reviewing the existing documents and processes associated with the initial cluster trial and the final deployment of the FOGO service in the Coolamon Shire. Further, JustWaste interviewed the project's key stakeholders in Coolamon to discern what aspects and specific details have assisted in the service's successful introduction. From this region-specific example, we identify drivers for successful organic waste service provision in other small rural communities.





2. BACKGROUND

2.1. Coolamon Shire

Coolamon Shire is located in the eastern Riverina region of NSW. The Shire covers an area of 2,433 sq kms and a population of 4,308 (ABS 2014). The Shire's dominate economic driver is agricultural production, its main towns are Coolamon, Ardlethan and Gainman.

Coolamon Shire is unique given its progressive waste management. Coolamon Shire introduced the FOGO bin in Coolamon in 2012 and extended the service to include Ganmain in 2015. The project has been received well by the community and has successfully diverted material from landfill.

Coolamon Shire services 1,366 households each with a 140-litre residual waste bin collected weekly and a 240/360-litre recycling bin collected fortnightly. Of 1,366 households, 983, or 72%, of also have a 240-litre FOGO bin collected fortnightly.



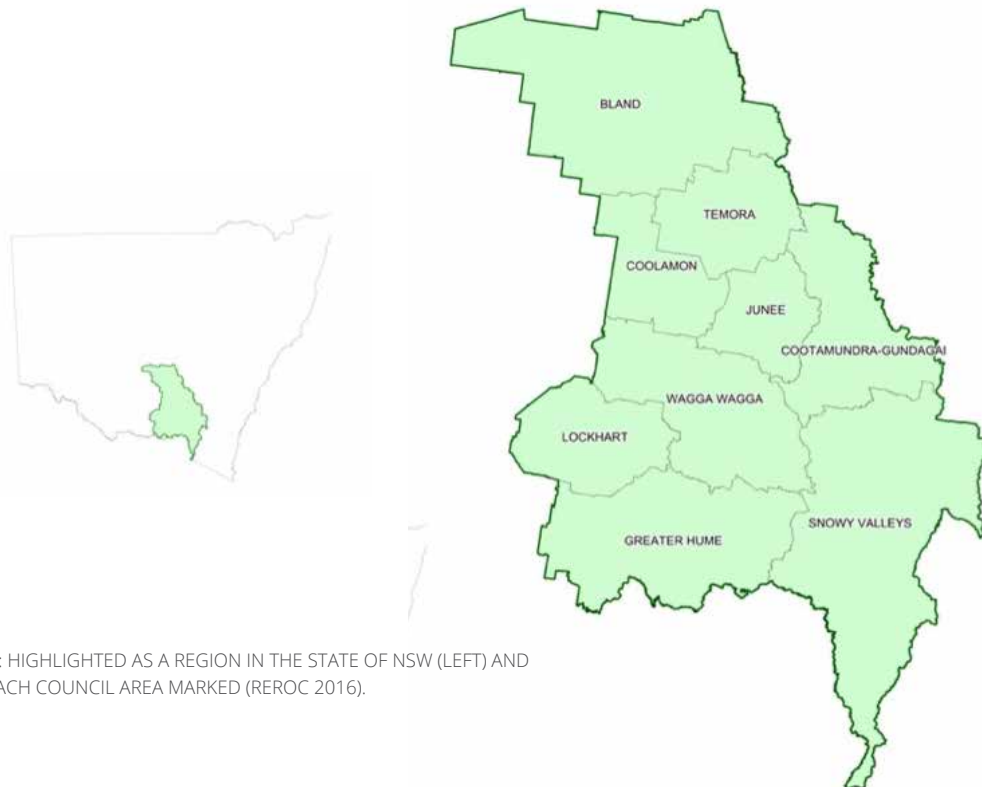
THREE BINS IN COOLAMON



2.2. Regional cluster trial

In 2012 REROC initiated a cluster composting trial across four LGAs to test the costs and effectiveness of operating a kerbside FOGO collection in small rural councils. Coolamon chose to participate in the composting trial along with Junee, Cootamundra and Gundagai councils. The sample size for each council was 200 households, representing a critical regional 10% (actual 12.6% for Coolamon). Council ensured that these 200 households were selected randomly and were not volunteer residents, as this would skew the findings. The households were provided with an introduction letter and a personal visit from council staff involved in the project. Council staff visited the participating households and talked to the majority of the residents in person, explaining the project and supplying the kitchen caddies and bags, providing information and answering any questions (REROC 2012).

The trial established a composting site in Cootamundra. The trial was successful in other councils too and extended from the initial 6 months to 12 months. Greg Ewings, Facilities and Services Manager at Cootamundra explained that the temporary halt in the project was due to the size of the composting site. As they serviced up to 3,000 residents, the amounts generated was going to trigger an EPA license requirement which was not viable at the time. Further, there was no established market for the product. Initial meetings with the agricultural sector showed little interest and production was going to exceed internal use.



MAP OF REROC REGION: HIGHLIGHTED AS A REGION IN THE STATE OF NSW (LEFT) AND ENLARGED SHOWING EACH COUNCIL AREA MARKED (REROC 2016).



2.3. Results from a 2014 three-bin audit

A kerbside audit by MRA consulting (2014) conducted regionally looked at the composition of all three bins. It found that Coolamon’s residual bins included 38.85% food and kitchen waste and 0.28% garden waste. Further, it was noted that only 3 out of 50 FOGO bins audited contained food, thus resulting in an average food content in the FOGO bin of 2.25%. This indicated that Coolamon residents mainly used the FOGO bin for garden waste.

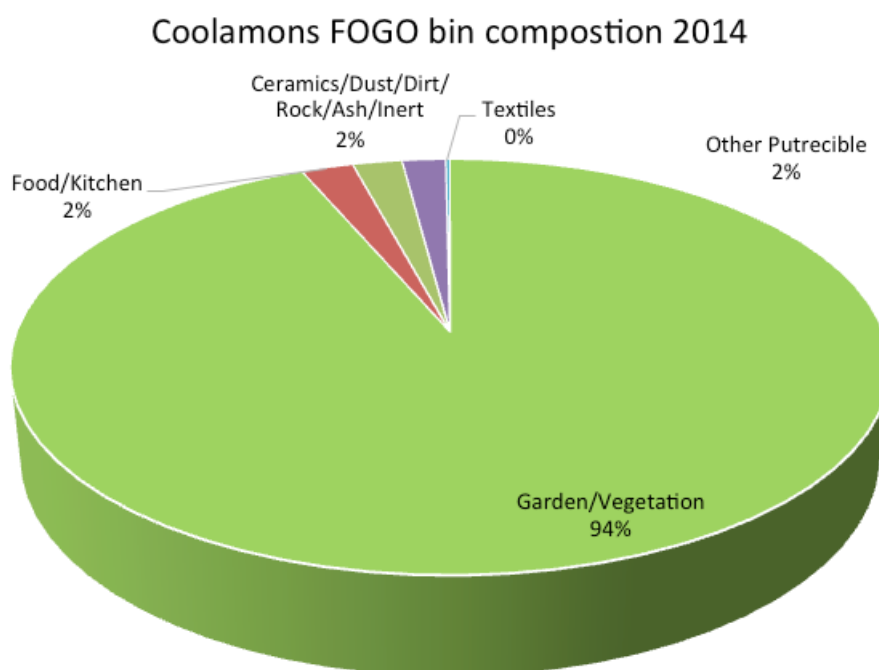


FIGURE 2: COOLAMON SHIRES FOGO BIN COMPOSITION FROM 2014 KERBSIDE AUDIT (USING MRA 2014 FINDINGS).



3. STUDY METHODOLOGY

The study employed a multi-faceted approach.

3.1. Desktop research

JustWaste researched existing waste services and processes along with the FOGO and composting trial in the REROC region. Composting trial results and introduction processes from other regions were also reviewed. Finally, JustWaste was able to draw from firsthand experience with other councils and previous experience managing a composting facility in Tasmania.

3.2. Composting site visit

The site visit to the composting facility provided an opportunity to see practices in place and identify key points of difference as well as potential improvements. The street bin and residual waste assessment were conducted to investigate further opportunities for diversion. It was not aimed at quantifying compositions.

3.3. Street bin assessment

The street bin assessment, completed on 17 January 2017, was conducted by two JustWaste staff visually inspecting 50 residual waste bins from seven streets selected at random and identifying:

1. If there was food present (yes or no)
2. If there was garden or recyclables present (yes or no)
3. Bin capacity reached (estimated %)

This process was limited by the number of bins assessed and the visual assessment did not allow complete identification of material in the lower area of the bins.

3.4. Residual waste assessment

The visual residual waste assessment involved a full truck load of waste collected on 17 January 2017. The waste was emptied at the Coolamon landfill. JustWaste staff checked if food was present, what types were visible and other aspects indicative of food content such as smell and presence of liquid. This process is limited as it does not address actual proportional composition and does not provide detailed descriptions of materials.

3.5. Interviews

JustWaste undertook a study trip to Coolamon Shire which included extensive conversations with Tony Donoghue, the Shire's General Manager and Jesse Rapley, the Environmental Officer. A visit to the composting site, a street bin assessment of 50 bins and a residual waste assessment were also undertaken. The conversation provided thorough descriptions of the processes and experience of introducing the FOGO service. Further, access was given to many council records.

JustWaste conducted further phone interviews with:

Jason Mitchell, Composting Facility Manager in Coolamon

- To gain detailed understanding of the management of the Coolamon composting facility.

Greg Ewings, Facilities and Services Manager, Cootamundra-Gundagai Regional Council

- To understand why Cootamundra did not continue the FOGO service post trial.

Julie Briggs, Executive Officer, REROC

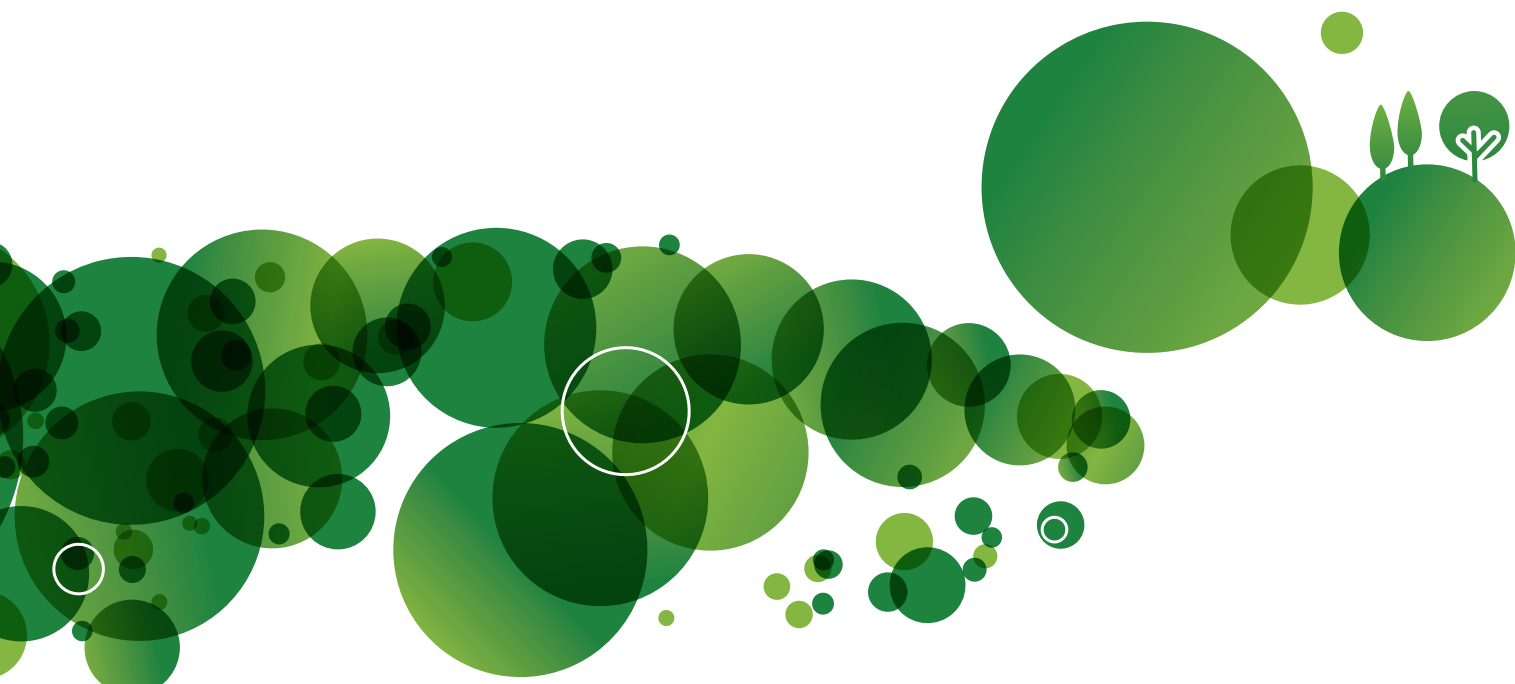
- To gain understanding of the desired directions for waste management in the Region and find out how the initial composting and collection trials were initiated.

Darren Wallett, Head of Griffith Unit & Stephanie Todd, Operations Officer, South-West Region, EPA

- To gain understanding of how regulations apply to the local and rural landscape and of compliance and approvals.

Sian McGhie, Senior Project Officer Organics, EPA

- To gain insight to upcoming grants available for composting infrastructure and operations as well as planned introductions of FOGO collection.





4. FINDINGS

4.1. Summary list of findings

As a result of its study, JustWaste found the following:

1. The trial was a key starting point, providing a platform for personal interaction and an opportunity for residents to express opinions prior to the Service's introduction. This resulted in better acceptance of the FOGO service and low contamination rate.
2. Opinion surveys including the community in the process provides information to get councillors on board and provides council with confidence in decision making.
3. Passionate key personnel drive projects, maintain successful management of composting sites and deal effectively with discontented community members.
4. Small-scale composting keeps processing and compliance easy to manage.
5. The construction of a small-scale windrow composting area does not necessarily require significant engineering, time or cost to establish, especially when attached to an existing landfill site.
6. The ratio of 15-20% food to 75-80% garden organics, is critical. The food content is essential to introduce the nitrogen component and start the composting process and the garden content keeps the process odourless and at a low moisture level to minimise leachate generation.
7. The process of composting has been gradually simplified as the facility manager becomes more confident in the feedstock and end product.
8. Perceptions of expensive and complicated testing of compost quality is not relevant when the facility manager develops skills and confidence in the composting process and product.
9. The diversion of FOGO material significantly extends the life of an existing landfill, providing time for regional councils to adapt to State requirements for resource recovery and recycling and minimise future transport and disposal costs.
10. Council run composting operations can result in savings by diverting material from landfill and saving compost/soil conditioner expenditures that improve council managed land.
11. The establishment of a FOGO collection service and small scale composting facility can be established at low cost.
12. The EPA assesses small-scale licenced composting facilities on the level of risk posed, without the requirement of extensive engineering and modelling reports.
13. The monitoring and reporting obligations can vary according to the risk and size of the project, both with regards to environmental aspects and the quality of compost product.
14. The licence fee of a composting facility is low as a fee-based activity attached to an existing landfill licence, or induce negligible costs relative to scale.
15. The existing grant streams both for composting infrastructure and FOGO collections are generous and ensure that establishment costs are minimal.



16. Further cost savings can be attained through increasing diversion of food content from the residual bin to the FOGO bin which can be achieved by a weekly collection of the FOGO bin and a fortnightly collection of residual waste.
17. The composting process can be significantly improved with minor adjustments: increasing moisture levels, ensuring pasteurisation temperatures are reached and the integration of some finished compost in the first compost pile as an inoculant.

4.2. The introduction of food and garden organics service in Coolamon

On 16 January 2017 JustWaste spent a day with Coolamon Shire Council members Tony Donoghue and Jesse Rapley. Mr Donoghue, now General Manager, was the Manager of Planning and Environmental Services at the time of the introduction of the FOGO service in late 2012. Further to that, an interview on 9 February, by conference call with Jason Mitchell, the Organics' Facility Manager provided details on the composting process.

The conversation included three main areas:

- **Describing the FOGO introduction process**
 - Project drivers
 - Desired outcomes
 - Kick-starting the project and decision making process
 - What worked well and less well
 - Organisational priorities

- **FOGO service perception in the community**
 - Initially and continuously
- **The composting process**
 - Initial development and adaptation in management

Findings detailed from our interviews are as follows.

- **The trial was a key starting point, providing a platform for personal interaction and an opportunity for residents to express opinions prior to the introduction. This resulted in better acceptance of the FOGO service and low contamination rate.**

Mr Donoghue explained that the critical mass of 10% participating in the trial and receiving detailed and personal education was a major driver of the project's continuation. These community members were very happy with the service and understood how to use it properly. They went on to become promoters of the green bin in the community. When the trial ended, there was uproar to keep the service. Also, many other community members were now requesting the service.

Opinion surveys that include the community in the process provided information to get councillors on board and provided Council with confidence in decision making.

The 2012 trial was extended and a survey of the community was initiated to establish the broader opinions of the service. This kept the community engaged in the decision making process and provided Council with the data to be confident in their next moves. The survey showed overwhelming support for the service, with residents indicating that they would pay increased waste fees to cover its cost. Council used the survey to inform its

decision-making in relation to the introduction of the service. Post-introduction when Council received complaints about the service it used comments from the survey as the basis for responding to the complaints. The Council also conducted a survey of Ganmain's population prior to the extension of the service, of the 24% of residents that participated there was a 76% approval rate.

- **Passionate key personnel drive the projects, maintain successful management of the composting site and deal effectively with discontented community members.**

It became clear that Mr Donoghue is primarily a member of the community and wants decisions that the Council makes to reflect the community's needs and desires. By strategically engaging the community through surveys, personal interaction and education he ensured that the decision to introduce FOGO was received well. Confidence in the decision meant he could handle the few complaints with a level of decisiveness that appears to be well received.

Mr Donoghue highlights that the skill and passion of Mr Mitchell who runs the composting facility has been key to ensuring the standard of product and process is maintained. In addition to running the composting facility, Mr Mitchell also manages Council's parks and gardens where the product is applied.

- **The small-scale composting keeps processing and compliance easy to manage.**

The amount of organic waste generated started below EPA requirements for a licence (200 tonnes per annum). Starting small kept the composting process relatively simple and enabled the manager to make adjustments and reduced the need for reporting and monitoring. A move to becoming a larger licenced site can build on existing data

and establish successful management strategies, ensuring environmental compliance and applications will be easier. The Coolamon site has flexibility to deal with seasonal changes as well as potential to expand in the future as more of the clean fill section, adjacent to the composting hardstand, is rehabilitated.

4.3. The composting facility

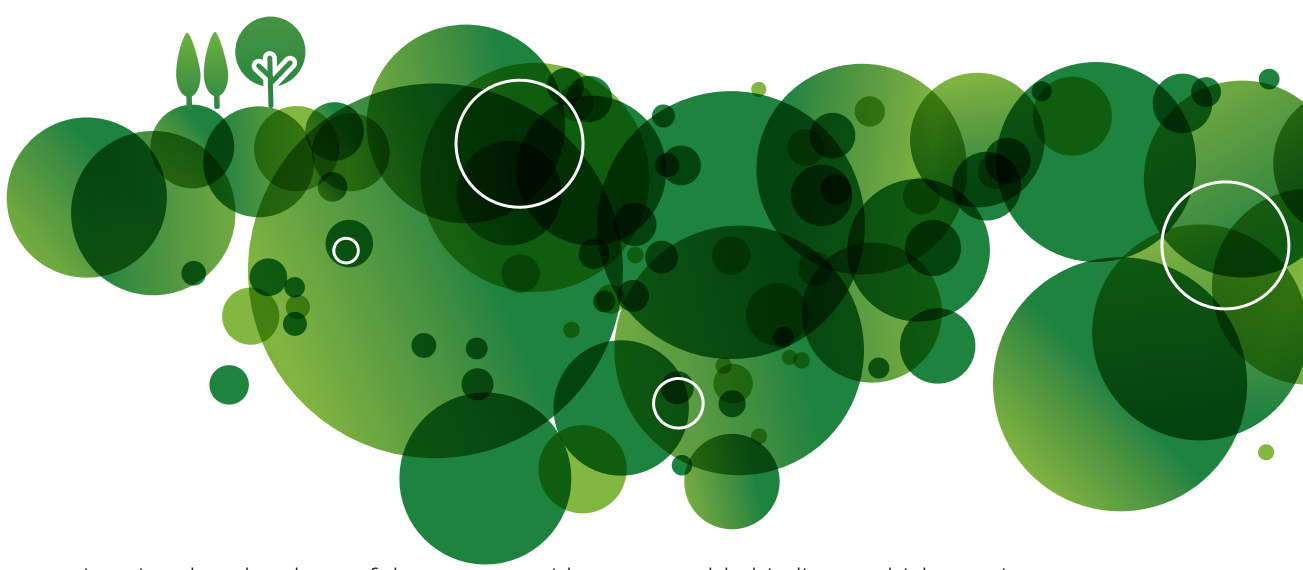
On 16 January 2017, JustWaste conducted a site visit to the Coolamon composting facility. Mr Donoghue explained the process. On 9 February 2017, JustWaste conducted a telephone interview with Mr Mitchell to further discuss the process and see how he has managed the site over the years.



COOLAMON SHIRE'S ORGANICS' FACILITY WITH COVERED WINDROWS, EXPOSED FOR INSPECTION

- **The construction of a small-scale windrow composting area does not necessarily require significant engineering, time or cost to establish, especially when attached to an existing landfill site.**

The composting site was established on an existing hardstand which had been constructed as a part of rehabilitating the underlying landfill cell and therefore required minimal extra works. Key considerations were: ensuring that the area was bunded to exclude uncontaminated storm water



from the composting site, that the slope of the area discharged into an area where potentially contaminated leachates are managed on site and that the hardstand sufficiently discouraged infiltration of potential leachates. Later, vegetation was planted to improve visual amenity, but with consideration for fire breaks.

Windrowing, as a composting process, requires relatively low financial investment, has low operational costs and low technical pre-requisites. When compared to other composting techniques, such as more active turning practices or in-vessel sites, windrowing requires a larger area and can take longer to process but has a lower demand for labour and infrastructure. It is therefore a suitable technique for rural councils where space is generally more available (with consideration for constraints of nearest neighbours, water courses, etc.) and FOGO quantities are manageable so that processing time is not a concern.

- **The ratio of 15-20% food to 75-80% garden organics, is critical. Where the food content is essential to introduce the nitrogen component and start the composting process and the garden content keeps the process odourless and at a low moisture level to minimise leachate generation.**

The majority of feedstock (incoming organic waste) comes from the kerbside collection of 983 bins from Coolamon township and Ganmain. Mr Mitchell estimates that approximately 15-20% of the material received is food waste. Critically, the FOGO service does not provide residents

with compostable bin liners which require a more intense composting system to break down effectively. At the site, the food content is barely visible and there is no odour. Collections are fortnightly and currently delivers approximately 13.3 tonnes of material. A future option considered is also that each load can be integrated with the mulched green waste deposited by self-haul consumers at the waste transfer station. On one occasion a trial was conducted integrating Coolamon's sewage sludge (100m³ every 10 years) into the compost when tested at the end indicated no contamination. This was done to investigate the possibility of this as a continuous practice.

- **The process of composting has been gradually simplified as the facility manager becomes more confident in the feedstock and end product.**

The material is deposited into a windrow with the dimensions of 12m (length) x 2m (width) x 1.8m (height) which normally fits two collections' (4 weeks) worth. The facility manager and the landfill contractor pick out any major contamination. The material is not screened or mulched. Depending on the composition of the incoming material the facility manager may add an inoculant and water (100-150 litres) to kick-start the composting process. As explained by Mr Mitchell, the critical food content (15-20%) is essential to start the composting process and it is very rare that water or inoculants are needed. Approximately every 4 weeks the contractor comes and turns the windrows. Currently, the site has about 7 rows which are all covered by a tarp, salvaged from grain



depots, and held down by old tyres. Each row is turned 3-4 times before being bucket screened. The turning process takes 12-16 weeks. The bucket screening process enables an extremely easy separation of contamination as by now the organic material has decomposed and sieved through the 20mm screen and whole contamination components (plastic, glass, aluminium, steel, nappies etc.) are excluded.

- **The perceptions of expensive and complicated testing can be minimised when the facility manager has developed skills and confidence in the composting process and product.**

A key to the successful start of Coolamon's organics' facility has been having a facility manager who uses and takes full responsibility for the product and can see the results. Coolamon currently uses the material for lawns and garden beds which pose no direct public health risk. Occasional testing has occurred when concern for contamination has triggered the need (after the integration of the sludge, for example). As the processing expands Coolamon will need to establish a record of accredited testing to be able to extent applications of material and sell the product.

However, on a regular basis the test to determine the progress of composting includes:

- **Temperature probing**
- **pH testing**
- **Smelling**
- **Visually inspecting and handling the compost for moisture**

4.4 Cost benefit analysis of actual and previously estimated numbers

- **The diversion of FOGO material significantly extends the life of an existing landfill, providing time for regional councils to adapt to State requirements for resource recovery and recycling and minimise future transport and disposal costs.**

Mr Donoghue explained that the pace at which the existing landfill is used has been significantly reduced adding years to the current cell. He advised that it is difficult to quantify specific space and time saving outcomes and attributed the exact causes for them (ie. change of behaviour, increase recycling rates or FOGO recycling). However, slowing down landfilling through the diversion of FOGO waste is extremely valuable and should be considered as a key benefit of introducing a FOGO service.

Landfill space may be relatively cheap, but it is finite. National and State regulations around landfilling and liner construction and design are becoming increasingly stringent, indicating that many of these regional landfills will not be viable options for waste disposal in the future. This will result in the transformation of many landfill sites to waste transfer stations, which will increase the cost of transportation and market pricing of landfilling elsewhere. As such, extending the lifespan of existing landfills is essential to buffer regional councils' abilities to adapt to meet recycling and resource recovery targets and minimise waste production associated with future costs.

- **Council-run composting operations can result in savings by diverting material from landfill and saving compost/soil conditioner expenditures that improve council managed land.**



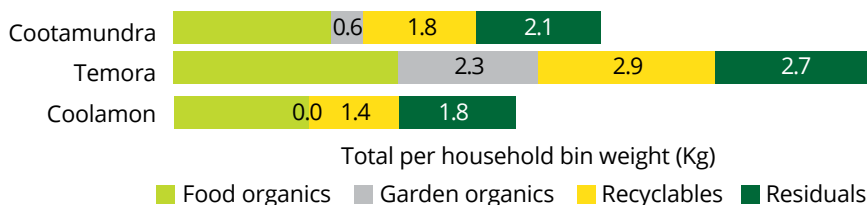
Based on the regional general waste compositions and weights and the State diversion figures it is reasonable to assume that the majority of garden waste that was previously disposed of in the residual waste (around 8-20% of 7-12kg per household per week) is now being diverted from landfill. Further, it is reasonable to assume that most of the food content received in the FOGO bin (15-20% of 345.8 tonnes per annum) is also being diverted from the general waste bin and thus from landfill. As highlighted below, there is still much food with diversion opportunity within Coolamon's residual waste bin, but it is lower than the regional average.

The aim of Coolamon's compost facility when established was to produce compost for sale. However, Coolamon has used all the compost produced internally by applying it to lawns and garden beds at Council parks and cemeteries. Currently it is estimated that the incoming material of 345.8 tonnes produces 387.29m³ of compost annually. Consequently, Council has not purchased

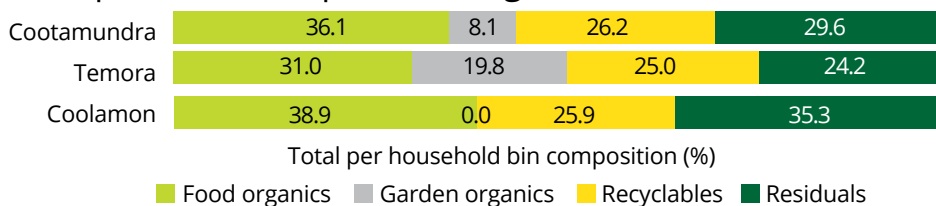
any soil conditioner or fertiliser since the Coolamon site was established.

It is hard to quantify the amount of organic waste previously disposed of in the residual bin now contained in the FOGO bin. It is likely that a proportion of the FOGO waste would have either been home composted or disposed of at the transfer station as green waste. However, the 2014 audit of Coolamon residual waste bins found that an average household residual bin contained 5.41 kg with 0.28% garden material. This was low when compared to other councils that did not offer a 3 bin system. Figure 3 highlights that Coolamon's food and garden content was the lowest in the Region. Figure 4 highlights that as actual bin weight reduces the proportional composition is greatly effected. Proportions can be a helpful tool for identification of opportunities within a council but not necessarily as a comparable means between councils.

Actual composition of general waste in 2014 audit (Kg)



Proportional composition of general waste in 2014 audit (%)





The NSW State Government has generated capture figures based on 10 trials that indicate that a reasonable figure to expect is a 96% diversion rate of garden waste and a 33% diversion rate of food waste from the residual bin with the introduction of a FOGO service (DSEWPC 2012, p. 23).

- **The establishment of a FOGO collection service and small scale composting facility can be achieved at low cost.**

In 2012, as part of the Cluster Composting Trial REROC commissioned an Economic Feasibility Study into the cost and benefits of a FOGO service and organics facility for the participating councils: Coolamon, Cootamundra, Gundagai and Junee. 800 households participated in the study, 200 in each LGA. For Coolamon, we have adjusted this to 983, which is the number of FOGO bins currently in service in Coolamon and Ganmain. The estimated costs and benefits have been compared to the actual costs in Table 1.

TABLE 1: COST BENEFIT ANALYSIS: COMPARISON OF ESTIMATED AND ACTUAL COST OF ESTABLISHING A COMPOSTING FACILITY AND A FOGO SERVICE IN COOLAMON SHIRE.

COSTS (FOR 983 HOUSEHOLDS)	ESTIMATED COST (BASED ON 2012 CLUSTER COMPOSTING TRIAL RESULTS)	ACTUAL COSTS
Establishment (incl. education, compostable bags, kitchen caddies, wheelie bins)	\$65,998.6	Total \$48,717 Grant contribution: \$21,405
Establishment (organics facility (construction equipment)	\$14,381.3	\$2,171
TOTAL ESTABLISHMENT COSTS	\$80,379.9	\$50,889 Council out of pocket \$29,484
Ongoing collection (lift + transport)	\$39,811.5	\$27,753.5
Ongoing composting facility (maintenance, machinery, material, labour)	\$9,240.2	\$10,076
TOTAL ONGOING COST / ANNUM	\$49,051.7	\$37,829.5
Total ongoing compost cost savings	\$10,665.55 ¹	Low estimate \$8,000 ² Use estimate \$30,983.2 ³
Landfill life extension (per annum)	\$7.116.9 ⁴	Unknown

¹ BASED ON A COMPOST GENERATION OF \$10.85 PER HOUSEHOLD/ANNUM.

² BASED ON AN AVERAGE CONSUMPTION OF 100M³/ ANNUM AT \$80/M³.

³ BASED ON A TOTAL CONSUMPTION OF ALL PRODUCED COMPOST AT \$80/M³.

⁴ BASED ON AN ASSUMED \$20/TONNE COST SAVING FOR DIVERTING ORGANICS, WHICH EQUATES TO \$7.24/ HOUSEHOLD.

4.5. Regulatory environment

JustWaste reviewed the following documents from NSW EPA:

- **Guide to Licencing Protection of the Environment Operations Act 1997**
- **Environmental Guidelines - Composting and Related Organics Processing Facilities (2004)**

These documents describe the process for the development, construction and operation of composting facilities specifically addressing environmental issues and requirements for compliance. Establishing composting facilities requires a development application which is likely to entail an Environmental Impact Statement. Further, the trigger for a licenced composting facility outside of the regulated area under the *Protection of the Environment Operations Act 1997*, is as follows:

- (i) it has on site at any time more than 2,000 tonnes of organics received from off site, or
- (ii) it receives from off-site more than 5,000 tonnes per year of non-putrescible organics or more than 200 tonnes per year of putrescible organics.

The process of establishing a licenced composting facility is summarised below with reference to relevant acts and documents.

<p>1. Development Application The <i>Environmental Planning and Assessment Act 1979</i> & the <i>Environmental Planning and Assessment</i></p>	<p>2. Environmental Impact Statement <i>EIS Practice Guidelines: Composting and Related Facilities</i> (DUAP 1996)</p>	<p>3. Environment Protection Licence <i>Protection of the Environment Operations Act 1997</i> (POEO)</p>
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JustWaste met with the local EPA division at Griffith, NSW, to discuss how State-developed processes relate to the REROC region.

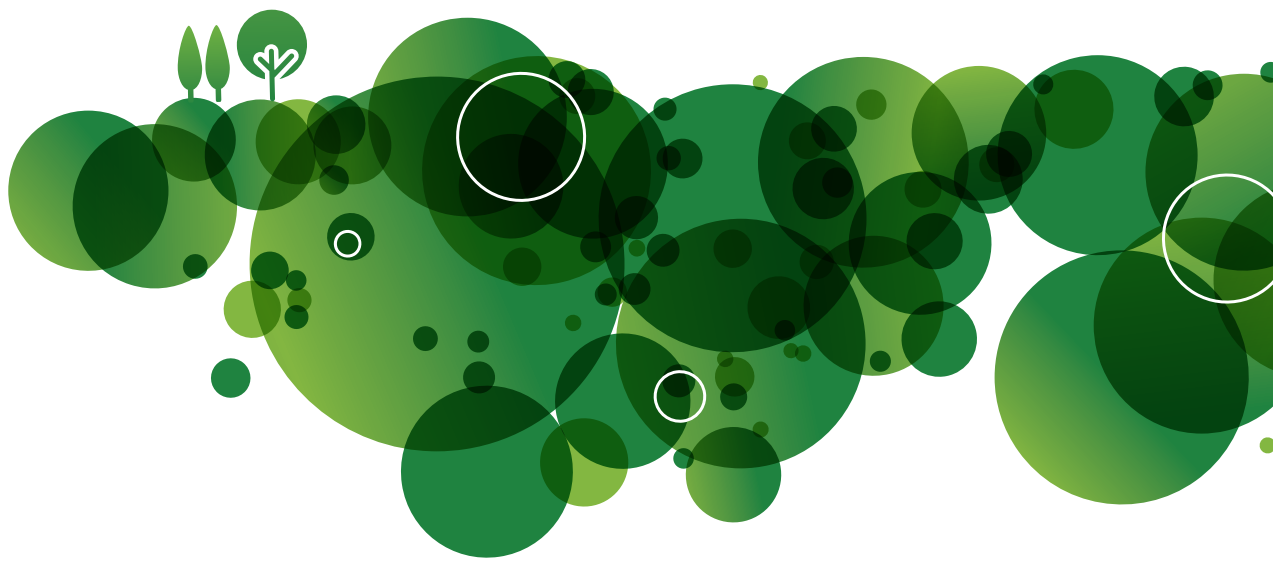
- **We found it likely that the EPA assess small-scale licenced composting facilities on the level of risk posed, without the requirement of extensive engineering and modelling reports.**

The guidelines and regulations have been developed to a standard suitable for all licenced facilities and do not differentiate between composting operations and sites of different sizes. However, for a small-scale licenced regional composting facility the local EPA can base requirements on a reasonable risk assessment of the proposed activity. Consequently the application processes and the environmental assessment will not necessarily demand extensive modelling, monitoring and measurement. An environmental assessment will need to address the key issues (design, operation management, water, air, odour, etc.) in a reasonable manner, relevant to the estimated maximum capacity and include a flexible approach able to adapt to changes of circumstance (incoming material quantity, material composition or complaints).

- **Monitoring and reporting demands can vary according to the risk and size of the project, both with regards to environmental aspects and the quality of compost product.**

A suitably designed small-scale composting facility processing FOGO waste with low food content is unlikely to require extensive monitoring of ground and surface water, odour, emissions or air quality, unless a specific concern is raised. Considering the scale of these composting facilities, addressing any potential issues is likely to be easy as the quantities are relatively very small.

The reporting and documentation for monitoring



the compost product is not the responsibility of the EPA but rather the concern of both the processor and the person who applies the product to land (which may be the same). Compost quality must comply with the conditions of the *Compost Order 2016* which broadly specifies the exclusion of asbestos, treated timbers and provides parameters for glass, plastics, salmonella, E. Coli and faecal coliforms.

As sites and processes may vary greatly there are no specifications for sampling outlined in the *Compost Order 2016*. A sliding scale, related to volume and contaminants, should be used to determine sampling number and frequency.

Key actions to ensure quality compost products are:

- **Maintain a constant waste stream input to the process and check its composition.**
- **Ensure a flexible and rigorous composting process to best eliminate salmonella, E. Coli and faecal coliforms.**
- **Conduct quarterly accredited laboratory tests on the product.**
- **If consistent compost quality is reached over an extended period a lower sampling frequency may be justified.**
- **Maintain regular non-laboratory testing: temperature, moisture, smell and visual inspections.**
- **The licence fee for a composting facility is low as a fee-based activity attached to an existing landfill licence, or result in negligible costs relative to scale.**

A EPA Licence and associated fee is not required for a composting facility if:

- **The composting facility is not a scheduled activity under POEO.**

- **Where the composting facility is a scheduled activity receiving <50,000 tonnes per annum and it is on an EPA licensed landfill operated by the licensee (i.e. Council).**

In the case of the second point, the composting activity will be added as a fee-based activity to the existing licence, not ancillary activity.

The licence fee relates to the scale of activity. One administration fee unit is currently \$125 (amended annually as per *Clause 9 of Protection of the Environment Operations (General) Regulation 2009*).

- **<5,000 per annum = 5 administration fee units = \$625**

(Only applicable to sites with an approved capacity >5,000 tonne but is receiving less).

- **5,000-50,000 tonnes = 15 x administration fee units = \$1,875**
- **>50,000 tonnes = 50 x administration fee units = \$6,250**

4.6. EPA grants

- **The existing grant streams both for composting infrastructure and FOGO collections are generous and ensure that establishment costs are minimal.**

In conversations with NSW EPA it was highlighted that further grants will be made available both for infrastructure and organics collection projects.

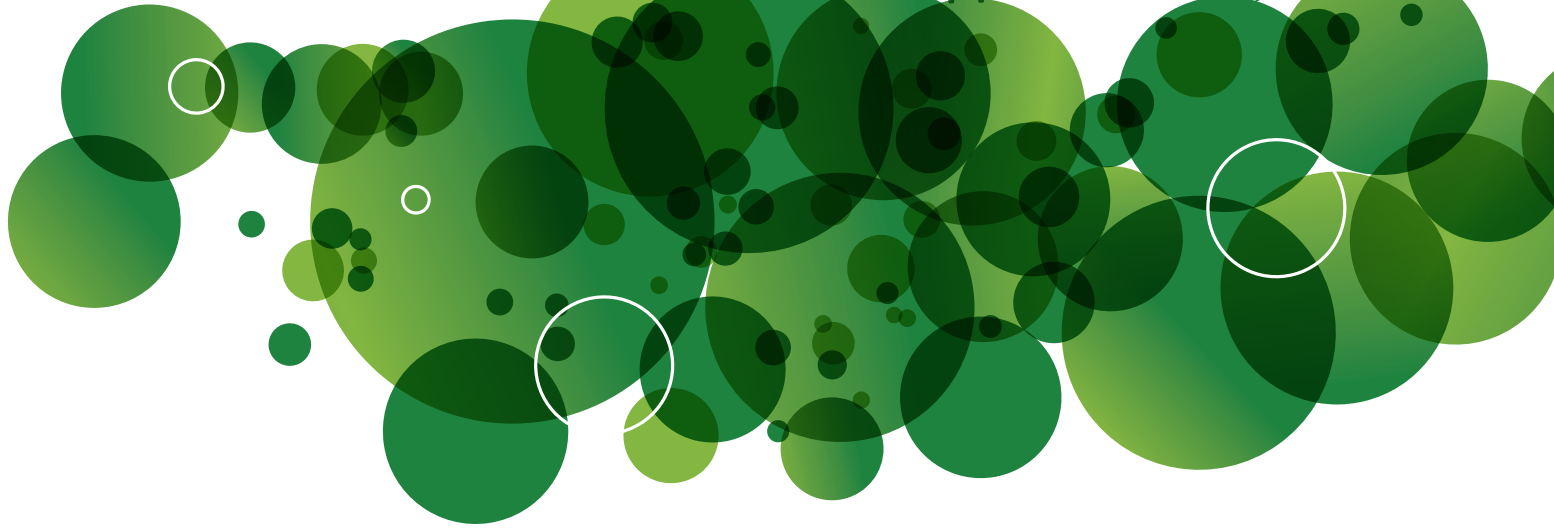


TABLE 2: AVAILABLE UPCOMING FUNDING

ORGANICS INFRASTRUCTURE GRANTS (3 MORE ROUNDS IN JUNE 2017/18/19)	ORGANICS COLLECTION GRANTS \$14 MILLION
<ul style="list-style-type: none"> - 50% of any equipment - Training of staff through consultancy or equipment providers - Construction of hardstand (concrete, clay, grading) - Irrigation equipment/tanks - Temperature probes - Improvement of existing facilities - Regional equipment – screens and mulchers 	<ul style="list-style-type: none"> - \$40 for each bin - \$100,000 education including material, new staff positions/added hours for contact education - \$20,000 for red and/or green bin audits - \$10 per kitchen caddy - Initial compostable bags

4.7. Improvements identified for Coolamon

This Study confirms that Coolamon’s FOGO kerbside collection and composting operation has been introduced in a cost effective way, with high acceptance from the community and minimal continuous management needs.

However, to increase diversion from landfill and increase compost production (cost savings/income generation) there are two key improvement areas for Coolamon Shire that are also applicable to any rural council looking to introduce a FOGO service and establish a composting facility.

- **Further cost savings can be attained through increasing diversion of food content from the residual bin to the FOGO bin which will be achieved by weekly collection of the FOGO bin and fortnightly collection of residual waste.**

It is a common belief that complaints will increase and that the contamination of FOGO bins will increase if the residual bin is moved to a fortnightly collection schedule. If appropriate communication and engagement of the community is adopted, this is unlikely to be the case, for example in Strathbogie Shire, Victoria, where FOGO contamination remained low (5%) and diversion high (residual bin weight more than halved) (JustWaste 2016 regional audit). Also, the South Australian FOGO trial involving 17,000 households found diversion significantly increased with a fortnightly residual waste collection (Government of SA 2010).

MRA’s (2014) audit found that Coolamon’s residual bin was, on average, 53% full and weighed 5.41kg. JustWaste street bin assessment found the residual bins to be fuller, at 83%. Based on annual averages of FOGO waste, each household (with a FOGO bin) produced 13.5 kg per collection which is likely to fill the majority of the green bin. However, even partial food diversion from the residual bin to the green bin would



likely result in a viable option where the residual and the FOGO bin collection frequency could change without reaching bin capacity.

It was found that the residual bin was composed of 38.85% food and kitchen waste and that only 3 out of 50 FOGO bins audited contained food, resulting in an average food content in the FOGO bin of 2.25% (MRA 2014). Although it is likely that the food content has since increased through greater uptake and understanding of the service, the diversion rate could still be greatly improved. JustWaste conducted a street bin assessment of the residual bin on 17 January 2017. Of 50 bins assessed, 70% contained food and an additional 10% of garden waste. Further, JustWaste conducted a visual audit of one full truck load (30m³) of waste collected on 17 January 2017. It contained a large amount of food, both packaged and loose. Further, the residual waste contained a lot of liquid and smelled putrid from organic material including meat, vegetables and a lot of fruit.

As identified in this Report, the high content of garden waste makes the composting process odourless. As a rural community with an above-average population age, the residential lots are generally quite large and people spend a greater time maintaining their gardens. Consequently, the garden waste is likely to remain high even with a weekly collection and increased food diversion.

- **We find that the composting process can be significantly improved with minor adjustments: increasing moisture levels, ensuring pasteurisation temperatures are reached and the integration of some finished compost in the first compost pile as an inoculant.**

JustWaste observed that the composting piles were quite dry and that the breakdown process in relation to the age of the piles were uneven.

Further, through identifying the moisture and temperature monitoring schedule in place, the process of composting would be aided in time and quality through two slight adjustments. 1) increasing the moisture level (wetting the compost) and 2) integrating some of the finished product in the first pile. Both will speed up the process and ensure the piles reach pasteurisation temperature which is important for the exclusion of seed viability and public health.



5. CONCLUSION

The findings of this Study conclude that the introduction of a small scale regional FOGO service and composting facility in a rural setting can prove financially and environmentally sound. This Study has identified key aspects that are associated with the successful roll out of a FOGO service to the community and the establishment of a composting facility in the Coolamon Shire Council. These findings may be helpful for other rural councils seeking to improve their waste management by targeting diversion of organics. Some improvements for Coolamon have also been identified which should assist to further improve implementation strategies.

This study shows that a rural setting can be viewed as an asset for the delivery of successful and progressive waste management solutions. Here, low density and low waste amounts can be effectively decoupled from assumptions around high transportation costs and the need for high tech solutions. Instead this Study showcases specific community oriented strategies that can be implemented in rural locations collaboratively by regulatory bodies, councillors, council workers and the community to achieve positive outcomes.





6. RECOMMENDATIONS

FOR INTRODUCTION OF A FOGO SERVICE AND COMPOSTING FACILITY IN A RURAL SETTING

Our findings from investigating the Coolamon FOGO service and composting facility provides some valuable data and examples of successful strategies for regional small scale projects. Primarily it debunks the idea that the size of population and waste generation is a constricting factor. Rather, in many ways it is a benefit where the composting process and compliance are assisted by the small scale.

From Coolamon's experience we have extrapolated a list of key recommendations for rural councils looking to introduce a FOGO service and composting facility. Further, we have identified improvements applicable to Coolamon which others can also adopt.

Fogo Collections:

- **Seek funding for mobile bins and kitchen caddies as well as educational material and assistance to pay new education staff or provide additional staff hours for door knocking and community engagement.**
- **Conduct a trial to start the FOGO and composting process and service. This provides an opportunity:**
 - to gain community champions to promote the service in a collaborative way
 - to identify types of contamination and misunderstandings prior to full roll out
 - to start the composting process and gradually train staff
- **Identify areas for improvement for the composting process**
- **Conduct surveys prior to introducing the service. This provides:**
 - information gathering and consultation opportunities for the community. Consider asking residents if they are prepared to pay for the additional service
 - confidence in decision making
 - data to address complaints
- **Include door knocking and personal contact in the education package. This will:**
 - connect council staff with the project
 - connect the community with the project and council staff
 - provide community members with the opportunity to ask questions
- **Set a goal to change the residual bin to a fortnightly collection and the FOGO bin weekly from the start. This will:**
 - introduce the concept to the community early and aim to have them on board prior to introducing major changes. Residents will be aware that the change will happen.
- **Provide residents with a rigid plastic caddy but no compostable bags. This will:**
 - minimise contamination of biodegradable and plastic bags and assist the composting process



Composting Facility

- Seek funding for the establishment of the composting facility including: construction of a hardstand, machinery, probes and training of staff.
- Providing feedstock is likely to remain low, use the low-cost and low-risk composting option of open windrowing.
- Establish a scale-specific composting area that adheres to reasonable environmental standards, relative to its size. Further, ensure that the process and site management is flexible enough to deal with changes of circumstances (amount and composition of material, complaints, extreme weather (fire, rain, drought)).
- Use the *Environmental Guidelines – Composting and Related Organics Processing Facilities* (Department of Environment and Conservation).

Ensure the composting manager is empowered through training and is encouraged to make use of the product.

- Establish a constant amount and type of feedstock. Rigorously monitor and conduct laboratory testing of the compost process until consistent results provide confidence in the quality of the product, then switch to a regular monitoring and occasional testing procedure.
- Use the composting product within council to save costs on land management and to generate connection, ownership and care between the process and use of the compost product.
- Invest in building the skills of the facility operator through relevant training and visits to similar operational sites.
- Facility operators who are also connected as an end-user of the compost product are more likely to invest in creating a quality product.



7. REFERENCES

- Australian Bureau of Statistics 2014, 'Coolamon LGA', accessed 23/02/17, http://stat.abs.gov.au/itt/r.jsp?RegionSummary®ion=12000&dataset=ABS_REGIONAL_LGA&geoconcept=REGION&datasetASGS=ABS_REGIONAL_ASGS&datasetLGA=ABS_REGIONAL_LGA®ionLGA=REGION®ionASGS=REGION. APPENDIX A – Street bin assessment data.
- Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) 2012, *Food and Garden Organics – Best Practice Collection Manual*, Commonwealth of Australia.
- JustWaste 2016, *Kerbside General Waste Audit – Northern Inland Regional Waste*, Northern Inland Regional Waste.
- Riverina Eastern Regional Organisation of Councils (REROC) 2005, *Regional Organic Management Plan, REROC Waste Forum*.
- Riverina Eastern Regional Organisation of Councils (REROC) 2012, *REROC Waste Forum Cluster Composting Trial Report 2012, REROC Waste Forum*.
- Riverina Eastern Regional Organisation of Councils (REROC) 2012, *REROC Waste Forum Cluster Composting Trial – Economic Feasibility Study, REROC Waste Forum*.
- Riverina Eastern Regional Organisation of Councils (REROC) 2014, *Regional Waste Management and Resource Recovery Strategy 2014-2021, REROC Waste Forum*.
- Government of South Australia 2010, *Valuing our food waste – South Australian Household Food waste recycling Pilot*, accessed 23/02/17, <http://www.zerowaste.sa.gov.au/upload/resource-centre/publications/food-waste/VALUING%20OUR%20FOOD%20WASTE.pdf>.
- Mike Ritchie & Associates (MRA) 2014, *REROC Waste Audits – Results Report*.



8. HELPFUL DOCUMENTS AND GUIDES

- Waste Management Section of Department of Environment and Conservation (NSW), 2004, *Environmental Guidelines - Composting and Related Organics Processing Facilities*, Department of Environment and Conservation (NSW).
- Department of Sustainability, Environment, Water, Population and Communities 2012, *Food and Garden Organics – Best Practice Collection Manual*, Commonwealth of Australia.
- Department of Urban Affairs and Planning (DUAP) 1996, *EIS Practice Guidelines: Composting and Related Facilities*.
- Department of Environment & Climate Change (NSW) 2009, *Guide to licencing - Under the Protection of the Environment Operations Act 1997*.

RELEVANT LEGISLATION

- *The Environmental Planning and Assessment Act 1979* (NSW).
- *The Environmental Planning and Assessment Regulation 2000* (NSW).
- *Protection of the Environment Operations Act 1997* (NSW).
- Compost Order 2016 – *Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment (Waste) Regulations 2014* (NSW).
- Compost Exemption 2016 - *Resource Recovery Order under Part 9, Clause 91 and 93 of the Protection of the Environment (Waste) Regulations 2014* (NSW).

APPENDIX A - COST BENEFIT ANALYSIS AND COMPARISON BETWEEN ESTIMATED AND ACTUAL

COST ANALYSIS (FEASIBILITY STUDY 2012)					
Organics bin in Coolamon	983				
BENEFITS	Y1	Y2	Y3	Y4	Y5
Compost	10,666	10,666	10,666	10,666	10,666
Diversion from landfill	7,117	7,117	7,117	7,117	7,117
Benefits (savings and generation)	17,782	17,782	17,782	17,782	17,782
Costs					
Education & bins	65,999				
Composting facilities	14,381				
Establishment costs	80,380				
Composting costs (Maintenance, machinery, material, labour)	9,240	9,240	9,240	9,240	9,240
Collection costs (List + Transport at \$40.5/annum)	39,812	39,812	39,812	39,812	39,812
Ongoing Costs	49,052	49,052	49,052	49,052	49,052
Total Costs	129,432	49,052	49,052	49,052	49,052
Annual profit / loss (cost - benefits)	111,649	31,269	31,269	31,269	31,269
Accumulated profit / loss	111,649	142,918	174,188	205,457	236,726
Actuals					
Benefits	2011/2012	2012/2013	2013/2014	2014/2015	2015/16 (estimates)
Compost	-	8,000	8,000	30,984	30,984
Waste less recycle more grant				21,405	
Benefits (savings and generation)		8,000	8,000	52,389	30,984
Costs					
Trial Participating contribution					
Council labour	1,212.35				
Contribution (which provided bins and education)	13,810.00				
Roll out costs					
Bin distribution	3,230				
Bins (550)			24,131		
Organic stickers	1,340				
Biodegradable bags	4,994				
Composting facility					
Tanks	2,172				
Hardstand	-				
Establishment costs	26,758		24,131	-	-
Lift + transport					
Lift (1.496/lift)		20,188	28,185	27,754	27,754
Composting management					
Flip screen		1,170	6,543	6,413	6,413
Weed control		240			
Wages (Jason)		973	4,259	2,926	2,926
Delta AG (Maintenance)		58			
VRM (Seeder and starter (inoculant))			503	738	738
Bunnings			216		
Ongoing costs		22,629	39,705	37,830	37,830
Total Cost	26,758	22,629	63,837	37,830	37,830
Annual Profit/ Loss (Cost - benefits)	26,758	14,629	55,837	- 14,559	6,846
Accumulated Profit / Loss	26,758	41,387	97,223	82,665	89,511

APPENDIX B - STREET BIN ASSESSMENT DATA

#	STREET	% FULL	FOOD PRESENT	OTHER
1	BRUCE	100	Y	
2		50		RECYCLING
3	DOUGLAS	25		
4		100		GARDEN
5		50		
6		25		
7	METHUL	100	Y	
8		100	Y	
9		50	Y	
10		50	Y	
11		100	Y	
12		20	Y	
13		80		
14	COWABBIE	100	Y	
15		110	Y	RECYCLING
16		100	Y	
17		70	Y	
18		10	Y	
19		50		GARDEN
20		100	Y	
21		100	Y	
22		100	Y	
23		40	Y	
24	MIMOSA	100		RECYCLING
25		50		GARDEN
26		60		
27		15	Y	BAGGED FOOD
28		80	Y	BAGGED FRUIT
29		25	Y	
30		15	Y	
31		100	Y	
32		800	Y	RECYCLING
33		80	Y	RECYCLING
34		100	Y	RECYCLING
35		90	Y	
36	LOUGHNAN	10		GARDEN
37		50	Y	
38		80	Y	
39		70	Y	
40		60	Y	
41		110	Y	
42		60	Y	
43		95		GARDEN
44		110		RECYCLING
45		80	Y	
46		80	Y	RECYCLING
47		115	Y	RECYCLING
48	INVERACH NORTH	50		
49		33		
50		50	Y	RECYCLING
AVERAGE %	84%			
TOTAL NR FOOD PRESENT		35		
TOTAL NR GARDEN PRESENT			5	
% GARDEN PRESENT		10%		
% FOOD PRESENT		70%		
% FOGO PRESENT		80%		

