

Understanding monitoring and evaluation

Monitoring and evaluation helps develop an understanding of how a scheme or communications campaign is performing, and may identify opportunities for improvement. This applies to both waste management services and the communications activities undertaken to promote them.

'Monitoring' means regularly measuring outcomes such as customer satisfaction, participation rates, contamination rates and diversion rates. **'Evaluating'** means drawing conclusions from the monitoring data in terms of how well the scheme is performing, or the effect of the communication activity. Monitoring and evaluation are therefore two distinct activities, with monitoring being impartial and factual while evaluation tends to be subjective and value laden.

Most monitoring can be done by someone who does not know the local area, while only someone who understands the context and local environment can do the evaluation, for example someone who has knowledge of previous programs, socio-economics, demographics, and data. This means that, although you can commission somebody to measure what your service is doing, ultimately you need to evaluate whether these outcomes are good, satisfactory or poor.

Monitoring and evaluation help you to:

- ✓ Measure customer satisfaction and user attitudes to establish how these are impacting on the performance of your scheme
- ✓ Measure progress against objectives and targets, so you will know in advance if you are likely to hit or miss them – for example less than 3% contamination, more than 80% participation, more than 60% diversion and 95% customer satisfaction
- ✓ Identify successful systems as well as problems or performance issues, so that you can target your efforts to those neighbourhoods where improvements will make the most impact

- ✓ Assess expenditure and control costs, in terms of anticipated quantity of organics collected, demand for liners, and the impact on education and processing costs of different contamination levels
- ✓ Evaluate return on investment to justify existing budgets or persuade budget holders that more money is required to achieve statutory and local targets
- ✓ Plan scheme expansions and design (or redesign) scheme so that targets are met or exceeded
- ✓ Plan targeted communications to improve performance
- ✓ Address the issues that are really impacting on scheme success.

When to monitor

If you want to monitor the effect of a service change, then you need to monitor both before the service starts or the service is changed, and again afterwards. The purpose of monitoring in advance is to establish a baseline from which you can measure a change.

Your aim

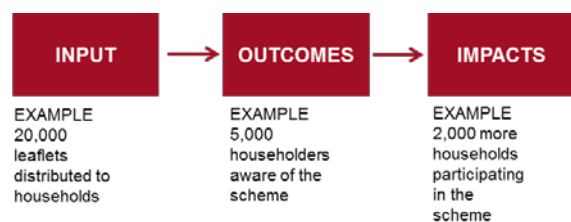
An aim is a broad statement of what you are trying to achieve and there is usually one overarching aim. An example of a monitoring aim would be 'to measure the performance of the organics service':

To capture xx% of the total generated organics in the kerbside organics bin by [xx date].

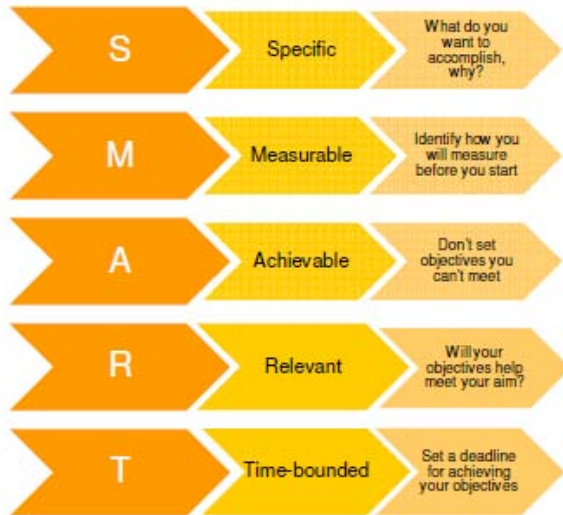
Your objectives

Objectives are a much more specific statement of what you are trying to achieve and it is common to have more than one objective for a monitoring and evaluation programme. You can demonstrate if you have achieved an objective.

There are three types of objectives that relate to the measurement of specific inputs, intermediate outcomes, or final impacts.



Make your Objectives SMART



Key Performance Indicators

KPIs are quantifiable measures that capture critical success factors and are a framework for measuring achievements. They are presented as units of measurement (e.g. number, percentage, tonnage). They are the tools that enable you to monitor the success of your activities. KPIs allow you to convert your monitoring data into something usable and meaningful. Each objective that you set should have at least one related KPI.

Type of objective	Example	KPI
Input	To distribute 10,000 leaflets by [xx date] to 20,000 households on the kerbside organics collection scheme	Number of leaflets
Impact	To decrease the organics disposed in the garbage bin from xx kg/hh/year to yy kg/hh/year	kg per household per year (kg/hh/year)

Example of objectives and KPIs

The methods

There are various methods that can be employed to demonstrate the effectiveness of a scheme, including:

- ✓ Tonnage data analysis, for example increased tonnage of organics and decreased residual waste tonnage
- ✓ Waste auditing per bin, or aggregated via a visual waste audit, or physical waste characterisation
- ✓ Set out and participation rate monitoring, for example identifying 80% of all organics bins are put out for collection but only 50% of them contain food organics
- ✓ Organics capture analysis
- ✓ Stakeholder feedback
- ✓ Communication evaluation.



Resource Recovery Officer tagging bin (Bankstown City Council)

1 Tonnage data analysis

The relevant processing facility can usually provide information about daily yields of organics. This data can be logged in a spreadsheet, with trends observed over time. This method can also be employed to monitor the effectiveness of new communication campaigns as the scheme progresses, as well as identifying and targeting contamination by measuring weight per truck run and comparing effectiveness between different areas.

2 Waste auditing

A visual waste audit involves inspecting bins and truck loads in order to estimate the percentage of each waste type in the bin or load. A limitation of a visual assessment is that it does not allow for compaction of the waste, which impacts on the accuracy of results. However, it is less time consuming (and therefore less expensive) than a physical waste audit.

The most detailed and robust waste data can be obtained by auditing. A household by household audit, or aggregated sampling, will enable you to measure household generation of waste, recyclables and organics; determine the composition of each waste stream, and assist in monitoring the performance of the scheme.

It is recommended that an audit of the residual waste stream be conducted prior to the implementation of the scheme. This will provide you with baseline data for the total amount of waste produced, and the type and volume of organics currently in the residual waste stream. The residual waste stream should then be audited, using the same metrics, seasonally (at least summer and winter) to obtain the best data for comparison of results.

It would also be beneficial to audit the organics and recyclables schemes to determine whether the introduction of the scheme has had any other impacts, such as reduction in total waste produced, and material capture rates.

Specialist companies are available to conduct waste audits and it is advised that council commission audits by a third party.

3 Set out rate and participation rate analysis

Set out rate is defined as the number of households putting out organics bins for collection within a target area, divided by the total number of households within that area that have been supplied with an organics bin.

Set out rate monitoring can be undertaken by council, contractor staff, or an external consultant, simply by visiting the target area on the collection day (immediately prior to normal collection time) and completing a tick list per property of bins presented before applying the formula:

$$\frac{\text{No. households recorded as setting out on a given day}}{\text{No. households monitored on that day}} \times 100\%$$

Participation rate provides similar information, but takes into account the fact that some householders may not set out a collection container on a specific day, for example because they are away on holiday or do not have sufficient materials to put out for collection. It is defined as the number of households within a target area that participate in an organics collection at least once during the monitoring period (typically three consecutive collections), divided by the total number of households within that area.

$$\frac{\text{No. households recorded as setting out at least once in a defined period}}{\text{No. households monitored in that period}} \times 100\%$$

Participation rate monitoring can be used to identify non-participating households so they can be targeted for door to door communications or promotional work to provide additional information on the scheme. Further participation monitoring can be done after a campaign in order to understand the impact it has had on the scheme.

4 Capture rate analysis

The capture rate is defined as the percentage of the targeted material that is actually captured from participating households during a collection. Organics capture rates can be determined by collecting refuse and organics from a representative sample of households and taking it to an appropriate venue for sorting, classification and weighing. Although this only provides a snap shot of a limited number of properties, it provides useful data on the amount and type of organics being recycled and remaining in the waste stream. This type of analysis needs to be conducted by a professional.

A waste audit can be undertaken in demographically representative areas of the local government area before a new organics collection scheme starts. At the end of the trial, the audit can be repeated to establish capture rates. This will establish a baseline and may inform where to target extra communications activity in order to ensure good scheme understanding and participation.

5 Residents' feedback

There are various methods of obtaining feedback from residents. Focus groups can be conducted to gather opinions, or surveys can be undertaken. Although surveys can be distributed and returned by post or online, this approach does not generally achieve a high response rate. Door to door surveys can help ensure questions are appropriately delivered and understood, and that a representative demographic of respondents is obtained.

It is also important to gather feedback from processors and collection crews to ensure operations are suitably evaluated and adjustments made as necessary.

Recycling food waste saves heaps

Food Waste Recycling SURVEY

All surveys completed will be entered into a draw to win an Organic Food Hamper to the value of \$100

PLEASE NOTE: You must be aged 18 years or over to participate in this survey.

- How many people are in your household? _____
- Do you currently put garden organics (eg. grass clippings, prunings & other garden waste) into your garden organics bin (green lid bin)?
 YES NO
 If yes, what do you put in your garden organics bin?
 Grass Clippings Small pieces of wood
 Leaves, small branches and/or prunings Other _____
 If no, why not?
 I do not produce any garden organics The bin gets too smelly
 I use garden organics in my compost Other _____
- On average, how often do you put your garden organics bin out for collection?
 Every fortnight Less than once per month
 Once per month Very rarely or never
- On average, how full is your garden organics bin when you put it out for collection?
 About 1/4 full About 1/2 full
 About 3/4 full Full
- What do you currently do with your fruit vegetable scraps and other food waste?
 I compost them I have a worm farm
 I put them in my garbage bin (red lid) I give them to my chickens/dogs etc.
 Other _____
- Do you think it is important that Council investigates how best to recover the food waste in your garbage bin (red lid) and reduce the amount of food waste that ends up in landfill?
 YES NOT SURE NO
- Did you know that waste sent to landfill stays there forever & cannot be recovered or reused?
 YES NO
- Did you know that food waste can be reprocessed into valuable compost and electricity?
 YES NO
- True or False? It costs the community more to dispose of food waste in a landfill than it does to process it into compost and electricity?
 TRUE FALSE
- Would you be willing to separate your food waste on an ongoing basis (after the trial has finished)?
 YES NOT SURE NO
 WHY NOT? _____
- Do you have any comments or questions for Council on the Food Waste Recycling Trial?

For more information visit our website, www.thehills.nsw.gov.au/Waste-Services.html or phone 9843 0310

Food Waste Recycling Trial

THE HILLS SHIRE COUNCIL

Example of survey (Hills Shire Council)

6 Communications evaluation

It is highly advisable to monitor and evaluate the effectiveness of all communication methods used. This will help ensure future communication activities benefit from lessons learned regarding ways of targeting different audiences and the ability of different formats to get a message across and stimulate the biggest response.

Target population

Monitoring and evaluation activities can be tailored to suit a variety of situations, such as covering all participating households, random households across the trial/service area, or a target area deemed representative.

It is important to have good knowledge of the target population from which the sample is to be taken. Target population characteristics are to be defined in light of those likely to have most influence on the topic under investigation. When food organics is being investigated, household size and income levels are key factors, and the household profile of the target population must therefore be known so that a representative sample is sampled. For a combined food and garden organics collection service, it is also important to consider the average size of gardens and seasonality impacts.

Demographic profiling can be used to help identify a subset of the target population which is representative of the wider population. Profiling can provide useful insights about the population and give detailed socio-demographic information for categories such as age, gender, social grade, ethnicity, employment status, income levels, housing types and tenure.



Resource Recovery Officers talking to a resident about his recycling bin (Bankstown City Council)

More information on implementation is outlined in Factsheet 13 – *Understanding Monitoring and Evaluation*.

Case Studies

Bankstown Council

Evaluating the 'Recycle Right!' Contamination Reduction Strategy

Bankstown Council in Sydney's south-west has a large, culturally diverse population with a high proportion living in high density dwellings. Recycling contamination rates in the dry recycling bin have been extremely high, even after 20 years of experience with kerbside recycling collections. Financial penalties have been placed upon council for disposal of contaminated feedstock supplied to the recycling facility. Responding to these issues, the council recently instituted a program to systematically test and evaluate the effectiveness of several resources and strategies to improve contamination in the dry recycling bin. A similar approach could be adopted to address contamination in organics collection schemes.

The 'Recycle Right' Contamination Reduction Strategy commenced in 2010 and involved the following stages:

- ✓ Develop aims and objectives of the campaign, aligned with relevant council and contractor policies and strategies
- ✓ Undertake a literature review of Bankstown waste audit results, government reports, studies into recycling, behavioural change research and other literature on fundamental behavioural psychology principles
- ✓ Design a range of strategies and resources to trial in both houses and units, based on the literature review findings
- ✓ Conduct community consultation through a series of focus group sessions to test the supporting material and determine the effectiveness of designs, images and messages for community members
- ✓ Test and monitor the strategies, refine resources in several problem areas for contamination over a nine month period, and document the results
- ✓ Evaluate the results from the trial strategies and community engagement sessions to recommend the most effective strategy in achieving recycling behaviour change

- ✓ Develop a final Contamination Reduction Strategy, including standard and extended contamination management procedures and refined education resources for both houses and units to be implemented across the rest of the Local Government Area
- ✓ Conduct continuous monitoring and review of the strategy through bin inspections, waste auditing and community consultation.

By the end of the trial period in May 2011, council officers had inspected and given feedback to over 1,400 households, and 'offenders' in each area received feedback over a three month period, including, two rounds of personal visits, and a letter warning that bins could be removed if contamination continues. Over this time, only four bins were removed.

The trial stage of the program was successful, but the on-going implementation has seen even more dramatic results. Average starting contamination levels were 40% across the identified 'contamination hotspots' involved in the trial. By the end of each standard contamination management procedure being implemented in an area, the average contamination rate dropped to 18% and, by the end of the extended contamination management procedure, it dropped to 6%.

Community consultation and qualitative evaluation were critical elements of the campaign. In total, 700 evaluation forms were completed by households with a 4% response rate, providing valuable feedback on the community's response. In addition, two rounds of focus group testing were undertaken to inform the design and then redesign of the 'Recycle Right' education resources. Results of the multilingual focus groups indicate the community will respond best to the following elements:

- ✓ Use of multicultural children to convey messages (aged 8–12 years)
- ✓ Inclusion of bins in photographic designs
- ✓ Use of smiley faces and 'thumbs up' symbols
- ✓ Simple and self-explanatory designs
- ✓ Strategies that are informative and appear cost-effective
- ✓ Cooperative approaches that show council is working with community

- ✓ Council showing appreciation to residents for doing the right thing.

Based on the results achieved and the comprehensive research and evaluation process that was put in place, the program was recognised as:

- ✓ Winner of the 2011 LGSA Excellence in the Environment Awards (Community Education & Improvement)
- ✓ Winner of the 2012 Communications Australia Awards (Best Community Engagement)
- ✓ Highly commended in the 2011 Keep Australia Beautiful Sustainable Cities Award (Environmental Education).



Artwork for the 'Recycle Right Program' (Bankstown City Council)

Lessons Learnt: The trial provided a reliable evidence base for the council's new approach to dry recycling education and contamination management procedures for both single and multi-unit dwellings, and the process of ongoing monitoring and review will ensure that it can be revised and refined to maintain its effectiveness. While the system was introduced to manage contamination in the dry recycling bin, a similar approach could be adopted for organics recycling services.

Further information:

Detailed information on the contamination management strategies and results can be found in Factsheet 12. Also refer to the Council website at: www.bankstown.nsw.gov.au.

Waverly, Randwick and Woollahra Councils

Using a Planning Framework for Developing an Evaluation Strategy – 'The Compost Revolution'

The councils of Waverly, Randwick and Woollahra in Sydney's eastern suburbs received NSW Environmental Trust funding for a collaborative project to investigate options for more sustainable management of organic waste over a three year period, ending May 2011.

Randwick and Waverly councils were interested in exploring the feasibility of home composting and waste avoidance programs as key waste management strategies, and developed the 'Compost Revolution' program as a 12-month trial to test a new educational approach.

Monitoring and evaluation of the project was built in at the project planning stage, based on the 'Outcomes Hierarchy Model', which is an evaluation framework recommended for NSW Environmental Trust grant recipients, which can be accessed using the following link: to [Does Your Project Make a Difference](#). This framework was used as a tool to plan activities and evaluation methods to meet the 'desired outcomes' of the project at three stages: short-term 'Immediate' outcomes; medium-term 'Intermediate' outcomes; and long-term 'Ultimate' outcomes. 'Desired outcomes' were defined as the changes that they wanted to see (and measure) in their environment or target audience as a result of activities undertaken in the project.

From the start, the councils identified the 'Ultimate' desired outcome was to reduce greenhouse emissions from waste in the region, including reducing the amount of organic waste produced and the amount sent to landfill. To achieve these objectives, the councils identified several 'Intermediate' outcomes to guide the overall structure of the project plan. Once these were established, 'Immediate' outcomes were developed by the project team as ways to achieve results.

Individual project activities could then be planned to meet these three levels of outcomes, and suitable evaluation methods were chosen to measure the effectiveness and appropriateness at each stage.

**FOOD AND GARDEN ORGANICS BEST PRACTICE COLLECTION MANUAL:
PLANNING YOUR SCHEME – FACTSHEET 8 –
UNDERSTANDING MONITORING AND EVALUATION**

Because the desired outcomes had been clearly identified at the start of the project, the team found developing the comprehensive monitoring and evaluation plan was very straightforward. Some elements of the 'Outcomes Hierarchy' for the project are included in the table on the next page.

Lessons Learnt: Detailed forward planning using the 'Outcomes Hierarchy' framework allowed the team to monitor and revise activities along the way. The results have supported decision-making for long-term waste management in the Sydney Eastern Suburbs region, and the effectiveness of this program has also led to implementation of the program in other council areas of NSW.



Practical workshop being conducted with trial participants (Waverly, Randwick and Woollahra Councils)

Further information:

<http://compostrevolution.com.au/>

'Compost Revolution' Outcomes Hierarchy (abridged version)

Project stage	Desired outcomes	Evaluation Methods
Immediate	Engage at least 300 households to participate and start home compost in the trial	Trial participation rates (about 600 households) Trial drop-out rates less than 10% Workshop and event participation rates
	Develop effective education resources and workshops to meet the needs of participants	Phone/email enquiries & feedback Website visitors and downloads Number of resources distributed at events
	Improve participant skills and knowledge in composting	Trial participant surveys during and after program Workshop feedback surveys Comparison with non-participants
Intermediate	Raise participant awareness of behaviour changes that lead to reduced food waste	'Food waste tallies' recorded by participants Results of Food Diary study Website visitors and downloads
	Develop a model program to increase home composting rate in region	Online quiz results News articles and advertisements published
	Reduce organic waste disposed to landfill	Analysis of compositional bin audits before, during and after the trial
Ultimate	Reduce household production of food waste	Analysis of food waste composting tally system Analysis of 'Food Diary' study
	Reduce greenhouse emissions from waste	Economic and environmental modelling analysis undertaken after trial completion

NB: Information in this factsheet is taken from the *Food and Garden Organics Best Practice Collection Manual* (2012) published by the Department of Sustainability, Environment, Water, Population and Communities. The full document is available on the department's website www.environment.gov.au/wastepolicy/publications/organics-collection-manual