Data quality statement

Supporting document for the *NSW Waste Avoidance and Resource Recovery Strategy Progress Report 2017-18*

NSW EPA

www.epa.nsw.gov.au

Published by:

NSW Environment Protection Authority
59 Goulburn Street, Sydney NSW 2000
PO Box A290, Sydney South NSW 1232
Phone: +61 2 9995 5000 (switchboard)
Phone: 131 555 (NSW only – environment information and publications requests)
Fax: +61 2 9995 5999
TTY users: phone 133 677, then ask for 131 555
Speak and listen users: phone 1300 555 727, then ask for 131 555
Email: info@epa.nsw.gov.au
Website: www.epa.nsw.gov.au

Report pollution and environmental incidents
Environment Line: 131 555 (NSW only) or info@epa.nsw.gov.au
See also www.epa.nsw.gov.au

ISBN 978 1 922260 65 9
EPA 2019P1654
June 2019

Contents

1. Introduction

This document outlines key characteristics relating to the quality of the waste generation, recycling, diversion and disposal dataset ('the dataset') used in the *NSW Waste Avoidance and Resource Recovery Strategy Progress Report 2017-18*. This document intends to provide users with the necessary information to judge whether the dataset is fit for their intended purpose.

This document should be read in conjunction with the *Calculation method for waste generation, recycling and diversion*, available on the NSW Environment Protection Authority's (EPA's) website.

1.1 Purpose of the dataset

The purpose of the dataset is to enable progress reporting against targets for Key Result Areas 1, 2 and 3 in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-21* (WARR Strategy). A progress report for the WARR Strategy is required every two years in accordance with the requirements of Section 53 (1) of the *Waste Avoidance and Resource Recovery Act 2001*.

1.2 Data sources

The primary source for the dataset was data collected under legislation through the EPA's Waste and Resource Reporting Portal (WARRP).

Scheduled waste facilities are required to provide a Waste Contribution Monthly Report (WCMR) or an Annual Waste Report (AWR) under the *Protection of the Environment Operations (Waste) Regulation 2014* ('Waste Regulation').[1]

Table 1 shows the number and type of facilities which reported against each report type.

Table 1 Number and type of facilities reporting, per report type[2]

Period	Number of facilities reporting by WCMR		Number of facilities reporting by AWR	
	Landfills	Recovery facilities	Landfills	Recovery facilities
2015-16	68	120	262	23
2016-17	67	136	251	31
2017-18	67	152	242	40

Facilities report on tonnes received by:

- levy area
- waste stream
- waste type
- source (monthly-reporters only).

[1] Facilities licensed under the *Protection of the Environment Operations Act 1997* to manage levy-liable waste facilities (i.e. landfills, waste recycling facilities, waste storage, and waste transfer facilities) must submit WCMRs. Licensed waste facilities that are not required to pay the levy, as well as landfills not located within the regulated area of NSW (i.e. the area which the waste levy applies to), are required to submit an AWR.

[2] Note – some facilities provide both types of reports (i.e. landfills located outside the regulated area which receive waste from both the regulated area and the non-regulated area). Excludes facilities which provided nil returns (i.e. no waste was received or transported within the period).

Facilities report on tonnes transported by:

- levy area (monthly-reporting landfills only)
- waste stream
- waste type
- destination.

All facilities which are subject to paying the waste levy (i.e. those facilities which submit WCMRs) are required to weigh waste in and out of their site using a weighbridge, and most of the key annual-reporting resource recovery facilities also use weighbridges.

Table 2 shows the proportion of tonnes disposed and recycled (by weight) which originated from either a WCMR report, an AWR report, a non-WARRP source or data used from a different reporting period.

Table 2 Data source for disposal and recycling data

Period	WCMR data		AWR data		Non-WARRP data		Out-of-period data	
	Disposal	Recycling	Disposal	Recycling	Disposal	Recycling	Disposal	Recycling
2015-16	81%	68%	19%	11%	0%	5%[3]	0%	15%[4]
2016-17	79%	70%	21%	22%	0%	8%[5]	0%	<1%
2017-18	80%	71%	20%	20%	0%	9%[6]	0%	0%

Where WARRP data was not available, the following secondary sources were used:

- Australian Bureau of Statistics' export data
- recycling data requested from scheduled waste facilities that were not reporting in the WARRP
- estimates of recycling by other scheduled waste facilities that were not reporting in the WARRP, using Environment Protection Licence information
- consultant reports on plastics recycling, commissioned by the EPA.

[3] Of the non-WARRP data, 48% was used to calculate metals recycling (in 2015-16, only a limited number of metals recyclers and processors were reporting in the WARRP), 31% was used to calculate organics recycling (composters in the non-levied area are not required to report under the Waste Regulation) and 15% was used to calculate plastics recycling (in 2015-16, only a limited number of plastics recyclers and processors were reporting in the WARRP).

[4] Of the out-of-period data, 63% was used to calculate metals recycling (in 2015-16, only a limited number of metals recyclers and processors were reporting in the WARRP), and 22% was used to calculate organics recycling (some data was not available for a major composter for the 2015-16 period).

[5] Of the non-WARRP data, 65% was used to calculate metals recycling (in 2016-17, only a limited number of metals recyclers and processors were reporting in the WARRP), 24% was used to calculate organics recycling (composters in the non-levied area are not required to report under the Waste Regulation) and 8% was used to calculate plastics recycling (in 2016-17, only a limited number of metals recyclers and processors were reporting in the WARRP).

[6] Of the non-WARRP data, 72% was used to calculate metals recycling (in 2017-18, only a limited number of metals recyclers and processors were reporting in the WARRP), 18% was used to calculate organics recycling (composters in the non-levied area are not required to report under the Waste Regulation) and 7% was used to calculate plastics recycling (in 2017-18, only a limited number of plastics recyclers and processors were reporting in the WARRP).

2. Data reliability and validity

The dataset is a reliable and valid estimate of recycling, waste disposal, waste diversion and generation activity within NSW. The following measures and controls are in place to ensure the quality of the dataset:

1. The WARRP data is subject to auditing by the EPA's audit team which checks facility reports against the facility's weighbridge records. Facilities are identified for auditing based on periodic risk assessments.
2. The NSW waste regulatory framework actively supports collection of reliable waste data. This is by mandating reporting requirements, limiting stockpiles to ensure the material is moved through the waste system productively and mandating the use of weighbridges to accurately measure waste flows for all levy-liable facilities.
3. It is an offence for facilities to provide false and misleading information under Section 66 (2) of the *Protection of the Environment Operations Act 1997* (POEO Act).
4. The dataset calculations were subject to an extensive internal quality review.
5. The method and assumptions applied to the dataset have been independently and objectively peer reviewed by the following independent consultants:
    a. Analytecon
    b. Arcadis
    c. Blue Environment.

2.1 Summary of peer review findings

The independent peer reviews reported that the method:

- is fit for purpose to estimate waste generation, recycling, disposal and diversion in NSW
- ensures comprehensive coverage of recycling and disposal waste flows in NSW
- effectively manages issues of double counting
- has been applied consistently across waste types and waste streams.

The reviews made the following recommendations:

- Ensure transparency – all key assumptions and inclusions/exclusions should be clearly identified.
- Quantify the impact of assumptions to allow users to make their own adjustments as required.

3. Coherence

The dataset was calculated using a different method to previous WARR Progress Reports and therefore is not comparable to previous WARR Progress Report datasets.

The Municipal Solid Waste (MSW) component of the dataset is not comparable to Local Government WARR Survey datasets due to methodological differences. These differences include:

- The Local Government WARR Survey dataset includes only household data (i.e. residential kerbside, clean-up and drop-off), whereas this dataset also includes other council waste.
- This dataset likely includes waste generated from interstate and overseas sources, whereas the Local Government WARR Survey should only include waste generated within NSW.
- The methods which some councils use to calculate waste disposed and waste recycled can differ from the method used for this dataset. For instance, if a council in the Non-levied Area (NLA) receives organics at its landfill and uses this waste for landfill capping or other operational purposes, some councils count this as recycled waste, whereas this dataset counts this waste as disposed.

This dataset is also not comparable with NSW data in the National Waste Report 2018 or earlier National Waste Reports because:

- the recycling data in the National Waste Reports was based on the previous NSW methodology
- the National Waste Report includes an estimate of energy recovery from landfill gas, whereas this dataset does not
- the National Waste Report method does not include Virgin Excavated Natural Material (VENM) or soil in either disposal or recycling, however this dataset does (Table 3 outlines the effect of counting VENM and soil in the recycled dataset).

Table 3 Quantity of VENM and soil in Waste Recycled, tonnes per waste stream

Period	MSW	C&I	C&D
2015-16	-	-	1,435,000
2016-17	-	-	1,744,000
2017-18	-	-	1,860,000

4. Improved data coverage

4.1 Identifying and eliminating double-counting in the dataset

Facilities are required to report on waste transported from site under the following classifications:

a. transported for disposal
b. transported for recycling to another licensed waste facility in NSW[7]
c. transported for recycling to an unspecified facility or location (intrastate, interstate or overseas)
d. transported under a Resource Recovery Order specification.

Waste recycled was calculated as the sum of (c) and (d), and (b) where the receiving facility did not report in the WARRP.

Of the waste reported as being transported for recycling to an unspecified facility or location intrastate, a portion was identified through investigations as actually being transported to another licensed waste facility which reported in the WARRP. This data was excluded from the dataset.

Had the data not been excluded, an additional 2.1 million tonnes would have been included within the 2015-16 dataset – raising the overall diversion rate from 63% to 64%. For 2016-17 and 2017-18, not removing the double-counting would have increased the overall diversion rate from 65% to 67% (2.6 million tonnes were excluded in 2016-17 and 2.7 million tonnes were excluded in 2017-18).

Improving facility reporting to decrease the risk of double-counting will be a key focus for the EPA in the future.

4.2 Ensuring comprehensive coverage of recovery facilities

Resource recovery facilities outside the regulated area[8] are not required by legislation to report to the EPA.[9] Additionally, the WARRP did not have full coverage of metals recycling facilities for the reporting periods. To ascertain waste recycled at facilities which did not report in the WARRP, data was requested directly from these facilities when the data was expected to be significant, or informed estimates were made using administrative data including Environment Protection Licences.

4.3 Managing imports and exports of waste

It is known that some resource recovery facilities source waste from interstate and overseas, and some disposal facilities source waste from interstate. However, the WARRP reporting templates do not capture the quantity of waste received from interstate and overseas sources, and facilities were likely recording this data as originating from the NLA. Better data capture on interstate and overseas sources may lead to exclusion of this data from future datasets.

[7] For WCMRs only, facilities had to specify the destination facility.

[8] The regulated area refers to the regions which are subject to the waste levy and comprises the Sydney metropolitan area, the Illawarra and Hunter regions, the central and north coast local government areas (LGAs) to the Queensland border as well as the Blue Mountains and Wollondilly LGAs.

[9] This had the largest impact on organics recycling data, as several large composters operate outside the regulated area. Several small Material Recovery Facilities (MRFs) also operate outside the regulated area to process commingled recyclables, however it was assumed that the majority of this recycling data is captured at an end processor reporting in the WARRP (e.g. a paper mill) or at co-located council landfills (which are required to report in the WARRP).

Waste transported interstate and overseas for recycling is assumed in the method to be 100% recycled as it is difficult to ascertain what happens to the waste once it leaves NSW. Waste transported interstate and overseas for recycling is outlined for each waste type category in Table 4.

Table 4 Waste transported interstate and overseas for recycling, by waste type category[10]

Waste type category	Tonnes transported interstate for recycling[11]			Tonnes transported overseas for recycling		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Glass	42,000	59,000	71,000	7,000	16,000	8,000
Organics	4,000	2,000	10,000	-	-	-
Paper/cardboard	353,000	319,000	458,000	398,000	402,000	420,000
Plastics	Unknown	4,000	3,000	Unknown	58,000	55,000
Masonry	14,000	48,000	18,000	-	-	-
Metals	6,000	8,000	9,000	342,000	336,000	440,000
Other recyclables	305,000	663,000	904,000	47,000	55,000	39,000
Total	**724,000**	**1,103,000**	**1,473,000**	**794,000**	**867,000**	**962,000**
Total as a % of total recycling	**6%**	**9%**	**11%**	**7%**	**7%**	**7%**

4.4 Increasing granularity

Generally, increased granularity in the dataset decreases the data quality. Hence, data has been aggregated into waste type categories rather than detailed waste types as per previous WARR Progress Reports. Specific issues are outlined below.

Waste stream

- Facilities did not always identify the waste stream for waste received and transported.[12] Table 5 shows the proportion of waste reported as the Unknown waste stream, therefore requiring allocation to the MSW, Commercial and Industrial (C&I) and Construction and Demolition (C&D) waste streams.

Table 5 Proportion (by weight) of received and transported waste reported as Unknown waste stream

Period	% of received waste	% of transported waste
2015-16	3%	30%
2016-17	6%	34%
2017-18	4%	30%

[10] This data may differ from other published figures on waste exported from NSW. These discrepancies are primarily due to differences in the waste types which are included in each waste type category and differences in the definition of 'waste'.

[11] The data for 'other recyclables' includes mixed waste reported by facilities to be transported interstate for recycling. In 2015-16, this amount was 257,000 tonnes. In 2016-17, it was 535,000 tonnes and in 2017-18, it was 842,000 tonnes.

[12] While the recycling data was based on transported waste, the received waste streams were used to reallocate the Unknown waste stream for waste transported and in calculation of Waste Disposed.

- Some facilities were identified to have incorrectly reported the waste stream for waste received. Table 6 shows the effect on each waste stream by adjustments made to the reported waste streams for waste received.

Table 6 Effect (% by weight) on waste streams for waste received by adjustments to reported waste streams

Period	MSW	C&I	C&D
2015-16	+8%	-9%	<1%
2016-17	+7%	-6%	>-1%
2017-18	+10%	-9%	>-1%

- Uncertainty around the proportions used to allocate metals recycling data to a waste stream, as limited data was available to accurately identify the waste stream split. Any significant revisions to this split in the future will impact the MSW and C&I recycling rates.

Levy area

Facility reporting on levy area contained some irregularities, especially the likelihood that waste sourced from interstate and overseas is reported as NLA data. There are likely some errors in the dataset due to facilities reporting levy area as the area in which the facility is located rather than the source of the waste.

5. Data security

The EPA values the data provided by the NSW waste industry and makes significant efforts to ensure the protection of facility-level data. The method ensures that facility-level data cannot be identified. Facility-level data is protected from disclosure under Section 319 of the POEO Act as it is considered to be commercially sensitive.