

# Assessment of garden organics collection systems

## Choosing the best system for your council

The latest progress report into waste avoidance and resource recovery in NSW indicates that NSW households have increased their participation in recycling services, are recycling more and are steadily reducing the amount of waste disposed of to landfill. Similarly the recovery of garden organic material has steadily increased. However, Councils have indicated that a level of uncertainty exists over how to best manage garden organic material in a manner that will deliver the best environmental outcome.

To help local councils work out the best way of dealing with their residents' garden organics, the Department of Environment and Conservation (NSW) has released a 'triple bottom line' (financial, social and environmental) assessment of different handling systems. The study looks at the costs and benefits of various options for the collection, transport, processing and disposal of garden organics.

This study was undertaken as an adjunct to the Department's previous assessment of domestic waste and recycling systems. The findings of this study should be considered along with that report.

This leaflet gives you an overview of how the results of the study can help your council decide on the best way of handling garden organics.

### Systems studied

Of the Councils within the Sydney Metropolitan Area (SMA), currently 70% provide some type of scheduled kerbside collection service for garden organic material. Of those that provide a scheduled garden organics collection service, 65% of Councils use a 240 litre mobile bin based service, mostly collected fortnightly,



and 35% provide a tied and bundled service collected at varying intervals throughout the year.

The study recognises that some local council areas have the potential to generate more garden organic material than others and also the differences between metropolitan councils and those in the regional and rural areas.

On the basis of this information, the study assessed garden organics collection systems that operated:

- fortnightly (240 litre mobile bin)
- monthly (tied and bundled)
- three times a year (tied and bundled)

in metropolitan areas that generated either:

- high volumes (175 kilograms per household per year or more) of garden organics (typically outer suburban councils)
- low volumes (less than 175 kilograms per household per year) of garden organics (inner city councils)

where the recovered garden organic material was processed by windrow composting and a product suitable for beneficial reuse was produced.

Similar systems were assessed for rural/regional councils.

*garden organics* ▶ ▶ ▶ ▶



## Comparing the performance

Each of the systems studied were assessed for their financial, environmental, technical and social performance using the processes of Life Cycle Assessment and Environmental Economic Valuation.

As part of the assessment process Council Officers and members of the community were asked to indicate their views on the relative importance of each of the performance categories.

While the financial performance of waste management systems was the most important aspect to the Council Officers, importantly, environmental performance was the single most important outcome for the community.

Figure 1. Overall weightings by the community (metropolitan).

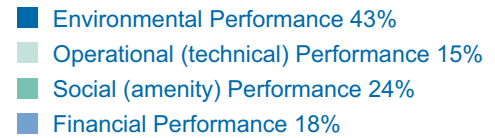
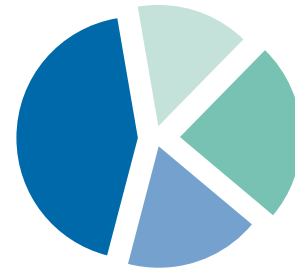
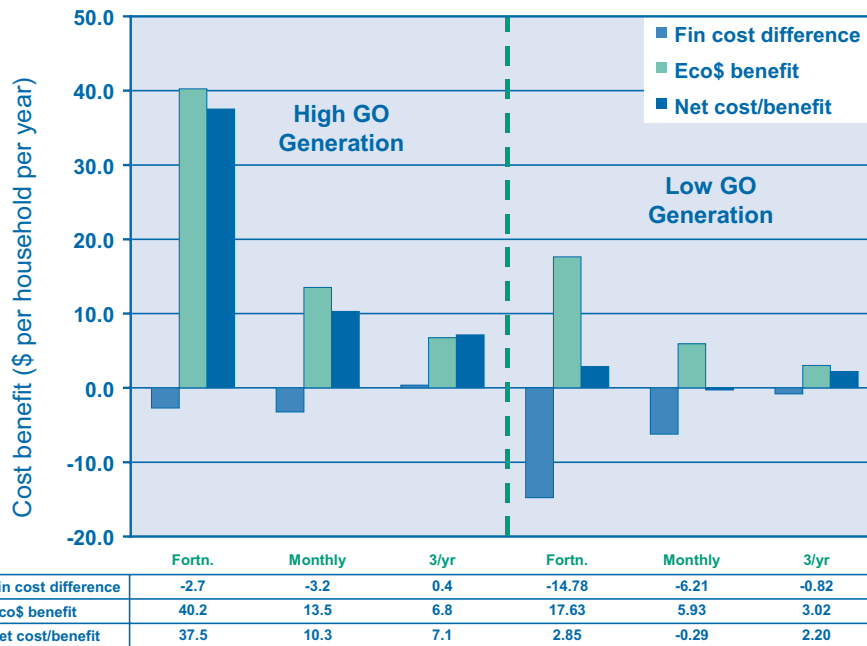


Figure 2. Cost benefit results for source separation of garden organics



## Costs

The study looked at the raw and net costs of collection.

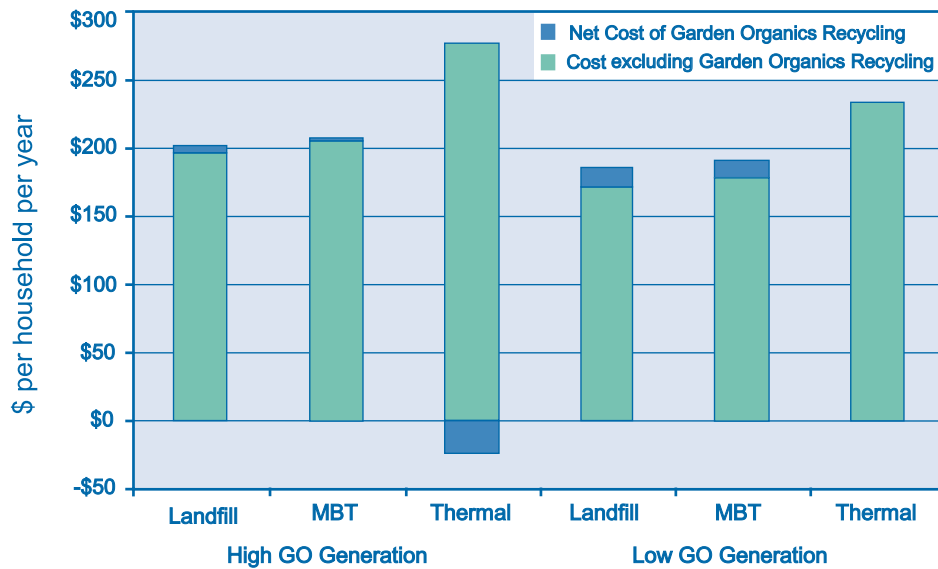
### Example

For tied and bundled organics collected three times a year in council areas generating low volumes, the raw cost of providing a separate garden organics collection system was \$3 per household per year, but the net cost was as low as \$1 per household per year.

For fortnightly 240 litre mobile bin collections in council areas with high generation rates, the raw cost was about \$45 per household per year, but the net cost was less than \$5 per household per year, (see figure 3).

The net costs were much lower because they took into account the savings achieved by diverting garden organics away from the garbage collection and disposal system.

Figure 3. Proportional waste Management costs for metropolitan areas.  
Fortnightly mobile bin collection of garden organics



### Adding Alternative Waste Treatment (AWT) technologies

The costs associated with the provision of source separated garden organic collections (previous section) were based on collection services that used landfill to dispose of residual waste. The study also found that the net cost of providing a separate garden organics collection service was even lower where AWT technologies, (mechanical biological or thermal), were used to treat residual waste instead of landfilling.

### Benefits

The study then examined the environmental benefits of garden organics recovery.

#### Example

The environmental value of garden organics recycling was conservatively estimated as \$114 per tonne of source-separated garden organics (the value used for calculations in the study), but it could go as high as \$277 per tonne. This 'Eco' value is comprised of resource savings, together with a range of savings in avoided product credits in environmental impact categories such as air and water pollution and global warming potential.

Application of AWT technologies to treat residual waste further increased the overall environmental benefit. Importantly, the more garden organics recovered through a separate collection system, the greater the total environmental benefit.

### Net Cost Benefits

Finally, the study compared the financial cost difference between each scenario and the base case (ie. no separate garden organics collection) with the environmental benefits to produce the overall net cost benefits of introducing a separate garden organics collection system, (see figure 2).

#### Example

The overall net cost benefit of source separated garden organics collection per household per year ranged from \$2.20, for councils that generated low volumes of garden organics (3 times per year tied and bundled) to as much as \$37.50 for councils that generated high volumes of garden organics (fortnightly 240 litre containerised collection).

# Assessment of garden organics

## collection systems

### Summary of the study's findings

- The study found that it is surprisingly cheap to provide a separate garden organics collection system, and sometimes such a system can actually reduce your overall waste management costs.
- Source-separated garden organics collection systems are the most sustainable. They reduce emissions because they reduce landfilling, and they give high yields of good quality composts with a wide range of applications and benefits.
- Fortnightly containerised collections are the most cost effective and most sustainable for council areas that generate high volumes ( $\geq 175$  kilograms per household per year).
- Fortnightly containerised collections or three times yearly tied and bundled collections give about the same benefits for council areas that generate low volumes.
- If AWT technologies are added for the treatment of residual waste, then the overall waste management costs are actually reduced by providing a separate garden organics collection service. This corrects the misconception that providing a separate garden organics collection is expensive.



### Background to the Study

The Department commissioned Nolan ITU to conduct the Assessment of Garden Organics Collection System as an extension of its 2003 study of the financial, environmental and social costs and benefits associated with different domestic waste and kerbside recycling systems (Assessment of Alternative Domestic Waste and Recycling Systems, March 2004).



### Futher Information

You can download the full report of the study from the Department's website at: [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)

or contact:

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