

# Solutions for waste management in regional and remote Australia

## *A compilation of case studies*



National Waste Policy:  
*Less Waste, More Resources*

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### **Acknowledgments**

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# Introduction

The *National Waste Policy: Less waste, more resources* (National Waste Policy), endorsed by the Council of Australian Governments in October 2010, sets Australia's waste management and resource recovery direction to 2020. The overarching aims are to generate less waste, to reduce the amount of waste for disposal, to manage waste as a resource, and to ensure safe and environmentally sound waste treatment, disposal, recovery, and re-use.

The National Waste Policy sets six key directions and identifies sixteen priority waste strategies that would benefit from a national or coordinated approach. The six key directions are:

- taking responsibility
- improving the market
- pursuing sustainability
- reducing hazard and risk
- tailoring solutions
- providing the evidence.

The Regional and Remote Australia Working Group is one of seven working groups that were established to lead implementation of the National Waste Policy and its implementation plan. The working group is chaired by Western Australia and has members from South Australia, the Northern Territory, Queensland, Western Australia, the Australian Government and a representative from the Australian Local Government Association. The Regional and Remote Australia Working Group is responsible for implementing strategies 14 and 15, under the key direction 'tailoring solutions—increased capacity in regional and remote communities to manage waste and recover and re-use resources'.

Regional and remote communities face a number of challenges in managing waste and recovering and re-using resources. These challenges include access to markets for recyclables, distances and road conditions between towns and waste facilities and the recruitment and retention of staff.

Each community is unique and there is no single solution for waste management in regional and remote Australia. Rather, to improve waste management, successful regional and remote communities have tailored solutions to meet their circumstances. From these solutions come opportunities to share knowledge, experiences and learnings.

To assist in increasing knowledge and skills in regional, remote, and Indigenous communities, the Regional and Remote Australia Working Group has drawn together case studies from regional and remote communities in a variety of geographical and demographic contexts, ranging from projects undertaken in small remote communities to those in larger regional centres. The case studies capture a range of solutions that have been tried and tested, including projects that have not been successful but have nevertheless provided valuable learnings.

These case studies will provide a valuable resource to assist regional and remote communities with the planning and improvement of their own waste management, based on lessons learnt from past projects. It is also envisaged that the case studies will foster the establishment of waste management networks between communities throughout Australia who share similar challenges due to their remote locations.

The case studies represent a snapshot in time and aspects of the projects may have changed since their inclusion in this compilation. In general, the case studies are instructional and may describe the operational activities undertaken throughout the life of the project.

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# Port Julia Progress Association recycling and storage depot



*Port Julia is a peaceful seaside holiday town located on the eastern coast of the Yorke Peninsula in South Australia. The town lies 200 kilometres from Adelaide and about 30 kilometres from the two neighbouring regional towns of Minlaton and Ardrossan.*

*Port Julia has a small community of 30 permanent residents and about 207 seasonal and holiday residents. It is a popular destination for holiday-makers who enjoy fishing and seaside activities.*

*This case study details the development of the improved undercover recycling and storage depot for grading and sorting of bottles, cans, metal goods and other re-usable and recyclable goods.*

## Title of project

Port Julia Progress Association recycling and storage depot

## Year of project

November 2010–July 2011

## Type of project

Regional community recycling and resource recovery

## Population

Port Julia 30–200+ (due to seasonal variation)

## Budget

\$15 000 (approximately)

## Sources of funding

Zero Waste SA School and community grant and applicant contribution

## Background

The Port Julia Progress Association is a small not-for-profit organisation of local residents who support and undertake community works within the Port Julia community.

The surrounding area is predominantly broadacre agricultural and farming land. As well as recycling and litter management the group coordinate regular working bees to remove weeds, collect native seeds and revegetate the surrounds to help create a strong sense of community.

The removal of household rubbish from Port Julia was once via a single refuse bin which was collected weekly and taken to the local government run landfill about 35 kilometres from Port Julia.

The local government has since introduced a three bin system

(rubbish, green organics and co-mingled recycling) and has now converted the local government run landfill site to a privately operated waste transfer station.

This change in local government waste management operations resulted in an increased cost for residents to dispose of rubbish (e.g. previous cost was \$9 per trailer at the local government landfill, rising to \$45 per trailer at the privately owned waste transfer station). These changes to the local government waste management operations resulted in an increase in the amount of illegal roadside dumping along the many small dirt roads around Port Julia.

The progress association was keen to provide a recycling and storage depot to reduce the amount of roadside illegal dumping and to encourage residents and tourists alike to recycle.



Photo courtesy of Zero Waste SA

### **Project description**

The progress association applied for a Zero Waste SA Social Enterprise Grant in 2007–08 to fund the establishment of the recycling and storage depot. The Social Enterprise Grants (now the ZWSA School and Community Grants) provided funding for basic infrastructure to encourage not-for-profit community groups and schools to divert materials from landfill and to encourage sustainable waste management and recycling behaviour and practices.

The Port Julia Progress Association work closely with the District Council of Yorke Peninsula (DCYP) on many projects including in the development of the recycling and storage depot. Given that the land is owned by local government, the DCYP played a crucial role in accepting the recycling and storage depot proposal and processing planning and building construction approval.

### **Outcomes achieved**

- A new undercover storage area was established for the grading and sorting of bottles and cans and for the dismantling of metal goods.
- The amount of 10c deposit containers and non-deposit wine bottles delivered to the depot by residents has increased by 100 per cent.
- A significant reduction in illegal dumping has occurred since the project's implementation.
- Extra income from the recycling project has not only expanded the community's recycling capacity but has also allowed the progress association to provide better amenities for the community.
- The large amount of whitegoods received resulted in the progress association having to provide two external fenced compounds to provide a visual barrier to the deposited waste items.

### **Implementation**

To ease the implementation of this project, the Port Julia Progress Association consulted with the local residents and surrounding community right from the start to inform them of the development and initiative. This consultation with the community enabled a smooth transition and assisted in the project gaining acceptance and support from all stakeholders. Sound consultation has resulted in the residents fully accepting the Progress Association's decision to construct the depot and consequently they are supportive of the venture.

### **Key points to aid implementation in other jurisdictions**

- Consult with your state waste management authority to assess whether the project is suitable.
- Discuss the project with your local government to ensure their acceptance of your grant proposal and to obtain building approval to construct on local government owned land.
- Submit your application for planning and building construction approval.
- Consult with the local community to gain their support and acceptance and ensure all information is in hand to answer potential questions.
- Prepare costings for the project by contractors or voluntary labour. A significant amount of voluntary labour was used in the construction of this shed, saving on overall project costs.
- Prepare an awareness campaign to inform the community of the commencement of the project via local paper, community notice board, progress association newsletter and local government communications.

**Resources**

A proprietary line engineered shed was selected for this project

Discussed proposal with the District Council of Yorke Peninsula's Customer Services Manager for advice  
Port Julia's Concept Plan 2010

**Contacts**

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**Links**

<http://zerowaste.sa.gov.au>

<http://www.zerowaste.sa.gov.au/grants/school-and-community-grants-showcase>

# Minimisation of waste at Orroroo Area School and in the local community



*This case study describes a project undertaken by the Orroroo Area School to purchase and construct recycling infrastructure to improve the collection of recyclable materials both at the school and amongst the community of Orroroo.*

## Background

Orroroo Area School is located approximately 300 kilometres from Adelaide and is attended by about 140 students.

The school is located within the District Council of Orroroo Carrieton which has a population of over 900 people. Orroroo is located within the Southern Flinders Ranges which is three hours drive, north of Adelaide and an hour east of Port Augusta. Orroroo sees plenty of through-traffic especially on long weekends as people head up to the Northern Flinders Ranges from Adelaide.

## Project description

After attending a Zero Waste SA Wipe Out Waste workshop, teachers and students from the Orroroo Area School wanted to expand their recycling program to help the people of Orroroo recycle cardboard, paper and glass and to allow for the recovery of 10c deposit containers from public areas. The school was awarded \$15 000 through the school and community grants program to fund skips, recycling bins for the main street, wire sorting cages and a recycling trailer. This enabled the community to improve their recycling and save on the cost of sending valuable material to landfill.

Recyclable items not handled by current local government arrangements are collected by junior Student Representative Council (SRC) representatives, (who are known as CRUNCH) brought back to the school, sorted, counted and delivered to local recycling depots.

### Title of project

Minimisation of waste at Orroroo Area School and in the local community

### Year of project

2010–11

### Type of project

Regional school and community recycling and resource recovery

### Population

935 (approximately)

### Budget

\$15 000 (approximately)

### Sources of funding

Zero Waste SA School and community grant



Photo courtesy of Zero Waste SA

### Outcomes achieved

Locally built skips (for cardboard and paper) and recycling bins (for 10c deposit containers, glass and plastics) were placed in and around the local area including tourist sites, local businesses, the main street, the local hospital, the mining village, the football oval and the local library. The construction of the skips will save the local government about \$3500 per year in skip bin hire fees.

Mesh cages were constructed by the technical studies students from the Orroroo Area School to be used as needed in the community (e.g. local quilt show, gourmet food weekend). This has diverted 10c deposit containers from passing travellers and people at community functions.

A tandem trailer was purchased, enabling the school to collect the recyclable items from the many sites around town. The items are then returned to the school-based recycling shed for sorting, counting and delivery to the local recycling centres.

Plastic buckets were purchased and placed into classrooms to allow each class to collect daily food scraps which are fed to the school's chickens and used in the compost heap for the school vegetable gardens.

Before the implementation of the project, the local government's recycling program had just begun. Though lacking in initial coordination, the local government still managed to support the collection of the 10c deposit beverage containers. The local government was also still disposing of a large amount of rubbish—especially from businesses—much of which could have been recycled (mainly cardboard and plastics).

Money raised from the collection of 10c beverage containers raises approximately \$2000 a year. This has been used to supply all primary classes with brand new sports equipment. The school also provides a pick-up service for those householders and businesses wishing to donate their 10c deposit containers to the school.

### Implementation

In order to fund this project sufficiently, Orroroo Area School made the most of the state government's grant program which intentionally targets recycling and resource recovery in schools and community groups.

Orroroo Area School has a very proactive SRC (CRUNCH). This team plays a very hands-on role in collecting and sorting the recyclable items as well as promoting recycling amongst the community.

Throughout the introduction and continuation of the project, the CRUNCH team has submitted articles to the local monthly magazine regarding the benefits of recycling and they have received positive feedback from this initiative.

The local Lions Club was so impressed with the recycling activities that the school were doing—in particular the 10c deposit container program—that they donated their eight wire cages that they had made some years ago to the Orroroo Area School recycling program. They also were happy to allow the school the rights to collect from some venues the Lions had previously collected from.

### Key points to aid implementation in other jurisdictions

- There are many things that the local government helps the school with, and now, through the school's expanded recycling project, the school is able to provide a number of services to assist the local government.
- It is very useful to undertake rubbish bin audits, before and after the project implementation. In Orroroo the amount of rubbish has substantially reduced with audits showing that the rubbish bins (landfill bins) went from being 120 per cent full in May 2010 to 20–30 per cent full in December 2011.

**Resources**

Zero Waste SA/ Keep South Australia Beautiful (KESAB) Wipe Out Waste Schools program

<http://www.wow.sa.gov.au/>

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**Links**

<http://www.orrarooas.sa61.edu.au/>

<http://www.zerowaste.sa.gov.au/grants/school-and-community-grants-showcase>

<http://www.wow.sa.gov.au/>



*Photo courtesy of Zero Waste SA*

# Lajamanu container deposit scheme pilot



*This case study describes a pilot container deposit scheme trialled at Lajamanu in the Central Desert Shire, Northern Territory.*

## Background

The Centre for Appropriate Technology (CAT) is a national Indigenous science and technology not-for-profit organisation. CAT works with remote communities across central and northern Australia. CAT's purpose is to secure sustainable livelihoods through appropriate technology.

Lajamanu is located on the northern edge of the Tanami Desert. At the 2006 census it had a population of 669, but resident population is often estimated as being approximately 1000. Katherine, the nearest major centre, is 560 kilometres to the north-east. Access from Katherine is via the Buntine Highway which is mostly sealed, however the final 100 kilometres is unsealed road. Access from Alice Springs to the south is via the Tanami Road, which is unsealed and regularly in poor condition, especially after rain.

## Project description

In 2006 and 2007, a researcher from CAT engaged with Lajamanu community members in a waste and recycling planning project, which focused on the logistics of container deposit schemes (CDS) in remote communities. This research occurred at the request of the Northern Territory's Department of Natural Resources, Environment and the Arts (NRETA). Established in October 2007, the Lajamanu CDS pilot was funded by the Environment grants for the period 2007—October 2008. The project had the following objectives:

- reduce the number of beverage containers contributing to solid waste in local landfills
- enhance community cleanliness by reducing litter from beverage containers, identified as a significant source of litter
- act as an incentive for collection or separation of beverage containers
- reduce burning at landfill, as waste volume was managed by burning

### Title of project

Lajamanu container deposit scheme pilot

### Year of project

October 2007–October 2008

### Type of project

Container deposit scheme

### Population

1000

### Budget

\$45 260 (cash)

\$79 475 (in-kind)

### Sources of funding

Government funding



*Photo courtesy of the Centre for Appropriate Technology*

- promote some community ownership of waste management outcomes, via consultation and engagement with the school and the then Lajamanu Community Government Council (CGC)
- return income to the community via the sale of recyclables, leading to employment and livelihood opportunities.

Funding was provided for the purchase of a crusher/baler machine, and to train operators in its use.

The Lajamanu CDS originally operated under a Memorandum of Understanding (MOU) between the then Lajamanu CGC, Lajamanu Progress Association/Store (LPAS) and CAT, with cooperation from Pandion Haulage. Under the MOU, Lajamanu Store would add 10c to the price of beverage containers, including aluminium cans and Polyethylene terephthalate (PET) bottles. Vouchers were to be issued by the CGC worker showing the refundable value of containers returned to the local government depot. The voucher was then redeemed for cash at the store. Pandion Haulage was engaged to provide free back-loading of recyclables from Katherine to Darwin. This arrangement was operative in the early stages of the scheme. Following the sale of recyclables in Darwin, the income was initially to be returned to the Lajamanu CGC and LPAS.

### Challenges

- A key development in the initial year was the establishment of the Central Desert Shire in July 2008. The Shire took over the issuing of vouchers, the storage and processing of recyclables and the maintenance of the crusher/baler.
- As of June 2011, there has been an overall decline in the level of collection and refunds. Some changes in individual persons involved in the program may account for this.
- There were also periodic communication issues between stakeholders, the Central Desert Shire and the LPAS. At the same time, possibly as a consequence of uncertainty and stakeholder miscommunication, the free transportation of recyclables ceased.

### Outcomes achieved

During the funded period of the project (to October 2008):

- 96 840 cans and plastic bottles were returned with refunds of \$9684 to community members
- about 80 community members participated and received refunds
- training of CDEP workers, including Indigenous project champion, in use of crusher/baler.

The scheme and broader Lajamanu solid waste outcomes were recognised with the following awards:

- April 2008 winner Chairman's Prize in PowerWater Melaleuca Awards (recognising environmental excellence)
- November 2008 Tidy Towns NT award.

### Implementation

For a remote Indigenous settlement, Lajamanu has a relatively large and concentrated population. This may have contributed to the early success of the project. In addition, support from the scheme's Indigenous champion, former employee of Lajamanu CGC Robert George, was important for the implementation of the project and community buy-in. Equally, after this person was no longer associated with the scheme, the commitment of a key Central Desert Shire municipal services worker, Michael Erglis, was also important to the continuation of the scheme, organising the collectors and issuing vouchers.

Four main issues affected the implementation of this scheme:

1. Isolation of Lajamanu from major recyclables markets: the main impact of distance is the cost of freight of recycled goods, in the case where a voluntary logistics agreement cannot be retained.
2. Changes in ownership and control of infrastructure and revenue from the sale of recyclables, this occurred with transition from Lajamanu CGC to Central Desert Shire administration. The new administration introduced a new stakeholder into an already established scheme, and the shire has maintained the crusher/baler and collection of recyclables. Communication between stakeholders affected the scheme.
3. Difficulties in administering the container count and refund receipts: problems first emerged with manual counting of containers, so a 'per bag' rate was adopted. Inconsistencies with refund vouchers issued to community members have also affected the scheme, resulting in changes in personnel responsible for issuing vouchers. At present, vouchers are only issued at the Central Desert Shire offices.
4. Changes in the price for scrap recyclables: in late 2008 a substantial downturn in the price for scrap aluminium occurred which restricted revenue from the scheme.

### Key points to aid implementation in other jurisdictions

- Any transitions in local governance arrangements make planning and engagement difficult, therefore these need to be anticipated where possible. As remote communities are a dynamic policy environment, waste programs of this kind require contingency plans for changes in policy, funding, administration and personnel.
- Cash incentives were an important motivating factor for initial participation, especially for the older female demographic, but this has proved difficult and labour-intensive to administer.
- The purchase of expensive processing equipment needs to include contingencies for repair and maintenance. In the case reviewed, these costs were covered by the Central Desert Shire, which was effective.



Photo courtesy of the Centre for Appropriate Technology

### Tools

This project utilised fieldwork and developed activities for school children around recycling and container deposits. Regular newsletters were produced to report back on the scheme.

### Resources

Adelaide-based company Lintec, who produced the BaleUp machine purchased for Lajamanu, were contracted to provide training in its use at CAT's Alice Springs headquarters.

This project was part of the research entitled *"Logistics of Container Deposits in Remote Communities in the Northern Territory"* (Alyson Wright and Leigh Collins).

**Contacts**

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Central Desert Shire, Lajamanu

08 8975 0886.



*Photo courtesy of the Centre for Appropriate Technology*

# Improvement of recycling facilities within Karoonda and district



*This case study describes the improvement of recycling facilities, undertaken by a voluntary organisation within the District Council of Karoonda East Murray.*

## Background

The District Council of Karoonda East Murray is located 150 kilometres from Adelaide on the Karoonda Highway between Murray Bridge and Loxton. The boundaries are shared with the Coorong, Loxton Waikerie, Mid Murray, Murray Bridge and Southern Mallee Councils.

The district population of 1163 (2006 census) is well served by local business. There are two area schools, a hospital, ambulance service, country fire service, police and many community service groups.

The area's primary industries are broadacre production of wheat and barley, sheep breeding and poll merino for their meat and wool. Secondary and tertiary industries include pig breeding, beef cattle, alpacas, production of sorghum, oats, lupins, beans, olives, onions, potatoes, pumpkins, pomegranates and paulownia trees.

## Project description

The Lions Club of Karoonda and District currently undertakes the recycling within the district of Karoonda East Murray. The club has 15 members who voluntarily undertake this recycling.

Prior to the 2009 upgrade in recycling facilities, all recycling was conducted outdoors. The club used an inadequate, old, manually operated wool baler to compress cardboard and made use of a small garden shed for storage.

In 2009, the Lions Club purchased a new air-operated waste baler which compresses and binds cardboard and also serves as a can and tin compactor. Additionally, the District Council of Karoonda East Murray donated a large shed to be used as a storage and separation area. The recycling depot is situated at the District Council of Karoonda East Murray's waste disposal landfill site.

On a weekly basis, recycled materials are delivered and sold to Wally's Bottle Yard and Recycling Centre at Murray Bridge and all proceeds made from the sale are injected back into the community.

### Title of project

Improvement of recycling facilities within Karoonda and district

### Year of project

2008–09

### Type of project

Regional recycling

### Population

1163

### Budget

\$23 344

### Sources of funding

Government grants

Local government contribution



*Photo courtesy of the Karoonda and District Lions Club Inc.*

Due to the rapid increase in recycling within the area, a larger trailer has recently been purchased. This will eliminate the extra journeys that were required to deliver recycled materials to the Murray Bridge depot (67 kilometres from Karoonda) when using the old small trailer.

The Lions Club carry out a weekly kerbside collection on a Wednesday. Residents are asked to place all recyclables in a crate, or the Lions Club can provide a bag which can then be collected when full. Residents can deliver their recycling direct to the Karoonda recycling depot if they prefer. Recyclable materials collected by Lions Club members consist of paper and cardboard, aluminium and steel, glass bottles and jars, hard plastics and cartons. The Lions Club spend many hours sorting in readiness for delivery to Wally's Bottle Yard and the recycling depot at Murray Bridge. The Karoonda waste and recycling depot is open Wednesdays and Sundays 12.30 pm to 4.30 pm.

One of the goals of the Lions Club is to provide a recycling service for the residents of the district while making the collection of recycling less time-consuming and less physically difficult for the volunteers involved.

### **Challenges**

As a result of the increase in the volume of recyclable materials due to the Lions Club's efforts, additional undercover sorting and storage areas were required. The Lions Club of Karoonda and District were granted an additional \$8000 in the 2012–2013 school and community grants program funding from Zero Waste SA to provide a larger dry storage area for recyclables and further undercover working areas for volunteers.

### **Outcomes achieved**

The upgrade to facilities and equipment has contributed to the Lions Club improving their recycling management and has seen an expansion in the amount of recyclables collected and an increase in the amount of materials diverted from landfill.

The local government's kerbside recycling collection data reveals a substantial increase in the volume of recyclables collected over the last three financial years:

- July 2008-June 2009: 46 760 kg
- July 2009-June 2010: 48 668 kg
- July 2010-June 2011: 54 500 kg.

The amount of recyclables collected continues to increase as public awareness and education grows. The local government produces a community newsletter which outlines services available to the community. The community newsletter is delivered to householders via the mail service and is available at the District Council of Karoonda East Murray Council Office. The information is available on the website [www.dckem.sa.gov.au](http://www.dckem.sa.gov.au).

### **Implementation**

The Lions Club collects recyclables on a weekly basis. Volunteers use a utility and trailer to carry out kerbside collection on a Wednesday in the towns of Karoonda, Borrika and Wynarka. Crates are available for purchase from local government. For sorting purposes, residents are asked to remove lids and rinse bottles, flatten cardboard containers and bundle or separate where possible.

Approximate recycling hours on a weekly basis:

- Collection: 10 hours
- Sorting: 12 hours
- Packing, loading and delivery to Murray Bridge Depot: 8 hours.

**Cost**

|                |                 |
|----------------|-----------------|
| Compactor      | \$7 370         |
| Air compressor | \$2 079         |
| Recycling shed | \$13 895        |
| <b>Total</b>   | <b>\$23 344</b> |

**Contacts**

Mr John Wooldridge  
President  
Karoonda and Districts Lions Club Inc.  
08 8578 1032

**Links**

<http://www.lionsclubs.org.au/about-lions/>  
<http://www.dckem.sa.gov.au/page.aspx?u=100>



*Photos courtesy of the Karoonda and District Lions Club Inc.*



# The Fitzroy Valley Indigenous communities recycling pilot



*Fitzroy Valley, in the remote Kimberley region of Western Australia, includes five Indigenous communities around the regional hub of Fitzroy Crossing.*

*This case study shows how a pilot project, coordinated by the Centre for Appropriate Technology (CAT), involving a network of Indigenous municipal services officers in communities, has had a significant impact on reducing the number of aluminium cans and plastic bottles going to landfill.*

## Background

The Centre for Appropriate Technology (CAT), is a national Indigenous science and technology not-for-profit organisation. CAT works with remote communities across central and northern Australia. CAT's purpose is to secure sustainable livelihoods through appropriate technology. CAT delivers municipal services to 26 communities in the Fitzroy Valley, servicing a total estimated population of 1705.

These services are managed from CAT's West Kimberley offices in Derby with logistics coordinated from CAT's depot in Fitzroy Crossing. Services are funded by the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) and the Derby Indigenous Coordination Centre.

Work in the communities is undertaken by municipal services officers (MSOs) who are employed by CAT on either a full- or part-time basis.

The Packaging Stewardship Forum (PSF) and Sadleirs-Nexus Logistics are project partners.

## Project description

The CAT pilot program introduced public place receptacles for the depositing of aluminium cans and plastic bottles at convenient locations around the communities.

The Fitzroy Valley recycling pilot program involved the following:

- Galvanised mesh cages and barrels with PSF recycling signs affixed were manufactured and installed. Cages were installed in sets of two; one for cans and one for bottles as indicated by the signs. A lever-operated can crusher was installed on the post between the cages.
- MSOs were responsible for collecting cans and bottles, removing contamination and placing cans and bottles in separate bulker bags at the community tip.

### Title of project

The Fitzroy Valley Indigenous communities recycling pilot

### Year of project

November 2010–July 2011

### Type of project

Regional recycling

### Population

868

### Budget

\$40 000

### Sources of funding

Government grants and industry sponsorship



*Photo courtesy of the Centre for Appropriate Technology*

- Bulker bags were delivered to CAT's Fitzroy Crossing depot for processing and packaging to allow transport on pallets.
- Recyclables were then transported to Perth. This was deemed to be the most convenient market due to the availability of backloading.

CAT's West Kimberley regional office selected five communities for the recycling trial, with a combined population of 868. These communities were selected due to their accessibility to Fitzroy Crossing, where recyclables from communities are collected prior to removal. Each also had an MSO living on the community:

- Bayulu (population 271)
- Muludja (population 135)
- Wangkatjungka (population 169)
- Yakanarra (population 115)
- Yiyili (population 94)
- Ganinyi (population 38) serviced by Yiyili MSOs
- Girriyoowa (population 46) serviced by Yiyili MSOs.

### Challenges

Good waste management practices in remote Indigenous communities are important but they are hard to get going and sustain. High costs, few transportation options and sporadic waste collection services are just some of the challenges.

Poor economies of scale often put the initial and ongoing costs of waste management outside the reach of many small communities, their local governments and resource agencies. Local conditions, perceptions and environmental factors specific to remote communities mean standardised solutions are often inappropriate.

Fitzroy Crossing is 280 kilometres from Derby via sealed road. Most Fitzroy Valley communities serviced by CAT have an unsealed access road from the Great Northern Highway.

Communities south of the Fitzroy River are often inaccessible from Fitzroy Crossing during the wet season. Flooding and washouts were a particular issue during the rollout of this project (January-May 2011), as they prevented the establishment of recycling infrastructure, and created a backlog of more general municipal services work.

### Outcomes achieved

Outcomes of the pilot project include:

- consultation on recycling, the type and location of receptacles in five communities
- construction of 100 recycling cages by MSOs at CAT's Fitzroy Crossing depot workshop, and installation by MSOs in their home communities
- agreement with Sadleirs-Nexus Logistics to provide free backloading of recyclables from Fitzroy Crossing to Perth (CAT was responsible for covering some transfer costs and materials, including pallets and bulker bags)
- recycling commenced in pilot communities with MSOs emptying public receptacles and sorting contents in bulker bags at community tips
- planning logistics of transfer to CAT's Fitzroy Crossing depot for processing, storage, and packaging for transport to Perth (with funds from PSF, processing equipment for compacting and baling has been secured for this project)
- the volumes of plastic and aluminium collected have been modest to date, however the pilot program has resulted in a reduction in litter from beverage containers in the pilot communities.

The project was embraced by three of the five pilot communities. In these three communities, MSOs living on-site were committed and highly effective in collecting and sorting recyclables. These MSOs are also very effective in other aspects of their waste management roles.

Major building demolition and construction work caused difficulties in one community. The use of public places was significantly impeded during 2011. The build-up of construction and demolition waste during this time evidently reduced the incentive for sustained efforts in maintaining the amenity of public places. At two other communities, difficulties can be attributed to changes in MSO staffing. The departure of CAT MSOs working at these communities since the project commenced led to virtual discontinuation of recycling, as motivated on-site MSOs are crucial to the ongoing decontamination and sorting of containers deposited in public place receptacles. Without such ongoing work, community members cease to use the bins.

A survey conducted in one community found that there was a good level of knowledge of recycling availability. Of those who knew about recycling, 85 per cent used the service either always or sometimes. Although a much lower 28 per cent of recyclers reported taking recyclables from their houses to the bins. The use of public place receptacles for household-generated recyclables could be promoted further.

### Implementation

Implementation was facilitated by CAT's existing relationship with Fitzroy Valley communities as the provider of municipal services and the employer of the MSOs.

Seasonality is a key factor in the rollout of infrastructure and transport of recyclables, just as it is with general waste management services. The difficulty of access due to wet season conditions affected the time taken to establish this project.

### Key points to aid implementation in other jurisdictions

- It is important to make transport arrangements early in the project.
- It is important to consult with communities about the form of recycling so that participants support the measures implemented.
- The cost to purchase and maintain processing equipment means that the scale of collection is a factor. Without compacting and packaging recyclables, it would be difficult to fund the transport of recyclables out of remote areas.
- The seasonality of remote community access, as well as transport networks for processed recyclables, needs to be considered in the tropics.
- The model for remote recycling developed by charities such as Ruggies for the Princess Margaret Hospital Foundation, achieves economies of scale for processing and for transport by collecting from mine sites. The differences of operating in remote Indigenous communities need to be considered. In the West Kimberley case, these include more dispersed populations to collect from with smaller volumes of high-value recyclables. Opportunities to achieve economies of scale by incorporating collection from larger regional centres (such as Fitzroy Crossing) are worth exploring further.

### Tools

Visual tools representing different recycling options were successfully used when consulting with communities. These included:

- successful remote recycling venture in Lajamanu, NT
- possible receptacle styles for households and public places
- community maps, used in combination with community tours, to determine the appropriate location of recycling receptacles

- Posters were developed for each individual pilot community showing the number and location of recycling receptacles.
- Further development and implementation of simple tools for project monitoring by MSOs is a priority for this project.

### Resources

The support of the Packaging Stewardship Forum was important to planning and implementing the scheme. Advice about transport was provided by Saddleirs-Nexus Logistics.

### Cost

\$20 000 cash from PSF

\$20 000 in-kind support by CAT

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### Links

<http://www.icat.org.au>

<http://www.afgc.org.au/psf/>

<http://www.saddleirs-nexus.com.au/>



*Photo courtesy of the Centre for Appropriate Technology*

# Construction of the Quorn transfer station



*This case study describes the closure of a landfill and the construction of a waste transfer station resulting in a number of benefits to the environment and human health, providing cost savings to the local government.*

## Background

The Flinders Ranges Council (FRC) lies in the heart of the Flinders Ranges in northern South Australia and encompasses the towns of Hawker, Quorn and Cradock. The majority of the population live in Hawker and Quorn.

Historically, the principal industry of the area has been primary production with the predominant land use being broadacre grazing for the production of wool and sheep. The decline of the pastoral industry has had an adverse effect on the economic viability of the towns and the area in general.

With the development of tourism in the Flinders Ranges, Hawker and Quorn have become service centres for the increasing numbers of tourists who visit the area annually. The full potential of tourism as an economic generator for the area is yet to be realised. Further development of tourism and associated support industries will increase opportunities for employment and develop the economic base of the area.

## Project description

The waste depot, in operation from 1993 to 94, lies about 2 kilometres east of Quorn. The site contained:

- four active trenches; one for household waste, two for hard waste and one for non-friable asbestos disposal and containment
- waste diversion areas
- recovered wastes in containers
- recovered materials at the entry shed area.

There were a number of reasons for closing the landfill:

- a push from the Environmental Protection Authority (EPA) to convert from trenches
- it was nearing capacity
- the EPA would not issue another licence.

### Title of project

Construction of the Quorn transfer station

### Year of project

2010–11

### Type of project

Waste transfer station

### Population/area

1940/4198km<sup>2</sup>

### Budget

\$250 000

### Sources of funding

Flinders Ranges Council and Zero Waste SA



Photos courtesy of the Flinders Ranges Council

The facility was staffed and open to the public Tuesdays, Thursdays and Sundays, however very little recycling was undertaken.

As part of the transition to meet the objectives of the state government's 'Zero Waste' strategy, a landfill closure plan was approved and acted upon for the Quorn waste depot. A resource recovery and waste transfer plan was developed, which enhanced existing arrangements and formalised the transfer of residual wastes to other licensed sites.

Design work for the transfer station commenced in February 2010 with selected tenders being called in February 2011 for the groundworks. Groundworks commenced in May 2011 and the site opened to the public in September 2011. An official opening was held on 9 December 2011.

\$120 000 funding was received from Zero Waste SA for:

- preliminary site works
- bins for on-site collection
- areas for the separation of steel, concrete/rubble and green waste
- hardstand and circulation areas
- fencing.

### Challenges

Wet weather and the theft of steel being used for the project caused some delays.

### Outcomes achieved

The waste transfer station has enabled the diversion of 300 tonnes of waste from landfill each year and meets the objectives of the state government's 'Zero Waste' strategy. The Council has achieved a very good outcome.

The potential human health issues from uncovered waste have been eliminated along with odour and litter being significantly reduced. Feral animals and pests have been eliminated.

Current opening times are Sunday 8 am to 12 pm and Wednesday 1.30 pm to 4.30 pm. The transfer station is staffed at all times when open to the public. The transfer station now enables rubbish to be separated—cardboard, co-mingled and hard waste along with areas for green waste, hard steel and concrete/rubble. Signs have been erected at the transfer station directing people to sort their rubbish prior to travelling to the site and they are directed to place rubbish in the correct areas.

No rubbish is buried at the site now. Regular disposal of each sorted compound occurs with it being recycled as much as possible.

All household waste is now deposited at an engineered, lined landfill at a neighbouring local government 60 kilometres away, while recyclable waste (cardboard, paper and co-mingled recyclables) is taken to a recycling centre at a regional centre 40 kilometres away.

The council presently offers a kerbside collection service to township residents—weekly for household waste and fortnightly for recyclables. This is provided by a contractor engaged by the council.

Cost savings will be achieved by not using council equipment and not hiring equipment for the covering of landfill cells. Furthermore, there is a reduced likelihood of fire at the transfer station as opposed to the landfill.

### Implementation

To assist residents in the clean-up of their properties, especially for the fire season, six free green waste vouchers and one hard waste voucher were included with their first quarter rate notice. These vouchers can be used at any time during the year at the transfer station to enable them to dispose of garden waste, old fridges, concrete, timber and rubble up to a tandem trailer size per voucher (with the voucher able to be used multiple times on the same day).

Council commenced a lengthy and detailed introduction program to the community of Quorn with monthly newsletters. This included informing them about the need to sort their rubbish prior to attending the transfer station and the new fees that would be charged when it opened.

### Key points to aid implementation in other jurisdictions

- Look at other local governments within your jurisdiction. Talk to the managers regarding what works well and what they would change at their site.
- Engage with your community from the start about the project and continue to inform and educate the public, up to and including the official opening.

### Tools

Monthly newsletters are published and are available via council's website [www.frc.sa.gov.au](http://www.frc.sa.gov.au). This was the main format used to provide information to members of the public.

### Resources

The council's project officer was the project manager—he assisted in the design of the layout and coordinated the contractors. Local contractors were engaged to build the facility.

### Cost

|  |                  |
|--|------------------|
| Total Cost (which includes)                    | <b>\$250 000</b> |
| Contractor: retaining walls and concrete works | \$129 500        |
| Bitumen for roadways                           | \$13 738         |

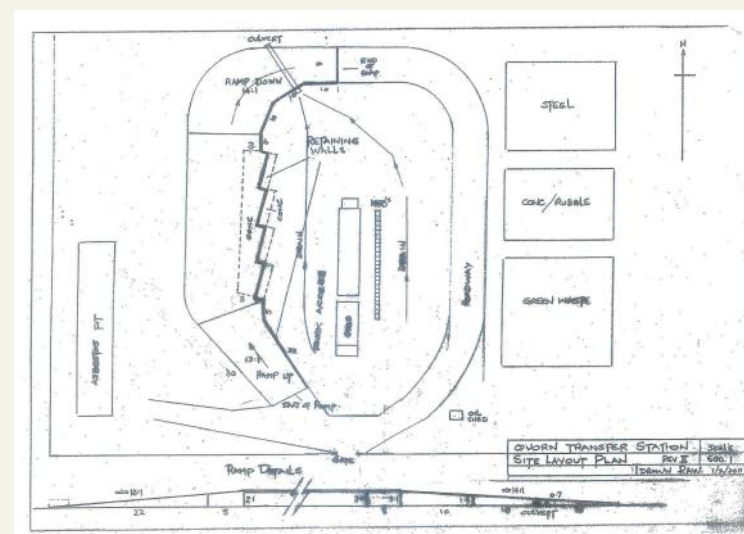
A majority of the earthworks were completed in-house by local government works staff and this represents a substantial amount of the project cost.

Bins are hired on a monthly basis and are emptied by the contractor when required for an additional cost (approximately \$2600 per month).

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*Transfer station layout plan*

### Links

<http://www.frc.sa.gov.au/page.aspx>

# Coordinated municipal services in West Kimberley Indigenous communities



*Before the introduction of this program the 49 Indigenous communities in the West Kimberley had very limited waste services.*

*This case study demonstrates that a carefully managed and coordinated regional waste management strategy can stretch limited budget allocations through savings due to economies of scale, ensuring value for money is attained, and strategic cyclical mobilisation/demobilisation of waste management plant, equipment and workforce.*

## Background

The Centre for Appropriate Technology (CAT), is a national Indigenous science and technology organisation. CAT works with remote communities across central and northern Australia. CAT's purpose is to secure sustainable livelihoods through appropriate technology.

The 49 Indigenous communities in the West Kimberley, with a population of about 3000, cover an area from the top end of the Gibb River Road to as far east as Yiyili on the Great Northern Highway.

## Project description

Previously each community received a limited budget for waste management. For the most part waste management services were limited and provided on an ad-hoc basis. Apart from the use of Community Development Employment Projects (CDEP) vehicles and workers, waste management mostly consisted of collecting waste in 44 gallon drums on tray backs. Rubbish was dumped at non-compliant community landfills where dogs scavenged and rubbish was inadequately contained.

This program has seen CAT introduce steady improvements in waste management services to approximately 3000 people in the remote Indigenous communities in the West Kimberley. All communities have been provided with standard wheelie bins to replace the 44 gallon drums they previously used.

CAT's municipal services officers (MSOs) collect the household bins using new rubbish trailers. Using a compactor truck, they make rubbish runs every two weeks to the 12 major communities in the Fitzroy Valley. Waste is disposed of at upgraded waste facilities at major communities (during 2009–10 and 2010–11 CAT refurbished or rebuilt 23 tips in the Fitzroy Valley). This has reduced the need to maintain 10 smaller community facilities. Communities not covered by the rubbish run are serviced by on-site MSOs.

### Title of project

Coordinated municipal services in West Kimberley Indigenous communities

### Year of project

Commenced 2003

### Type of project

Introduction of municipal services in remote Aboriginal communities

### Population

3000

### Budget

\$200 000 recurrent funding

\$262 000 grants for equipment etc.

### Sources of funding

Government grants



Photo courtesy of the Centre for Appropriate Technology

The MSOs are a critical component of the program. The on-site MSOs perform a range of duties around their community, in particular household and solid waste collection and disposal, minor repairs, maintenance to the plant and equipment and light maintenance to the community landfill sites.

MSOs are paid appropriate competitive rates and offered a choice of part- or full-time work (20–37.5 hours per week).

About 5–7 of the full-time MSOs constitute a mobile work crew that works on larger maintenance projects and contracts within and beyond Fitzroy Valley.

Expanding the scope of activities of MSOs through recycling has the potential to lead to the development of a small recycling enterprise in the Fitzroy Valley (in line with the CAT board's vision for sustainable livelihoods and social enterprise opportunities). In the short-term, it further expands the roles of MSOs and provides a potential for greater ownership of waste management outcomes.

### **Implementation**

CAT acknowledges that there is a significant amount of work yet to be done on community waste management in the West Kimberley, but can see improvement in community appearance, human and environmental health and safety, and community well-being through the National Job Creation program (NJCP).

Achieving a sustainable service model is not easy to implement with a limited budget, when covering such a large area of the Kimberley. CAT's success was due to:

- financial assistance from the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) incorporating the NJCP
- the professionalism and internal support network of CAT as a service provider institution, including dedication to meeting the challenges of mentoring employees who have not previously had regular employment or qualifications such as driver's licences
- the 'vision' and dedication of key personnel on the ground to see it through.

### **Key points to aid implementation in other jurisdictions**

- Foster a good relationship with funding sources and with community members.
- Indigenous employment is important in developing improved ownership of waste management outcomes. Without local employment in waste management, it would be difficult to see how change could be achieved.
- The importance of extensive mentoring (with training) by field supervisors of MSOs in achieving sustainable employment.

### **Cost**

The waste management recurrent component is approximately \$200 000 funded through FaHCSIA municipal services allocations and initiatives of other government departments based in the Derby Indigenous Coordination Centre. In addition, CAT has successfully applied for \$262 000 in grants over 18 months, to purchase waste management plant and equipment.

CAT's work in the Kimberley has attracted further grant opportunities. The Western Australian Waste Authority community grants scheme recently awarded \$20 000 to CAT for community engagement, rubbish planning and signs at the communities of Yiyili and Muludja near Fitzroy Crossing. Small waste separation and recycling initiatives have also been funded (see case study 18—Fitzroy Valley Indigenous communities recycling pilot).

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*Photos courtesy of the Centre for Appropriate Technology*

# Anangu Pitjantjatjara Yankunytjatjara (APY) Lands waste management trials project



*This case study describes the waste management trials project that was identified when developing a waste management plan for the APY Lands. The project involved the trialling of certain initiatives on the Lands, before recommending them in the waste management plan.*

## Background

The APY Lands cover an area of more than 105 000 square kilometres and are located in the far north-west corner of South Australia, about 400–900 kilometres south-west of Alice Springs.

The APY Lands are inhabited by approximately 3000 Indigenous persons known as Anangu who live in 13 main communities and a number of smaller homeland settlements. From the eastern to western boundary of the lands there are approximately 550 kilometres of unsealed, poor quality roads.

## Project description

In 2007 Zero Waste SA engaged consultants APrince Consulting Environmental Management to develop an interim waste management plan and implementation plan for the APY Lands to address the significant environmental and social problems caused by inefficient waste management. An interim report was produced in 2009.

The need for the waste management trials project was identified during the initial development of the APY waste management plan.

It was determined that it would be inappropriate and unwise to recommend the uptake of certain initiatives on the lands if they have not been trialled or tested.

In August 2008, Zero Waste SA submitted a project proposal to the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) to implement a waste management trials project on the APY Lands. The purpose of the project was to trial and test different infrastructure and waste management approaches and to determine the best 'fit for purpose' waste management solutions for the lands. The project has sought to develop a strategic approach to:

- reduce waste
- increase recovery and recycling of resources
- improve landfill management across the APY Lands.

### Title of project

APY Lands waste management trials project

### Year of project

2008–11

### Type of project

Waste reduction

### Population/area

3000/105 000km<sup>2</sup>

### Budget

\$600 000

### Sources of funding

Zero Waste SA

FaHCSIA



Photo courtesy of Zero Waste SA

### Challenges

- Waste management is often not given the status of an essential service, therefore has often not been funded or resourced adequately.
- Existing staff are over-committed with other competing priorities.
- There is constant staff transition.
- There is a lack of corporate knowledge.
- Agencies (including government) and service deliverers focus only on their core obligations.
- There are unrealistic expectations for deliverables and timeframes.
- There are delays in accessing specialist services and/or equipment due to remoteness.
- The limited road conditions impact on vehicles, equipment and timeliness of service delivery.
- There are limited accommodation options.
- There are limited communication options (e.g. internet and fax often down).
- There are difficulties in ensuring that contractual obligations for services and entry permit conditions are met.
- There are difficulties in ensuring the budget is made available to implement recommendations.

### Outcomes achieved

A summary of the waste management trials and projects is provided below:

| Project                                      | Description  | Location        |
|--|--|-----------------|
| Household bins                               | Trialling the use of rubbish bins within houses with accompanying germ theory training to determine the 'why' aspect.  | Kalka           |
| Community bin collection trailer             | Comparing the use of trailer vs compactor truck rubbish collection.  | Kalka           |
| Cardboard baler                              | Baling cardboard from a main store to test recycling logistics.  | Fregon          |
| 10c container collection                     | Working through schools to collect discarded beverage containers to obtain a refund.   | All communities |
| Kerbside collection for recyclables          | Using crates for staff housing to collect recyclables.   | Umuwa           |
| Car and whitegoods stripping                 | Working to establish a viable small business for car and whitegoods stripping (incomplete).  | Kenmore Park    |
| Bin stands and wheelie bins for public areas | Installing bins with bin stands for public place areas to prevent burning of rubbish in 240 gallon drums and knocking over by animals.   | All communities |
| Source separation areas for landfills        | Establishing areas at community landfills to allow for separation of building materials, furniture, car parts, timber and bulky items.   | All communities |
| Car body removal                             | Removing approximately 3000 abandoned and burnt-out vehicles from APY Lands communities and landfills. This represented the largest car removal project ever attempted on the lands. | All communities |

### Implementation

Successes for aiding implementation have included:

- allowing extensive consultation and engagement with all stakeholders and community members
- adopting a listening and learning approach
- building relationships with key stakeholders
- allowing considerable on-ground time (about seven months in three years)

- recognising that western concepts (and in some cases language) can't necessarily be transferred (e.g. there is no Anangu word for 'recycle')
- researching and reviewing what others have done and what has been done in the past
- applying 'fit for purpose' solutions
- using Anangu language and skills
- hiring an Anangu project translator, guide and advisor.

### Key points to aid implementation in other jurisdictions

- Waste management practices that are adopted in metropolitan and rural communities are not necessarily transferable into Indigenous communities (e.g. mechanical waste compactor trucks).
- Many of the successes and challenges listed above need to be taken into account when implementing projects in Indigenous and remote Indigenous communities.
- Projects working in remote and remote Indigenous locations require flexible project and implementation plans. This may include the requirement to amend project scope and objectives on the run and carry over project funding between financial years.
- Using local knowledge and contracting a respected local to aid in project implementation is critical to its success.

### Tools

Numerous tools used in the implementation of this project are included in the appendices section of the final waste management report.

Tools include:

- translated community education posters
- bin stand design and installation details
- sample landfill environment management plan
- resource separation area designs.

### Resources

This project used the resources of the Aboriginal Resources and Development Services Inc. germ theory education.

[www.ards.com.au](http://www.ards.com.au)

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Photo courtesy of Zero Waste SA

### Project partners

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State Administration Centre

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ADELAIDE SA 5001

08 8226 3560

Department of Families, Housing, Community Services  
and Indigenous Affairs

GPO Box 9820

ADELAIDE SA 5001

08 8318 2100

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### Links

The project was recently featured on the SBS Indigenous Affairs  
show 'Living Black' and SBS World News (April 2010).

[www.sbs.com.au/livingblack](http://www.sbs.com.au/livingblack) and <http://www.zerowaste.sa.gov.au/>



Photos courtesy of Zero Waste SA

# Nhulunbuy waste disposal site redevelopment



*This case study describes the redevelopment of a poorly managed landfill to an award winning landfill and recycling centre.*

## Background

The Nhulunbuy Corporation Ltd is a public company limited by guarantee that manages the township of Nhulunbuy, industrial estate lease and the Gove Airport in a similar manner to that of a local government in any other towns of comparable size. The corporation employs its own staff and is managed by the town administrator. The corporation's principal continuing activities consist of the provision of municipal services to the town residents. Gumatj Waste Management Pty Ltd is a wholly owned subsidiary of Gumatj Corporation Ltd, which is the business arm of the Gumatj Clan of East Arnhem land.

## Project description

The Nhulunbuy Corporation Ltd's waste disposal site caters for the needs of a town of 4500 people located on the Gove Peninsula in north-east Arnhem land. The town has developed as a result of the bauxite mine and refinery operated by Rio Tinto Alcan. The disposal site is about 5 kilometres from town and has a 30-year life. It services the town of Nhulunbuy, three local Yolngu communities and the light industrial area which caters for the needs of the town and mine/refinery. The landfill receives 23 000 uncompacted cubic metres of municipal solid waste, 9000 uncompacted cubic metres of green waste, 15 000 cubic metres of construction and demolition waste, 120 cubic metres of tyres and 16 000 litres of oil annually.

In July 2007, Gumatj Waste Management Pty Ltd, a Yolngu company, took over the disposal site contract. They immediately began rectification work aimed at eliminating a number of significant environmental problems. Firstly, drainage was installed that eliminated the majority of the water issues and the existing cells were covered to eliminate the fly problem and reduce the odour. Once this was completed, a new properly engineered cell was developed. The procedures for disposal into this cell were tightened and the waste disposed was regularly covered to ensure that flies and smell were minimised.

### Title of project

Nhulunbuy waste disposal site redevelopment

### Year of project

2007

### Type of project

Landfill management

### Population

4500

### Budget

\$450 000 pa (excluding GST)

### Sources of funding

Nhulunbuy Corporation Ltd



*Photo courtesy of Nhulunbuy Corporation Ltd*

The batteries and steel were stockpiled in a designated area and then transported off-site for recycling. In the past, there had been issues with leakage of acid from stockpiled batteries, however with the development of a designated area for battery storage, leakage was no longer a problem.

When the disposal site contract was taken over in 2007, there was a stockpile of 8000 tyres. The Nhulunbuy Corporation Ltd in association with the Federal and Northern Territory governments and Rio Tinto Alcan, purchased a tyre shredder and constructed a purpose-built shed to house the equipment. The machine was installed in 2009 and promptly went to work on the stockpile. It took three years to eliminate the stockpile of tyres. At the end of the process, the equipment has had to be extensively repaired due to the wear and tear on the moving parts of the shredder. It was expected that the tyre shredder would be back in service in mid-2011, however a lack of available parts and specialist labour has resulted in significant delays.

In addition to the major actions described above, Gumatj Waste Management Pty Ltd reorganised the refuse site to consolidate specific types of rubbish into manageable areas, introduced a recycling scheme that mulched green waste, set up a recycling area and established a concrete storage area where non-reinforced concrete could be stockpiled for later use in drainage areas or crushed for industrial purposes.

The end result was an award-winning site which won the Northern Territory Tidy Towns Award in 2010. Gumatj Waste Management Pty Ltd has eliminated the smell and fly problems, rectified the other health issues centred around poor drainage and cell development and has established itself for the next phase of development. The next phase of development will focus on recycling. The corporation and contractor are considering applying for the Northern Territory Government's Cash for Cans initiative, the safe disposal of asbestos and proper green waste recycling.

The partnership has been rewarding as it has resolved major environmental issues, delivered cost-effective refuse disposal services and ensured that the site will be operational for the full 30-year lease life.

### Challenges

In 2007, when Gumatj Waste Management Pty Ltd took over the operating of the waste disposal site, there were a number of significant environmental problems which needed rectifying:

- major drainage problems
- poorly constructed, open refuse pits that were flyblown, emitting an incredible stench and open to the prevailing winds that were spreading rubbish across the site and into surrounding areas
- a stockpile of 8000 tyres
- 50 pallets of used batteries that were not kept in a suitable location
- scrap steel was lying over an extensive area of the site.

### Outcomes achieved

- The landfill has been reorganised into a more efficient and effective operation.
- The site is tidy and aesthetically pleasing. Odour and litter have been largely eliminated. Feral animals and pests have been significantly reduced.
- Stockpiled tyres, batteries and steel have been eliminated.
- The drainage issues have been resolved.
- Potential human health issues from uncovered waste have been eliminated.
- Fencing of the site has minimised the risk of dumping inappropriate waste.
- Rectification work has set the site up for future development.
- The site won the 2010 Northern Territory Tidy Towns Award for best refuse site.

### Implementation

Gumatj Waste Management Pty Ltd took a strategic approach to the rectification project. They determined a range of steps required to eliminate the identified problems and then proceeded to implement these smaller processes over a period of time. The waste site disposal issues were prioritised by the importance of the issue and the subsequent impacts on other problems that were occurring. For this reason, they tackled the drainage issues first before moving on to other areas.

The use of this methodology has resulted in redevelopment of the Nhulunbuy waste disposal site. It ensured effective and strategic use of resources, while allowing continued operation of the waste disposal areas. Above all, it delivered a high quality operating area that has been recognised as best practice in the Northern Territory.

### Key points to aid implementation in other jurisdictions

- Maintain a strong partnership between the contractor and the organisation.
- Have a well-developed environmental management plan.
- Appropriate equipment is needed to undertake the job.
- High quality staff in both organisations fosters best practice.
- An effective tender process helps to identify the best practice operator.

### Resources

- good staff
- strong procedures and policies
- quality machinery.

### Cost

The contract price for 2012, under the new three-year contract, is \$450 000 excluding GST (2011 actual was \$450 352). This cost will increase by CPI annually. There are small sums of money paid by the Nhulunbuy Corporation for maintenance on corporation vehicles and equipment. In 2011 the actual cost was \$22 530.



*Photos courtesy of Nhulunbuy Corporation Ltd*

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**Links**

The following link takes you to the website of the  
Nhulunbuy Corporation Ltd.  
<http://ncl.net.au/>



*Photo courtesy of Nhulunbuy Corporation Ltd*

# The establishment of a waste facility for the shires of Kondinin, Kulin, Corrigin and Narembeen in Western Australia



*The ROE Regional Organisations of Councils was officially formed in 2006 and is made up of the four shires of Corrigin, Kondinin, Kulin and Narembeen.*

*This case study describes the establishment of a regional waste facility, the closure of nine existing landfills and the development of five transfer stations on closed landfill sites.*

## Background

Although officially formed in 2006, the ROE group of neighbouring shires have had a close relationship for many years. They are located 250 to 300 kilometres south-east of Perth and occupy the eastern portion of the central wheatbelt. The majority of the economy is based on sheep and grain production, with cattle farming and tourism. There is also high-grade nickel mined in the eastern section of the Shire of Kondinin.

The local governments share the services of the Eastern district regional environmental health officer.

## Project description

Originally there were nine landfills located within the four shires. In 2005, the shires decided to establish a regional waste facility that was accessible to all of the shires. A suitable site was located about 15 kilometres north of Kondinin. The 64 hectare site was owned by a local farmer who was willing to sell it to the four shires. As only 14 hectares are currently used, the remaining 50 hectares are leased back to the farmer for land management purposes.

### Title of project

The establishment of a waste facility for the shires of Kondinin, Kulin, Corrigin and Narembeen

### Year of project

Commenced 2005

### Type of project

Development of a regional waste facility

### Population/area

4600/19 000km<sup>2</sup>

### Budget

\$178 700 (plus cost of transfer station)  
\$120 000 each (approximately)

### Sources of funding

Wheatbelt Development Commission  
Waste Authority  
ROE ROC Members



*Photos courtesy of Shire of Kondinin*

Requirements for a regional waste facility:

- no public access
- three groundwater monitoring bores
- access road built to a suitable standard
- fencing and lockable gates
- planting of tree belts during the first winter
- on-site facilities, e.g. shed, toilet, water tank etc.
- future plans include a weighbridge.

Transfer stations:

- closure of all existing nine landfill sites
- five transfer stations constructed and operating
- fenced and managed
- restricted opening hours.

### Challenges

In 2000, two of the shires (Kondinin and Kulin) were looking to develop a joint landfill facility that was equidistant between the towns. In 2003, the then Department of Environment inspected the Kondinin facility and found that the site was getting perilously close to the watertable and recommended that it be moved. At the same time, the other three shires found their landfill sites were nearing capacity and needed new sites. Additionally, in 2000 and 2006, the Kondinin Lake flooded which resulted in flooding of the Kondinin landfill trenches causing significant environmental and health concerns.

### Outcomes achieved

The regional waste facility and transfer stations are managed by a private operator who has been awarded a five-year contract. The contractors are now three years into their contract and have filled two trenches of about 100 metres by 6 metres by 5 metres deep and one trench of 50 metres by 6 metres by 5 metres. A fourth trench of about 100 metres by 6 metres by 5 metres is nearing capacity. The site is fully operational with transfer stations built in the towns of Kondinin, Hyden, Kulin, Narembreen and Corrigin to collect the waste and sort the recyclables before it is taken to the regional waste facility. The waste facility is locked and only accessible by the contractor and the four local governments.

A town kerbside recycling service was introduced into all the local government areas and the ratepayers have enthusiastically embraced recycling. A recycling service has also been offered to rural householders with a very positive response. Rural landholders purchase a recycle bin and take it to the transfer stations when full. They leave it there and take an empty bin back with them. As a result of the recycling service, waste trucks can now travel much further before having to return to the waste facility.

At present, any items that are of value or can be re-used are stored in a shed on-site by the waste transfer attendant and residents can do what they want with it. Some residents use these items to source spare parts, especially for lawnmowers. Recently, a 100 tonne solar-powered weighbridge was installed at the facility.

### Key points to aid implementation in other jurisdictions

- work towards a common goal
- have the site administered by one local authority.

### Cost

\$178 700 This does not include the cost of the transfer stations, which are expected to average \$120 000 per station.



*Photos courtesy of Shire of Kondinin*

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*Photos courtesy of Shire of Kondinin*

## Denmark tip shop and recycling centre



*The Shire of Denmark has a population of about 5500 and is located on the south coast of Western Australia, 400 kilometres south of Perth.*

*This case study shows how a committed not-for-profit community group, focussed on a sustainable future, has diverted more than 3500 cubic metres of waste from landfill and provided a community with a valued educational resource.*

### Background

Green Skills is a registered not-for-profit organisation committed to developing and managing environmental projects that assist communities to effectively implement a vision for a sustainable future.

The operations of the centre fit in with the overall waste management activities of the Shire of Denmark.

### Project description

The Denmark tip shop, based at the MacIntosh Road waste transfer site 5 kilometres outside of Denmark, was established by Green Skills in 2001 with the approval and support of the Shire of Denmark. It provides important social and environmental services to the local community. It supports low income families and community projects and operates with the support of six part-time paid employees, two 'work for the dole' workers, about eight occasional volunteers, funding and in-kind support.

The facility was expanded in 2003 with the construction of an additional undercover area. It was expanded again in 2009, when a new shed was built that enabled the facility to display larger items such as whitegoods, furniture and other items that could be damaged by the weather.

In 2009 the Walpole work camp of the Western Australian Department of Corrective Services provided a demountable building which has been fitted out as a recycling education facility with a classroom, secure storage area and kitchen. The site also includes an appropriate technology section which demonstrates the use of worm farms and other technology which will reduce waste and enhance sustainability.

#### Title of project

Denmark tip shop and recycling centre

#### Year of project

Commenced 2001

#### Type of project

Regional recycling and community education

#### Population

About 5500 (approximately)

#### Budget

\$150 000 (2011)

#### Sources of funding

Sales  
Waste Authority of Western Australia  
The Foundation for Rural and Regional Renewal  
The Community Arts Network  
Lotterywest  
The Great Southern Development Commission



Photo courtesy of Green Skills Inc

This section of the facility includes:

- a demonstration solar dryer
- worm farms
- other innovative appropriate technology demonstration sites
- a program to work with local restorers to display repaired furniture and other items.

The Tiporium Teahouse was established in 2010 using second-hand furniture and kitchen equipment. This casual café enables people to make a cup of coffee or tea while visiting the centre.

The tip shop 'funk junk music' section provides 'junk' musical instruments for visitors to play and regular funk junk music sessions are run at the tip shop. The tip shop works with Denmark Arts, Tha House and other organisations to run cultural and recycling education projects which are linked to the tip shop. Additionally, they hold exhibitions, performances and installations at the tip shop in music, stencil art, writing and sculpture.

In its first year of operation the tip shop diverted 100 cubic metres from landfill. In 2011, figures collated for the facility indicated that about 300 cubic metres volume of material was diverted from landfill.

The tip shop staff collect statistics about the use of the facility to help assess its effectiveness and so they have data to use when preparing grant applications and reporting back to funding organisations. On a daily basis, data is collected on:

- volume out (sales), volume to waste transfer area, and volume from waste transfer area
- financial income for the day
- number of batteries recycled (car size).

Data is also regularly recorded on the volume of aluminium and other metal recycled. Green Skills would like to extend this data collection to include more accurate surveying of waste diverted from landfill, as well as gathering a range of other information about visitor usage, intentions and recommendations for this facility.

### Challenges

Green Skills has had to overcome a range of financial and operational challenges in setting up and running this facility. While the Shire of Denmark has provided some support towards establishing new sheds, no additional running costs are provided. Green Skills is currently negotiating with the local government for a long-term lease which would secure the future of this community-based enterprise.

### Outcomes achieved

By 2011, the tip shop community hub included:

- a re-use and resale centre comprising three sheds and outdoor areas
- a tip shop education facility
- appropriate technology displays and wormery
- a social area
- recycled music instrument display.



*Photo courtesy of Green Skills Inc*

### Implementation

Funding has been received from a number of bodies to assist with the development and implementation of various projects:

- new large, multi-purpose shed with concrete floor and electricity connection
- establishment of an education facility and resource centre
- composting toilet for public use
- rainwater tank
- preparation and progressive implementation of a community enterprise and educational strategic plan.

### Key points to aid implementation in other jurisdictions

Green Skills welcomes inquiries from other rural communities on how to set up and run re-use and resale centres.

For more information see <http://denmarktipshop.wordpress.com/about/> or [www.greenskills.org.au](http://www.greenskills.org.au).

### Cost

Green Skills operates the Denmark tip shop on an operational budget of about \$40 000 per year, but with funding totalling about \$150 000 for facilities and education programs over the past decade. During 2011 there was approximately \$75 000 spent on new infrastructure and educational programs and \$40 000 on operational costs.

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### Links

[www.greenskills.org.au](http://www.greenskills.org.au)

<http://denmarktipshop.wordpress.com/about/>

[www.denmarkcsl.com.au](http://www.denmarkcsl.com.au)



Photo courtesy of Green Skills Inc

# Public place recycling and resource recovery program for the Shire of Wyndham East Kimberley



*Baling aluminium cans and public place recycling is now available in the remote north-east of Western Australia.*

## Background

The Shire of Wyndham East Kimberley is located in the remote north-east of Western Australia, 3200 kilometres from Perth. It includes the towns of Kununurra and Wyndham and has a population of 7662 covering an area of 121 189 square kilometres.

Australian Government funding was provided through the Regional and Local Community Infrastructure program.

The Packaging Stewardship Forum (PSF) of the Australian Food and Grocery Council also provided funding towards this project.

## Project description

The aim of the project was to establish a drop-off facility at the local landfill site in Kununurra, for the recycling of aluminium cans, and to introduce public place recycling for aluminium cans. It saw the collection of aluminium cans from the community and the purchase of a mobile can baler. The baler has been built onto a trailer, making it fully transportable and allowing it to be used in neighbouring Indigenous communities as well as the larger East Kimberley townships of Kununurra and Wyndham.

The aluminium can baler, which was installed in July 2011, has diverted 3 tonnes of cans from landfill to date. It is anticipated that the baler will divert 6 tonnes of aluminium cans from landfill each year—equivalent to almost 205 000 cans. The baled cans are transported to Darwin for recycling. In the future, the baler will be used for plastic bottles and cardboard.

A shed to house collected cans and other recyclables at the local landfill has been installed. Additionally, two unique public place can cages will be installed. These have been designed for strength, durability and ease of can removal. If successfully used by local businesses and the community, more cages will be installed making it easier for the community to recycle. Broadening collections to other recyclable materials will also be considered.

### Title of project

Ram can baling and public place recycling

### Year of project

June 2010 – June 2012

### Type of project

Regional recycling

### Population/area

7662/121 189km<sup>2</sup>

### Budget

\$120 000

### Sources of funding

Australian Government Regional and Local Community Infrastructure Grant  
PSF Grant



*Photo courtesy of Shire of Wyndham East Kimberley*

### Challenges

By far the biggest challenge has been staff turnover as people involved in the project leave. There has been a delay with the public place cages due to staff turnover but they are awaiting signs and will be installed shortly.

Communication is also a challenge and having a champion to drive the project is the key to success.

### Outcomes achieved

- A facility and infrastructure for the collection, baling and storing of aluminium cans for recycling has been established.
- Two recycling cages for the public place collection of aluminium cans for recycling have been manufactured and installed.

### Implementation

No major issues occurred during the implementation of the project, however it did run behind schedule due to inclement weather with a record wet season that slowed the construction of the shed.

The following recommendations are based on hindsight:

- leverage the funding so that more than one waste stream can be recycled
- get the public place recycle bins in place earlier
- provide presentations at the school to encourage the students to get involved.

Although regular and different forms of communication were used, more emphasis should have been placed on communication to ensure that the community is aware of the project to guarantee the volume of recyclables desired and to reduce contamination.

### Key points to aid implementation in other jurisdictions

- In remote areas it is always best to purchase infrastructure that can perform more than one task. The can baler purchased by the shire for this project is transportable and can also process other waste streams such as plastic bottles and cardboard.
- People will recycle if you give them the opportunity and make it easy for them. Removing barriers such as the need to rinse, remove lids, etc. assists people to recycle.
- Local governments have limited funding and resources to achieve projects outside of their legislative or regulatory requirements. There are often opportunities for community or staff to use external or internal funds as leverage to obtain more funding, adding to the total money available for a project.
- Ensure there is a driver for the project—someone who believes in the project and wants to see it through.
- Talk to other people in similar situations, local governments and community groups to see what projects they have successfully undertaken and how they achieved them.

### Resources

The following communication resources were used:

- media releases
- open days and demonstrations
- display at the Kununurra Agricultural Show
- 'Do the Right Thing' stickers installed on bins and baler
- signs will be installed on public place cages.

**Cost**

|                 |                  |
|-----------------|------------------|
| Shed            | \$70 000         |
| Ram can baler   | \$35 000         |
| Other materials | \$ 5 000         |
| In-kind support | \$10 000         |
| <b>TOTAL</b>    | <b>\$120 000</b> |

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**Links**

<http://www.swek.wa.gov.au/>  
<http://www.afgc.org.au/psf/>



*Photo courtesy of Shire of Wyndham East Kimberley*

# Construction of two free resource recovery centres at Millicent and Penola in the Wattle Range Council in South Australia



*This case study illustrates the benefits to residents and the environment of the construction of two free resource recovery centres (RRCs) developed in the Wattle Range Council in lower south-east South Australia.*

## Background

Wattle Range Council is located in the lower south-east of South Australia, 400 kilometres from Adelaide. The council has a population of more than 12 500 spread over an area of 3950 square kilometres that includes 13 townships.

The major industries in the region are forestry, logging and broadacre agriculture. Other important industry includes fishing in the coastal areas and vineyards and wine production in the Penola/Coonawarra region.

## Project description

Wattle Range Council adopted a waste management plan in 2006, after examining the way that waste was being managed, to move towards sustainable waste management practices in the future. There were several critical issues requiring a new approach including the increased understanding of the environmental issues associated with landfills, the increased availability of recycling opportunities and the increased significant costs associated with waste management. A number of initiatives have flowed from the waste management plan, including the construction of two RRCs.

The Canunda (Millicent) and Towers Road landfills (Penola) were closed in 2011 due to both reaching capacity and as a result of the requirements of the Environmental Protection Authority. The RRCs are free to use by residents of the Wattle Range Council. Residents can take their segregated waste to the facilities and dispose of it at no cost. Waste is deposited into large bulk bins from an elevated hardstand. The bins are periodically transferred by council contractors to the landfill at the regional centre in Mount Gambier. The RRC site is staffed part-time, open four days a week and is fenced to reduce litter and pests. At the RRC, waste is separated into green waste, glass, cans, plastics, cardboard, metal and electrical waste and then sent to recyclers. Batteries, used oil and chemical containers are also accepted.

### Title of project

Construction of free resource recovery centres

### Year of project

2010–11

### Type of project

Regional recycling

### Population/area

12 500/3950km<sup>2</sup>

### Budget

\$1 104 006 Millicent

\$1 076 232 Penola

### Sources of funding

Zero Waste SA

Wattle Range Council



Photo courtesy of Zero Waste SA

## Challenges

The major barriers to successful recycling within the council area have been the small volumes and inconsistent supply of waste compared to large urban centres. The large distances residents have to travel and the ever-increasing costs of waste dumping, transport and handling have also compounded the situation.

Initially residents did not understand that they had to segregate their own waste, however education from the RRC staff and word-of-mouth from other users helped to reduce this issue.

## Outcomes achieved

- Odour and litter have been significantly reduced. Feral animals and pests have been reduced.
- Potential human health issues from uncovered waste have been eliminated.
- Potential environmental risks caused by an unlined landfill have been minimised.
- Anecdotal evidence suggests that the transfer stations are being used more often due to there being no cost and that this in turn may be helping to reduce illegal dumping.

## Implementation

Engaging with the community and advising residents throughout the process of this project enabled the smooth transition from the old landfill sites to the new RRCs.

Media releases were sent out about the new RRCs and information pamphlets with all applicable information were sent to residents with their rates renewal notices.

## Key points to aid implementation in other jurisdictions

- Produce information pamphlets for residents and customer service staff.
- Incorporate e-waste, drumMUSTER, etc. within the new centres.
- Have a list of alternative businesses that take cans and bottles, asbestos, industrial waste, etc. as an alternative to waste disposal options.

## Resources

Wattle Range Council received a grant totalling \$150 000 from the Zero Waste SA regional implementation program in 2006–07. This funding was used to develop the two RRCs.

Assistance was provided by the Local Government Association of South Australia with regards to the design and layout for a RRC and waste transfer station. An engineering consultancy was engaged to develop the design for the transfer station. Local contractors were engaged to build the facility.

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## Links

[www.wattlerange.sa.gov.au](http://www.wattlerange.sa.gov.au)

Resident information sheet *Managing waste in Wattle Range Council* – [http://www.wattlerange.sa.gov.au/webdata/resources/files/Waste\\_Management\\_newsletter\\_for\\_residents\\_020611\\_2.pdf](http://www.wattlerange.sa.gov.au/webdata/resources/files/Waste_Management_newsletter_for_residents_020611_2.pdf)

Resident information sheet *Disposal of waste in line with EPA guidelines* – [http://www.wattlerange.sa.gov.au/webdata/resources/files/Waste\\_Management\\_booklet\\_for\\_residents.pdf](http://www.wattlerange.sa.gov.au/webdata/resources/files/Waste_Management_booklet_for_residents.pdf)

# Benalla Rural City Council: Rollout of a recycling service within rural areas of the municipality



*This case study describes how the introduction of kerbside recycling throughout the rural areas of the Benalla Rural City Council municipality has resulted in reduced illegal dumping of waste and cost savings from the decommissioning of 19 rural recycling depots.*

## Background

Benalla Rural City Council is located 200 kilometres north of Melbourne and includes the township of Benalla and the communities of Baddaginnie, Devenish, Goorambat, Swanpool, Tatong, Thoona and Winton. The rural city has a population of 14 000 (9000 within the urban area of Benalla and 5000 living in the rural areas) comprising 235 059 hectares of land covering 41 localities. The rural city is serviced by the Hume Freeway, a major route between Melbourne and Sydney, as well as many major roads leading to other regional centres.

## Project description

Until 2010, the council had maintained 19 rural recycling depots throughout the municipality to service the rural landholders who did not have a kerbside recycling collection. The depots were unstaffed, signed areas with a number of recycling bins available for the disposal of recyclables. They were regularly vandalised and became a dumping ground for a variety of non-recyclable waste including electrical goods, chemical containers and asbestos. In 2010, in an attempt to mitigate the illegal dumping and to provide best practice recycling to the whole of the municipality, the council extended its kerbside recycling program to include the rural areas and decommissioned the 19 rural recycling depots.

## Challenges

The rural areas of the municipality are a significant distance from the town centre of Benalla and this in the past has been a limiting factor to providing kerbside recycling services. Many of the households in the rural areas are remote and difficult to access because of the distance or standard of roads.

## Outcomes achieved

- The rural recycling depots were decommissioned at a saving of about \$60 000 per annum.
- A kerbside recycling service was rolled out to all rural ratepayers.
- A reduction of illegal dumping at these sites and throughout the municipality was noted.
- Recycling was provided at no extra cost to ratepayers without an existing service.
- A minimisation of contamination in refuse bins was noted.
- There was an increase in recycled materials from 99 tonnes per month to 130 tonnes per month.

### Title of project

Benalla Rural City Council: Rollout of a recycling service within the rural areas of the municipality

### Year of project

2010

### Type of project

Regional recycling

### Population/area

14 000/235 059 hectares

### Budget

Cost neutral



## Implementation

The rural community were positive about the roll-out and there was a smooth transition from rural recycling drop-offs to a household recycling service. The various rural communities were grateful for a kerbside collection as many perceived it as more convenient and efficient in terms of time, ease of use and recovery. A strong partnership with Cleanaway meant the roll-out of the new household recycling bins was a success.

## Key points to aid implementation in other jurisdictions

- Strong communication with community and waste providers meant that everyone involved in the process was aware of what was occurring and the expected timelines.

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*Photo courtesy of the Benalla Rural City Council*

## Links

[www.benalla.vic.gov.au](http://www.benalla.vic.gov.au)



# The Shire of Capel waste transfer station



*This case study shows how an existing landfill operation was converted to a waste transfer station resulting in significant reductions to odour and windblown waste, and elimination of potential groundwater contamination.*

## Background

The Shire of Capel delivers municipal services to an estimated 15 700 people across multiple towns, rural and semi-rural localities occupying an area of 554 square kilometres. The local government is located 212 kilometres south of Perth, Western Australia. Commercial operations within the local government area include dairy and beef farming, horticulture, viticulture, timber production and mineral sands processing. It is listed as the fastest growing local government area in Western Australia with a growth rate of 5.4 per cent for the year 2009–10.

## Project description

The local government operated a small, unlicensed landfill from the mid-1950s until 1997 when the site became a licensed, class 64 putrescible landfill, until operations as a landfill ceased in 2006. The history of the site shows that up until the early 1990s it was unstaffed, unsecure and unlined with little known or recorded about the waste types that were disposed of during this time.

Due to capacity issues, rising costs and environmental impacts, it was decided in late 2006 to cease burial of domestic household waste and transition to a transfer station. The site was open to self-carted domestic waste until 2009 when it was deemed to be full and closed as a landfill site. The post-closure plan for the site was implemented during this period with the site being covered with 500 millimetres of clay and topped with 500 millimetres of sand. The clay came from a stockpile at the closed Boyanup landfill site and the sand came from a large stockpile of topsoil that was surplus to requirements at the Dalyellup housing development. Total approximate cost of the post-closure was \$650 000. The money for the post-closure came from a waste management levy that was introduced in the late 1990s with the funds generated being placed in a reserve ready for the post-closure and construction of the transfer station.

The site commenced operations as a temporary transfer station in 2009 while the permanent transfer station was constructed, with all waste types transferred off-site. There were drawbacks to the temporary solution as it did not follow best practice guidelines. Waste was dumped directly onto a hardstand area and then loaded into 40 cubic metre hook lift bins. Also, due to an increase in waste volumes and non-separation of putrescible waste from recyclables, amounts of putrescible waste was being left uncovered for several days, mainly on weekends, which was when most of the waste was dumped.

### Title of project

The Shire of Capel waste transfer station

### Year of project

2011

### Type of project

Regional recycling

### Population/area

15 700/554km<sup>2</sup>

### Budget

\$500 000

### Sources of funding

Shire of Capel

Grants (unspecified)

The bins were emptied three times a week, a total of six, forty cubic metre bins. The loose waste increased the amounts of windblown waste leaving the site and affecting adjacent properties. There were also issues with odour, feral animals and potential human health risks.

In early 2011 the local government opened the site as a transfer station with an emphasis placed on recycling. The transfer station allows residents to dispose of their putrescible waste directly into large bins from an elevated hardstand and provides recycling facilities for many types of recyclable waste including; cardboard and paper, plastics, used wet-cell batteries and scrap metal. The local government also promotes waste reduction schemes and provides facilities for the disposal of e-waste, used engine oil, hazardous household goods and drumMUSTER. The transfer station is open five days per week and is staffed at all times.

### Challenges

Prior to opening a transfer station, the local government faced issues of reduced landfill capacity, increasing waste production from a rising population, adverse environmental impacts (e.g. odour and potential groundwater contamination) and rising operational costs.

Operating as a temporary transfer station before construction of the permanent facility was not without problems as best practice guidelines were not followed. Windblown waste affected neighbouring properties and putrescible waste was uncovered and mixed with recyclables, which attracted feral animals and posed potential health risks.

A residential subdivision of 144 lots was approved with a large percentage of the lots either facing the site or on the transport route to the site. There was a sign placed on the titles of the lots warning that the area was bounded by the shire depot landfill site on the southern side and a light industrial area on the northern side. Unfortunately, some people moving into the area were not aware of the operation of the site which led to a number of complaints.

### Outcomes achieved

- Putrescible waste is no longer left exposed or disposed of at the site.
- Odour and windblown waste have both significantly reduced.
- The potential to contaminate groundwater has been eliminated (groundwater monitoring remains in place until identified contaminants have returned to background levels).
- Security fencing was installed to reduce illegal entry and dumping and has provided greater control over the waste entering the facility.
- Recycling of cardboard, paper, plastics, glass, aluminium cans, green waste and scrap metal has reduced the quantity of material sent to landfill.
- Waste reduction schemes have been introduced for e-waste, hazardous household goods, waste oil, and the drumMUSTER program.
- Operating expenses have been reduced as a result of the user-pays system.

### Implementation

Landfill operations for the domestic waste pick-up ceased in 2006 but the site continued to accept waste from domestic dwellings until 2009 and a permanent transfer station was only partially operational in 2010. Delays due to the lack of funding for the hardstand, concrete pad and recycling shed have resulted in the site not being fully operational at the time of providing the case study.

### Key points to aid implementation in other jurisdictions

- Visit similar facilities to gain insight into how best to develop the site.
- Ensure sufficient funding is available before commencing the project.
- Consult with the community from the very beginning and either manage or resolve issues before implementing changes.
- Brief other affected parties (e.g. government departments) so that they are prepared for enquiries about the project and provide consistent advice.
- Engage with potential contractors early in the process to avoid issues arising with the removal/disposal of waste from the site.

### Resources

The following resources were used in the project:

- engineering consultancy for the design of hardstand and concrete bays
- surveyor for road layout
- waste management company for advice on site design
- local contractors and shire operatives for construction.

### Cost

\$411 522 has been spent to date with an estimated \$120 000–\$150 000 needed for the construction of a recycling shed.

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# Woolworths regional supermarkets frozen meat and ambient food recovery program



*Whyalla is located 384 kilometres north-west of Adelaide. The city is the largest in the Upper Spencer Gulf region and is located on the western shores of Spencer Gulf.*

*This case study describes the capturing and redirecting of regional retailer food waste and the turning of food waste into meals for marginalised people of the region.*

## Background

Foodbank South Australia (SA) commenced in September 2000 and has become the state's largest hunger-relief organisation, growing from supporting 120 registered welfare groups in the first year to approximately 600 groups in 2012.

About 65 per cent of the food and groceries redistributed by Foodbank SA are donated by South Australian companies or through food programs run in conjunction with financial sponsors, which source staple food not normally donated by food companies. The balance is donated by food companies interstate via Foodbank operations in Sydney and Melbourne.

A key focus for Foodbank SA has been to extend its reach into regional areas. The first satellite Foodbank operation opened in Mount Gambier in 2005. Foodbank Whyalla, located 384 kilometres north-west of Adelaide, is the second regional Foodbank.

## Project description

This project enabled Foodbank SA to build capacity and infrastructure in a major regional South Australian city, while at the same time providing food retailers in the region with the ability to divert edible foods surplus to store needs away from landfill. The program was introduced into five supermarkets in the region, with distances of 150 kilometres between them.

Frozen meat is typically one of the more expensive products for welfare groups to acquire—and those in need in our communities greatly require these high protein foods.

The program ensures appropriate food safety and hazard analysis critical control point (HACCP). HACCP is a risk management methodology used by the food and related industries for the control of food safety hazards to acceptable risk levels.

### Title of project

Foodbank Whyalla  
2010 redistribution of edible surplus food

### Year of project

2010

### Type of project

Food waste

### Population

21 416

### Budget

\$450 000–\$500 000

### Sources of funding

A large variety of sponsors including government, non-government and philanthropic organisations



Photo courtesy of Foodbank SA

This program initiative has delivered humanitarian benefits—feeding marginalised people within north-west South Australia (West Coast and Upper Spencer Gulf)—while having flow-on effects at minimising retailers' food waste stream.

Foodbank Whyalla uses its refrigerated delivery vehicle to deliver food orders to welfare groups across the region. Following these food drop-offs it also collects edible surplus food produce and frozen packaged retail meat products from selected regional Woolworths supermarkets in Whyalla, Port Augusta, etc.

All rescued food is taken back to the Whyalla Foodbank warehouse for the usual food-safety and date-code checks. Refrigerated foods are stored in a commercial freezer and ambient foods in the ambient warehouse. Welfare groups with operations near the Foodbank warehouse usually visit to access their food supplies and those further away or in other regional towns have food delivered to them via the local manager in the Foodbank delivery van. Welfare groups use the food to support families and individuals experiencing hardship.

### Challenges

Foodbank had initially hoped to include seven country Woolworths stores in the Whyalla food recovery retail program, however, the tyranny of distance played its hand and the associated costs of running food collection over long distances prevented them from expanding beyond five stores.

The distance proved to be one of the greatest challenges. The region covers a vast part of northern and western South Australia. The Port Lincoln stores were not able to be included in the program, but the collections from Port Augusta, Whyalla, Port Pirie and Clare stores were maintained.

### Outcomes achieved

In the period June 2010 to August 2011:

- total frozen meat products collected via the five Woolworths stores was 1.34 tonnes
- total ambient (non-perishable) foods collected from the five stores was 8.95 tonnes
- food was distributed to approximately 30 different welfare agencies that administer emergency food-relief activities across the region
- a special freezer storage unit was installed to allow for the safe storage of frozen foods enabling the transfer of other frozen food stocks (vegetables etc.) from the central Adelaide warehouse to Whyalla. This additional 10-12 tonne of frozen foods was donated to Foodbank by food manufacturers as it was surplus to their commercial requirements.

As a result of the success of the program, Foodbank Whyalla propose to promote the opportunity to the Coles supermarket chain across the region.

### Implementation

Engaging with Woolworths was made relatively easy as Foodbank SA had an existing relationship with the food retailer (both within the state and nationally). The Woolworths retail food collection program is only part of the work undertaken by Foodbank Whyalla. Significant infrastructure that had been fully funded by many other partners and is core to the general day-to-day operation of the regional Foodbank business, was partly utilised by the retail food collection program. This allowed for easier implementation of the program as capital equipment for sorting, storage and re-distribution of food requires considerable investment. In particular, the collection and delivery vehicle, which was fitted out with two interior storage compartments to allow one section to safely freight temperature-controlled foods (frozen meats), while the other cell of the van was used for non-perishable food storage, cost \$95 000, was an investment in capital by our partner groups. Additional capital installed at the Whyalla Foodbank (material handling equipment, temperature control recording equipment, etc.) also underpinned the retail food collection program.

Local builders and contractors were engaged to provide the infrastructure fit-out to turn an empty warehouse into a modern food storage and distribution warehouse.

The program did meet with some geographical challenges; namely the considerable distances between stores (which are located in key regional towns/cities in the Whyalla Foodbank catchment). The impact on vehicle costs, petrol costs, labour costs, etc. are considerable. These items are generally unfunded and so must be absorbed into Foodbank's operational cost structure.

### **Key points to aid implementation in other jurisdictions**

- Engage with all stakeholders thoroughly and determine and agree on deliverables.
- Provide regular feedback about the program, opportunities and outcomes against any agreed indicators to stakeholders.
- Promote the good-will and other benefits of the program at large (via regional media or organisational promotions, newsletters, annual reports etc.).

### **Cost**

About \$450 000–\$500 000

### **Contacts**

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### **Links**

<http://www.foodbank.com.au/>



*Photo courtesy of Foodbank SA*

# Regional waste management

## Goolwa waste transfer station



*The Fleurieu Region comprises the Councils of Alexandrina, Kangaroo Island, Victor Harbor and Yankalilla. These councils have been working together for several years to share information and resources to improve waste and resource management across the region.*

### Background

The Fleurieu Peninsula and Kangaroo Island regional waste management strategy committee was formed to oversee the development and implementation of the Fleurieu Peninsula regional waste strategy which was adopted by all four councils in 2007. The South Australian Government, through Zero Waste SA, assisted in the development of this strategy.

A key recommendation of the strategy was to establish the Fleurieu Regional Waste Authority (FRWA) as a priority for the successful implementation of a regional approach.

In early 2010 all four councils and the FRWA board adopted the FRWA charter, the 10-year strategic plan, the 3-year business plan and the start-up budget for the authority.

The FRWA management team was appointed mid-2010 and the preparation of the operational stage commenced. The FRWA board meeting on 1 December 2010 and a joint meeting with site staff from all four councils marked the first day of full operation of the FRWA.

### Project description

With a population of 24 500 the Alexandrina Council operates a diverse and highly effective waste transfer station at Goolwa, located 90 kilometres south of Adelaide.

As part of the rationalisation of services, the operation of the existing City of Victor Harbor transfer station was reduced to reflect the current needs, saving valuable resources which have been re-directed to the existing Goolwa waste transfer station in an interim step.

Councils have agreed to the common goal to improve the Goolwa site to operate as a regional facility. Over the years, the site has evolved to include a bottle and can depot (accepting containers with 10c deposits from the general public), a Salvage & Save shop which is used by patrons before the more traditional transfer station can be accessed, and an on-site commercial scale composting pad, managed by council's in-house expertise. Beyond the typical operations, the site also processes stockpiles of construction and demolition material as well as treating wastewater from local operators.

In 2011 the site was successful in gaining a grant under the Zero Waste SA regional implementation program to implement changes from a master planning process, which will address processing capabilities at the site to adequately cater for increased throughput and diversion.

#### Title of project

Regional waste management in the Fleurieu Region and the Goolwa waste transfer station

#### Year of project

2010

#### Population

24 500

#### Budget

\$500 000

#### Sources of funding

Zero Waste SA  
Council annual budget processes  
Other sources



*Photo courtesy of the Fleurieu Regional Waste Authority*

### Challenges

Challenges in this project included establishing a local government subsidiary, gaining stakeholder support, communicating with various parties, striving to achieve efficiencies and cost-savings for key stakeholders, managing a fleet of collection vehicles and kerbside collection services.

### Outcomes achieved

Councils have agreed to work together and pool resources into developing a regional waste transfer station.

Councils and FRWA have collaboratively developed a funding model and the respective agreements are currently being finalised between councils.

### Implementation

The regional waste authority and agreed principles of partnership and cooperation between its constituent councils form an ideal platform for this project.

All constituent councils have embraced the principles of cooperation and mutual support, are aiming for ongoing improvements in waste and resources management and are open to regional and/or subregional solutions.

### Key points to aid implementation in other jurisdictions

- The initiative is made possible with co-funding contributions between individual council contributions, FRWA funds and Zero Waste SA funding.
- A regional subsidiary forms an ideal platform to pursue subregional and/or regional projects.
- Engage with constituent councils and communities from the start of the project.

### Resources

- Suitably qualified and well experienced professionals were engaged and will continue to be engaged for certain tasks within the project.
- FRWA's 3-year business plan
- FRWA's 10-year strategic plan
- South Australia's State Waste Strategy
- Relevant EPA legislation and guidelines
- *Local Government Act 1999* and relevant regulations
- Zero Waste SA legislation and guidelines.

### Cost

Initial investigation: about \$20 000

Project cost for a regional waste transfer station: to be advised

### Contacts

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# Windmill Hill Salvage & Save™

## Windmill Hill Social Enterprise



*This case study describes a low cost retail shop at a waste transfer station in the Adelaide hills.*

### Background

Finding Workable Solutions (FWS) is a not-for-profit organisation based in rural South Australia. It is a specialist disability employment agency committed to assisting people with disability and/or disadvantage to find local employment in their community. It currently runs three salvage yards in South Australia with two new yards to open in late 2012 at Heathfield and Elizabeth.

This project is situated in the Mount Lofty Ranges, 30 minutes from Adelaide. Mount Barker and Adelaide Hills are the two main local government areas in the region. The main employers of the district are the wholesale and retail trade, education, health and community services, finance, insurance and business services.

### Project description

Salvage & Save™ is a business initiative of FWS. Donated or salvaged goods are recycled and sold back into the community, by way of a low cost retail shop located at the Mount Barker waste transfer station. Salvage & Save™ embraces the social enterprise business model and provides opportunities and support for people with a disability to participate on a number of levels:

- voluntary work
- work experience
- traineeships
- return to work programs
- skills and career development
- permanent part-time or full-time employment.

FWS staff collect the second-hand and re-usable items from customers' cars and trailers as they pass through the salvage yard onto the transfer station. Staff use yard trolleys and hand trucks to collect and move the items into the retail or workshop area.

Items that are salvaged include household goods, furniture, bric-a-brac, household whitegoods, electrical appliances, packaging, 10c deposit containers, clothing and textiles, scrap metal and used lead acid and other batteries.

#### Title of project

Salvage & Save™  
Windmill Hill model

#### Year of project

2008

#### Type of project

Tip shop

#### Population/area

Mt Barker 26 685/594.6km<sup>2</sup>  
Adelaide Hills 39 048/795.1km<sup>2</sup>

#### Budget

\$500 000

#### Sources of funding

District Council of Mount Barker  
Department of Families, Housing,  
Community Services and Indigenous Affairs  
Zero Waste South Australia  
Several philanthropic organisations



Photo courtesy of Finding Workable Solutions

FWS offers a hard waste collection service for quality donated goods whereby householders are required to contact the site office to simply book a free collection service. Any rubbish collected with the quality goods will incur a charge, to cover the disposal cost of the item at the transfer station.

### Challenges

- **Footings costs:** As the site is based on an existing landfill, the footings for the shed were extensive, as the shed had to be built on a floating concrete floor. This increased the costs substantially. To overcome this problem, FWS applied for additional funds from an assortment of government infrastructure grants and philanthropic agencies.
- **Space:** It was a challenge to maximise the space available to sell the products, as salvaged goods need a large display area that is preferably undercover. This is still an issue as FWS often run out of space to display all of the goods.
- **Location:** FWS thought that the location would deter people from visiting as the site is out of town and not located on the main road. FWS worked with the Mount Barker Council to install a large sign on the main road to draw attention to the various businesses on-site.
- **Portray a professional image:** The staff at Windmill Hill work hard at maintaining a tidy salvage yard with individually priced items that is interesting to visit, as this type of business is often seen in a different light.



*Photo courtesy of Finding Workable Solutions*

### Outcomes achieved

The following outcomes have been achieved:

- employment of 15 people with a disability and four other staff
- the development of a low cost retail shop for the local community
- a reduction in recoverable materials going to landfill
- increased community awareness and activity in recycling second-hand goods at the transfer station site.

### Implementation

The planning and approval stage with the EPA and other state government bodies took up to three years, as the site was redesigned to incorporate wastewater collection from the site.

The funding applications to acquire more than \$450 000 for the business infrastructure took 18 months to compile.

The development of the infrastructure and soft start-up for three months was completed over a 12-month period.

FWS worked with the Mount Barker Council to design a workable waste transfer station that would reduce the amount of waste going into landfill and offer an opportunity for the customer to reduce their costs, by recycling, before they entered the gatehouse area. The shed design looked at ways to maximise space, especially undercover storage and display areas. Both the council and FWS worked in partnership on several funding applications to ensure that there were adequate funds to provide a professional service to the local community.

This social enterprise has taken three years to become financially viable.

### Key points to aid implementation in other jurisdictions

- Find key drivers within the not-for-profit organisation and local government sectors.
- Start looking for funds early with at least an 18-month lead time for the project to commence.
- The site plan must have a separate entrance for the salvage yard so that the public can drop off recyclables before going past the local government gatehouse to reduce their landfill fees.
- Employ staff that have a knowledge and interest in antiques as it provides additional revenue for the business.
- Employ staff with good communication skills and a tendency for neatness.
- Ensure that the infrastructure and uniforms look professional with clear signs for the public.

### Tools

- forklift
- van with loading platform for a pickup service

### Cost

|                             |                  |
|-----------------------------|------------------|
| Shed and canopy             | \$213 850        |
| Asphalt                     | \$32 040         |
| Rainwater tank              | \$2 726          |
| Shed internal fitout        | \$17 907         |
| Power/telephone/security    | \$6 254          |
| Signs                       | \$9 630          |
| Fences and gates (internal) | \$5 229          |
| Marketing                   | \$6 000          |
| Office equipment            | \$7 500          |
| Other equipment             | \$5 000          |
| <b>Total</b>                | <b>\$306 136</b> |

### Contacts

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### Links

<http://www.fws.org.au/>



Photos courtesy of Finding Workable Solutions

# Introducing an integrated resource recovery and waste management facility at the Meru waste disposal facility



*The City of Greater Geraldton and a number of other mid-west shires use the Meru waste disposal facility (MWDF) in Geraldton for waste disposal. Between 2008 and 2010 they worked on a project to introduce kerbside recycling and establish a materials recycling facility (MRF) at the Meru site.*

*The MRF has not been constructed. This case study outlines the lessons learned from this three year project.*

## Background

Western Australia's mid-west region extends along the coast from Green Head to Kalbarri and more than 800 kilometres inland to Wiluna in the Gibson Desert. It covers more than 472 330 square kilometres and comprises 18 local government authorities (LGAs), with the City of Greater Geraldton (CGG) \* providing the region's commercial, administrative and service centre.

The majority of the population—39 000—live in the CGG with a further 4000 in the Shires of Northampton, Irwin and Chapman Valley. These four LGAs and the Shires of Mingenew, Morawa and Yalgoo use the MWDF in Geraldton for their municipal, solid, commercial and industrial waste. The MWDF functions as a regional landfill and manages over 75 000 tonnes of combined waste per annum.

## Project description

In 2008, the Batavia Regional Organisation of Councils (CGG, Irwin, Northampton and Chapman Valley) received \$60 000 from the Waste Authority to develop a strategic waste management plan.

One of its main recommendations was to introduce kerbside recycling into the region and to build a MRF at Meru. A second study focussed on how big the MRF would need to be to meet the needs of the current population as well as the major influx anticipated once the Oakajee Port and rail project commences. This scoping document highlighted where the incoming waste stream was, its content, quantity and composition.

### Title of project

Introducing an integrated resource recovery and waste management facility at the Meru waste disposal facility

### Year of project

2008

### Type of project

Planning

### Population/area

42 000/472 330km<sup>2</sup>

### Budget

\$5 million

### Sources of funding

Waste Authority  
National Packaging Covenant  
Department of Regional Development  
and Lands  
Local government expenditure

\* The City of Greater Geraldton was established on 1 July 2011 through the amalgamation of the City of Geraldton Greenough and the Shire of Mullewa. This case study uses the new name, however readers should be aware that at the time being discussed the CGG did not include Mullewa.

The CGG also received a grant through the National Packaging Covenant to conduct an audit on the commercial and industrial (C&I) waste stream going to the proposed Meru MRF. The completed report provided very useful information on the composition of waste from the C&I sector as well as the appropriate engineering (e.g. associated truck movement, turning circles, size, width of roads, etc.) details. A further grant of \$530 000 was received from the Western Australian Department of Regional Development and Lands' Royalties for Regions program.

Finally, after this three-year investigative exercise, tenders were called with three responses submitted.

### Challenges

The contract was not awarded as all of the respondents asked for changes to clauses within the request for tender. The evaluation team decided that all three responses did not meet certain key criteria so evaluating the three responses on a level playing field was unfeasible. However, with the hope that the CGG would still be able to move ahead with kerbside recycling, it started direct negotiations with the bidder that matched the tender most closely.

Despite a month of hard, post-tender negotiations, an agreement could not be reached and the council decided not to proceed with the project for economic and legal reasons. All the grants that were directly related to the MRF project were returned.

The CGG then decided to commission a study to review options for waste management linked to current state waste management objectives including 'Towards Zero Waste', alternative waste treatment technologies and resource recovery strategies. The study also incorporated consideration of potential legislative changes and policy instruments that could have implications for the CGG, such as the introduction of a non-metropolitan landfill levy and a price on carbon.

The study presented a range of options that will assist the city to move towards a zero waste future and ensure that the negative impact of any future legislation is minimised. Each of these options has been presented with a list of associated initiatives that would need to be implemented. The strengths, weaknesses, opportunities and threats of each of these initiatives have also been presented with an indication of likely costs the city may incur with its implementation.

### Outcomes achieved

The *Meru master plan* and *Strategic waste management options report* were endorsed by the CGG council. At the time the recommendations set a precedent for a regional LGA because the waste reduction targets were in-line with Draft 2 of the State Waste Strategy.

### Implementation

Given the size of the projects, the process has been very long and straining. However, the tide has turned and the CGG is in the midst of readjusting budgets to commence the infrastructure works at Meru.

### Key points to aid implementation in other jurisdictions

- Maintain perseverance in the midst of what appears to be overwhelming odds.
- Do ample market research, testing and benchmarking.
- Seek as much funding from various sources as possible.
- Add a significant portion of your budget for contingencies.
- Add another portion of your budget for risk management.
- Engage the experts in their own respective fields for the various components of the project.
- Undertake study tours to relevant sites in various localities to size and scope the project. The CGG visited MRFs in various areas to view operating facilities and to understand the operational demands, efficiencies, deficiencies and setbacks.

**Resources**

- Cardno (Project managers and consultants, waste auditors)
- Spartel (Project managers and consultants, waste auditors)
- Veolia Environmental Services (Landfill contractor and waste collection contractor).

**Contacts**

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**Project partner**

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**Links**

[www.cgg.wa.gov.au](http://www.cgg.wa.gov.au)

# Organics recycling by the Grampians Regional Waste Management Group



*The Grampians regional waste management group and its four member councils identified the diversion of organics from landfill as a priority. Green waste collected in the local government areas was composted and purchased for use by the local governments and a cooperative for use in the local vineyards, providing a closed-loop solution to the problem of green waste. Initially the scheme worked well, however in recent years, the demand for compost has diminished.*

## Title of project

Organics recycling

## Year of project

2000–2011

## Type of project

Composting

## Population/area

52 079/21 365 km<sup>2</sup>

## Budget

\$23 000 (approximately) excluding GST

## Background

The Grampians Regional Waste Management Group worked with its four member councils to deliver the organics recycling project. The four councils included in the project were:

- Ararat Rural City Council
- Northern Grampians Shire Council
- Horsham Rural City Council
- Yarriambiack Shire Council.

## Project description

The Grampians region covers four local governments in the west and north-west of Victoria. Being a rural region, there are significant amounts of green waste generated in the local government areas. The diversion of organics from landfill was seen as a priority by the Grampians Regional Waste Management Group and a plan was formulated to achieve diversion. It was agreed to collect the green waste at transfer stations, shred at local government cost, then provide the shredded material free of charge to a composting contractor.

Two regional composting sites were set up adjacent to transfer stations in the two largest local governments. The composting contractor managed the composting process and agreed to sell the compost back to the local government at a reduced cost. The Grampians Regional Waste Management Group worked with local vineyards to enable them to purchase the compost and spread it on their vines. In order to facilitate this, a cooperative was set up and a compost spreader was designed and purchased by the Grampians Regional Waste Management Group and cooperative. The spreader was custom-built to fit between rows of vines and was hired out to vineyards, with members of the cooperative receiving preferential rates.

The objective of the project was to provide a closed-loop solution to the problem of green waste. In 2005, the Grampians Regional Waste Management Group received an award in the Parks Victoria Environment and Sustainability Award category of the Victorian regional achievement and community awards for the project.

### Challenges

Initially, the scheme worked well, with the composting contractor working closely with the vineyard owners and supply meeting demand. However, in recent years (2009–10 and 2010–11 in particular), the demand for compost has diminished to almost nothing. The composting contractor suggested this may be due to the global financial crisis and the associated reduction in ready cash at the vineyards. In addition to this, recent years have seen the break of the 10-year drought that has gripped the region. This has reduced the need for compost because soil moisture retention is better and has increased growth, resulting in a surplus of green waste at transfer stations. Also, the vineyards have reduced requirements for compost and mulch due to an annual build-up of material at the base of the vines. The application of compost material over the years has meant that there have now been sufficient levels applied and there is not a great demand for much more.

These problems have left the Grampians Regional Waste Management Group's member councils with an oversupply of material and no real end market. The composting contractor and the councils are currently trying to find other end markets for the material, but this is not helped by the fact that the compost is of relatively low density with little or no value at present.

The Grampians Regional Waste Management Group committed to the management of the compost spreader and in recent times this has proved to be difficult and time-consuming. The spreader has been subject to one major overhaul during its lifetime. The hire costs of the spreader cover the cost of its maintenance.

### Key points to aid implementation in other jurisdictions

- Thought needs to be given to the supply/demand relationship and how this works in dry and wet years.
- The Grampians Regional Waste Management Group would recommend that rather than having separate shredding and composting contracts, the contract is amalgamated to reduce the time taken in organising works.

### Contacts

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### Links

Grampians Regional Waste Management Group  
<http://www.grampiansrwmg.vic.gov.au/about-us/>

# Cost-effective recycling of regional organic waste for local economic and environmental benefit — mobile aerated floor composting systems



*The City of Mandurah and broader Peel region is located approximately an hour south of Western Australia's capital city of Perth.*

*This case study illustrates a composting technique that can be used by regional communities, feedlots, farmers and others to process organic wastes cost-effectively.*

## Background

The City of Mandurah is located about an hour south of Perth (74 kilometres) and has a population of 67 000. The City of Mandurah is undergoing rapid growth and its population is anticipated to double by 2021.

C-Wise is located at Western Australia's largest intensive piggery. Since the late 1990s piggery waste has been recycled with 100 per cent of the City of Mandurah's green waste to manufacture a range of certified compost and mulch products.

## Project description

In 2010 the Water Corporation invested in a significant upgrade of the Peel Region's wastewater treatment plants. Previously the organic wastes from its sewage plants were sent to landfill. The Water Corporation and C-Wise worked to develop new processes, products and markets for composted recycled biosolids.

This involved researching and investing in mobile aerated floor (MAF) composting systems. These systems were selected for their low capital costs, flexibility in use and adaptability to fit into existing management systems. The process provides a technique that can be used by regional communities, feedlots, farmers and others to process organic wastes cost-effectively.

The technology decision was made on the basis of design, simplicity, process control, cost of production and energy and greenhouse gas savings. Applying National Greenhouse Account rules for composting processes results in a saving of over 6000 tonnes per annum of carbon dioxide equivalent. The project attracted funding under the Australian Government's Retooling for climate change program.

### Title of project

Cost-effective recycling of regional organic waste for local economic and environmental benefit—mobile aerated floor composting systems

### Type of project

Composting

### Population/area

67 000/173.5km<sup>2</sup>

### Budget

\$300 000

### Source of funding

Retooling for climate change program  
C-Wise



*Photo courtesy of C-Wise*

The City of Mandurah recycles 100 per cent of its green waste and biosolids by working with C-Wise. These wastes are converted into a carbon-based fertiliser that replaces the raw manure and/or soluble fertiliser application practices traditionally used in farming. The carbon-based fertilisers allow farmers to adopt biological farming systems which result in better soils and fewer off-site environmental impacts.

### Challenges

Operators had to adjust their past perceptions of the composting process and learn alternative procedures. Adequate training and education of operational staff was a key element in the success of this project.

### Outcomes achieved

The outcomes achieved in this project include:

- multiple regional organic waste streams recycled in an integrated operation
- local manufacture of organic-based products for soil fertility
- significant nutrient pollution risk from existing piggery was avoided
- contribution to the local economy through employment of 24 local people and a range of freight and other contractors
- production of fit-for-purpose products for local sandy soils
- a real-world demonstration of coordinated multiple recycling activities that has survived economically (without subsidies)
- demonstrates 'closing of the loop', improved farming systems, reduced nutrient leaching and protection of important natural assets—the Peel Waterways.

### Key points to aid implementation in other jurisdictions

- Simple technology and easy-to-manage processes are best.
- Cooperation across local government, industry and agencies is required.
- Integrated solutions can provide a win-win solution.
- There is a need to consider the whole supply chain and closing the loop.
- The system provides options for smaller regional and rural communities interested in processing organic waste.
- C-Wise has presented this model for waste management in rural and regional areas in all mainland states. A pilot program has been established by the Greater Taree City Council in New South Wales, who are part of the MidWaste Regional Waste Forum of local governments. The experience is being shared widely with other regional groups in New South Wales.
- Green waste is being successfully composted at the local landfill site and trials are underway to use the MAF system to compost food waste organics diverted from landfill.
- Other groups should contact Greater Taree City Council or C-Wise for further information on this particular project.

### Cost

The MAF process and associated technical services provide an option for local governments seeking to divert organic waste from landfill. The MAF process aims to provide a cost-effective and low risk alternative to other waste management options. Furthermore, effective composting operations provide the potential to reduce carbon tax liabilities for regional waste organisations.

A typical MAF composting system capable of recycling 15 000 tonnes of waste per year into marketable composted products may cost up to \$100 000. Typically an installation should include design of site layout and manufacturing process and operator training.

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**Project partners**

City of Mandurah  
Craig Mostyn Group (formerly Wandalup Farms Piggery)  
Water Corporation

**Links**

<http://www.cwise.com.au/>  
[www.mandurah.wa.gov.au](http://www.mandurah.wa.gov.au)  
<http://www.gtcc.nsw.gov.au/>

# E-waste recycling efficiencies in the south-western region, Victoria



*The south-western region covers the municipalities of Glenelg, Southern Grampians, Moyne, Corangamite and the City of Warrnambool.*

*This case study involved the establishment of user-friendly collection points throughout the south-western region to capture electronic waste (e-waste), diverting 110 tonnes of e-waste from landfill in one year.*

## Background

The south-western regional waste management group, trading as Waste Reduction Group (WRG) is one of Victoria's 12 regional waste management groups. WRG is responsible for waste initiatives in the south-west of Victoria. The WRG works with its member local governments to coordinate and plan waste management activities for the south-western region.

Vantage Incorporated is a service provider located in the south-west of Victoria offering meaningful employment to people with a disability. Vantage has six business enterprises in the Warrnambool and Hamilton areas offering supported employment. Vantage Incorporated are now trading as Western District Employment Access Industries (WDEA).

## Project description

In 2008, the WRG identified e-waste as a priority waste stream in the south-western region of Victoria. Vantage was selected as the successful service provider to manage e-waste recycling in the region.

In addition to televisions and computer screens, Vantage could accept all types of e-waste for dismantling and recycling.

It was recognised with the introduction of the program that considerable quantities of e-waste were being dropped off at facilities and that infrastructure improvements were needed for the containment and Occupational Health and Safety issues associated with collecting e-waste. Suitable secure storage facilities, with appropriate and consistent signs, that were able to contain any broken glass were installed.

Due to the overwhelming support of the e-waste recycling program in the south-western region, it soon became apparent that to improve the compaction, presentation and transportation of e-waste components for recycling that new infrastructure was needed at Vantage. A 60 tonne ram baler was purchased to improve compaction rates and assist with gaining better efficiencies in transportation of products to end markets.

## Title of project

E-waste recycling efficiencies in the south-western region, Victoria

## Year of project

2009

## Type of project

E-waste recycling

## Population

130 000

## Budget

\$108 234 (excluding GST)

## Sources of funding

Waste Reduction Group  
In-kind

### Outcomes achieved

The introduction of user-friendly collection points at key locations throughout the south-western region and the installation of an efficient baler, helped to ensure that the WRG and Vantage took the most appropriate approach—a collaborative approach—to providing a sustainable service of collecting and processing e-waste.

In its first year, the e-waste recycling program diverted 110 tonnes of e-waste from landfill within the south-western region.

Vantage has arranged the on-selling of recyclable materials to a number of businesses in Warrnambool and other areas outside the region as necessary. This provides a way for Vantage to deal with the recyclable product.

When the e-waste recycling program was first introduced at Vantage in 2008, the materials received provided enough work for two or three employees. Since then, the e-waste recycling program has grown and now provides work for 10 people at most times.

Vantage received recognition for its e-waste recycling program in the 2009 Powercor Warrnambool Excellence Awards and was a winner in both the 'Community enterprise' and 'Sustainability and the environment' categories.

### Cost

| Item  | Cost (ex GST)   | In-kind         | Total (ex GST)   |
|---|-----------------|-----------------|------------------|
| Member council infrastructure                                   | \$17 217        | \$17 500        | \$34 500         |
| Vantage Incorporated infrastructure and training                | \$39 890        | \$21 500        | \$61 390         |
| Waste Reduction Group coordination of advertising and education | \$4777          | \$7350          | \$12 127         |
| <b>Total</b>  | <b>\$61 884</b> | <b>\$46 350</b> | <b>\$108 234</b> |

### Contacts

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[eo-wrg@westnet.com.au](mailto:eo-wrg@westnet.com.au)

### Links

Western District Employment Access

[www.wdea.org.au](http://www.wdea.org.au)

Waste Reduction Group

<http://www.wrg.vic.gov.au>

# Don't waste it. RECYCLE IT



*The south-western region covers the municipalities of Glenelg, Southern Grampians, Moyne, Corangamite and the City of Warrnambool. The Waste Reduction Group worked with four south-western region councils to deliver the Western Victoria public place recycling project in 2010–11. The project involved the installation of dual waste/recycling infrastructure, resulting in increased recycling rates across all shires and reduced waste to landfill.*

## Background

The Waste Reduction Group (WRG) worked with four of its member councils to deliver the Western Victoria public place recycling project in 2010–11. The four councils included in the project were:

- Corangamite Shire Council
- Glenelg Shire Council
- Moyne Shire Council
- Southern Grampians Shire Council.

## Project description

Pre- mid- and post-campaign bin audits were undertaken at the selected project locations in Corangamite, Glenelg, Moyne and Southern Grampians shires to determine the level of recyclable materials being diverted from landfill prior to and after the dual waste/recycling units were installed.

### Corangamite Shire Council

Finlay Avenue, Camperdown was selected as the project site in Corangamite Shire to install six dual waste/recycling units. Finlay Avenue is tree-lined parkland with easy accessibility to food outlets lining the main street of Camperdown.

## Outcomes achieved

The project has achieved its target outcomes of installing infrastructure to capture 40 per cent of the litter stream from Camperdown's Finlay Avenue. Based on final campaign bin inspections, the new infrastructure along Finlay Avenue has the potential to divert 1.15 tonnes\* of recyclable materials from landfill annually, which exceeds initial projected diversion rates of 1 tonne.

Final bin inspections also revealed the project has contributed to a 55 per cent reduction in materials to landfill. Before the start of the project, a total of 45.93 kilograms\* per week of waste and recyclable materials were going to landfill from bins along Finlay Avenue. Introducing recycling units resulted in a significant reduction in waste levels in rubbish bins to 32.04 kilograms\* in January 2011 and even lower to 20.52 kilograms\* in March 2011.

### Title of project

Don't waste it. RECYCLE IT

### Year of project

2010–11

### Type of project

Recycling infrastructure

### Population

130 000 (south-western Victoria)

### Budget

\$57 998 (excluding GST)

### Sources of funding

State government and business

\* All figures calculated using Sustainability Victoria's volume to weight calculator

New infrastructure to separate litter streams and increase capacity has also reduced the number of bin collections per week. Rubbish bins that were collected every weekday are now only picked up three times per week, while recycling bins are emptied once per week.

### Challenges

Widespread flooding across the Corangamite Shire in August delayed the installation of new units as work crews were busy repairing Council infrastructure and removing flood debris.

During the implementation of the project there was a change in staff. Pre-installation inspections were carried out by a different staff member to the mid- and post-campaign inspections and this may have had a bearing on the waste audit results.

During the project planning stages, it was highlighted that bin infrastructure was chosen based on the council's planning and streetscape requirements. This limited the choice that the council had in choosing an aesthetically pleasing design.

### Glenelg Shire Council

The Portland Leisure and Aquatic Centre was selected as the project site in Glenelg Shire. The Centre features four swimming pools, a fully equipped gym and group fitness room, rock wall and childcare facilities. The facility is regularly used for school and district swimming carnivals during the summer months. Five dual waste/recycling stations were installed inside the centre, plus a further six dual stations installed in the outdoor pool areas.

### Outcomes achieved

Pre-campaign bin inspections indicated installing recycling infrastructure could capture an estimated 23.34 kilograms\* per week of recyclable materials, however the mid- and post-campaign inspections showed that significantly larger amounts could be captured during peak periods.

According to mid-campaign inspection results conducted in the holiday season of January 2011, an estimated 36.44 kilograms\* per week was being diverted from landfill. The final campaign bin inspection in March 2011 was conducted during swimming carnival season and it was estimated that during high usage periods at the facility, 95.52 kilograms\* per week of recyclable material could be captured.

While bin inspection data collected during peak periods may prove unreliable for accurate projection of annual diversions, it is worth noting the enormous amount of recyclables that will now be diverted from landfill through this project. It is recommended to conduct another inspection in spring to obtain data reflective of everyday collection levels at the facility.

Conducting the mid- and post-campaign inspections during high usage periods also revealed the suitability of the newly installed infrastructure to successfully handle high levels of recyclable material and waste. The project was well promoted and final bin inspections recorded negligible contamination, suggesting the effectiveness of the education campaign, best practice signage and placement of units. The main recyclables were aluminium cans, plastic bottles, liquid paperboard, cardboard and coffee cups.

Introduction of the dual waste/recycling stations has almost halved the number of rubbish bins from 21 to 11. The reduction in the number of bins and consistency of the new units greatly improves the aesthetics of the facility. There is also a significant time-saving for the cleaning staff in emptying the bins.

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\* All figures calculated using Sustainability Victoria's volume to weight calculator

Grade 3 and 4 students from Portland South Primary School were active participants in education and promotion of the project and played a key role in the launch at the aquatic centre. The students participated in an hour-long session on recycling, followed by a one-hour art session where they created designs on t-shirts. Students then attended the launch and paraded the t-shirts, later wearing them throughout the summer months to continue the 'Don't waste it. RECYCLE IT' message. The enthusiasm and energy that students of Portland South Primary School brought to the project was evident both in the classroom and at the launch with the school proving a great ambassador for the project.

### Challenges

During the implementation of the project there was a change in staff which resulted in a delay in completion of the pre-campaign bin inspections. The inspections weren't conducted until March which was outside the facility's peak season and could have produced lower baseline figures.

Bin inspections in March were conducted during a peak period of swimming carnivals at the facility. Four events featuring local primary and secondary schools, plus district carnivals were held in the early weeks of March. Therefore, the total amount of recyclables diverted and waste collected cannot be used as an accurate projection for annual diversion from landfill. Additional inspections during more normal periods of usage are recommended.

### Moyne Shire Council

Martin's Point and the Village Green, Port Fairy were selected as the two project sites in Moyne Shire. The Village Green is a high foot-traffic area used for monthly markets and events, and regularly by tourists and locals to enjoy lunch. Martin's Point is located near the Port Fairy pier and is a popular fishing spot for families. The adjacent park features picnic tables, public barbecue facilities and toilets, a children's playground and is highly used throughout the year. Two dual waste/recycling stations were installed on the Village Green and one at Martin's Point as part of this project.

### Outcomes achieved

The project has successfully achieved its target to install three recycling stations featuring best practice signage to capture 40 per cent of the litter stream from the Village Green and Martin's Point in Port Fairy.

Based on mid-campaign inspections, the new infrastructure has contributed to an initial 60 per cent reduction in materials to landfill. Before the start of the project, an approximate total of 35.84 kilograms\* per week of waste and recyclable material was going to landfill from three rubbish bins on the Village Green and a single rubbish bin at Martin's Point. Mid-campaign inspections revealed this figure had decreased to a total of 14.18 kilograms\* per week of material to landfill in January 2011. While this increased to 34.33 kilograms\* for the final bin inspection in March 2011, this spike can be attributed to high visitor numbers in Port Fairy at the time of the inspection. (Note: The final inspections were undertaken on the last day of the three day Port Fairy folk festival, which annually draws a crowd of more than 20 000 people.)

Zero contamination rates were recorded in January bin inspections, while a low contamination rate was observed during March suggesting that the signs describing best practice are effective.

The number of bins on the Village Green was reduced from three units to two and proved sufficient to handle a very high litter volume during one of Port Fairy's largest festivals.

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\* All figures calculated using Sustainability Victoria's volume to weight calculator

St Patrick's Port Fairy Primary School was an active participant in the education and promotion of the project and played a key role in a mini-launch on the Village Green.

The students participated in an information session on recycling, followed by an art session where they created designs on t-shirts. Students then attended the launch and paraded the t-shirts, later wearing them throughout the summer months to continue the 'Don't waste it. RECYCLE IT' message. The enthusiasm and energy that students of St Patrick's Port Fairy brought to the project was evident both in the classroom and at the launch with the school proving a great ambassador for the project.

### Challenges

During the implementation of the project there was a change in staff. Pre-installation inspections were carried out by a different staff member to the mid- and post-campaign inspections and may have had a bearing on the waste audit results.

During the project planning stages, it was highlighted that bin infrastructure was chosen based on the council's planning and streetscape requirements. This limited the choice that the council had in choosing an aesthetically pleasing design. For a coastal environment, galvanised steel was also required.

Final bin inspections were undertaken on the last day of the three-day Port Fairy folk festival, which more than 20 000 people attended. An additional inspection of bins during a normal period would be recommended to reflect everyday collection levels.

### Southern Grampians Shire Council

Fitzpatrick Gardens, Hamilton was selected as the project site in the Southern Grampians Shire. Fitzpatrick Gardens is located along the main traffic route through Hamilton and is opposite three popular food outlets. The small park features picnic tables, seating and ample parking for buses and caravans, making it the perfect rest point for travellers. The park is also opposite one of Hamilton's major sporting grounds, Melville Oval, which is a hive of activity during football and cricket seasons. Two dual waste/recycling stations were installed at Fitzpatrick Gardens and one dual station installed on the corner of Brown and Lonsdale streets, which is diagonally opposite the park and sporting field.

### Outcomes achieved

Mid-campaign inspections in January 2011 revealed approximately 9.83 kilograms\* per week of recyclables were being diverted from landfill per week through the three new bins. This amount increased to an estimated 11.34 kilograms\* per week for the final bin inspections in March 2011.

Prior to the project, a total of 145.85 kilograms\* per week of waste and recyclable material was going to landfill from the 10 rubbish bins in Fitzpatrick Gardens and nearby areas. There was a reduction to 65.16 kilograms\* per week during the January 2011 inspection and a further drop to 37.8 kilograms\* per week during the March 2011 inspection.

Zero contamination rates were recorded in January bin inspections, while a low contamination rate was observed during March suggesting that the signs describing best practice are effective.

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\* All figures calculated using Sustainability Victoria's volume to weight calculator

The number of rubbish bins in the Fitzpatrick Gardens and Brown and Lonsdale streets vicinity was halved with the installation of the dual waste/recycling bins. Eight 60 litre units and two 120 litre units were replaced by three 240 litre dual waste/recycling stations. The reduction in the number of bins and the uniformity of new units greatly improves the aesthetics of the area for visitors and local residents alike. There is also a significant time-saving for the waste and recycling collection contractor.

Following on from this project, Southern Grampians Shire Council will continue the development of a new bin infrastructure strategy for the Hamilton Central Business District (CBD). The strategy will ensure consistency of bin infrastructure and signs throughout the CBD and public areas including parks and sporting grounds.

### Challenges

Installation of infrastructure was delayed as council work crews were busy completing additional maintenance work resulting from storm and flood damage across the shire. This reduced the project education timeline and an additional bin inspection in May-June would be recommended to provide a more accurate assessment of bin usage over a longer period.

During the implementation of the project there was a change in staff. Pre-installation inspections were carried out by a different staff member to the mid- and post-campaign inspections and may have had a bearing on the waste audit results.

During the project planning stages, it was highlighted that bin infrastructure was selected based on units previously purchased to be installed in that vicinity. This limited the choice of additional units through this project.

### Cost

| Item   | Corangamite Shire Council | Glenelg Shire Council | Moyne Shire Council | Southern Grampians Shire Council | Total (ex GST)     |
|--|---------------------------|-----------------------|---------------------|----------------------------------|--------------------|
| Infrastructure (including dual waste/recycling units, freight, installation and signage) | \$10 671.76               | \$13 000.91           | \$15 528.98         | \$9 943.37                       | \$49 145.02        |
| Project promotion  | \$2 926.37                | \$2 714.96            | \$940.75            | \$2 271.11                       | \$8 853.19         |
| <b>Total</b>   | <b>\$13 598.13</b>        | <b>\$15 715.87</b>    | <b>\$16 469.73</b>  | <b>\$12 214.48</b>               | <b>\$57 998.21</b> |

### Contacts

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### Links

Waste Reduction Group  
<http://www.wrg.vic.gov.au>

# Dealing with organics across regions: Let's get composting — make a difference at home



*The south-western region covers the local government authorities of Glenelg, Southern Grampians, Moyne, Corangamite and the City of Warrnambool.*

*This case study is a behaviour change project designed to encourage residents to start home composting to reduce the amount of food organics and green waste sent to landfill in south-west Victoria.*

## Background

The project was developed in partnership by the South Western Regional Waste Management Group (operating as the Waste Reduction Group) and its five member councils—Corangamite, Glenelg, Moyne, Southern Grampians Shires and City of Warrnambool.

## Project description

'Let's get composting' is a behavioural change project focused on dealing with green and organic waste in the home. Residents of south-west Victoria were encouraged to use worm farms and compost bins in their homes to reduce the amount of kitchen organic and green waste sent to landfill in the region.

The project aimed to:

- promote home composting and worm farming to residents
- provide residents with resources for home composting
- reduce the amount of food organics and green waste going to landfill
- encourage the residents of Corangamite and Moyne shires to better use their organics and green waste collection services.

Nine information workshops were held across the five local government areas to educate residents on how to home compost and to distribute worm farms and compost bins. A total of 500 worm farms and 500 compost bins were available free to residents who participated in the information workshops. Education material to accompany the worm farms and compost bins was developed. Residents of Corangamite Shire also received a complimentary kitchen bench collection unit to assist them in managing their food waste.

## Outcomes achieved

Project evaluation was undertaken by a survey distributed to workshop participants shortly after receiving their worm farm or compost bin. From the 290 surveys returned it is estimated that more than 700 kilograms of organic waste is being diverted from landfill. This averages out to be 2.4 kilograms per household, indicating an estimated 2.4 tonne diversion of green organic waste from landfill each week through the distribution of 1000 units under the program.

### Title of project

Dealing with organics across regions:  
Let's get composting—  
make a difference at home

### Year of project

2010–11

### Type of project

Household composting

### Population

130 000

### Budget

\$70 482 (excluding GST)

### Sources of funding

State government and business.

The project was enthusiastically received across the five member local governments with 69 per cent of workshop participants trying home composting for the first time. Survey results showed that 83 per cent of program participants are now reducing waste levels in their garbage bins.

Introduction of a kitchen bench collection unit in Corangamite Shire as part of the project has also seen an increase in the amount of food waste in the green organics bins. Bin audits conducted in December 2010 showed an increase to 0.18 kilograms per household per week, compared to 0.07 kilograms in April 2010 before the distribution of kitchen bench collection units.

## Challenges

Issues encountered during the implementation of the project included:

- Delivery of compost bins and worm farms to workshop sites: As many workshops were held on weekends and away from council storage facilities, compost bins and worm farms were required to be transported several times to ensure adequate supply. Also, it was difficult to predict the number of additional units required to supply to residents who didn't register to attend workshops but turned up on the day.
- Providing adequate staff to handle distribution of units and signing of environmental pledges at workshops: Residents were asked to sign an environmental pledge after they attended the information workshop and before they collected their compost bin or worm farm. Signing the pledge would help give residents ownership of the unit and help them commit to using it at home. Problems arose when more than 60 residents queued up to collect their units at the larger workshops. While residents were patient and happy to wait, providing enough tables, pens and staff to check off names is highly recommended as it improves efficiency and reduces waiting time.
- Workload generated in accepting registrations and providing information for workshops: A considerable amount of time was required to respond to emails and return phone calls from residents registering for workshops. Potential participants also wanted more information on the program and workshop delivery when registering. There were also many calls and emails from residents after the registration deadline.
- Providing worms at workshops: Due to the time between each workshop, it would have been difficult to store and transport the required 500 000 worms to supply the 500 worm farms being distributed. It was decided not to supply worms at the information workshops because it was too difficult to predict attendance numbers. Sourcing worms, particularly for residents in smaller rural communities, was difficult. Local fishing stores and hardware stores were the only suppliers and availability was low. While it took a little longer for residents to purchase their worms (many from internet suppliers) many residents persevered and obtained worms up to three or four weeks following the workshop.

A possible solution would be to make an arrangement with a supplier for guaranteed supply of worms to any residents who participate in the workshop.

## Key points to aid implementation in other jurisdictions

- develop education materials with a consistent key message
- plan information workshops adequately
- project promotion and evaluation are key steps

**Infrastructure:**

- purchase worm farms and compost bins that require minimal construction, have clear instructions and are easy to maintain. This allows units to be installed immediately following the workshops, ensuring they won't sit in the shed for weeks waiting to be constructed
- Glenelg and Warrnambool councils also supplied kitchen bench collection units to residents who received a compost bin or worm farm. The units proved very popular and provided a valuable link between the kitchen and the compost bin or worm farm.

**Written education material:**

- provide residents with a small brochure reinforcing how to establish and maintain the compost bin or worm farm. This allowed residents to refer back to the teaching provided at the workshop and have a reference when at home.

**Registration:**

- registration processes and collection of units should be streamlined where possible. While it is very time-consuming, it is beneficial to collect full names and addresses during the registration process, although all information must be accurate. There must also be a method of dealing with late registrations, particularly when workshop numbers have been reached. Residents need to be advised prior to the workshop if they have not made the cut-off
- an accurate list of participants would enable preparation of the environmental pledge complete with names and addresses prior to the workshop. Residents would then only need to sign and date the document, saving considerable time at the workshop.

**Kerbside audit data:**

- audits of kerbside green/organics bins and waste bins are another useful tool for determining the success of the project. It would be beneficial to include this process in any home composting project.

**Future surveys:**

- it is recommended that a follow-up survey be conducted within 6–12 months to gauge the number of residents still successfully using their units and any changes in their waste reduction levels.

**Cost**

| Item  | Cost (ex GST)      |
|---|--------------------|
| Infrastructure (500 compost bins, 500 worm farms and 2000 kitchen collection units, including transport.) | \$55 183.20        |
| Education materials   | \$3 006.50         |
| Education workshops   | \$1 198.00         |
| Project promotion   | \$8 064.11         |
| Project evaluation  | \$3 030.40         |
| <b>Total</b>  | <b>\$70 482.21</b> |

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**Links**

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<http://www.wrg.vic.gov.au>

## Yours2Take.com.au



*The Riverina Eastern Regional Organisation of Councils (REROC) is located in the eastern Riverina region of New South Wales.*

*This project diverts waste from landfill by making it easy for users to give away items they no longer have use for.*

### Background

Yours2Take.com.au is an initiative of REROC, implemented through its waste forum. REROC is a voluntary strategic alliance of 15 councils located in the eastern Riverina region of New South Wales. The member councils are Bland, Coolamon, Cootamundra, Corowa, Greater Hume, Gundagai, Junee, Lockhart, Temora, Tumbarumba, Tumut, Urana, Wagga Wagga and the Riverina and Goldenfields water county councils.

### Project description

Yours2Take.com.au was launched in March 2008. It has almost 6500 registered users from all over Australia and the site generates between 3500 and 10 000 unique visitors every month. The online nature of Yours2Take opens the whole of Australia as a marketplace and means that unwanted but useable items from the smallest rural communities to the largest metropolitan cities can find a new home anywhere in Australia or even overseas.

It utilises a platform similar to eBay to allow users to upload items that they want to give away and acquire items that they want. It's accessible on a 24/7 basis. Users can also upload items in the 'wanted' section—the reverse of giving items away. Every item on the site is given away free of charge and there is no fee to register on the secure site.

The site has been upgraded twice since 2008 and now incorporates a geolocator so that users can find items more easily and a Twitter feed. The site is currently being completely redesigned to increase its operability and provide better solutions for users. The upgrade will include iPhone and iPad applications which will allow users to upload entries and photos directly from those devices.

The site responds to the growing use and acceptance of online transactions. One of the major aims in designing the site was to ensure that it appealed to people who didn't necessarily identify themselves as being 'green'. The aim was to capture the 'mum and dad' market with a site that was attractive, free and required no ongoing commitment. You don't join Yours2Take, you use it.

#### Title of project

Yours2Take.com.au

#### Year of project

2008 and ongoing upgrades

#### Type of project

Re-use

#### Population/area

140 000/43 000km<sup>2</sup>

#### Budget

\$100 000

#### Sources of funding

New South Wales Office of Environment and Heritage  
REROC

## Challenges

Challenges in relation to the site include ensuring that it operates in a way that is very accessible for users—if it becomes too difficult then they will walk away. The latest redesign of the site and the inclusion of iPhone and iPad applications aims to make it easier for users to upload photographs to the site. It addresses an ongoing problem with users not uploading photos of their items.

A big issue has been the lack of product. Generally if something is put up on the site it is acquired in a very short space of time (usually within hours of the posting). This means that it can sometimes look as though no-one is using it because products are limited. REROC is addressing this with ongoing television advertising to raise awareness of the site. There is a direct correlation between the number of visits to the site and television advertising.

Another challenge has been the lack of funding to enable the level of promotion, particularly television advertising, which would result in wider uptake and participation.

## Outcomes achieved

The outcomes achieved so far include:

- approximately 6500 registered users since it was launched in 2008
- more than 1200 items have been given away
- site attracts an average of 3500 visitors per month.

## Key points to aid implementation in other jurisdictions

- Local governments can add the Yours2take.com.au link to their website and have immediate access to the site.
- Access to the site is free.
- REROC undertakes all of the maintenance and upgrades.

## Resources

The following resources were used to promote the project:

- Two Yours2Take television advertisements
- Yours2Take DL flyers and pull up promotion banners—the artwork can be made available
- Yours2Take newspaper advertisements.

## Cost

\$100 000 (including the most recent redesign)

## Contacts

Project manager

Tracey Cornell

REROC waste forum coordinator

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## Project partners

Riverina Eastern Regional Organisation of Councils

## Links

[www.yours2take.com.au](http://www.yours2take.com.au)

[www.waste.reroc.com.au](http://www.waste.reroc.com.au)

## Safe Sharps—New South Wales



*The aim of the Safe sharps project is to assist user of sharps to easily find approved sharps disposal locations so that used sharps can be properly and safely disposed of.*

### Background

Safe sharps is an initiative of the Riverina Eastern Regional Organisation of Councils (REROC), implemented through its waste forum. REROC is a voluntary strategic alliance of 15 councils located in the eastern Riverina region of New South Wales. The member councils are Bland, Coolamon, Cootamundra, Corowa, Greater Hume, Gundagai, Junee, Lockhart, Temora, Tumbarumba, Tumut, Urana, Wagga Wagga and the Riverina and Goldenfields water county councils.

The project was funded through the Community sharps management grants program which is an initiative of the New South Wales Department of Health and Local Government New South Wales.

### Project description

The website [www.safesharps.org.au](http://www.safesharps.org.au) is an interactive and dynamic site that allows sharps users to identify locations where used sharps can be disposed of appropriately. The website is linked to Google maps allowing users to easily plot locations. In addition, to facilitate ease of use, the information can also be accessed via iPhone, iPad and mobile web. The applications are available for download free of charge from the iTunes store. The REROC waste forum is the manager of the Safe sharps project.

The Forum worked closely with the Australian Diabetes Council to identify the locations of safe sharps disposal sites including pharmacies, hospitals, community health and public facilities. This information was previously held by the council on its website however it was in a static list format. As a result of the project, the information has been transferred onto the Safe sharps website making it more accessible and responsive to consumers needs.

Currently there are more than 550 safe sharps locations held on the site, and this is expected to grow. The site facilitates growth as it allows consumers to upload information on safe sharps locations via their smartphone, iPad or through the website. It also allows consumers to report information that is inaccurate. Information provided by consumers is validated by REROC prior to it being uploaded to the site.

### Challenges

The project was in response to increasing problems in the REROC region in relation to the disposal of used sharps into the municipal waste stream and particularly disposal of used sharps in recycling bins.

#### Title of project

Safe sharps – New South Wales

#### Year of project

2011

#### Type of project

Hazardous waste – community sharps management project

#### Budget

\$48 500 + GST

#### Sources of funding

New South Wales Department of Health  
Local Government New South Wales

### Outcomes achieved

The project was officially launched on 13 July 2011. To date, over 700 downloads of the application have been made through iTunes. More than 550 locations, mainly in New South Wales, are included on the site and consumers are uploading new sites from around Australia.

Links to the site are available from the New South Wales Department of Health website and the Australian Diabetes Council website as well as from many council websites. Safe sharps was the category and overall winner of the Community Sharps Award at the 2011 New South Wales local government excellence in the environment awards.

### Implementation

REROC's vision for the outcomes of the project were clear at the commencement of the project. In addition, the project managers brought to the project significant experience in the delivery of online solutions.

Initial concerns with the accuracy of the data were addressed in part by a mail-out to all pharmacies in New South Wales that the Australian Diabetes Council believed provided a sharps disposal service. The pharmacies were asked to fax back a confirmation sheet with their details and this worked reasonably well.

The IT consultant engaged to facilitate the project had previous experience in having iPhone apps approved by Apple, so the approvals for Safe sharps were gained without any difficulty.

### Key points to aid implementation in other jurisdictions

- Safe sharps is an online solution so it is available in any jurisdiction.
- REROC welcomes additions to the site that will make it a national resource.
- REROC intends to contact diabetes organisations in other jurisdictions of Australia to invite them to upload information to Safe sharps.
- Participation by other jurisdictions is free as REROC maintains the service for its member councils.
- The technology used to run the service is Google Cloud, which can be expanded to accommodate national delivery.

### Tools

These tools were used to promote the project:

- Safe sharps information A4 poster
- Safe sharps disposal DL flyer
- Safe sharps television advertisement
- Safe sharps information DL flyer.

### Contacts

Project manager

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REROC waste forum coordinator

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### Project partners

Riverina Eastern Regional

Organisation of Councils

Australian Diabetes Council

New South Wales Department of Health

### Links

[www.safesharps.org.au](http://www.safesharps.org.au)

[www.waste.reroc.com.au](http://www.waste.reroc.com.au)

# Environmental recycling of expanded polystyrene and associated packaging material through a trader stewardship program



*The Barwon region covers the Surf Coast Shire, City of Greater Geelong, Colac Otway Shire and Borough of Queenscliff.*

*The project involved the establishment of an expanded polystyrene (EPS) re-use and recycling facility in partnership with Geelong Disabled People's Industries. A trader stewardship approach to resource recovery encouraged local businesses to divert their EPS and associated packaging material from landfill, with local markets found for the use of EPS in blended cement products. Within the first five months of the service operating, more than 1500 cubic metres of EPS was recovered and re-used to produce lightweight cement products.*

## Background

The Barwon Regional Waste Management Group was formed in December 1997 in accordance with the *Environment Protection (Amendment) Act 1996* and is one of 13 waste management groups across the state of Victoria. The Barwon region includes the Surf Coast Shire, City of Greater Geelong, Colac Otway Shire and Borough of Queenscliff. The group's objective is to provide a framework for strategic regional waste management planning.

Geelong Disabled People's Industries is a charity that supports the employment of people with disabilities. It provided the site, shed, staff and services to the business sector for the project.

## Project description

The project offers an EPS recycling service to Geelong businesses at a cost-effective rate. It utilises a trader stewardship approach to recycling, assisting and encouraging local businesses to act in a socially and environmentally responsible way.

A priority trader list was developed, targeting whitegoods and electronic suppliers and retailers. Eight businesses signed up to an ongoing EPS service and ten businesses signed up to an on-call EPS service. Each trader was worked with individually to set up systems to recover their EPS packaging waste. Promotion of the EPS recovery service was undertaken using media, radio promotions and presentations to the Waste Wise Geelong Network.

EPS processing machinery was purchased and a processing facility was established at the Geelong Disabled People's Industries' North Geelong depot. The facility accepts waste EPS where it can be processed in two ways:

1. The material is crumbled into fine balls for use in moulded cement products such as garden pavers and mouldings.
2. It is compacted under high heat into a solid block. Once in this form it can be transported to recycling facilities to be made into new plastic products.

### Title of project

Environmental recycling of expanded polystyrene and associated packaging material through a trader stewardship program

### Year of project

2009

### Type of project

Recycling and re-use

### Population

220 068 (Geelong, 2010)

### Budget

\$114 140

### Sources of funding

National Packaging Covenant  
GDP Industries

Local end markets were secured for the endproduct crumbled EPS. The crumbled EPS is blended with cement to make lightweight pavers and mouldings. The benefits of the lightweight pavers and mouldings include:

- reduced fuel use in transportation of the products
- reduced greenhouse gas emissions from using less cement in the moulded products
- improved Occupational Health and Safety for people using the products as they are lighter, easier and safer to lift.

### Challenges

To be competitive with commercial landfill fees, the pricing structure of the project had to be reassessed.

### Outcomes achieved

In the first five months of the service operating, more than 1500 cubic metres of EPS was recovered and re-used to produce lightweight cement products.

The Barwon Regional Waste Management Group won the inaugural National Enviro 2010 Innovation in Sustainability Award for developing the EPS recycling program within the region in partnership with Geelong Disabled People's Industries.

### Key points to aid implementation in other jurisdictions

- While whitegoods and electronics suppliers and retailers are large producers of EPS waste, businesses that have significant IT infrastructure produce bulk quantities of EPS waste when they upgrade. Target businesses should also include local tertiary institutions, schools and large office-based businesses.
- To be successful, the pricing structure has to be competitive with commercial landfill fees.
- The strong end-market for this project allowed for the introduction of a free drop-off service.

### Contacts

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### Links

Barwon Regional Waste Management Group  
<http://www.brwmg.vic.gov.au/>

# Barwon mattress recycling project



*The Barwon region covers the Surf Coast Shire, City of Greater Geelong, Colac Otway Shire and Borough of Queenscliff.*

*The Barwon mattress recycling project worked with mattress manufacturers and traders in the Barwon region to implement a mattress take-back scheme. The project facilitated all member councils implementing pricing mechanisms to discourage landfilling of mattresses and developing mattress drop-off facilities at transfer stations. More than 10 000 mattresses were collected for recycling, saving about 7800 cubic metres of landfill space.*

## Title of project

Barwon mattress recycling project

## Year of project

2006–07

## Type of project

Recycling

## Population

277 057

## Budget

\$18 000

## Sources of funding

Sustainability Victoria

## Background

The Barwon Regional Waste Management Group was formed in December 1997 in accordance with the *Environment Protection (Amendment) Act 1996* and is one of 13 waste management groups across the state of Victoria. The Barwon region includes the Surf Coast Shire, City of Greater Geelong, Colac Otway Shire and Borough of Queenscliff. The group's objective is to provide a framework for strategic regional waste management planning.

Late in 2003, Dreamsafe Recycling Pty Ltd began recycling mattresses in an effort to keep an estimated 500 000 Victorian mattresses out of landfill each year. As of 23 March 2010, Dreamsafe had recycled over 600 000 mattresses and bases. Considering each mattress uses 0.7 cubic metres of space, Dreamsafe have diverted 490 000 cubic metres of waste from landfill.

## Project description

The Barwon mattress recycling project worked with mattress manufacturers and traders in the Barwon region to implement a mattress take-back scheme. Instore health and safety policies restricted some stores' ability to offer a take-back service as it prohibited them placing an old mattress next to a new mattress on the truck. Baseline numbers of mattresses being deposited into landfills in the region were estimated: based on population (250 000) and mattress life (20 years), 12 500 mattresses per annum were estimated for disposal and this was used to entice a mattress recycling facility to set up in the region.

A breakfast meeting was held, targeting all the major mattress manufacturers and retailers in the region. Traders were encouraged to sign up to the program and to take a trader stewardship approach to mattress disposal.

Support materials were developed for the traders including a promotional poster showing the process by which mattresses are recycled and a brochure with more detailed information.

Barwon Regional Waste Management Group met with member councils to discuss recovery options at the transfer stations. From these discussions, fees were placed for disposal of mattress to landfill that encouraged the recycling of mattresses. This was implemented by all member councils.

Mattress collection points at all transfer stations in the region were outdoors—which meant that in wet weather the mattresses were damaged, causing difficulties in transporting them and reducing the number of quality mattresses that could be re-used. Funding was secured to support the construction of storage sheds at all transfer stations in the region, ensuring mattresses remained dry. At the time, mattresses incurred an individual gate fee (about \$15) at all council transfer stations and these were stockpiled for recycling.

The mattresses are dismantled into their core elements. The metal springs are recycled, the foam recycled into carpet underlay, and the timber saved for mulching and other timber re-use markets.

### Challenges

Dreamsafe Recycling Pty Ltd is now in liquidation and has ceased trading. The parent company, Dreamsafe Australasia, has not been liquidated and the service continues to be provided within the region. The region now has a number of operators recovering mattresses for recycling.

### Outcomes achieved

Nine traders supported the program by either offering a take-back service or promoting the Dreamsafe pick-up service.

More than 10 000 mattresses were collected for recycling during the project period (end 2006–07). Dreamsafe not only recycled mattresses, but they also sanitised quality second-hand mattresses for resale through local charities, providing much needed bedding at affordable prices.

Recycling 10 000 mattresses equates to 125 tonnes of steel, 20 tonnes of wood and 15 tonnes of foam, with a saving of approximately 7800 cubic metres of landfill space.

### Contacts

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### Links

Barwon Regional Waste Management Group  
<http://www.brwmg.vic.gov.au/>  
  
Dreamsafe  
<http://www.dreamsafe.com.au/>

# Midwaste Regional Waste Group—regional contracts



*This case study shows the benefits achieved by regional councils working together to develop regional contracts for waste services.*

## Background

Midwaste is a voluntary regional waste group, formed in 2003, with representatives from eight member Councils located on the mid-north coast of New South Wales. The member Councils are Bellingen Shire Council, Coffs Harbour City Council, Gloucester Shire Council, Great Lakes Council, Greater Taree City Council, Kempsey Shire Council, Nambucca Shire Council and Port Macquarie-Hastings Council. These councils service an area of 21 179 square kilometres and have a population of 284 745 (2006 census).

## Project description

Due to the spread of member councils and the distance from markets, Midwaste members have developed a joint tendering process in an attempt to get increased interest from the market when tendering for waste services. This process has been used successfully when tendering for hazardous waste collection, green waste and wood waste mulching and scrap metal collection.

Each council involved in the tenders still holds an individual contract. As a result of multiple councils in the same region requiring the same service, service provision becomes a more viable option for contractors. The contractors who are awarded the tender generally develop a 'milk run' system to ensure that providing the service is cost effective for them.

## Challenges

Challenges faced by this project included:

- organising suitable meeting times and locations for multiple councils
- timeliness in general (largely due to the above point and also timing of council meetings to get the final sign-off to the recommendation)
- timing of expiry dates of existing contracts (not all councils can participate in new contract services)
- development of additional documentation (memorandums of understanding, etc.) if required
- time and effort to build a strong and committed working relationship prior to being able to enter into regional contracts
- lead time for contractors is often required e.g. the joint waste collection contract between three regional councils was in the planning stage for 12 years before it commenced to allow for contract anniversary dates and extensions to line up for a joint initiative.

### Title of project

Midwaste Regional Waste Group  
—regional contracts

### Year of project

2005—present

### Type of project

Regional contracts

### Population/area

284 745/21 179km<sup>2</sup>

### Outcomes achieved

Hazardous waste collection:

- all eight member councils are part of this joint tender
- collection and appropriate disposal of household hazardous waste across the region on a permanent basis (household quantities can be dropped off for free at all waste management centres in the region)
- an acceptable price for the service makes it viable for all member councils
- removal of many hazardous wastes from the general waste stream and ultimately landfill.

Green waste and wood waste mulching:

- currently four member councils are part of this joint tender
- an acceptable price for the service makes it viable for all councils
- councils involved in this tender use the mulched resource themselves or make it available to their ratepayers.

Scrap metal:

- currently four member councils are involved in this joint tender
- increased capacity to secure a good market price due to the use of a 'milk run' system by the contractor
- scrap metal is removed from the waste stream, saving resources
- source of income for all involved councils.

### Implementation

Implementation is a process of ongoing improvement. The current hazardous waste contract was developed and managed through Regional Procurement®, a division of Hunter Councils. They add a small percentage to the contractor's fee for this service. Utilising this system for other joint contracts was explored, but member councils decided not to go down this path. Each council is now taking turns in managing the tendering process as contracts come up for re-tender. The tendering process is long, but most councils have staff who are experienced in the process and can ensure that it runs as smoothly as possible.

### Key points to aid implementation in other jurisdictions

- Ensure that the requirements from each council are clearly articulated (in relation to council reports, divulged information etc.).
- Ensure the contracts are well-articulated (that it is a joint tendering and evaluation process, but contracts are held with the individual councils).
- Time frames should be appropriate to the commodity, i.e. the scrap metal contract is only for 12 months duration due to the volatility of the market.

### Tools

This type of project requires Tenderlink or a similar electronic tendering system.

### Resources

The development of a regional contract is like any other contract process; the largest resource is in members' time and advertising according to the *Local Government Act 1993* requirements. One member council generally runs the tendering process, utilising whichever system that particular council operates within. The specifications are updated after each contract incorporating any lessons learned from the previous contract. Each tender is advertised, assessed and evaluated according to *Local Government Act 1993* requirements. Other voluntary regional waste groups are a valuable resource for knowledge sharing.

### Cost

Regional contracts do result in a decrease in the cost of service provision. They also allow for a variety of services that may not have been available in smaller council areas to be offered (e.g. hazardous waste collection).

### Contacts

Ms Ali Bigg

Midwaste coordinator

Midwaste Regional Waste Group

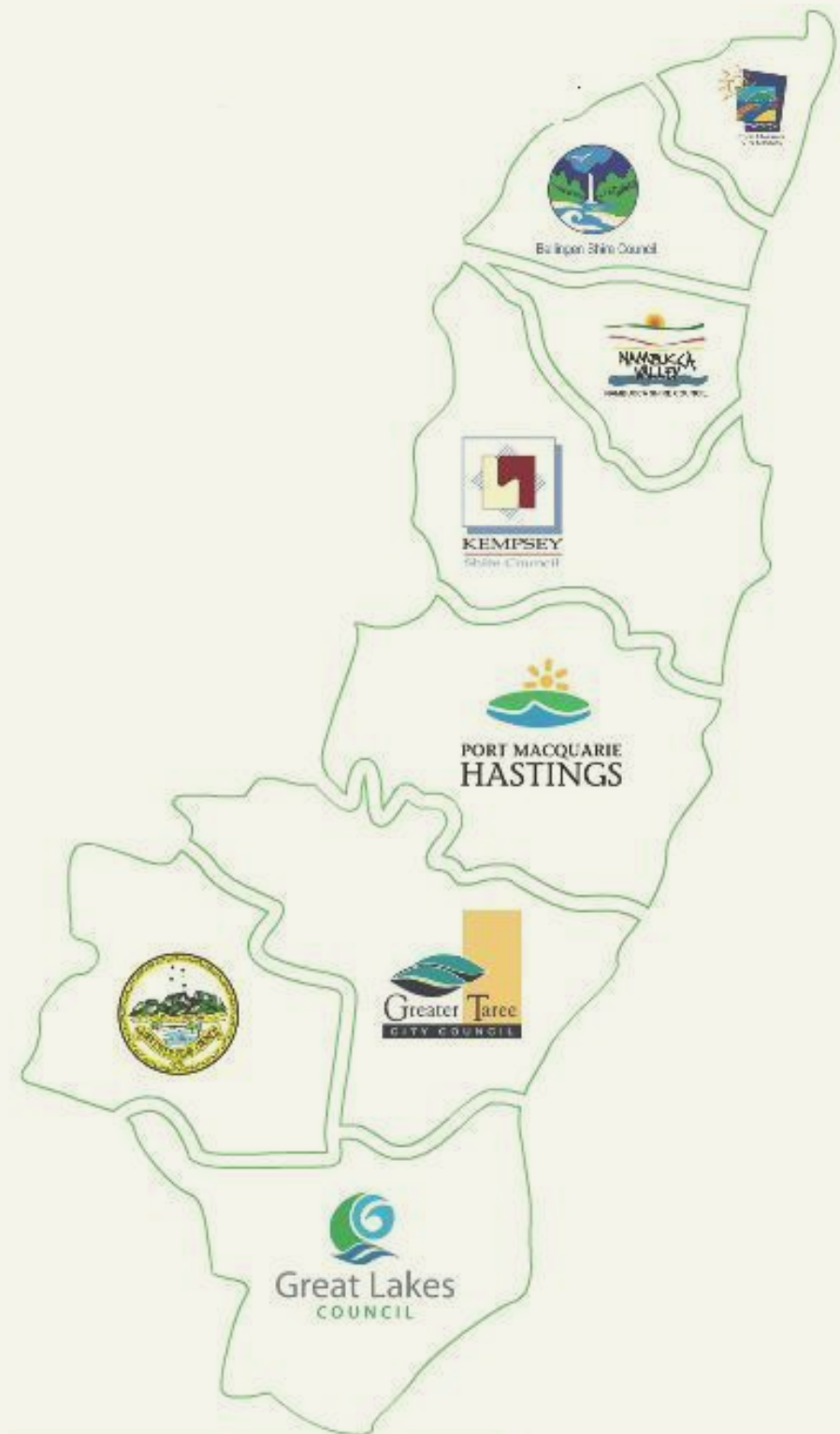
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### Links

<http://www.midwaste.org.au/>



# Business waste reduction project—business cluster survey



*The business cluster survey was a key strategy of the business waste reduction project (BWRP). Its aim was to consolidate the multiple business's approaches to improving waste management practices as well as assist local governments to deliver a better service to businesses.*

## Background

The North East Waste Forum (NEWF) is a voluntary waste management group based on the northern coast of New South Wales. Member councils include: Ballina Shire Council, Byron Shire Council, Clarence Valley Council, Richmond Valley Council and Tweed Shire Council.

The NEWF also has strong ties to the neighbouring Lismore City and Kyogle councils. The NEWF manages a range of projects aimed at reducing waste going to landfill and better managing waste and resources on a regional basis. It consists of member council delegates, a coordinator, an education coordinator and a business waste reduction coordinator.

## Project description

A total of 318 small- to medium-sized businesses took part in the business cluster survey from October 2010 to June 2011. Each survey was conducted in the Central Business District of a regional town across each of the five NEWF council areas. An additional survey was conducted in a commercial and industrial area of Tweed Heads South. The survey solicited information from respondents regarding their waste and recycling practices and included questions specifically requested by councils to help access and improve services and resource recovery outcomes. The survey process was also an opportunity to provide businesses with up-to-date information on available waste and recycling services.

The survey's main objectives were to:

- gain an insight into current business waste and recycling practices
- assess business knowledge of available waste management options
- encourage improvements in business waste management practices
- provide immediate information and advice where appropriate
- support businesses to continue improving their waste management systems.

## Challenges

It is acknowledged that the data and information collected during the business survey and the subsequent analysis is limited by the qualitative nature of the process. The time constraints on businesses, particularly in the retail sector, was a significant impediment to collecting and disseminating information. The project officer overcame this challenge by aligning her visits to appropriate times, depending on the nature of the business.

### Title of project

Business waste reduction project—business cluster survey

### Year of project

2010–11

### Type of project

Information gathering

### Population/area

293 000/19 592 km<sup>2</sup>

### Budget

About \$40 000 (approximately)

### Sources of funding

Office of Environment and Heritage  
Council contributions

### Outcomes achieved

As a result of the feedback provided by businesses participating in the survey and observations made by the NEWF project officer during the survey, a number of strategies were developed as possible options for improving waste reduction and recycling outcomes by making it easier (and providing financial incentives) for businesses to separate and recover their waste.

A range of businesses across the region that were identified during the survey as demonstrating sustainable waste practices were promoted by a case study (summary report) and local media article, both of which were widely circulated in each survey area.

### Implementation

Townships for inclusion in the survey were selected by each council and a survey was compiled and amended to suit each council's needs.

The region's network of local business chambers was utilised to gain support in promoting the survey process and the findings to the local business community via their membership and online services.

### Tools

- A BWRP e-newsletter was created to achieve a much broader transfer of business waste reduction information to industry groups, networks and businesses across the region and beyond.
- A detailed report including survey findings, recommendations and feedback from businesses was generated following each survey and submitted to the relevant council.
- A case study summary report was up-loaded to the business section of the NEWF website and circulated via the Chambers of Commerce and the BWRP e-newsletter.

### Cost

The project contracted a coordinator for 12 months and the surveys took place over 10 months. The proportion of the contractors costs dedicated to the surveys and associated tasks is estimated to be \$40 000.

### Contacts

Project coordinator

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### Links

<http://www.northeastwasteforum.org.au>

[http://www.northeastwasteforum.org.au/NEWF/CMS/index.php?page=About\\_the\\_Business\\_Waste\\_Reduction\\_Project](http://www.northeastwasteforum.org.au/NEWF/CMS/index.php?page=About_the_Business_Waste_Reduction_Project)

# Zero Waste South Australia School and community grants program



*The School and community grants program targets charities, service clubs and other not-for-profit organisations that benefit from the recovery of reusable resources.*

## Background

The South Australian Government established Zero Waste SA (ZWSA) to promote waste management practices that, as far as possible, eliminate waste or its consignment to landfill and advance the development of resource recovery and recycling. ZWSA is guided by South Australia's *Waste Strategy 2011–15*.

The objectives of the strategy are to:

- maximise the useful life of materials through re-use and recycling
- avoid and reduce waste.

Among the strategy's objectives are a range of targets for reduction of waste on a state-wide basis. Achievement of these targets will need an increase in waste avoidance and reduction initiatives at a community level.

## Program description

The School and community grants program targets charities, service clubs and other not-for-profit organisations that benefit from the recovery of re-useable resources. ZWSA developed the program because community-based organisations play an important role in the collection of materials for recycling or re-use, are small-scale, or often do not qualify for assistance based on their viability or profit performance. ZWSA developed the program after receiving numerous enquiries from community groups or not-for-profit organisations that did not qualify or meet criteria for other ZWSA funding programs, namely the Regional implementation program and the Metropolitan infrastructure grants.

The aim of the program is to assist these organisations in diverting materials from landfill and encourage more sustainable waste management and recycling practices. A key outcome of the grants is to encourage and facilitate behaviour change that results in waste reduction. Other important benefits of the program include that it:

- encourages small to medium scale community recycling and re-use, especially in rural areas

### Title of project

Zero Waste SA School and community grants program

### Year of project

2005–06 to 2011–12

### Type of project

Grants program

### Budget

\$646 909 to 102 schools and community organisations as at mid-2012

### Sources of funding

Zero Waste SA



*Photo courtesy of Zero Waste SA*

- educates students about the importance of waste avoidance and recycling and provides practical application of the wipe out waste (WOW) curriculum learnings
- has high community interest and value
- attracts positive media coverage in local communities.

### Challenges

Obtaining data from some recipients has been a challenge. Recipient organisations often need grant money before buying the infrastructure. Given all funds are paid up front, this often delays the receipt of the final reports as there is little incentive to provide a report when funding has already been delivered. However, delays in receiving reports are not exclusive to this grant program.

### Outcomes achieved

The School and community grants program has achieved a number of outcomes including:

- funded basic infrastructure including bins, sheds, shelving, trailers, signs, worm farms, compost bins and chicken coops for 102 school and community groups
- provided the beginnings of recycling services in rural communities that have little recycling services available from council (e.g. see Karoonda Lions Club case study on page 16)
- provides infrastructure to enable school students to get practical experience of what they have learned in their school curriculum through the WOW program.

### Implementation

The School and community grants program is a relatively straightforward program to manage, however it can require a large amount of administration in preparing the guidelines, advertising, assessing the applications and preparing grant agreements.

### Key points to aid implementation in other jurisdictions

This grants program is highly valued by the South Australian public and is a tool that enables ZWSA to provide benefits to regional communities, to educate the community and students about recycling and to promote sustainable behaviour change. It is the only incentives program in the state available that exclusively targets waste minimisation, recycling and resource recovery activities.

When calling for applications for the grants, school terms must be considered to avoid difficult and inappropriate times for schools to apply (e.g. at the end of a school term or immediately before the Christmas holidays).

The grants assessment panel consists of representatives from ZWSA, Keep South Australia Beautiful (KESAB) environmental solutions and the South Australian Department for Education and Children's Services. This enables the transfer of knowledge regarding specific school sites and allows for greater accountability should any decisions be queried by any of the applicants.

The School and community grants target waste and recycling infrastructure only (e.g. sheds, storage facilities, trailers, balers and composting units). Education programs, courses, salaries and ongoing costs to support the organisation or activity are not eligible.

The quality of applications can vary and applicants can require significant guidance. Some regional and rural community groups can be encouraged to seek assistance from their council grants community officer or equivalent.

### Tools

An internal evaluation of the ZWSA School and community grants program was undertaken in 2011. Findings from this can be obtained from the ZWSA Project manager upon request.

Previous copies of School and community grant guidelines can be obtained by contacting ZWSA.

## Contacts

Program manager

Zero Waste SA

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## Links

<http://www.zerowaste.sa.gov.au/resource-centre/wipe-out-waste>



*Photos courtesy of Zero Waste SA*

# Zero Waste South Australia Regional implementation program



*This project describes the Zero Waste SA (ZWSA) Regional implementation program which aims to help the South Australian regions implement waste reforms in a progressive manner.*

## Background

The South Australian Government established ZWSA to promote waste management practices that, as far as possible, eliminate waste or its consignment to landfill and advance the development of resource recovery and recycling.

ZWSA is guided by South Australia's *Waste strategy 2011–2015*.

The objectives of the strategy are to:

- maximise the useful life of materials through re-use and recycling
- avoid and reduce waste.

South Australia's *Waste strategy 2011–2015* introduces measures and targets to reduce the amount of waste over a five-year period. Among the strategy's objectives are a range of targets and goals for reduction of waste on a state-wide basis. Achievement of these targets and goals will need further infrastructure development.

## Program description

The ZWSA Regional implementation program aims to

help regions implement waste reforms in a progressive manner. Through this program, ZWSA provides financial support to enhance the recovery of materials from country areas, as South Australian councils have moved to rationalise landfills.

Priorities for the program include the upgrade of recycling and resource recovery infrastructure, and sites servicing more than one council or community or serving as a feeder site within the regional context. Projects must be located outside the metropolitan area and deal with non-metropolitan waste. The program provides up to \$140 000 per site, with matched funding required from applicants.

Since the inception of the program in 2004–05, ZWSA has contributed to the development of regional waste management plans. Projects should be identified as a high priority in the regional plan (or align with a local waste management plan).

### Title of project

Zero Waste South Australia  
Regional implementation  
program

### Year of project

2005–11

### Type of project

Grants program

### Budget

\$5 341 493 (88 projects)

### Sources of funding

Zero Waste SA



*Photos courtesy of Zero Waste SA*

Eligible project components include:

- establishment and/or upgrades of waste transfer facilities to improve resource recovery
- installation of equipment and technology that achieves recovery of resources and diversion of wastes from landfill
- balers and other compacting equipment for the processing of recyclables to improve transport and/or operational efficiency
- establishment of or upgrades to collection and sales centres for the recovery and re-use of discarded materials
- drop-off facilities for kerbside materials (in areas not serviced by kerbside collections).

Since the commencement of the grants program in 2004–05, the program has supported 88 projects with \$5 341 million in state government funds.

Applications are assessed by regional assessment panels, which comprise a mix of industry and local government representatives from member councils within the region. A strong focus is placed on best practice governance for panel representatives, with each application considered against assessment criteria. Each regional panel makes a recommendation to ZWSA on applications, ranked in regional priority order for funding consideration by the ZWSA board.

Projects must:

- have regional significance (listed in strategic waste management plans)
- be financially viable over the long-term (with demonstrated commitment to end markets and contracts)
- be cost effective—based on total project cost and annual quantity of resources to be recovered (cost per tonne per annum diverted)
- demonstrate commitment at senior management level and significant resources for the project to be completed
- be supported by other funding sources or in-kind support (i.e. third parties)
- have a clear timetable for implementation including approvals, construction, commissioning reports and evaluation within two years
- utilise proven technology or technology that has been successfully demonstrated to a pilot plant scale
- have sufficient project management experience.

Recent improvements to the program have seen the introduction of partly funded positions for regional waste coordinators (with one-third funding provided by ZWSA), a major projects category for regional facilities where three or more councils partner and co-fund (with ZWSA funds of up to \$300 000 matched), and planning assistance provided through a third party consultancy to facilitate planning approvals for successful applicants.

### Challenges

Key challenges for local government grant recipients mainly revolve around resourcing constraints unless the specific project is made a priority within council. The time required for planning approvals is often underestimated and there can be significant delays in this process. This can result in administrative challenges for ZWSA as many grant agreements require amending, resulting in budget and project management implications.

### Outcomes achieved

The outcomes achieved for the Regional implementation program are:

- implementation of key recycling infrastructure in regional centres
- support for regional waste reform and collaboration through regional waste management plans
- increasing diversion of waste from landfill through improved resource recovery systems

- contributing to long term infrastructure needs
- facilitating additional investment through matched funding.

### Implementation

Consulting with the Local Government Association of South Australia and regional executive officers with any reviews or proposed changes has ensured stakeholder support. The Regional implementation program contributes to government policy and is a key program for regional organisations.

### Key points to aid implementation in other jurisdictions

- Consult with key stakeholders.
- Ensure programs align with state waste strategies and have board or government support.
- Ensure regional assessment panels prioritise applications within their region.
- Develop robust assessment criteria and appropriate performance measures.

### Resources

The ZWSA Regional implementation program was reviewed by an independent third party consultant in 2009–10, with key recommendations implemented to streamline processes.

### Contacts

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### Links

<http://zerowaste.sa.gov.au>



*Photo courtesy of Zero Waste SA*