
EVALUATION OF A KERBSIDE RECYCLING TRIAL

UNDERTAKEN AT GULARGAMBONE, NSW



Prepared by:

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1.0 INTRODUCTION

This report has been prepared by R.W. Corkery & Co. Pty. Limited, Environmental Consultants, on behalf of Coonamble Shire Council and Netwaste to evaluate the kerbside recycling trial that commenced in Gulargambone ("Gular") in late March 2003. The nominated scope of works for the evaluation of trial included the following:

- (i) A documented chronological review of the process that brought the trial to its present position.
- (ii) A cost analysis of the trial including one-off and ongoing infrastructure, collection and transportation costs, together with any return from the sale of collected materials.
- (iii) A review of community perceptions regarding the effectiveness of the recycling program on community attitudes.
- (iv) A review of the economic, social and environmental costs of the trial.
- (v) A series of recommendations regarding the continuation, expansion, cessation or change to the Gular recycling scheme.

The evaluation commenced with interviews with representatives of Coonamble Shire Council and the community committee and a series of door-to-door interviews with Gular residents and businesses. Information provided by Council and the community committee was reviewed, however additional information was sought to enable the nominated scope of works to be addressed.

2.0 BACKGROUND TO THE RECYCLING TRIAL

2.1 Introduction

Gular township has a population of approximately 500 people and is located near the southern boundary of the Coonamble Shire, mid-way between Coonamble and Gilgandra. The township has been served for many years by a small unmanned waste disposal facility 3km southeast of the town, adjacent to the Oxley Highway. There are approximately 320 households within the Gular postcode area centred on Gular and extending for a radius of approximately 35km. Approximately [REDACTED] households are present in the Gular township, consisting of "town blocks", units and rural/residential on the outskirts of town.

In September 1999, the Coonamble Shire informed the Gular community that it intended to close the Gular landfill facility due to a number of environmental concerns expressed by the NSW EPA. At that time, the Shire identified a few options to replace the Gular facility. On 5 March 2002, the local community called a meeting to discuss Council's position on the matter and formed a committee comprising eight local residents. This community committee inspected a number of waste facilities in the adjoining local government areas of Gilgandra, Coonabarabran and Narromine



(including the Narromine CDEP) after which they prepared a discussion paper for Council's consideration addressing what the committee considered were better options for Gular and district residents. These are outlined in a discussion paper compiled by a community meeting as well as their preferred option (No. 6) contained in Appendix ???.

The community committee made a presentation to Council on 10 April 2002 with three principal recommendations.

- (i) Council consider a resource recovery centre at Gular;
- (ii) Council discuss its response with the community prior to the next formal Council meeting; and
- (iii) Council or the committee seek funds for the proposed resource recovery centre at Gular.

Once the support of Council was obtained to establish a resource recovery centre, the community committee commenced the search for a suitable site. Three sites were considered, namely:

- (i) the former landfill facility;
- (ii) adjacent to the sewerage treatment plant; and
- (iii) the former night soil depot.

Sites 2 and 3 were rejected because of considerable local opposition to Site 2 and the presence of an Aboriginal land claim over Site 3. It was therefore determined to establish the resource recovery centre on the former site of the landfill facility.

The Gular landfill was closed in 2002. The Shire constructed the new facility (in late 2002) adjacent to the former waste disposal facility effectively providing a transfer station and drop-off point for selected wastes, ie. white goods, cars, green wastes. The facility comprises a bay formed by former concrete culvert blocks and a ramp. The facility operates with restricted opening hours, namely, .

The Gular community encouraged Council to introduce a recycling service to recover as many recyclable items as possible and reduce the quantity of wastes transported to Coonamble. The site was then used as a waste transfer station with Council undertaking regular journeys to transport collected materials to Coonamble for disposal, principally to landfill. This round trip is approximately 100km. The community committee held discussions with the Narromine CDEP to establish a bag collection service in Gular generally along the lines of the service already in place in Narromine, Peak Hill, Trangie, Gilgandra and parts of Dubbo.

2.2 Commencement of the Trial Recycling Service

The introduction of the recycling trial was explained to the Gular community at a meeting on 11 February 2003. It is understood that this meeting was very positive and all members of the community present were very supportive about the introduction of the new service. NetWaste provided funding for the supply of 2 400 woven bags which would be laundered and recycled to households. Approximately 6 bags per household were purchased for use on a rotational basis. The committee chose to use white bags with a diagonal pink stripe. The committee hand distributed the bags with a locally designed and manufactured hanging frame to residences within the Gular township on Saturday, 1 March 2003. Over 50% of the residents were happy to have community representatives attach the hanging frames in the preferred location at the time of delivery. **Plates 1 and 2** show a typical frame and bag attached. A recycling education information package titled "Gulargambone Recycling – Only You Can Make it Work" (**Appendix [redacted]**) was produced, discussed and left with each household in conjunction with this "door to door" bag and bracket distribution program. Each resident was issued with a pink fridge sheet indicating which household items can be recycled using the bag.

Each rural landholder was initially requested to record in a book the number of bags taken in order to maintain some record of rural participation.

Rural residents of the Gular district were able to collect recycling bags, hanging frames and an information package from the Gular CDEP or the Gular Rural Centre – the main rural supplies store frequented by local farmers

The first collection occurred on Thursday, 13 March 2003 with all bags collected, stored at the Gular CDEP for collection by the Narromine CDEP.

Rural residents of the Gular district were able to deliver their full recycling bags to a trailer located within the Shire Works Depot at Gular (see **Plate 3**). It is understood that these bags have been cleared regularly by Council employees and delivered to the Gular CDEP storage shed (see **Plate 4**).

The bags are washed, dried, folded with an elastic band and brought back to the Council Works Depot for re-distribution at the time of collection. Rural residents are able to collect recycling bags from the Gular CDEP and the Gular Rural Centre.

Businesses in Gular have also been supplied with large woven packs (1m³ approx.) to enable their recyclables, eg. cardboard, to be flattened and stored. These business packs are transported directly to the Narromine CDEP with the bagged recyclables, generally on a monthly basis.



3.0 EVALUATION OF THE KERBSIDE RECYCLING TRIAL

3.1 The Evaluation Process

Corkery & Co has attempted to assess and evaluate the financial, social and environmental benefits and costs of the Gular Kerbside Recycling Trial and to translate these into recommendations. This has been undertaken using available local information and data supplied by Council and the Community Committee, discussions with representatives of Coonamble Council, the Community Committee, the outcomes of random surveys of the Gular community by door knocking, letter box drops and discussions with key stakeholders including the Gular and Narromine CDEP and local businesses. Representatives from Corkery & Co undertook the community and stakeholder consultation program on Friday 10 October and Saturday 11 October 2003 together with the Gular community survey. A total of 18 town and rural residents and [REDACTED] businesses were surveyed about their use of the service and their attitudes to its success or otherwise.

In addition to the households interviewed, contact was made with a total of 6 enterprises in Gular to gain an understanding of their use of recycling. Enterprises approached included retail shops, take-away food stores and sporting clubs. Where relevant contact persons were not available, we were offered the opportunity to inspect the current recycling facilities.

A desktop literature review (listed in References) was also undertaken to further explore and consider accepted community and government perception of environmental sustainability that being recycling and waste processing versus landfill disposal.

3.2 Community and Committee Commitment

The Gular community has demonstrated that it is keen to establish a sustainable waste management system for the township. It sought a solution that would be both cost effective and bring social and environmental benefit to the community of Gular. It is apparent that the community perceives that the success of the Gular recycling project has been attributed to a number of factors including the following.

- (i) Community representatives have gone directly to State and Local Government seeking support for their scheme. ie, knocking on doors rather than writing letters;
- (ii) The community has developed a working relationship with both the former Resource NSW and NetWaste – this included the involvement of Resource NSW personnel in direct presentations to Council in support of the project; and a follow up visit to Gular township.
- (iii) The recognition by Local and State Government authorities of the community interest in the recycling project;

- (iv) The community committee involved Gular's residents on a one-to-one / door knock basis to explain the proposed service and seeking feedback, followed up by a general community meeting;
- (v) Costs for the services have been maintained as low as possible to avoid developing a "white elephant". Country initiative and resourcefulness has ensured a simple, practical approach has been followed;
- (vi) The community's perception and pride in a "Tidier Town" through less general litter and the removal of the "eye sore" tip at the entrance of the town.
- (vii) A 3 month trial collection of recycle bags was undertaken by the community committee until quantities of bags / wastes collected were accurately known to provide the success with an understanding of what was involved. (The community committee relinquished the trial for a further three month period to Council personnel).
- (viii) The use of the recycling bags has been seen as a part of the overall solution to the town's waste management.

3.3 Review of the Progress for the First Three Months – Community

The first three months of the trial were undertaken by the community committee with the support of the Council. This was achieved by a team of 2 X 2 people crews utilising a 1 tonne utility and trailer. The collection was undertaken on the second and fourth Thursday of each month, the same day as the wheelie bin collection and took approximately 1 ½ hours. In short, the reportable outcomes are as follows.

- The first collection (13 March) yielded 251 bags and the second (27 March) yielded 279 bags (530 total). The Community Committee reported that participation rates remained steady throughout the first three months.
- Approximately 90 full bags have been returned by rural residents dropping them to the Shire depot.
- The individual bags were placed in bulka bags or big packs the day before transportation to Narromine CDEP.
- At the end of the first month 530 bags were loaded into 26 bulka bags (total weight = 3.6 tonnes). Approximately 3.5 tonnes of recyclables were transported on average to Narromine CDEP each month during the first three months.
- A further 1.4 tonnes of mainly cardboard from local stores was also collected each month providing a total load of approximately 5 tonnes to be transported to Narromine during the first 3 months. The recyclables were transported to Narromine by a local contractor (at a cost of \$400 per month).



- Members of the community committee visited the Narromine CDEP to inspect the facility and observe their recyclables being sorted and discuss issues relating to contamination. Contamination was considered to be very low.
- The Committee estimates the participation rate to date is approximately 60% to 70% and note that normal wheelie bins are not as full (often near empty). This has been further supported by the results of the Evaluation Questionnaire.
- The Committee estimates that approximately 600 to 800 bags are being used at one time and the total 2400 bags purchased will last approximately 12 to 18 months.
- The Committee reports that Gular Transaction Centre Volunteers insurance policy was relied upon during the first 3 months of the trial. This policy covers a number of activities at a cost of \$550 per year. As this was a three month trial no cost was passed on.

3.4 Review of the Progress for the Second Three Months - Council

The second three month period of the six month trial was undertaken by Coonamble Shire Council. In correspondence to Dr Richard Whyte of the EPA, Mr Chris Simpson General Manager of Coonamble Shire Council makes the following statement "The Coonamble Shire Council supports this initiative as a resource management option for the township following the recent closure of the Gulargambone landfill facility. Council considers that this activity will reduce the quantity of waste currently transferred from Gulargambone to Coonamble and assist in ongoing State Government for the diversion of material from landfill." He further notes that "the trial is not a profit making exercise but a real initiative by the Gulargambone community to manage recyclable resources in a sustainable manner." Further to this, he seeks the support of the EPA and concludes by stating "which if successful will provide a model for other small regional communities". With these underlying Council sentiments the reportable outcomes are as follows.

- Collection by Council was undertaken in a similar manner to the community collection that being a crew of 2 employees utilising a 1 tonne utility and trailer. It is reported that the driver also records the collection details. The collection was also undertaken on the second and fourth Thursday of each month, the same day as the wheelie bin collection and is reported to have taken approximately 2 ½ hours. The collection commences about 6.45am. The collection of cardboard from local businesses takes a further 1 ½ hours.
- A 4.5 tonne semi-trailer was used by Council to transport the recyclables to Narromine CDEP on the second Friday of the month. Approximately sixteen bags are packed into each bulka bag and then loaded onto the semi-trailer by backhoe. The trip is approximately three hours return and is costed at approximately \$500 per trip. Council receives no financial benefit from this enterprise. Rather, Council pays \$34 per collection (17 cents per

participating household). The cost of transportation for the collection and return of the recyclables to the Narromine CDEP is a matter of concern and the community is keen for NetWaste to explore incentives with the State and Federal Governments to reduce the real cost to the local community for the transportation of the recyclables, eg fuel tax reduction etc.

- The collected recycled bags are stored ready for transportation in the Gular CDEP shed located on [REDACTED] Street. This hall has just enough capacity to store the bags awaiting transportation to Narromine CDEP.
- The Council Depot is the drop-off point for the rural bagged recyclables. A trailer is supplied and rural households are requested to throw the bags over the fence onto a trailer. It is reported that a number of bags are deposited on the outside of the fence as it is too high for women or elderly persons to clear the fence. These bagged recyclables are then transported to the shed for storage awaiting transportation to Narromine CDEP.
- Council reports similar participation rates and subsequent tonnage during the second three month trial period as was recorded by the community Committee during the first three months; ie. about 3.5 tonnes per month.
- Council has established a waste recycling and transfer station (WRATS) at the former landfill site that is open and manned on a limited basis each week, namely [REDACTED]. This waste recycling and transfer station receives steel, green waste (tree loppings), white goods, tyres, sorted tin, bricks suitable for recycling, batteries, and drums. Clothes and other household goods suitable for reuse need to be delivered to Coonamble charity outlets by residents.
- Steel is collected from the waste transfer station by a road train on an as needs basis and delivered to Coonamble. It is understood that Council currently pays this contractor at the rate of \$130 per hour. It is understood the steel is sold to Simsmetal with the metal received at the Coonamble waste depot.
- Council is undertaking discussions with Gular CDEP with respect to opportunities that may be available to them to take over and expand the current trial. The Gular CDEP reports that they are undertaking a business plan with ATSIC. Consideration of the employment generating opportunities and increased range of recyclables sourced are being considered in the business plan.
- Council has not changed its general waste collection service in Gular during the trial. General non-recyclable wastes are currently collected once per week on a Thursday and this service is undertaken by a contractor that is based in Gilgandra. It is understood that the contractor collects the waste in Gular utilising a compactor truck and then travels to Coonamble where kerbside collection of waste is undertaken. For the purposes of this



evaluation the costs associated with the recycling are not being added to the general waste collection costs.

- Council has indicated that it may seek to undertake a general waste collection service in Gular once per fortnight if the recycling program is continued.

A summary of the main outcomes from the discussions with Gular enterprises are as follows.

1. All enterprises are most supportive of the opportunity to recycle. The number of trips to the “tip” have decreased noticeably – which from a business perspective is most appreciated.
2. The reliability of the service is very good which is important. Enterprises do not want “rubbish” building up around their premises.
3. A number of participants encouraged the supply of simple signs that could be put above bags/wool packs reminding staff of what is recyclable to minimise contamination.

Discussions were also held with representatives from the Narromine CDEP regarding the recyclables delivered to their Narromine Centre. The following points arose from those discussions.

1. The CDEP appreciates that the recyclables are delivered to the centre. Their own trucks are heavily committed.
2. The current system involving delivery of recyclables in large bags is very good – unloading is quick and doesn’t tie up CDEP personnel unloading individual bags.
3. The quality of recyclables delivered to the centre is very high – amongst the best received. Very little contamination is present.
4. The recyclables delivered from Gular represent approximately 5% of their monthly throughput. Given the centre employs about 60 people for an average of 15 hours per week, the recyclables from Gular effectively support employment for approximately 3 persons.
5. Overall, the Narromine CDEP is very pleased with the outcomes of the Gular trial. They hope that in time they can increase the participation rate and hence receive more recyclables.

4.0 SOCIAL, ENVIRONMENTAL AND FINANCIAL CONSIDERATIONS

4.1 Social Considerations

An understanding of the social benefits of recycling at Gular is based largely upon the results of the consultation conducted as part of the evaluation. From a community perspective, the following social benefits were identified.

- Gular is certainly tidier around the commercial and residential areas.
- The entrance to Gular is more presentable compared to the period when the landfill was operational.
- The collection, transportation and sorting of recyclables is generating employment. These activities currently generate an equivalent of approximately 50 hours of work per week – which is important for rural towns.
- A sense of pride is evident amongst Gular residents when going about their daily lives.

4.2 Environmental Considerations

Will be discussed using interviews with community, business and questionnaire together with literature review data.

4.3 Financial Considerations

From the outset, a simplified assessment of the financial costs associated with the Gular recycling trial has been undertaken with the key question to be answered “how much does recycling material collection, storage and delivery cost compared to a base level of all waste to landfill?” Therefore consideration of the additional (or net cost) of kerbside recycling over and above the “landfill only” scenario has been measured by assigning costs to the collection and recycling (including storage and delivery) activities together with the revenue benefits and avoided landfill disposal and garbage collection (potential) which accrue from the collection and removal of recyclables from the waste stream.



COSTS INCURRED	COSTS AVOIDED
➤ Collection, storage and delivery.	➤ Landfill disposal costs
➤ Material sorting (re-coupled partly by sale of recyclables)	➤ Waste collection costs.

The financial assessment of the trial was undertaken by comparing costs incurred under the following scenarios.

- (i) Costs prior to the closure of the Gular Landfill.
- (ii) Costs following the closure of the Gular Landfill with all wastes transferred to Coonamble Waste Depot.
- (iii) Costs during the first three months of the trial – Community.
- (iv) Costs during the second three months of the trial – Council.

Data that has been able to be collected on the various components of the above scenarios is set in **Table 1**.

TABLE 1

Monthly Costs Incurred Prior to and During the Kerbside Recycling Trial

Cost Component	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Waste Collection ^{*1} (_____ households)				
Waste Disposal Cost ^{*2}	(_____ tonnes)	(_____ tonnes)	(_____ tonnes)	(_____ tonnes)
Collection of Recyclables	----	----		
Transportation of Recyclables to Narromine	----	----	\$400	\$500
Recyclables Sorting Fee ^{*3}	----	----	\$68	\$68
Miscellaneous Costs Eg. Education/Promotion	----	----	\$	\$
<p>¹ Waste collection is undertaken by contractors, _____, who are based in Gilgandra and travel to Coonamble via Gular. All general wastes are now collected as one load in the compactor for transportation to the Coonamble Waste Depot. For Scenario 1, the general wastes were delivered to the Gular landfill.</p> <p>^{*2} The costs of waste disposal allocated to this component covers the cost of establishment of the landfill (EIS, Approvals, Setup Costs), daily operational costs, monitoring costs, administrative costs (eg. insurance), site remediation and provisions for closure.</p> <p>^{*3} Fee paid by Council to the Narromine CDEP is based upon 17 cents per household per collection (currently 200 participating residences at Gulgargambone).</p>				

It is recognised that there has been little opportunity to reduce costs for general waste collection during the course of the trial. The noticeable reduction in general waste generation could be reflected in reduced collection costs when future waste collection contracts are let.



As information for Gular has been limited, the following information has been sourced and is provided as a guide and for consideration in a broad context.

¹: Sourced from *Independent Assessment of Kerbside Recycling in Australia. Volume 1*; Prepared by Nolan – ITU in association with SKM Economics and EnviroRIS 2001.

The key findings from the Nolan – ITU financial analysis¹ of kerbside recycling in Australia are:

- For regional systems, the collecting, sorting and delivery costs of recycling ranges between \$36 and \$53 per household per year, or 70 cents and \$1.02 per household per week.
- The net or additional cost for both metropolitan and regional systems, compared to landfilling, varies between \$17 and \$38 per household per year, or 33 cents to 73 cents per household per week.
- Costs escalate significantly when yields are low. In general, the cost efficiency of collection systems becomes poor when yield falls below 1.8kg per household per week.
- Net costs in regional areas are typically about 5% to 15% higher due to lower yields and less benefit from avoided garbage costs due to lower recyclable yields and lower landfill disposal charges.
- The financial benefit from avoided garbage costs attributed to recycling currently averages around \$10 per household per year in metropolitan areas and \$3 per household per year in regional areas. The variation is wider across individual systems due to the different system yields and the disposal costs.

On balance there is clearly a financial cost to the community of Gular in continuing the kerbside recycling program. These increased net costs should be considered carefully against future State and Federal Government policy and increased regulation and the accrued hidden cost savings of less waste to landfill.

5.0 RECOMMENDATIONS

- The kerbside recycling program should continue in Gular.

Reason: *The social and environmental benefits of the recycling offset the comparatively modest costs of operating. The small community of Gular has gained significant social and environmental benefits through participation in the trial and these benefits are likely to continue with the permanent introduction of kerbside recycling into Gular** . From the outset Council is noted for their foresight in recognising that the recycling program would assist in the broader goals of "diversion of material from landfill" but would not be a profit making exercise.*

- Provide training to Council employees

Reason: *To better enable them to promote and assist in the successful collection of recyclables to prevent contamination and increase participation.*

- Promote and re-educate the community regarding the recycling service every 3-6 months.

Reason: *To ensure new residents are informed about the recycling service and maintain high participation rates and reduce contamination for all residents.*

- Install a user friendly receivable or drop-off facilities at the Gular WRATS or Council Depot to allow for 24 hour delivery of recyclable bags.

Reason: *Women particularly find it too difficult to throw bags over the fence into the trailer and are reluctant to leave outside of fence.*

- Place separate containers for recyclables at the Gular WRATS for residents to deliver recyclables when WRATS is open.

Reason: *To further provide for recycling and to ensure the quality of recyclables being placed into the general waste bin.*

** Acknowledgement

Corkery and Co, following evaluation of the kerbside recycling trial, strongly applauds Council's acknowledgement and the Gular community participation in a program that demonstrates "a real initiative by the Gular community to manage recyclables resources in a sustainable manner".

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Report.doc



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- Prepare and present a technical paper promoting the Community/Council cooperation with the Gular recycling service.

Reason: The wider community and local government would benefit from the recycling trial being described jointly by a Council Representative (preferably Mayor or General Manager) and a community representative.

- Seek NetWaste and Resource NSW support and assistance to provide standard bin design, signage and ongoing educational material for use in public places, such as outside shops, parks and at the WRATS.

Reason: To provide the community with increased opportunities to recycle through better recognition.

- Continue discussions/negotiations with the Gular CDEP with a view to their involvement in the running and possible expansion of the Recycling Program.

Reason: To provide for local employment participation and possible cost savings.