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# Waste Data Needs – Survey Results & Analysis

In Fulfilment of Milestone One of the  
National Waste Data Framework Project

For the  
Ministry for the Environment  
Waste Minimisation Fund Project 608

## Acknowledgements

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The WasteMINZ project team would like to acknowledge and thank those who responded to the online survey, replied to our requests for phone interviews, answered our emails, and generally provided the information needed to prepare this report.

The project team also acknowledges that financial support has been received from the Waste Minimisation Fund, which is administered by the Ministry for the Environment.

## Document quality control

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Date	Status	Written by	Approved by	Distributed to
11 July 2014	Final 1.0	DW & BM	PE & NQ	PE & NQ

## Contact details

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### Waste Management Institute New Zealand Incorporated

Nic Quilty  
Sector Projects Manager  
PO Box 305426, Triton Plaza  
Auckland, 0757, New Zealand  
Website: [www.wasteminz.org.nz](http://www.wasteminz.org.nz)  
Email: [nic@wasteminz.org.nz](mailto:nic@wasteminz.org.nz)  
Phone: (09) 476 7167

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## Contributors

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### Project Team

Name	Position	Organisation
Paul Evans	Chief Executive Officer	WasteMINZ
Nic Quilty	Sector Projects Manager	WasteMINZ
Bruce Middleton	Director	Waste Not Consulting Ltd
Duncan Wilson	Director	Eunomia Research & Consulting Ltd

### Steering Group

Name	Position	Organisation
Paul Evans (Chair)	Chief Executive Officer	WasteMINZ
Brent Aitken	Asset Manager Solid Waste/ Stormwater	Taupo District Council
Graham Jones	National Resource Recovery Manager	EnviroWaste Services Ltd
Mark Smith	Managing Director	Rubbish Direct Ltd
Gavin Sole	Solid Waste Manager	Selwyn District Council
Parul Sood	Waste Planning Manager	Auckland Council
David Stephenson	Utilities Asset Engineer	Tasman District Council
Marianna Tyler	Waste Minimisation Facilitator	Waikato District Council
Damian Cloeter	Analyst, Waste and Resources	Ministry for the Environment

### Governance Board

Name	Position	Organisation
Paul Bishop (Chair)	Chair	WasteMINZ
Natasha Lewis	Manager, Waste and Resources	Ministry for the Environment (MfE)
Stephen Oakley,	Manager environmental, tourism and local authority financial statistics	Statistics New Zealand
Ian Kennedy	General Manager – Operational & Technical Services	Transpacific Industries Group (NZ) Ltd
Dave Hanan	Contracts Manager	Think Delta
Chris Keeling	Senior Hazardous Substances & Waste Officer	Environment Canterbury

## Executive Summary

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This report has been prepared in partial fulfilment of Milestone One of the Waste Minimisation Fund-supported, and WasteMINZ-led, National Waste Data Framework Project. The information gathered in the course of undertaking this report has helped inform an understanding of what information is currently gathered, how this information is used, and the potential future data needs of key stakeholders. This information will be used in the next phase of the project to help shape the focus of the work going forward.

The project utilised a three-stage methodology to attempt to canvass the range of data needs and the data currently being collected - desktop research to distil the key elements of the mandatory and other requirements of key stakeholders, an online survey of the WasteMINZ membership, and one-to-one interviews with selected key stakeholders to assist in a more in-depth understanding of the drivers behind the data needs.

The data needs and data collection were analysed by key stakeholder groupings. The key groupings used for the purposes of the study were central government, regional government, territorial/unitary authorities, waste operators, and other (including consultants/researchers, community sector, product stewardship scheme managers, and waste equipment/service suppliers).

The broad findings of the study for each key stakeholder group are outlined in the following sections.

### Central Government

- Statistics New Zealand (Stats NZ) is ultimately looking to develop an environmental-economic account-based approach that tracks the flow of materials through the economy. This account would include (but not be limited to) solid wastes. Such an account for waste would require information that could track all waste streams from point of generation to all forms of disposal, including landfilling, incineration, recycling and recovery, illegal dumping, and other treatments.
- Only a small fraction of the waste data required for a complete waste account is currently available. Stats NZ would like a waste data framework to be compatible with and add to their approach, but is not expecting that it will provide the full range of information they ultimately require.
- The Ministry for the Environment (MfE) has two principle uses for waste data – for policy development and analysis and for national and international reporting purposes.
- Key sources of data for MfE currently include:
  - waste levy data, reported through Online Waste Levy System, on quantities of waste disposed of to levied disposal sites
  - some voluntary information on quantity and composition of materials diverted and, composition of waste disposed of at levied disposal sites, data on the 'source' of waste disposed of at levied disposal sites, and the amount of material used as cover
  - information provided by territorial authorities through waste levy spend reporting
  - information provided by product stewardship schemes
  - information from Waste Minimisation Fund projects
  - information gathered through research and studies
- New Zealand receives a number of international requests for data for which MfE is the lead agency; Waste data is identified in some of these. The types of waste data that are requested for this reporting range from the very specific (such as persistent organic pollutant data for the Stockholm Convention) to data that is comprehensive and finely-detailed (such as for the Organisation for Economic Co-operation and Development (OECD)).

- MfE's responses to these international reporting requests may, in particular cases, not be able to be fully completed because data that is available to MfE is, in some instances, insufficiently detailed or is incomplete. For example, to fully complete the *OECD Questionnaire on the State of the Environment* would require highly-detailed national-level waste data that is not currently available to MfE.
- It is important for MfE to have good quality data to inform the policy development process; in particular data is required to enable the development of evidence based problem definitions and to ensure that the policy options that are subsequently considered are appropriate. For MfE to better fulfil its functions relating to the provision of advice and development of policy, data on the following is considered by MfE as a priority:
  - number, type, and location of levied and non-levied disposal sites and reprocessing facilities
  - quantity and composition or source of material disposed of at levied and non-levied disposal sites
  - quantity and composition of diverted materials processed onshore
  - availability of waste infrastructure and services
- Factors MfE considers in identifying priorities are the potential use of data and the risk of harm caused by the waste streams involved.

#### Regional Government

- The level of involvement of regional councils in waste-related issues varies widely. Some focus on the environmental effects of disposal, while others interpret their mandate to "achieve integrated management of the natural and physical resources of the region" in a broader sense, and have become more involved with waste management issues.
- The reporting of data from consented waste disposal sites is uneven and is not standardised. While consents may specify site volume limits, they do not necessarily require regular reporting of tonnage into the sites and very few consents require the consent holder to report composition information. Consent-based information is often kept in 'silos' within the council structure and is not able to be readily accessed for planning and policy purposes.
- Those regional councils that do take a broader interest in waste issues require information primarily for high-level planning and policy purposes. These councils want tonnage and composition information and to be able to understand the flow of materials - what is being generated and where it is going - so waste and harm reduction opportunities can be identified.

#### Territorial and Unitary Authorities

- TAs not only contract and deliver services and facilities but also have a number of statutory responsibilities under the Waste Minimisation Act 2008 to plan for and promote effective and efficient waste management and minimisation in their jurisdiction. Waste data is vital to both of these types of functions.
- The level of involvement by TAs in the provision of waste services and facilities varies widely. Some TAs provide services that control a majority of waste within their district; other TAs provide very few services. These differences influence the TAs' data needs and the data that is collected.
- TAs generally have good data on the services and operations that they control. Where they have a closed 'catchment', this data can provide the TA with a reasonably complete picture. Where waste travels across boundaries and/or there is a large private sector presence, the TA's knowledge of quantities and flows is more limited.
- Data on the activities of the commercial sector, particularly recovered materials and material going to non-levied facilities, were common gaps that were mentioned as preventing a full understanding of waste flows in TAs' jurisdictions.

- Tonnage and composition of waste to disposal (levied and non-levied) were cited as the most useful types of data for TAs. This information enables the TAs to know what material there is and how much, which is essential for planning service provision.
- Information on diverted materials is also useful to demonstrate the effectiveness of existing interventions and programmes and justify future interventions.
- Through bylaws, TAs have the power to collect most of the data they need to perform their responsibilities effectively, but, to date, few have chosen to do so.

### **Waste Operators**

- Waste operators, such as waste collectors and facility operators, are the generators of the primary data that may eventually flow into a national system. The time and costs attendant with gathering information will, therefore, impact heavily on this group. Any national data-gathering system has to take account of how operators are able to gather and manage data and, specifically, what data it is both practical and possible for them to generate.
- Operators generally have reliable information on their own operations that is sufficient to manage their businesses. While some operators may benefit from accessing higher-level datasets for strategy purposes, this is not a significant perceived need at present.
- Operators see the key issues with providing data into a national framework as:
  - minimising the number of separate reports required to be submitted to a national system
  - keeping the information as simple as possible while ensuring useful data is generated
  - ensuring appropriate commercial confidentiality
  - ensuring the quality of data in the system by establishing a level playing field in which participation is mandated rather than voluntary.
- If these issues are addressed, this would improve waste operators' confidence that the effort required to generate and supply the data is worthwhile.

### **Other Organisations**

- Community-based organisations often act as waste operators and so have similar reporting requirements and data-collection systems to other operators in these instances. Community sector organisations also tend to be focused on creating positive change towards waste minimisation and information that is useful for education and behaviour change is important for this purpose. Good composition data on what is still going to landfill or other disposal is also important in this regard, as is information on what happens to recovered materials through the chain of custody.
- Product stewardship scheme managers establish their own parameters for data collection and reporting and are also able to establish their own data-gathering systems to enable the monitoring and reporting of scheme objectives and targets.
- Data is, to a large extent, the consultants' and researchers' tools of trade. It is their role to not simply gather and present data, but to analyse it and attempt to discern what is driving the patterns and results that are seen in the data. From this perspective, the data needs of consultants and researchers are virtually limitless - the better the data the more powerful and accurate the analysis is able to be. Standardisation of datasets to enable benchmarking and linking of information is likely to be of particular benefit to this user group.

## Conclusions

The data requirements and current data collection of key stakeholders vary widely, and are almost certainly more detailed and varied than has been possible to capture in this report. The key points to emerge from the study include:

- Data on waste to levied sites is fundamental for virtually all parties, with tonnage the most important metric, followed by composition and activity source.
- Policy, strategy, and planning were the most commonly cited uses for data, followed by benchmarking.
- There is a large gap in knowledge around material that is going to non-levied sites such as cleanfills and C&D landfills. MfE estimates this could account for 70% of material disposed of to land. This data gap is a significant impediment to a full understanding of waste flows and the ability of organisations to formulate and assess waste policy and strategy. There is currently no clear pathway to being able to obtain this information, although there exist a number of possible approaches.
- The public sector, in particular, has a limited knowledge of waste and recovered material streams that are controlled by the private sector. Issues of commercial confidentiality are a key constraint to the provision of data by the private sector and any framework will have to adequately address these issues.
- Despite some clear gaps, there is a significant amount of data currently being gathered. However, this information is often held in silos and the lack of standardisation and the methods of recording and storing information and commercial-sensitivity concerns do not facilitate information sharing or benchmarking.
- Some operators would prefer to report data at a national or regional level to reduce reporting burdens and help preserve commercial confidentiality.
- To provide confidence that a national framework is generating accurate, reliable, and worthwhile information, any proposed system must supply data that is needed, be robust in its definitions and protocols, and be backed by appropriate commitment, resources, structures, and tools.

## Next Steps

Key elements of the project to take this work forward to Milestone Two include:

- develop a 'master plan' that maps out the development of the framework over time, taking account of data needs, the constraints on obtaining desired information, and the steps required to address these constraints. It is anticipated that the master plan will reflect a staged approach with more readily-obtainable data addressed in the first instance, and other information brought into the framework as constraints are progressively addressed.
- research and analyse international data collection practice, definitions, protocols, and roles
- scope existing definitions, including New Zealand and international definitions, and develop draft definitions, in line with the staged approach proposed<sup>1</sup>
- develop draft data-gathering protocols, in line with the staged approach proposed
- identify key roles and responsibilities for stakeholders in implementing and operating a national data framework, in line with the staged approach proposed.

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<sup>1</sup> Eunomia Research & Consulting Ltd and Waste Not Consulting Ltd (2013) *New Zealand Waste Data Framework: Background Document*. Prepared for Waste Management Institute New Zealand

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# 1 Introduction

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This report has been prepared in partial fulfilment of Milestone One of the Waste Minimisation Fund-supported and WasteMINZ-led National Waste Data Framework Project. The report addresses data that key stakeholders are currently collecting and the waste data needs of key stakeholders including central, regional and local government and the private and community sectors.

It has long been recognised, across central government, local government, and the waste industry, that the lack of good quality, consistent waste data prevents the public and private sectors in New Zealand from effectively planning, monitoring, and reporting on waste issues and developing and prioritising appropriate solutions.

The 2010 *New Zealand Waste Strategy - Reducing Harm, Improving Efficiency* recognises that “the lack of data about waste hampers our ability to plan appropriate activities to improve waste management and minimisation”.

There have been a number of efforts over the years to address the issue of compiling and managing waste data. These include efforts by the Ministry for the Environment (MfE) to establish a Waste Data Network in 2002-3 and the MfE-funded development by WasteMINZ of the Waste and Recycling National Reporting model. Although there has been some progress in improving waste data over the years – for example through the Online Waste Levy Reporting System (OWLS), and through reporting of territorial authority (TA) waste levy spending, none of the efforts to date have resulted in a working national system of waste data measuring, recording, and reporting that provides the information needed by central and local government and industry.

In July 2013, WasteMINZ applied to the Waste Minimisation Fund for funding to develop a national waste data framework. Funding approval for the project was received in April 2014. The aim of the project is to develop a “flat pack” implementation plan containing all the elements required to establish a national waste data framework. The implementation plan will establish the definitions, protocols and responsibilities required to make the framework operative and will be developed in conjunction with key stakeholders from the solid waste and resource recovery sector.

Key stakeholders in the project are considered to be those responsible for generating and reporting waste data, those responsible for compiling and managing the information, and the parties that will use the data. Those identified as being key stakeholders include:

- MfE
- Statistics New Zealand (Stats NZ)
- regional authorities
- territorial and unitary authorities
- waste industry and community operators
- research and consulting organisations.

The WasteMINZ project team devised a three-stage consultation plan for establishing the waste data needs of the key stakeholders. The plan involved:

- desktop research into the waste data-related statutory responsibilities of central and local government
- an online survey of the waste data needed and current data collected by all WasteMINZ members
- follow-up phone interviews with 19 pre-selected respondents to the online survey.

A more detailed description of the methodology used for the consultation plan is provided in section 2. Section 3 examines mandatory waste data reporting requirements in New Zealand and the results of the online survey and follow-up interviews are in section 4. Section 5 analyses and summarises the waste data needs of the key stakeholders.

## 2 Methodology

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The objectives of this milestone are to understand:

- the scope of information that is currently being collected by key stakeholders
- the data needs of key stakeholders, including central, regional, and local government and the private and community sectors.

In order to address these objectives, a three stage methodology was developed. The first part of the methodology entailed research into mandatory waste data reporting and data collecting, while the second canvassed views of a wide range of stakeholders through an online survey of WasteMINZ membership. The final element of the methodology was to drill down and develop a more detailed understanding of the data needs through one-on-one interviews with selected key stakeholders. Each of these elements of the methodology is expanded on in the following subsections.

### 2.1 Research into mandatory waste data reporting and data collecting

To understand the mandatory waste data requirements that affect the different levels of government and others involved in the waste industry, a combination of research techniques were employed. Internet research supplied most of the basic information regarding central government's waste data requirements. This research was supplemented with email and phone conversations with MfE and Stats NZ.

Information on regional council, TA, and waste operator waste data requirements was taken primarily from previous research undertaken by members of the project team. This information was expanded upon during follow-up interviews with the project reference group.

### 2.2 Online survey of WasteMINZ membership

A survey of waste data needs and current data-collecting practice was prepared and posted online using the SurveyMonkey survey tool on 22 May 2014.

The survey questions were designed to elicit focused high level responses on waste data needs and information that is currently gathered. The survey aimed to balance the need for useful information that provided insight into data needs and data gathering with sufficient brevity to ensure a reasonable response rate. While most questions offered multi-choice answers, respondents could also provide qualitative answers on most groups of questions and for select questions. A draft of the survey was provided to the steering group for comment prior to being posted online. A copy of the survey is presented in Appendix 1.

Using the WasteMINZ database, an email invitation was sent to all WasteMINZ members. The email explained the purpose of the survey and provided each member with a unique link to the survey.

A separate email was sent to the members of the project Governance Board and Steering Group as well as a purpose-chosen group considered to be representative of the wider waste industry. The email to this group (referred to as the 'reference group' throughout this report) indicated that the project team would like to conduct a more in-depth phone interview with the recipient and encouraged the recipients to complete the survey as soon as possible.

Reminder emails were sent to recipients of the original email who had not completed the survey on 30 May and 5 June. The survey closed on 6 June. Copies of the emails are provided in Appendix 2.

## **2.3 Follow-up interviews with reference group**

Prior to the survey being posted online, the project team identified a range of individuals considered to be representative of the different groups that are users of waste data. As survey responses were received from these individuals, they were contacted by the project team and appointments organised for more in-depth discussions of waste data issues.

A script of questions was prepared to guide the interviews. A copy of the script is provided in Appendix 5. The interviews did not necessarily follow the prepared format, but the interviewers aimed to gather responses to the main questions.

## 3 Waste data reporting and collecting

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In developing a National Waste Data Framework it is important to ensure a clear understanding of both mandatory and discretionary waste data requirements, as this will form a key starting point for what the Framework should aim to deliver.

A range of waste data is currently collected and reported throughout New Zealand on a statutory, or otherwise mandatory, basis. Generally, this involves either reporting to, or reporting by, different levels of government. Other types of reporting take place on a discretionary basis.

Based on desktop research and discussions with a number of individuals, the following sections outline the waste data reporting activities of different sectors associated with the waste industry. Where appropriate, the current waste data collected by these sectors is also outlined.

This section excludes discussion of internal reporting requirements, those situations where one part of an organisation is required to collect and report waste data to a separate part of the organisation. For the most part, only waste data reporting to external organisations and the associated waste data collection is considered.

### 3.1 Ministry for the Environment

MfE provides policy advice on government proposals, advises the Government on the legislative framework for environmental management, and is responsible for national environmental reporting.

The MfE is responsible for administering the Waste Minimisation Act 2008 (WMA) and, in this capacity, acting on behalf of the Minister for the Environment. Under the WMA, the Minister:

- may declare a product to be a priority product with regards to product stewardship schemes
- may publish guidelines about the contents and expected effects of product stewardship schemes for priority products
- may accredit or revoke the accreditation of product stewardship schemes
- may make recommendations to the Governor-General regarding regulations for a number of purposes
- may direct the Secretary of the Ministry to retain payment to a territorial authority
- may approve funding of projects to promote or achieve waste minimisation
- must review the effectiveness of the waste levy
- may appoint a waste levy collector
- may make recommendations to the Governor-General regarding directing a territorial authority to change its waste management and minimisation plan
- may set performance standards for territorial authorities
- must appoint members to the Waste Advisory Board.

MfE also takes a lead role, on behalf of central government, in responding to international requests for waste data. These requests can be received from agencies, such as the Organisation for Economic Co-operation and Development (OECD) and the United Nations Environment Programme, or in association with international conventions. Some international reporting is obligatory under terms of international conventions, while some is optional.

#### 3.1.1 MfE waste data reporting

MfE's national and international waste data reporting responsibilities and activities are described in the following sections.

### 3.1.1.1 National environmental reporting programme

The national environmental reporting programme is one of MfE's most important responsibilities, particularly as it relates to formulating environmental policy. Most of the data used by MfE for national reporting is collected by regional councils and TAs, Crown research institutes, other government departments, and other agencies.<sup>2</sup>

Data used by MfE for national environmental reporting is part of the Official Statistics System, as defined by the Statistics Act 1975, so must comply with the principles and protocols of the System.

The national environmental reporting programme is, as of writing, in a state of change. The Environmental Reporting Bill, introduced in Parliament in February 2014, sets out the requirement for MfE and Stats NZ to report on New Zealand's air, atmosphere and climate, land, fresh water, and marine domains.<sup>3</sup> It is intended that a set of topics will identify key issues within each domain and indicators will be developed to provide measures of each topic.<sup>4</sup>

Currently, national environmental indicators that have been used for national reporting are clustered into five 'domains' – air, atmosphere, fresh water, land, and marine. The atmosphere domain has particular relevance to solid waste, with one of the indicators being 'emissions and removals of greenhouse gases'. As well as the five domains, there are four 'pressures or impacts' that are measured. Waste is one of the impacts, with 'solid waste disposal' being the relevant indicator.

The current solid waste disposal indicator provides information on the weight and composition of some solid waste disposed of to land. As explained on the MfE website:

*The solid waste disposal indicator reports on landfills that receive municipal, industrial and hazardous waste. It does not report on other waste disposal facilities, for example waste disposed of to cleanfills or to landfills that accept only industrial and/or hazardous waste, incinerated waste or legacy waste (e.g., stockpiled tyres or agrichemicals). The indicator does not specifically report on liquid, gaseous and hazardous wastes, although some potentially hazardous waste is included in estimates of solid waste disposed of to landfills.*

As of writing, any changes to the existing national environmental indicators that will be introduced because of the Bill are not known. The future role of waste statistics in the MfE and Stats NZ environmental reporting is not yet known. Past reporting is not necessarily a precedent for what will happen in the future.

Apart from the national environmental reporting programme, reporting on waste by MfE has taken a number of forms over the years. The most thorough assessment of waste in New Zealand was published in the 1997 *National Waste Data Report*. This document included the results of an extensive series of waste audits, partly funded by MfE, that were conducted in the mid-1990s.

Results of national landfill censuses, which were used to determine the overall tonnage of waste to landfill, were published in 1999 and 2007.

A state of the environment report, *Environment New Zealand 2007*, included data on waste tonnages and composition. The data on waste composition was based on the SWAP Baseline Data Programme 2003/2004 audits of four indicator sites.

*Environmental Report Card July 2009* contained data on waste composition based on the SWAP Baseline Data Programme 2007/2008 audits of four indicator sites. The full results of the programme had been

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<sup>2</sup> <https://www.mfe.govt.nz/environmental-reporting/about-environmental-reporting/reporting-programme/monitoring-and-reporting-environment.html>

<sup>3</sup> [http://www.stats.govt.nz/browse\\_for\\_stats/environment/environmental-reporting-series.aspx](http://www.stats.govt.nz/browse_for_stats/environment/environmental-reporting-series.aspx)

<sup>4</sup> <http://www.mfe.govt.nz/environmental-reporting/about-environmental-reporting/national-environmental-indicators/environmental-indicators/index.html>

published online in 2008. *Environmental Snapshot: Solid Waste Disposal*, which contained data only on tonnage to landfill, was published in 2010.

Information on the solid waste indicator ('solid waste disposal') was published on the MfE website. The most recent update was in October 2012.

As well as environmental reporting, a range of best practice guides and guidelines and technical reports relating to waste are also published on the MfE website.

### 3.1.1.2 Review of waste levy

Section 39 of the WMA requires the effectiveness of the waste levy to be reviewed at intervals of not more than three years after the last review. MfE undertakes the review on behalf of the Minister for the Environment. In undertaking the review, the Minister must consider whether the amount of waste disposed of in New Zealand has decreased since the last review and whether the amount of waste reused, recycled, or recovered has increased.

As the first review of the waste levy in 2011 took place at a relatively early stage in the levy's operation, the review focused on the short-term outcomes of the levy. These included revenue being raised, the cost of waste disposal increasing, funds being allocated to TAs, and funds being allocated to projects through the Waste Minimisation Fund. The 2011 review found that:

- *the levy has been introduced and is operating as intended*
- *at this stage there is not sufficient evidence to determine the extent to which levy avoidance or perverse outcomes of the levy are occurring*
- *to date, no evidence was found of an increase in incidence or quantity of illegally dumped waste*
- *the auditing of disposal facilities did find potential for levy avoidance through misclassification of material as diverted, but at this early point in the levy's operation it is too soon to determine how widespread or significant these issues may be.*

To support these conclusions, the 2011 levy review presented data on the operation of the waste levy, including: the quantity of waste on which the levy was waived, meeting of acceptance criteria by cleanfills, instances of illegal dumping, a survey on public awareness of the waste levy, the spending of funds allocated by the Waste Minimisation Fund, and the results of a survey of TAs on waste infrastructure and services.

The 2014 review of the effectiveness of the waste disposal levy was completed on 1 July 2014. The review focused on whether the levy was being applied fairly and correctly and how to ensure a level playing field for those paying the levy. Another priority of the review was to assess the impact that levy funding is having. At the current rate of \$10 per tonne (plus GST) the levy generates about \$25 million each year. Half of this money is distributed to territorial authorities for waste minimisation initiatives. The rest (minus administration costs) is allocated to projects through the Waste Minimisation Fund.

The 2014 review of the effectiveness of the waste disposal levy found:

- more and better data is needed to measure the impact the levy is having on waste minimisation
- data that is available indicates that the levy is currently only applied to an estimated 30% of total waste disposed of to land
- changes should be investigated to ensure the levy is applied to a greater proportion of waste being disposed of to land and to ensure that issues of interpretation are clarified. Such changes will ensure a level playing field for those paying the levy.
- the processes around collecting and distributing levy revenue appear to be effective
- levy funding has supported a broad range of waste minimisation initiatives. More could be done to ensure that funding is directed towards strategic priorities and that funding outcomes are being effectively measured and monitored.



### 3.1.1.3 New Zealand Waste Strategy Reducing Harm, Improving Efficiency (2010)

The *New Zealand Waste Strategy* has two goals: reducing the harmful effects of waste and improving the efficiency of resource use. Unlike its 2002 predecessor, the 2010 strategy does not contain specific, quantifiable targets.

### 3.1.1.4 United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC), to which New Zealand is a signatory, took effect in 1994. Ratification of the Convention requires signatories to address the climate change issue through various means, including the production of an annual inventory of greenhouse gas (GHG) emissions. These emissions include those, primarily of methane, from the disposal of waste to land.

The UNFCCC invited the Intergovernmental Panel on Climate Change (IPCC) to produce internationally-agreed methodologies to ensure consistent monitoring and reporting of national GHG inventories. These guidelines have been published as *The 2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

For calculating GHG emissions for the waste sector, the *Guidelines* provides guidance for determining the appropriate parameters when applying the first-order decay model, which New Zealand has chosen to use. The degradable organic carbon component of solid waste is one of these parameters, and this is based on the composition of waste. As well as the composition and tonnage of solid waste disposed of to land disposal sites (of all types), information is also required on the management of disposal sites and any gas capture systems at the sites.

As an Annex I Party to the UNFCCC and a Party to the Kyoto Protocol, New Zealand has obligations to submit the following:

- greenhouse gas inventory (annually, next submission is due by 15 April 2015)
- biennial report (biennially, next submission is due by 1 January 2016)
- national communications (every four years, next submission is due by 1 January 2018)

As per the UNFCCC requirements and IPCC guidelines that all three reports follow, the information on GHG emissions from the waste sector for 1990 to the latest inventory year is an integral part of the GHG inventory report.

The other two reports include a chapter that summarises the GHG trends reported in the inventory for all sectors (including the waste sector) and present the summative data tables with the time series of GHG emission values, per sector, per gas, at a higher level than the Inventory. These also include waste sector data. There is a chapter in both reports that includes information on policies regarding the waste sector, e.g., National Environmental Standards on landfill methane and the Waste Minimisation Fund.

### 3.1.1.5 United Nations Environment Programme

The United Nations Environment Programme regularly reports key environmental indicators from data provided by member countries. These indicators include a figure for "municipal waste collections"<sup>5</sup>. The United Nations Statistics Division also collects and reports country-by-country data on hazardous waste generation, municipal waste collection, and municipal waste treatment.<sup>6</sup>

The provision of waste data to the United Nations is not an obligation on New Zealand's behalf. Data is collected by the United Nations Statistics Division (UNSD) both through access to external data, such as

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<sup>5</sup> [http://www.unep.org/yearbook/2013/pdf/Environmental\\_indicators.pdf](http://www.unep.org/yearbook/2013/pdf/Environmental_indicators.pdf)

<sup>6</sup> <http://unstats.un.org/unsd/environment/municipalwaste.htm>



OECD data, and through a biennial questionnaire. The UNSD's *Questionnaire on Environment Statistics* includes a section on waste.

Stats NZ is the lead agency on UNSD engagement. The survey on environmental statistics is not mandatory in nature, with relatively low response rates from all regions of the world. UNSD recognises that not all data is available and does not require a state to gather data which it does not already have.

While New Zealand has, in the past, reported on its environmental performance to both the OECD and the United Nations Environment Programme,<sup>7</sup> based on information held by MfE the survey on environmental statistics was not received by either Stats NZ or MfE in 2010.

### 3.1.1.6 Organisation for Economic Co-operation and Development

The mission of the OECD is to promote policies that will improve the economic and social well-being of people around the world.<sup>8</sup> A major part of the OECD's work is analysing and comparing data to predict future trends, set international standards on a wide range of issues, and recommend policies to improve the quality of people's lives.

The Convention, in article 3, states that:<sup>9</sup>

*With a view to achieving the aims set out in Article 1 and to fulfilling the undertakings contained in Article 2, the Members agree that they will:*

- (a) keep each other informed and furnish the Organisation with the information necessary for the accomplishment of its tasks;*
- (b) consult together on a continuing basis, carry out studies and participate in agreed projects; and*
- (c) co-operate closely and where appropriate take co-ordinated action.*

New Zealand, as part of its active participation as a member of the OECD, makes an effort, where possible, to respond to OECD requests for waste, and other, data. New Zealand reports solid waste data to OECD on a regular basis, using a standardised format to build up a time series of data. MfE also provides waste data on an ad hoc basis in response to data requests from OECD that are used for specific projects, such as an OECD investigation into food waste. Like other countries, New Zealand does not always collect or have available the requested data.

The OECD annual *Questionnaire on the State of the Environment* is a joint questionnaire with the Statistical Office of the European Union for EU member states. The in-depth survey collects data on:

- generation of waste by sector
- generation, recovery and recycling of selected waste streams
- generation of selected waste streams
- generation, treatment and disposal of non-hazardous industrial waste
- generation, treatment and disposal of hazardous waste
- generation of hazardous waste by category
- generation and collection of municipal waste
- treatment and disposal of municipal waste
- waste treatment and disposal installations.

The wide range of data collected by the OECD waste questionnaire is presented in Appendix 4.

<sup>7</sup> <http://www.mfe.govt.nz/environmental-reporting/about-environmental-reporting/reporting-programme/meeting-obligations.html>

<sup>8</sup> <http://www.oecd.org/about/>

<sup>9</sup> <http://www.oecd.org/general/conventionontheorganisationforeconomicco-operationanddevelopment.htm>

### 3.1.1.7 Basel Convention

In 1994, New Zealand became party to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. The objective of the Convention is to protect human health and the environment against the adverse effects of hazardous wastes by reducing the generation of hazardous wastes and restricting the transboundary movement of hazardous wastes.<sup>10</sup>

In terms of the Basel Convention, New Zealand defines 'waste' as it is defined in the Imports and Exports (Restrictions) Prohibition Order (No 2) 2004. This definition is based on the intention to dispose of substances or objects 'through a method of disposal that do not lead to the possibility of resource recovery, recycling, reclamation, direct reuse, or alternative uses...'

Under article 13(3) (b) of the Convention, the New Zealand government is required to report:

- (i) *The amount of hazardous wastes and other wastes exported, their category, characteristics, destination, any transit country and disposal method as stated on the response to notification;*
- (ii) *The amount of hazardous wastes and other wastes imported their category, characteristics, origin, and disposal methods;*
- (iii) *Disposals which did not proceed as intended;*
- (iv) *Efforts to achieve a reduction of the amount of hazardous wastes or other wastes subject to transboundary movement;*

New Zealand records import and export data of hazardous waste through a permitting regime operated by the Environmental Protection Authority (EPA) and this information is reported annually to meet New Zealand's obligations under the Basel Convention. The permitting regime is operated under the Imports and Exports (Restrictions) Act 1988 and the Imports and Exports (Restrictions) Prohibition Order (No.2) 2004. The permitting regime for hazardous wastes requires use of 'movement forms' (as required by the Basel Convention), which contain descriptions of the waste, its volume, and its destination. Collated data from the permitting regime is used by MfE for reporting to the Basel Convention.

The Convention also publishes fact sheets for individual countries. These fact sheets provide more detailed country data than that required under article 13(3) (b) of the Convention, including:

- amount of hazardous wastes generated under Art. 1(1)a (Annex I: Y1-Y45) of BC
- amount of hazardous waste generated under Art. 1(1)b of BC
- amount of other wastes generated (Annex II: Y46-Y47)
- amount of hazardous wastes exported
- amount of other wastes exported
- amount of hazardous wastes imported
- amount of other wastes imported.

The most recent New Zealand fact sheet, which was published in 2008, did not include data on the amounts of hazardous and other wastes generated.<sup>11</sup> The voluntary WasteTRACK system (section 3.1.2.4) does not collect full and complete data measuring the total volume of hazardous waste generated, transported, or disposed of in New Zealand.

### 3.1.1.8 Waigani Convention

In 2000, the government ratified New Zealand's becoming a party to the Convention to Ban the Importation into Forum Island Countries (FICs) of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region, 1995.

<sup>10</sup> <http://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx>

<sup>11</sup> <http://www.basel.int/Portals/4/Basel%20Convention/docs/natreporting/2006/cfs/newzealand.doc>

The Convention governs the transboundary movement of hazardous waste in the South Pacific region and prohibits the export of hazardous waste from New Zealand and Australia into the Convention area in the South Pacific. Under Article 4.4(f) of the Convention, the government is required to:

*Submit to the Secretariat such reports as the Conference of the Parties may require regarding the hazardous wastes generated in the area under its jurisdiction in order to enable the Secretariat to produce a regular hazardous wastes report.*

As noted in section 3.1.1.7, New Zealand records import and export data of hazardous waste through a permitting regime operated by the EPA. As far as MfE is aware, the Conference of the Parties to the Waigani Convention has never required any reports regarding hazardous wastes generated in its jurisdiction.

### 3.1.1.9 Stockholm Convention

The Stockholm Convention on Persistent Organic Pollutants commits the government to protecting human health and the environment by reducing and, where feasible, eliminating the production and environmental releases of listed persistent organic pollutants, such as polychlorinated biphenyls. The Convention, which the government ratified in 2004, requires that New Zealand collects and arranges for the destruction of specific waste chemicals and that material and sites that are contaminated with persistent organic pollutants are properly managed.<sup>12</sup>

Article 15 of the Convention requires that:

- (i) 1. Each Party shall report to the Conference of the Parties on the measures it has taken to implement the provisions of this Convention and on the effectiveness of such measures in meeting the objectives of the Convention.
- (ii) 2. Each Party shall provide to the Secretariat:
- (iii) (a) Statistical data on its total quantities of production, import and export of each of the chemicals listed in Annex A and Annex B or a reasonable estimate of such data; and
- (iv) (b) To the extent practicable, a list of the States from which it has imported each such substance and the States to which it has exported each such substance.
- (v) 3. Such reporting shall be at periodic intervals and in a format to be decided by the Conference of the Parties at its first meeting.

Article 5(a) of the Convention also requires that each Party to the Convention

*Develop an action plan or, where appropriate, a regional or subregional action plan within two years of the date of entry into force of this Convention for it, and subsequently implement it as part of its implementation plan specified in Article 7, designed to identify, characterize and address the release of the chemicals listed in Annex C and to facilitate implementation of subparagraphs (b) to (e). The action plan shall include the following elements:*

- (i) *An evaluation of current and projected releases, including the development and maintenance of source inventories and release estimates, taking into consideration the source categories identified in Annex C;*

To evaluate releases of dioxins, MfE produced *New Zealand Inventory of Dioxin Releases to Air, Land and Water, and Reservoir Sources: 2011*. The inventory report states that it “establishes the framework for New Zealand’s 5-yearly reporting requirements under the Stockholm Convention.” Most of the results in the inventory are based on emissions factors taken from the United Nations Environment Programme *Standardised Toolkit for Identification and Quantification of Dioxin and Furan Releases*.

Dioxins and furans are not produced intentionally, but “are formed as unintentional byproducts in various chemical productions processes and in most thermal processes, including combustion”. Burning of waste has the potential for high, unintentional formation and the release of persistent organic

<sup>12</sup> Ministry for the Environment (2010) *New Zealand Waste Strategy Reducing Harm, Improving Efficiency*

pollutants, particularly dioxins, to the environment. The 2011 inventory includes data on air emissions and land residues of dioxins based, in part, on waste data related to:

- quarantine waste incineration
- hazardous waste incineration
- wastewater solids incineration
- document destruction
- school incinerators
- animal carcass disposal
- landfill gas (fugitive emissions)
- landfill gas combustion
- landfill fires
- industrial wood and biomass combustion
- contaminated wood wastes
- domestic waste burning
- residential solid waste
- industrial solid waste disposal

Creating the inventory provides MfE with data on estimated releases of dioxins and furans, which is inputted into the national report required by the Stockholm Convention. Submitting the national report partially fulfils New Zealand's reporting responsibilities under the Stockholm Convention.

### 3.1.2 MfE waste data gathering

In line with its general policy to work collaboratively with other organisations that gather data, rather than gathering data itself, MfE, historically, has had a limited role in waste data gathering. There are, however, significant exceptions, some of which are outlined in the sections that follow.

#### 3.1.2.1 Data to support policy

MfE is responsible for providing policy advice on government proposals relating to waste management and for assessing the effectiveness of existing legislation. It is important for MfE to have good quality data to inform the policy development process; in particular, data is required to enable the development of evidence based problem definitions and to ensure policy options that are subsequently considered are appropriate. Data for policy advice and assessing legislation is either collected through the other channels described in this report or commissioned on an as-needed basis.

#### 3.1.2.2 Online Waste Levy System

In its role administering the WMA, MfE has established the Online Waste Levy System (OWLS) for use by disposal facility operators (as defined by the WMA) for submitting waste levy returns. Reporting by operators is required by the Waste Minimisation (Calculation and Payment of Waste Disposal Levy) Regulations 2009.

Through this system, MfE collects regular data on the tonnages of waste received and some of the materials diverted at disposal facilities. This data, in an aggregated format is available online and is updated regularly. Only aggregated data for the North and South Islands is released online, although a 2013 request for OWLS data by two regional councils did result in the aggregated data for those two regions being released.

While submission of tonnage data on levied waste to OWLS is mandatory for disposal facility operators, the OWLS return form also provides for the voluntary provision of two types of data. As part of their returns submissions, operators are able to enter information about cover material used at their facility. In this instance, 'cover material' can include both material that is subject to the waste levy and material that is exempt from the waste levy. The submission of data on cover material includes whether the material was sourced on-site or off-site, and, if off-site, what type of material (e.g. clay or rock).<sup>13</sup>

<sup>13</sup> Ministry for the Environment (2010) *Online Waste Levy System – User guide for waste disposal facility operators Version Two*

As well as data on cover material, disposal facility operators may also voluntarily provide data on the 'source' of waste through the OWLS system. The OWLS supplementary guidance on the optional 'waste source categories' defines eight categories:

- commercial and industrial
- construction and demolition
- kerbside collection
- landscape waste
- residential
- special waste
- unspecified waste
- diverted materials

MfE does not publish any of the optional data collected from the OWLS system and the reliability of the data is variable, given the different methods that are used to collect the data.

### 3.1.2.3 Emissions Trading Scheme

The New Zealand Government has made a long-term commitment to reducing greenhouse gas emissions. The primary method for achieving this is the Emissions Trading Scheme (ETS). The EPA administers the scheme and operates the Emission Unit Register, where transactions take place.<sup>14</sup>

Regulations for reporting landfill methane emissions under the ETS came into force from 1 January 2011.<sup>15</sup> The Climate Change (Waste) Regulations require disposal facility operators to measure and record the gross tonnage and diverted tonnage of waste disposed of at the facility in each calendar year. This is the same information as reported for the waste levy, using OWLS, but reporting is on an annual basis rather than monthly, as for the waste levy.

For landfill operators wishing to apply for a unique emissions factor for non-default waste composition and/or methane collection and destruction, verified data on either waste composition or methane collection must also be provided to the EPA. This data does not need to be updated unless significant changes occur. The relevant regulations, Climate Change Unique Emissions Factors Regulations 2009, are administered by MfE.

### 3.1.2.4 WasteTRACK

MfE also administers the WasteTRACK system. WasteTRACK is an internet-based database that consolidates manifest, facility, and carrier data to track liquid and hazardous waste from generation, through transport, to treatment, or disposal. It is administered under contract to MfE and is available to businesses operating in accordance with the Liquid and Hazardous Waste Code of Practice, or that use it to meet the requirements of TAs or other organisations. Participation by businesses is on a voluntary basis.

MfE does not publish any of the data collected from the WasteTRACK system. The data gathered from the system is incomplete and inconsistent.

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<sup>14</sup> <http://www.epa.govt.nz/e-m-t/Pages/default.aspx>

<sup>15</sup> Ministry for the Environment (2011) *A guide to landfill methane in the New Zealand Emissions Trading Scheme*

### 3.1.2.5 National waste composition baseline programmes

MfE has funded three national waste composition data programmes – in 1993-1995, 2003/2004 and 2007/2008. The 1993-1995 programme included the ten largest landfills in the country; the other programmes focussed on four ‘indicator’ sites.

The national waste composition programmes were based on the methodology outlined in MfE's Solid Waste Analysis Protocol (2002) or its predecessor, the Waste Analysis Protocol. The results of the 1993-1995 programme were aggregated and included in the 1997 *National Waste Data Report*.

### 3.1.2.6 United Nations Framework Convention on Climate Change reporting

To prepare the national inventory of greenhouse gas emissions for the UNFCC, MfE has both commissioned and undertaken aggregation of data relating to the tonnage and composition of waste disposed of to both levied and non-levied disposal sites. In the past, the data has been compiled on a four-yearly basis, with the annual inventory based on interpolated and extrapolated results. The most recent commissioning of data took place in 2013. The resultant research covered the tonnage and composition of waste to all types of land disposal sites from 1950 to 2012. This research has been peer-reviewed and provides robust data on the composition of waste disposed of to land in New Zealand.

### 3.1.2.7 Territorial authority waste levy spend reporting

Section 37 of the WMA states that:

*The Minister may direct the Secretary to retain 1 or more payments of levy money to a territorial authority in respect of a financial year if he or she is satisfied that the territorial authority has not met any of the following requirements or standards in respect of the previous financial year:*

- (a) the requirement to spend levy money in accordance with section 32:*
- (b) a performance standard set by the Minister under section 49:*
- (c) any prescribed requirement to provide records or information.*

MfE has established a voluntary system for annual reporting by TAs on waste levy spending. The annual reporting requested by MfE uses a standard spreadsheet for all councils, requiring details for every waste levy-funded initiative including:

- the reference in the council's Waste Management and Minimisation Plan (WMMP) where levy spending for that project is described
- the amount of waste reduced, reused, recycled, or recovered by that project
- measurements relating to projects that involve waste minimisation promotion
- classification of the project as being aimed at reduction, re-use, recycling, or recovery
- classification of the project as being one of four project types (education, research, etc.)
- the project's status as new, existing, or expanding
- the amount of levy money spent on the project in the reporting period
- total cost of the initiative
- any additional comments.

Data on waste levy spending by TAs can be used by MfE for monitoring and auditing purposes and for its review of the effectiveness of the waste levy.

### 3.1.2.8 Territorial authority stocktake

In 2011, MfE undertook a one-off survey that involved contacting TAs to elicit data on types of waste infrastructure, available services, and the quantities of materials controlled. Similar research was undertaken in 2013, when information from TA waste assessments was collated.



### 3.1.2.9 Survey of non-municipal landfill sites and organic waste processors

In 2008, MfE commissioned research into the number of 'non-municipal' landfill sites (i.e. cleanfills, monofills, C&D sites) and the composition and quantity of material being disposed of at these sites. The 2008 research included a survey of composting operations. This information was updated in 2011 to inform the statutory review of the waste disposal levy.

In 2013, MfE commissioned further research to produce a database of non-levied waste facilities in New Zealand, building on the earlier database developed by the MfE. The objective of the project was to identify the number of non-levied facilities and estimate the total tonnage and composition of waste disposed of to these sites for the period 1950 – 2015. The project researchers were able to add some raw data to the information held in the existing database, but information could not be obtained on many non-levied sites or farm dumps. Total tonnages were estimated based on GDP in each region.

The *New Zealand Non-Municipal Landfill Database Report* was prepared for the MfE to accompany the database, which contains commercially sensitive information. The report summarises the statistical findings, methodology, and data limitations.

### 3.1.2.10 Waste electronic and electrical equipment survey

In 2006, MfE funded a telephone survey to provide information about how individuals dispose of electrical and electronic equipment and their attitudes to paying for disposal.

### 3.1.2.11 Other data gathering

MfE collects data from Waste Minimisation Fund projects. The type of data that is collected varies from project to project. Similarly, data is also collected from product stewardship schemes.

## 3.2 Statistics New Zealand

Stats NZ produces a range of environmental statistics about the natural environment and its contribution to the economy, and the impact of the economy and social activities on the environment. These statistics are presented as 'environmental accounts', which are based on the United Nations Statistical Commission's statistical framework known as the System of Environmental and Economic Accounting (SEEA).

Environmental-economic accounts quantify the interactions between the environment and the economy. The accounts measure the value and volume of many of New Zealand's natural resources, and identify which industries use them. The SEEA is compatible with Stats NZ's System of National Accounts.

The role of Stats NZ in reporting environmental data is expanding to a reporting partnership between MfE and Stats NZ through the provisions in the Environmental Reporting Bill, introduced to Parliament in February 2014.

Prior to introduction of the Bill, Stats New Zealand, MfE, and the Department of Conservation collaborated on an environmental domain plan, published by Stats NZ in 2013, to improve the reporting of environmental statistics. The environmental domain plan is an initiative to improve the quality and comprehensiveness of environmental data, including data on waste. The purpose of the environmental domain plan is to:

*...develop a shared understanding of the strengths, gaps, overlaps, and deficiencies within environmental statistics. It aims to develop agreement between major users and data custodians on the prioritised initiatives needed to address the environment sectors' statistical needs.*

*These initiatives aim to guide us on how environmental information collection and use should progress. Unlike Tier 1 statistics, where there are agreed obligations and timeframes for delivery of the statistics, the environment domain plan initiatives are aspirational.*

The environmental domain plan includes a chapter on material and waste flows. The plan presents one 'enduring question' and six 'supplementary enduring questions' on material and waste that the collected data would aim to inform:

- How do production and consumption patterns in New Zealand affect waste generation and minimisation?
  - 1. What and where are the effects of production and consumption on New Zealand's environment?
  - 2. To what extent is New Zealand adopting technologies, production methods, and best practices that make more efficient use of natural resources, minimise waste, and reduce the impact on the environment from production and consumption?
  - 3. What and where is the total amount and composition of waste generated, recycled, and disposed of in New Zealand?
  - 4. What is the environmental impact of waste in New Zealand?
  - 5. To what extent are Māori values affected by current waste management practices?
  - 6. What environment protection effort is undertaken to reduce the impact of waste on the environment?

The plan goes on to identify twelve initiatives that "seek to improve information, monitoring, reporting, governance, standards, recognition of indigenous values, levy changes, international comparisons, and the use of current information to inform debate on the issues". These twelve initiatives are:

- conduct waste-stream data collection
- assess data needs for a material flow analysis
- support improved governance over waste to improve coordination of waste information
- improve understanding of waste and hazardous sites
- establish recycling standards
- research how waste may become a resource
- integrate Māori values into waste management
- maintain a national directory of waste management and diverted materials sites
- integrate international best practice into New Zealand waste management
- establish international best practice in monitoring and reporting waste
- conduct research to inform reviews of the waste levy
- make better use of current information.

The 'material flow analysis' in the second initiative supports the 'environmental account' process for analysing the relationship between the environment and the economy. Environmental accounts for this purpose are compiled using the SEEA framework. It has become standard practice internationally, including in the SEEA, to include liquid waste under the heading of solid waste.

See Appendix 6 for details about SEEA Waste Accounts provided by Statistics NZ for this report.

The aim of economy-wide material flow accounts, which include solid, liquid, and gaseous wastes, is to:

*provide an aggregate overview, in tonnes, of the material inputs and outputs of an economy including inputs from the environment, outputs to the environment, and the physical amounts of imports and exports. Economy Wide –Material Flows Account and associated balances constitute the basis from which a variety of material flow based indicators can be derived.<sup>16</sup>*

<sup>16</sup> European Commission Food and Agriculture Organization, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, World Bank (2012) System of Environmental-Economic Accounting

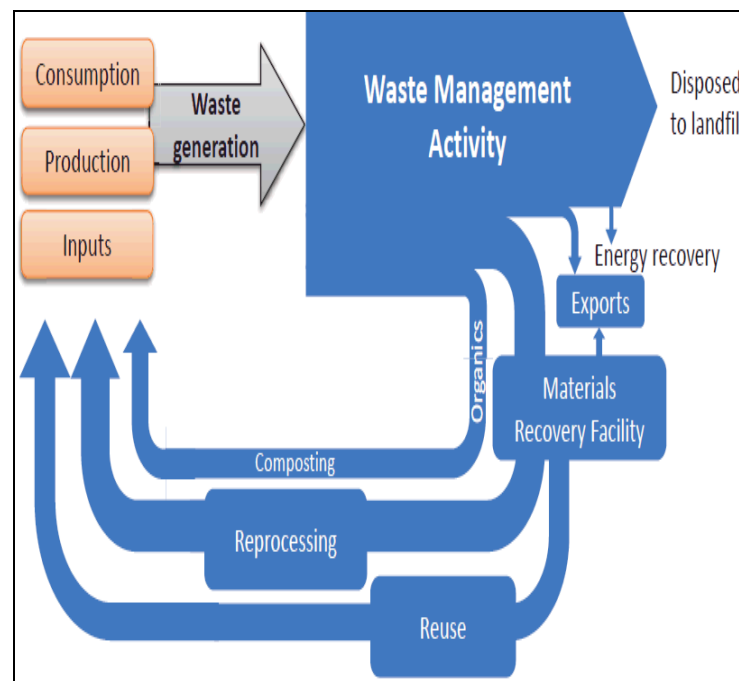


The Australian Bureau of Statistics in 2013 released *Waste Account, Australia, Experimental Estimates WAAEE 2013*.<sup>17</sup> On 5 June 2014 the Bureau announced changes to its future work program which included discontinuing the Waste Account.<sup>18</sup>

Using the SEEA framework, the WAAEE 2013 presents a series of tables showing information on the generation of waste, the destination of waste to landfills or to recycling facilities, and the supply of recycled materials to the economy, including the related financial flows of these waste transactions. The WAAEE includes tables on:

- waste generated by industry, government and households, by waste material, 2009-10, '000 tonnes (physical supply);
- waste management, treatment and disposal, by waste material, services provided by industry 2009-10 and waste product and residual, '000 tonnes (physical use);
- supply of Waste Goods and Services by Industry 2009-10, \$m (purchasers' prices) (monetary use); and
- use of Waste Goods and Services by Industry 2009-10, \$m (purchasers' prices) (monetary use).

The following diagram from the WAAEE report shows how waste information is reported. Although a similar New Zealand waste account has yet to be developed, both countries accounts follow the SEEA central framework and have similar data requirements and reporting.



### 3.3 Maritime New Zealand

Maritime New Zealand is a Crown entity established as the Maritime Safety Authority and renamed Maritime New Zealand (MNZ) in July 2005. MNZ's mission is "to lead and support the maritime community to take responsibility for ensuring our seas are safe, secure and clean, on behalf of all New

<sup>17</sup> <http://www.abs.gov.au/ausstats/abs@.nsf/Products/4602.0.55.005~2013~Main+Features~Introduction+and+Key+Indicators?OpenDocument>

<sup>18</sup> <http://www.abs.gov.au/AUSSTATS/abs@.nsf/mediareleasesbyCatalogue/745695D9AEBEFE64CA257CEE0004715C?Opendocument>

Zealanders".<sup>19</sup> In fulfilment of this role, MNZ carries out research and analysis to provide technical policy support and safety and environmental advice to government.

New Zealand is a Party to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972, the "London Convention". The objective of the London Convention is to promote the effective control of all sources of marine pollution and to take all practicable steps to prevent pollution of the sea by dumping of wastes and other matter<sup>20</sup>

Under Article VI of the London Convention, each contracting party shall report on the nature and quantities of all matter permitted to be dumped and the location, time, and method of dumping. MNZ is responsible for reporting on maritime dumping to the International Maritime Organization (IMO), which is responsible for secretarial duties in relation to the Convention.

To fulfil its responsibilities, each year MNZ approaches each regional council and requests information relating to resource consents for maritime dumping. This information is collated and reported to the IMO. The information that is reported to IMO includes, for each dumping, the deposit site, a category of the waste, and, for dredgings, the source and volume of the waste material.

In 2012, MNZ reported to the IMO that approximately 1.7 million tonnes (dry weight) of dredgings were dumped in the previous year.

### 3.4 Environmental Protection Authority

The EPA administers applications for major infrastructure projects of national significance, and regulates new organisms (plants, animals, GM organisms) and hazardous substances and chemicals. The EPA also administers the Emissions Trading Scheme and New Zealand Emission Unit Register (see section 3.1.2.3), and manages the environmental impact of activities in New Zealand's exclusive economic zone, including prospecting for petroleum and minerals, seismic surveying, and scientific research.<sup>21</sup>

Import and export data for hazardous waste is collected through a permitting regime operated by the EPA and this information is reported annually by MfE to meet New Zealand's responsibilities under the Basel Convention. The permitting regime is operated under the Imports and Exports (Restrictions) Act 1988 and the Imports and Exports (Restrictions) Prohibition Order (No.2) 2004. The permitting regime for hazardous wastes requires use of 'movement forms' (as required by the Basel Convention), which contain descriptions of the waste, its volume, and its destination.

### 3.5 Regional councils

Under section 30 of the Resource Management Act 1991 (RMA), regional councils are responsible for controlling the discharge of contaminants, including solid waste, into or onto land, air or water.

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<sup>19</sup> <http://www.maritimenz.govt.nz/Publications-and-forms/Maritime-NZ-corporate-publications/Maritime-New-Zealand-profile.pdf>

<sup>20</sup> <http://www.imo.org/OurWork/Environment/LCLP/Pages/default.aspx>

<sup>21</sup> <http://www.epa.govt.nz/Pages/default.aspx>

### 3.5.1 Regional council waste data reporting

#### 3.5.1.1 Environmental reporting

Section 35 of the RMA requires a regional council to monitor the state of the environment in its region and compile and make available to the public a review of the results of its monitoring, at intervals of not more than five years.

Regional councils vary in the amount of information on solid waste that is included in these environmental reports. Wellington Regional Council's state of the environment technical reports, for example, provide very little waste-related data. Northland and Waikato Regional Councils' environmental reporting focus on hazardous waste in the context of contaminated sites. Waikato Regional Council has a proposed environmental indicator for future reporting on solid waste and recycling. Taranaki Regional Council, on the other hand, has included a complete chapter on solid waste in its *State of the Environment 2009*. The chapter includes data on cleanfills, special wastes, agricultural wastes, hazardous waste, and municipal wastes.

#### 3.5.1.2 Reporting under section 27 of RMA

Under section 27 of the RMA, the Minister for the Environment may require a local authority to supply information relating to its exercise of any of its functions, powers, or duties under the Act, if the information is held by the local authority and the information is reasonably required by the Minister. An example of the use of these powers by the Minister was for the preparation of MfE's 2011 *Consented Non-levied Cleanfills and Landfill in New Zealand Project Report*.

#### 3.5.1.3 Reporting to Maritime New Zealand

Each year, regional councils report to MNZ on the quantity of material dumped in the marine environment. Regional councils collect this data through the reporting conditions for resource consents for material dumped in the marine environment. Most of these materials are dredgings.

### 3.5.2 Regional council waste data gathering

Regional councils may regulate the environmental effects of activities and facilities relating to waste by granting and monitoring resource consents, which can include the reporting of waste data by the consent holder. Regional councils can also play an important role in facilitating a collaborative approach to waste management and minimisation planning amongst TAs. These roles are discussed separately in the following sections.

#### 3.5.2.1 Resource consent waste data

The functions of regional councils are described in section 30 of the RMA. Several of these functions relate to waste and its disposal:

- the control of the use of land for the purpose of the prevention or mitigation of any adverse effects of the storage, use, disposal, or transportation of hazardous substances
- the investigation of land for the purposes of identifying and monitoring contaminated land
- the control of discharges into or onto land, air, or water and discharges of water into water.

Regional councils prepare and implement regional plans in order to assist in the carrying out of their functions, particularly with regard to the management of air, land, and waste resources. These plans may contain provisions that refer directly to waste and waste disposal.

For example, the former Auckland Regional Council's *Auckland Regional Plan: Air, Land and Water* (adopted as 'Operative in Part' by Auckland Council in 2012) provides rules for Air Quality relating specifically to 'Waste processes'. With regards to Discharges to Land and Water, the Plan contains policies relating to the 'discharge of refuse to land' and specific rules relating to 'Landfills'. These rules determine the categorisation of specific activities and the category determines whether a resource consent is required for the activity.

It is through resource consents that regional councils have the statutory, but optional, power to gather data on waste-related activities. There is no central government guidance for regional councils with regards to requiring the supply of data by resource consent holders.

All regional councils' plans require that a resource consent be obtained for the establishment of a 'disposal facility', as defined by the WMA<sup>22</sup>, but conditions of the resource consents relating to the provision of waste data by the consent holder to the council vary widely. The former Auckland Regional Council, for example, required Redvale landfill, which opened in 1993, to provide regular waste composition and tonnage data as a resource consent condition. Neighbouring Waikato Regional Council, on the other hand, did not require North Waikato Regional Landfill (Hampton Downs landfill) to provide waste composition data as a resource consent condition for the landfill, which opened in 2005.

Nationally, most 'disposal facilities' provide tonnage or volume information as a resource consent condition, but very few facilities provide waste composition data.

In terms of waste disposal sites that do not meet the WMA criteria for 'disposal facility' (such as cleanfills, monofills, and C&D landfills), the practices of regional councils vary even more widely. For land use activities, when there is no rule in a plan the activity is permitted. Unless a regional council includes a land use rule for cleanfills in its regional plan, and not all do, cleanfilling will therefore be a permitted activity.

For all other activities, including discharges, where there is no rule in a plan a consent is required. Cleanfills would be classed as discharges and would therefore require a consent if the activity is not specified in a plan.<sup>23</sup>

The resource consent conditions for 'cleanfills' are likely to vary widely with regards to requirements for waste data reporting. A common resource consent condition is a maximum quantity threshold. Although there is no publicly-available analysis of cleanfill resource consent conditions, anecdotal evidence suggests that the requirements can vary even within individual councils. For example, of twenty 'cleanfill' sites identified in the Auckland region, analysis of the resource consents indicated that five sites had no conditions requiring the reporting of volume or composition of the materials deposited.<sup>24</sup>

Canterbury Regional Council, though, includes conditions in new resource consents for cleanfills that allow the Council to request data on volume, source, and a description (composition) of the material. Council has not, as yet, requested any consent holders to provide this data.<sup>25</sup>

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<sup>22</sup> SKM (2008) *Waste Facilities Survey – Methodology and Summary of Results*, prepared for MfE

<sup>23</sup> Chris Keeling, Senior Hazardous Substances & Waste Officer, Environment Canterbury, (personal communication) 24 June 2014

<sup>24</sup> Waste Not Consulting Ltd (2012) *Waste Policy Objectives – An Assessment of Data Sources*, prepared for Auckland Council

<sup>25</sup> Chris Keeling, Senior Hazardous Substances & Waste Officer, Environment Canterbury, (personal communication) 24 June 2014

While all regional councils have been given the same functions under the RMA, individual councils have taken widely-divergent views on the amount of data on waste disposed of to land that is needed to fulfill their responsibilities under the Act.

One type of waste data that is consistently gathered by regional councils relates to dumping in the marine environment. Data from resource consents for dumping in the marine environment is collected by regional councils and reported annually to Maritime New Zealand.

### 3.5.2.2 Regional waste management initiatives

The focus of district plan rules is public safety whereas the focus of regional councils' concern is mainly the need to avoid contamination of land, air and water. There is, as such, no statutory requirement in the RMA or WMA for regional councils to become involved in waste minimisation directly or to work collaboratively with TAs on waste-related issues, but many have chosen to do so.

The management of hazardous substances is an example of a functional area where there is overlap between the responsibilities of regional councils and TAs. Environment Canterbury has worked with the TAs of the Canterbury Region to develop the Canterbury Hazardous Waste Management Strategy. Environment Canterbury has overseen various studies of regional interest such as investigating plastic farm waste and the collection of hazardous waste.<sup>26</sup> These projects have resulted in waste data being collected and reported on subjects that had not been thoroughly investigated previously.

Other regional councils have taken a broader interpretation of their mandate under the RMA and have developed their own regional waste strategies. Regional councils that have developed waste strategies include Bay of Plenty, Southland, Taranaki, Waikato, and West Coast. Regional waste strategies can include policies and actions that result in the collection and reporting of waste data. For example, Bay of Plenty and Waikato Regional Councils combined with the TAs to commission a joint waste stocktake, which drew together and standardised waste data from both regions and reported the findings to the wider public.<sup>27</sup>

Other regional councils have opted for a lower level of involvement with waste issues, but work jointly with TAs on waste-related issues and initiatives. Some of these initiatives can result in the collection and reporting of waste data, such as Wellington Regional Council's involvement in the joint *Wellington Regional Waste Assessment*.

## 3.6 Territorial and unitary authorities

The purpose of the WMA is "...to encourage waste minimisation and a decrease in waste disposal in order to protect the environment from harm and provide environmental, social, economic, and cultural benefits". Part 4 of the WMA pertains to the responsibilities of TAs, which "must promote effective and efficient waste management and minimisation within their districts" (section 42).<sup>28</sup> The WMA includes specific provisions for reporting by TAs to the MfE. These reporting provisions result in TAs collecting different types of waste data.

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<sup>26</sup> <http://www.crc.govt.nz/publications/General/FunctionalRelationshipsReport.pdf>

<sup>27</sup> Eunomia Research & Consulting Ltd and Waste Not Consulting Ltd (2013) *Bay of Plenty and Waikato Regions Waste Stocktake*, prepared for Bay of Plenty and Waikato Regional Councils

<sup>28</sup> Material in this section is adapted from *Auckland Council Waste Assessment*

### 3.6.1 Territorial and unitary authority waste data reporting

Most TAs have dual roles as both a market regulator of waste services and a provider of waste services. In this section, only the waste data reporting of TAs in terms of the WMA are considered. Waste reporting by TAs in terms of their role as providers of waste services is discussed in section 3.7.

#### 3.6.1.1 Waste assessments

TAs' primary strategic tool for promoting waste management and minimisation is a waste management and minimisation plan (WMMP), adoption of which is required by s.43 of the WMA. Section 50 of the WMA requires that TAs review their WMMP at intervals of not more than six years after the last review. The WMA specified that all TAs must review their WMMP not later than 1 July, 2012.

Before conducting a review, TAs must make an assessment under section 51, which states that:

- (1) A waste assessment must contain—
- (a) a description of the collection, recycling, recovery, treatment, and disposal services provided within the territorial authority's district (whether by the territorial authority or otherwise); and
  - (b) a forecast of future demands for collection, recycling, recovery, treatment, and disposal services within the district; and
  - (c) a statement of options available to meet the forecast demands of the district with an assessment of the suitability of each option; and
  - (d) a statement of the territorial authority's intended role in meeting the forecast demands; and
  - (e) a statement of the territorial authority's proposals for meeting the forecast demands, including proposals for new or replacement infrastructure; and
  - (f) a statement about the extent to which the proposals will—
    - (i) ensure that public health is adequately protected;
    - (ii) promote effective and efficient waste management and minimisation.

Although the WMA requirements for a waste assessment are the same for all territorial and unitary authorities, TAs differed widely in what they considered to be a sufficient amount of information to gather to review their WMMP.

While all TAs have the same responsibilities under the WMA, for historical reasons different TAs have significantly different involvements in the waste sector. In some districts, local government provides nearly all kerbside services to residents and owns and operates the transfer stations and landfills. In other districts, local government has virtually no involvement with waste collection or disposal, with private industry providing all services to businesses and households on a user-pays basis.

These differences in the level of involvement by TAs in providing waste services greatly affect the amount of waste data that is readily available to the individual councils. In many instances, the completeness of waste data reporting in an individual TA's waste assessment was directly related to the amount of data that was readily available to the TA. Many TAs cited the difficulty of obtaining waste data from the private sector as the main reason for the incomplete nature of waste data provided in their waste assessments.

Other TAs, however, took a more pro-active approach and were able to provide relatively complete pictures of waste flows despite not controlling significant proportions of the overall waste stream. In many instances, this was accomplished by seeking the voluntary co-operation of the private sector in providing the needed data.

### 3.6.1.2 Waste levy spending

The WMA provides, in section 31, for half of all money collected as part of the waste levy to be given to TAs to promote or achieve waste minimisation in accordance with their waste management and minimisation plans.

Section 86 of the WMA allows for regulations to be made for several purposes, including requiring a TA to provide information about spending of the waste levy money. Although the relevant regulations have not been made under section 86, section 37 allows MfE to retain payments of levy money to a TA if not satisfied that the TA has spent levy money in accordance with section 32.

MfE has established a system for annual reporting by TAs on waste levy spending. The annual reporting requested by MfE uses a standard spreadsheet for all councils, requiring details for every waste levy-funded initiative including:

- the reference in the council's WMMP where levy spending for that project is described
- the amount of waste reduced, reused, recycled, or recovered by that project
- measurements relating to projects that involve waste minimisation promotion
- classification of the project as being aimed at reduction, re-use, recycling, or recovery
- classification of the project as being one of four project types (education, research, etc.)
- the project's status as new, existing, or expanding
- the amount of levy money spent on the project in the reporting period
- total cost of the initiative
- any additional comments.

### 3.6.1.3 WMA section 86

Under section 86 of the WMA, the Governor General may, by Order in Council made on the recommendation of the Minister, make regulations:

- (c) requiring a territorial authority to keep, and provide to the Secretary each year, records and information about the territorial authority's—*
- (i) spending of levy money; and*
  - (ii) performance in achieving waste minimisation with the services, facilities, and activities provided or funded in accordance with its waste management and minimisation plan; and*
  - (iii) performance as measured against any performance standards set by the Minister under section 49:*

While no regulations have, as yet, been made under section 86, this does not preclude TAs being required to report on waste minimisation performance in the future.

### 3.6.1.4 Environmental reporting under RMA

Section 35 of the RMA requires a TA to monitor the state of the environment in its district and compile and make available to the public a review of the results of its monitoring, at intervals of not more than five years. The inclusion of waste data in these reports has not been determined at the time of writing.



### 3.6.2 Territorial and unitary authority waste data collection

A 2012 report for Auckland Council, prepared in support of the Statement of Proposal for council's solid waste bylaw, identified five separate sources of waste data that were available to Auckland Council.<sup>29</sup>

These sources of waste data are relevant to all territorial and unitary authorities:

- 1) reporting requirements of resource consents granted under regional and district plans
- 2) reporting requirements for the waste levy established by the WMA
- 3) bylaws in former cities and districts of the Auckland region that require the licensing of waste collectors and operators of waste facilities
- 4) data from council waste-related contracts
- 5) provision of data on a voluntary basis by waste collectors and operators of disposal facilities.

Waste levy data collection by MfE is discussed in section 3.1.2.2. The other four sources of waste data that can be collected by TAs are discussed in the following sections.

#### 3.6.2.1 Resource consent waste data

Under the RMA, TAs are responsible for controlling the effects of land-use and the effects of activities on the surface of lakes and rivers. TAs enact these responsibilities through district plans and issuing resource consents. An indeterminate number of district plans contain rules relating to the land disposal of waste, primarily relating to cleanfills. Other types of waste disposal sites, such as landfills, have markedly greater environmental effects than cleanfills, so are generally controlled through regional, rather than district, plans.

There is no consistency, between districts or individual resource consents, in resource conditions requiring that cleanfills provide any data to the consent issuer. An analysis of resource consents for cleanfills issued by the legacy councils in the Auckland area found that some of the councils always included reporting requirements as a condition of cleanfill consents while other councils never included such conditions.<sup>30</sup> In those instances when reporting conditions were included, the reporting was limited to the number of truck movements or topographic surveys of the volume deposited.

#### 3.6.2.2 Solid waste bylaws

Prior to the introduction of the WMA, TAs were able to use the powers vested by the Local Government Act 2002 to make bylaws to control waste management activities. While a high proportion of TAs made such bylaws, only a small number used this power to license waste collectors or waste management facilities and require that license operators provide the TA with waste data.

In 2003, Christchurch City Council adopted a Cleanfill Licensing Bylaw. The Bylaw required cleanfill operators to maintain records of materials and report this data to Council at a specified frequency. Data from this bylaw constitutes one of the few accurate records of cleanfill disposal in the country. This bylaw was reviewed and adopted again under the WMA.

In 2005, licensing of waste operators became standardised in the northern part of the Auckland region, with Waitakere and North Shore Cities and Rodney District all adopting similar bylaws. The bylaws required waste collectors and facility operators operating in the districts to report a range of data in a common format. Since the 2010 amalgamation of local authorities in the Auckland region, this data has continued to be reported to Auckland Council.

<sup>29</sup> Waste Not Consulting Ltd (2012) *Waste Policy Objectives – An Assessment of Data Sources*, prepared for Auckland Council

<sup>30</sup> Waste Not Consulting Ltd (2012) *Waste Policy Objectives – An Assessment of Data Sources*, prepared for Auckland Council



In 2007, Christchurch City Council introduced a second waste management bylaw, the Licensed Waste Handling Facilities Bylaws 2007. The Bylaw requires licensed facility operators to keep and maintain specified data and supply the records to council at specified intervals. Through this mechanism, Christchurch City Council has access to monthly tonnages of waste being disposed of at Kate Valley Landfill from each of the seven transfer stations in the city.

Section 56 of the WMA give TAs the power to make bylaws for regulating the collection and transportation of waste. Bylaws made under the WMA may

*provide for the licensing of person who carry out the collection and transportation of waste, and the conditions specified in the bylaw as conditions of the licences may include conditions requiring each licensee.... To provide to the territorial authority, at times or periods specified in the bylaws, reports setting out the quantity, composition, and destination of waste collected and transported by the licensee...*

Auckland Council and Kapiti Coast District Council are the only TAs known to have used the WMA bylaw powers to introduce and implement licensing requirements for waste collectors and waste management facilities that include the regular reporting of data by the licensees.

Auckland Council adopted its first solid waste bylaw in 2012. This bylaw replaced the waste bylaws of the seven former TAs in the region. The 2012 bylaw requires waste collectors to be licensed from Nov 2013 and operators of 'resource recovery facilities', 'landfill sites', 'clean fill sites', 'managed fill sites', and 'mono-fill sites' (all as defined by the bylaw) to be licensed from November 2015.

As part of the license conditions, the bylaw requires waste collectors and facility operators to "provide waste data to the council during the term of the licence in the form and at the times determined by the council". A trial of the reporting system for waste collectors has been undertaken but the system is, at the time of writing, yet to be fully implemented.

### 3.6.2.3 TAs' role as waste service provider

All TAs, to a greater or lesser extent, have chosen to take on a role as a provider of waste collection services. That role can be extremely limited, such as in the former Rodney District, which provided only litter and kerbside recycling collection services, or quite wide-ranging, such as Napier and Hastings councils, which operate transfer stations, jointly-own the landfill, and provide full kerbside collection services to residents.

No TAs have chosen to provide large-scale collection services for commercial and industrial waste generators. These services are universally provided by the private sector.

Virtually all waste data that most TAs collect derives from this role as a service provider. As a result, the amount of waste data available to TAs for strategic planning and reporting purposes varies according to the degree to which the TA is involved in providing waste services.

A second, and equally important, corollary of this is that many TAs have an incomplete picture of waste flows in their district. Even high-level waste data is incomplete for TAs that have privately-owned landfills in their district or experience cross-boundary movements of waste.

Cross-boundary movements of waste affect the completeness of any waste data gathered by TAs, except in those instances where the TA's district is a self-contained 'waste catchment'. In areas such as Marlborough District, all waste generated within the district is disposed of within the district's boundaries and no waste from outside of the district is transported into the district. This means, as Marlborough District Council controls all waste disposal facilities, it is able to collect complete data on all waste flows in the district.

#### 3.6.2.4 Voluntary provision of data by waste operators

To improve the quality and completeness of data available to them for strategic planning and mandatory reporting purposes, several TAs have requested private waste operators to provide data that would not otherwise be available. Examples of this include a private landfill operator providing data for Hauraki, Thames-Coromandel, and Matamata-Piako Districts' joint waste assessment. Other private landfill operators provided data for Auckland Council's and Waikato District Council's waste assessments.

Private waste operators are also known to have co-operated with TAs by providing data for Solid Waste Analysis Protocol (SWAP) surveys of the composition of waste to disposal facilities.

#### 3.6.2.5 Externally-sourced data

Many TAs use external resources, principally consultants, to gather a range of waste-related data when particular skills and resources are required. The gathering of waste composition data, in particular, is contracted out by TAs.

### 3.7 Waste operators

In this section, "waste operators" is used to mean any party that provides a waste-related service, such as collecting waste or operating a transfer station or disposal site. In this context, "waste operators" includes parties in both the public and private sectors.

#### 3.7.1 Waste operator data reporting

Waste data reporting by waste operators is mandated primarily through the WMA and Climate Change (Waste) Regulations.

##### 3.7.1.1 TA solid waste bylaws

In a small number of districts, the TA has introduced a solid waste bylaw that requires waste operators to be licensed, with the provision of waste data being one of the licensing conditions. In these cases, waste collectors and/or facility operators are required to provide data in the format and to the schedule required by the TA.

##### 3.7.1.2 Waste levy

Waste operators that operate 'disposal facilities' as defined by the WMA are required to report, generally on a monthly basis, on the tonnages of waste and diverted materials handled at the facility.

##### 3.7.1.3 Emissions Trading Scheme

The Climate Change (Waste) Regulations require disposal facility operators to measure and record the gross tonnage and diverted tonnage of waste disposed of at the facility in each calendar year. This is the same information as reported for the waste levy, using the Online Waste Levy System, but reporting is on an annual basis rather than monthly, as it is for the waste levy.

##### 3.7.1.4 Resource consents

Waste operators, generally those that are resource consent holders for waste facilities, must provide data to regional councils and/or TAs if required to do so as a condition of those resource consents.

### 3.7.2 Waste operator waste data collection

The only waste data that it is mandatory for waste operators to collect is whatever is required for TA solid waste bylaw reporting, resource consent reporting, and/or waste levy and ETS reporting. This data would be only a small fraction of the waste data collected by many waste operators.

Waste operators vary widely in the scale and range of their waste business activities. 'Waste operators' range from single-man, single-truck collection operations to horizontally- and vertically-integrated nationwide conglomerates. The amount and type of data that is collected reflects the nature of the waste operator's operation. Some of the most common types of data collected by waste operators are discussed in this section.

#### 3.7.2.1 Data collection by disposal facility and transfer station operators

Most disposal facility and transfer station operators have well-established systems in place for recording and reporting data gathered at the entry point to the facility, usually at the weighbridge. The data that is recorded tends to be of a high-level, general nature. Most data is gathered for financial purposes, as most waste disposal sites have differential pricing policies based on the type of waste being discharged or different contractual arrangements with each waste-haulage company.

At facilities that receive waste from a large number of small vehicles, these vehicles are not usually weighed at the weighbridge. Small vehicles will then pay a flat rate based on the type or size of vehicle while larger vehicles, which are weighed, are charged on a tonnage basis. In transfer stations where small vehicles are not weighed, the incoming weight, as measured by the weighbridge, is not an accurate measure of the quantity of waste being disposed of. In these cases, data on the overall quantity of refuse is taken from the transfer vehicles hauling the waste to landfill. These are weighed at either or both the transfer station itself or the landfill.

At disposal facilities (as defined by WMA) where small vehicles are not weighed, an estimate must be made of the total weight from these vehicles in order to be able to accurately calculate the amount of waste on which the waste levy must be paid. The Waste Minimisation (Calculation and Payment of Waste Disposal Levy) Regulations 2009 provide alternative methods for disposal facility operators to use to estimate the amount of waste when not all vehicles are weighed.

Landfill and transfer station operators also record data on materials other than waste, such as scrap metal or other recyclables that enter or leave the facility.

Most landfills and transfer stations do not gather data on the geographic source of the waste or the 'type' of waste being disposed of. The exception to this is data on special wastes, for which weighbridge records generally identify the type of special waste being disposed of (i.e. biosolids). Council kerbside refuse collections are usually identified but private kerbside refuse collections are usually classed as 'general' refuse.

#### 3.7.2.2 Data collection by non-levied disposal site operators

The collection of data by non-levied disposal site operators (such as cleanfills and C&D landfills) is much more variable than by levied disposal facility operators. This is reflective of these sites' status under the RMA and WMA and the varying consent conditions that may be placed on the sites under the RMA. The status of non-levied disposal sites varies under the RMA, with some sites requiring resource consents, which may include data reporting provisions, and other sites not requiring resource consents.

In general, few non-levied disposal sites are equipped with weighbridges. Some sites are unattended and no records are kept of the amount of material disposed of. At other council-owned sites, haulage

companies inform the council how much material is being disposed of. At attended sites that do collect data, this is usually done in terms of volume of material, usually based on the number of vehicle movements.

This lack of basic data collection by non-levied disposal sites has resulted in a general lack of information being available to decision- and policy-makers. Little has changed since a 2008 report to MfE:<sup>31</sup>

*While much progress has been made, as reflected in a range of Ministry documents, information on non municipal waste landfills (including cleanfills) and organic waste processing facilities is still inadequate for monitoring or policy making purposes.*

### 3.7.2.3 Data collection by waste collectors

To a large extent, the level of data collection by waste collectors is related to size of the operation. Although it is not always the case, small waste collectors tend to collect much less data using less sophisticated systems than large-scale collectors.

The only data that all waste collectors collect is the tonnage of waste disposed of at each disposal facility. This data is provided to the waste collector by the disposal facility operators. Weights for each load are taken from itemised invoices provided by each disposal facility and/or the waste dockets that are given to the driver by the weighbridge when each load is delivered.

The amount of detail gathered by the waste collectors on their customers varies considerably.<sup>32</sup> Some waste collectors collect quite specific data on the type of commercial activity undertaken by their customers, sometimes using ANZSIC (Australia New Zealand Standard Industrial Classification) codes. Other waste collectors, however, may only record a commercial/residential split in customers or record virtually no categorisation as all of their customers are either residential or industrial/commercial. Waste collectors that do not collect this type of data on their customers may consider that their business has little use for this type of data.

The type of waste or the type of industry a customer is engaged in is not of primary importance to waste collectors for running their business. For the large collectors with a varied vehicle fleet, the type of truck doing the collecting is the most important descriptor of their business activity. For other collectors, however, both large and small, this is not of importance because their fleet is comprised predominantly of one or two types of vehicles. There is, however, in many cases a strong correlation between the different types of waste collection vehicles and the type of waste each vehicle collects. Front-loaders, for example, collect almost exclusively industrial and commercial waste.

The volume of waste collected is as important an indicator of business activity as waste tonnage for some of the waste collectors, particularly with regards to their front-loader and rear-loader customers. These types of vehicles collect waste from many customers in a single run before the vehicle is weighed at a disposal facility. Some front-loaders are fitted with on-board weighing equipment, but these are not accurate or reliable enough to be used for trade purposes. For this reason, front-loader and rear-loader customers are charged, and data recorded, on a volume, rather than weight, basis.

The volume data that is collected by waste collectors for individual front-loader or rear-loader customers is based on the number and volume of the containers serviced and the number of lifts of each container. For costing purposes, the collectors rely on the average density of waste contained in each container type, as containers are often emptied when they are not full.

<sup>31</sup> SKM (2008) *Waste Facilities Survey – Methodology and Summary of Results*, prepared for MfE

<sup>32</sup> Information in this section has been used with the permission of Auckland Council

For individual customers, waste collectors may or may not have tonnage data, depending on the type of collection vehicle used. Gantry, hook, and other trucks generally carry the waste from only a single customer at a time, and each load is weighed at a disposal facility. This allows the weight from each load to be attributed to the individual customer and tonnage data for that customer to be collected. On the other hand, front-loaders and side-loading and rear-loading compactors cannot provide weight data for individual customers.

### 3.8 Product stewardship scheme managers

Under the WMA, the Minister for the Environment has the ability to recognise product stewardship schemes that meet the requirements set out in section 15 of the Act. This recognition is known as product stewardship accreditation. The WMA requires accredited schemes to report annually to the Minister on their objectives and targets.<sup>33</sup>

As of June 2014, the schemes listed in the table on the next page have received voluntary accreditation. The right-hand column shows the waste data relating to each scheme, as provided by MfE on its “progress report” website.<sup>34</sup>

Scheme name	Purpose	Data reported
<b>Holcim Geocycle</b>	Collection, transport and use of used oil as an alternative fuel source at the Holcim Cement Plant in Westport	Volume of used oil collected and co-processed
<b>Glass Packaging Scheme</b>	Levies raised are used to fund projects, research, infrastructure and educational programmes to increase the recycling and re-use of glass packaging into either new glass containers or for alternative uses leading to a reduction in waste container glass to landfill	Data on the mass balance of glass used, recovered and recycled as a percentage of estimated glass consumption
<b>PlasBack</b>	Collection and processing system for agricultural plastics	Tonnage of plastic farm waste collected
<b>Refrigerant Recovery</b>	Levy system for collection and destruction of synthetic refrigerants	Quantity of refrigerant collected and destroyed
<b>Agrecovery Rural Recycling Programme</b>	Levy system to fund recovery of agricultural chemical containers	Quantity of agricultural plastics and chemicals disposed of and recycled
<b>PaintWise</b>	Recovery and recycling of used paint	Quantity of paint diverted from landfill and quantity of steel containers recycled
<b>ROSE NZ</b>	Collection and disposal of used oil	Quantity of used oil collected
<b>Interface ReEntry Programme</b>	Take-back service for Interface carpet tiles	Newly-accredited – no reporting as yet
<b>Kimberly Clark NZ's Envirocomp Product Stewardship Scheme for Sanitary Hygiene Products</b>	User-pays service for composting of sanitary hygiene products	Newly-accredited – no reporting as yet

<sup>33</sup> <http://www.mfe.govt.nz/issues/waste/progress-and-outcomes/product-stewardship.html>

<sup>34</sup> <http://www.mfe.govt.nz/issues/waste/progress-and-outcomes/product-stewardship.html>

Scheme name	Purpose	Data reported
<b>Fonterra Milk For Schools Recycling Programme</b>	Collection of end-of-life Tetra Pak packaging generated by Milk for Schools Programme	Newly-accredited – no reporting as yet
<b>The Glass Packaging Forum's Public Place Recycling Scheme</b>	Member-funded scheme for collection of end-of-life packaging for products consumed in public places	Newly-accredited – no reporting as yet

The data that is collected and reported by the product stewardship scheme managers is derived from each scheme's operational records and, in some instances, surveys of members undertaken by the scheme managers.

### 3.9 Community sector

The organisations that form the community sector undertake a variety of roles in the waste industry. The most common role is as a waste operator. In this role, the data needs and data collection of the community sector would be the same as the data needs and data collection of other waste operators. In the role of waste educator, the community sector has similar data requirements to TAs functioning in that capacity.

Some individuals and groups in the community sector take on lobbying and activist roles, usually to promote waste minimisation. When undertaking these activities, waste data is required to verify corporate claims and analyse their own and others' waste minimisation initiatives.

## 4 Results of online survey and interviews

In this analysis of the survey of waste data needs, sections 4.1 and 4.2 analyse the respondents to the online survey and reference group interviews. The other sections present the results of the individual online survey questions. A copy of the online survey is provided in Appendix 1.

### 4.1 Analysis of respondents to online survey

A total of 290 responses were received to the online survey. The responses are analysed, in terms of the type of organisation to which the respondent belongs, in the table below and the chart on the next page.

Q1 – Which best describes your organisation?	Number of responses	Percent of responses
Central government	11	3.8%
Regional council	21	7.2%
Territorial/unitary authority	77	26.6%
Commercial enterprise (waste generator)	11	3.8%
Waste operator	72	24.8%
Waste equipment/service supplier	28	9.7%
Community organisation	14	4.8%
Consultant/research organisation	42	14.5%
Product stewardship organisation	5	1.7%
Other (please specify)	9	3.1%
<b>TOTAL</b>	<b>290</b>	<b>100%</b>

Of the nine organisations<sup>35</sup> in the 'Other' classification, their organisation descriptions were as follows:

- industry association
- export trader of secondary raw materials
- association
- IT support services
- ecolabelling organisation
- waste brokerage and management
- ethical business accreditation programme/social enterprise
- waste minimisation education
- supplier of plastic raw materials

<sup>35</sup> A number of other organisations indicated 'other' on the survey but were reclassified within the main classifications based on their descriptions



The largest groups of respondents were TAs and waste operators, each accounting for approximately a quarter of the total number of respondents. The response profile relative to the sample population (WasteMINZ membership) is shown below (*Note: the breakdown below does not account for the size or type of the membership, and only indicates the number of member organisations*):

Q1 – Which best describes your organisation?	% of Membership	Sample variation
Central Government	2.2%	1.6%
Regional Government	2.5%	4.7%
Territorial/Unitary Authority	14.6%	12.0%
Commercial enterprise (waste generator)	4.8%	-1.0%
Waste operator	26.9%	-2.1%
Waste equipment/service supplier	13.0%	-3.3%
Community organisation	3.6%	1.2%
Consultant/research organisation	28.5%	-14.0%
Product stewardship organisation	0.7%	1.0%
Other (please specify)	3.2%	-0.1%
<b>TOTAL</b>	<b>100.0%</b>	

Source: WasteMINZ

In terms of organisation numbers, the data suggests the TAs are over-represented in the survey and consultant and research organisations under-represented.

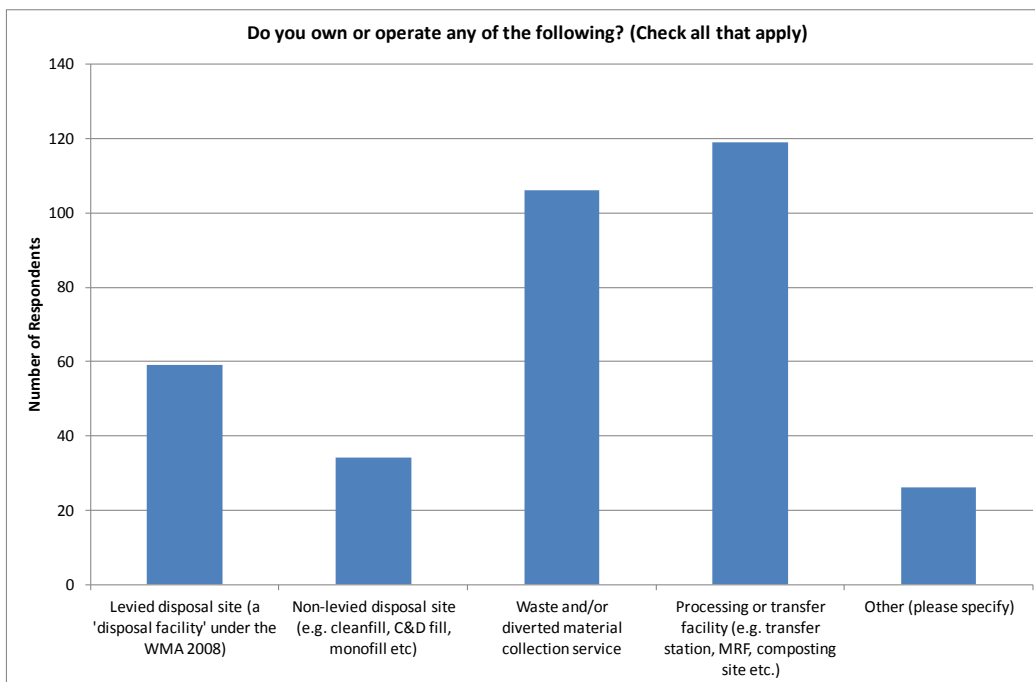
Sixty-nine percent of territorial and unitary authorities responded to the survey, and these councils covered 87% of the population. Only one TA of over 100,000 population did not respond to the survey. Of the TAs and unitary authorities that responded, 32% had 2 or more people in the organisation respond. In general the number of people responding was reflective of the size of the council, with 13 of 15 TAs with more than one respondent having over 40,000 population. Ten of the 11 regional councils also responded to the survey, with half of the regional councils also having more than one person from the organisation respond.

All of the large and medium sized waste operators were represented in the survey. Six companies had more than one person from the organisation respond.

Respondents were also asked to identify whether they owned or operated waste or recovered materials services or facilities. The responses are shown in the table and chart on the next page.



Q2 – Do you own or operate any of the following?	Number of responses	Percent of responses
Levied disposal site (a 'disposal facility' under the WMA 2008)	59	37.6%
Non-levied disposal site (e.g. cleanfill, C&D fill, monofill, etc)	34	21.7%
Waste and/or diverted material collection service	106	67.5%
Processing or transfer facility (e.g. transfer station, MRF, composting site, etc.)	119	75.8%
Other	26	16.6%
<b>TOTAL Respondents</b>	<b>157</b>	
<b>(Skipped question)</b>	<b>133</b>	



Respondents indicating 'Other' included parties describing themselves as follows:

- coordinate educational tours of the operations
- reuse facilities
- chemical plants
- hazardous waste treatment, landfill gas power generation, liquids collection
- owner of balers for farm plastic.

Most of the respondents who indicated they owned or operated facilities or services were TAs or waste operators. Of the 157 respondents, 134 were either TAs (72) or waste operators (62). TAs were more likely to own or operate levied disposal sites (38 versus 21) or transfer or processing facilities (61 versus 47) compared to

waste operators. A small number of commercial enterprises and community organisations also indicated they operated facilities.

## 4.2 Analysis of respondents to reference group interviews

A total of 19 telephone interviews were held with individuals selected to be part of the reference group. The type of organisation to which the interviewees belong is analysed in the table below. The names of those interviewed are presented in Appendix 3.

Type of organisation	Number of interviews	Percent of interviews
Central government	2	11%
Regional government	3	16%
Territorial/unitary authority	8	42%
Waste operator	4	21%
Community organisation	2	11%
<b>TOTAL</b>	<b>19</b>	<b>100%</b>

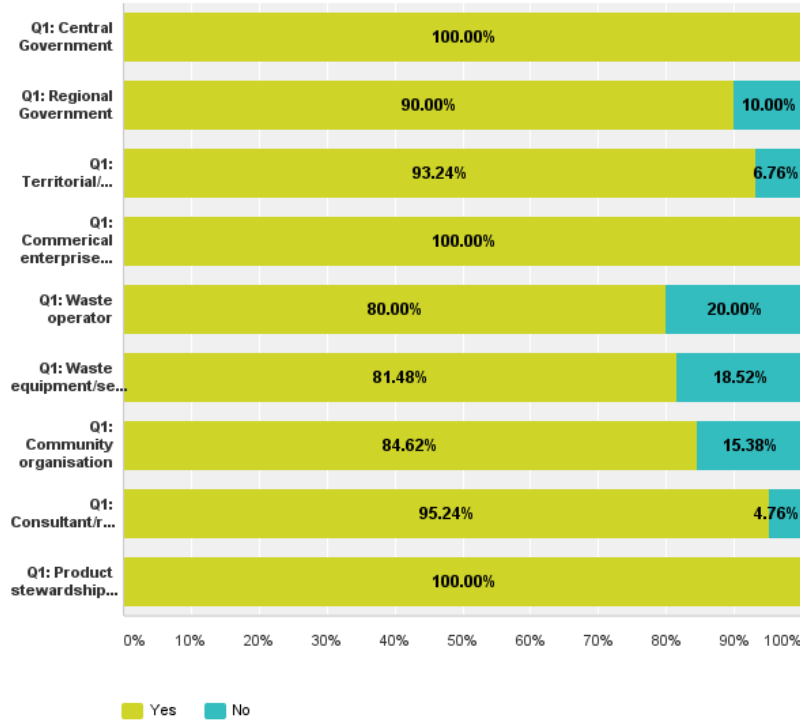
## 4.3 Questions on waste to landfill (i.e. levied disposal facilities)

Q3 - In your organisation do you, or could you, use information about waste to landfill (i.e. material that goes to a levied disposal facility)?	Number of responses	Percent of responses
Yes	248	88.3%
No	33	11.7%
<b>TOTAL</b>	<b>281</b>	<b>100%</b>
Skipped question:	9	

Eighty-eight percent of respondents to this question (86% of all respondents) indicated they currently use or could use landfill data. However, there was a difference in responses by organisation type. This is shown in the chart on the next page.

**Q3 In your organisation do you, or could you, use information about waste to landfill (i.e. material that goes to a levied disposal facility)?**

Answered: 272 Skipped: 9



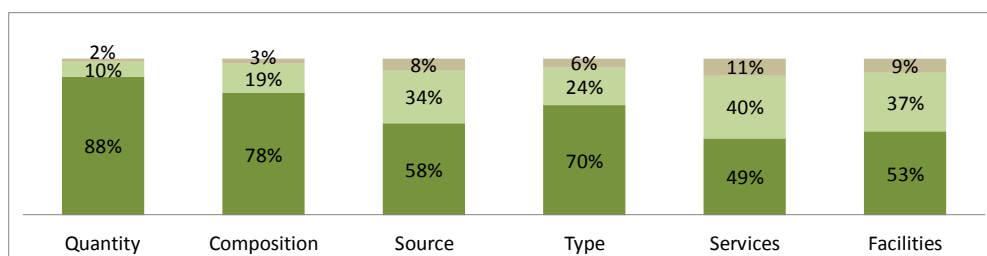
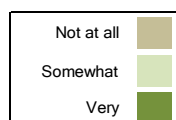
100% of central government, commercial enterprises, and product stewardship organisations indicated that landfill data was useful. On the other hand only 80% of waste operators, 81.5% of waste equipment/service suppliers and 85% of community organisations felt this data was useful.<sup>36</sup>

<sup>36</sup> It should be noted that people from different parts within an organisation responded to the survey and so, while some in an organisation may find such data useful, others may not, and this is likely reflected in the above results.

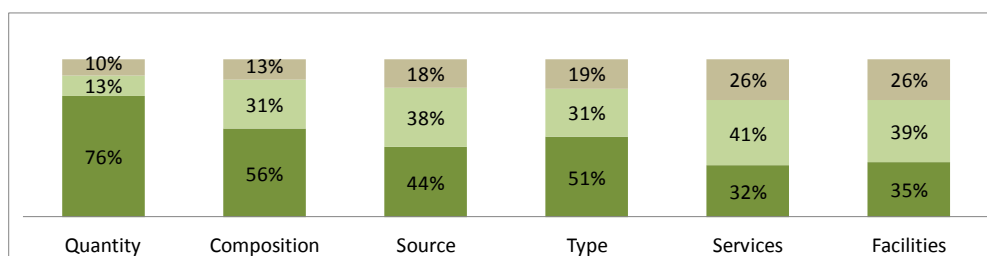
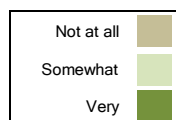
The following chart provides a breakdown of how important different types of levied disposal facility data were seen to be for each of a range of uses. The charts can be read across or up and down (reading across shows the relative importance of different types of data for each use while reading down shows, for example, the relative importance of Quantity for each use).

**Questions 4-8: How important is the following levied disposal facility information for each data use?**

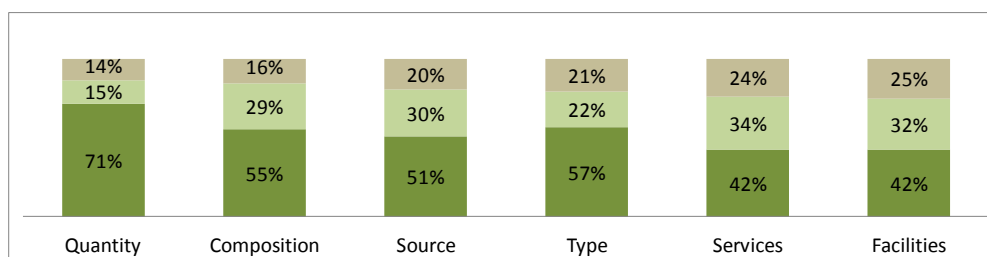
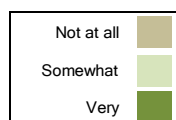
**Policy, planning & strategy**



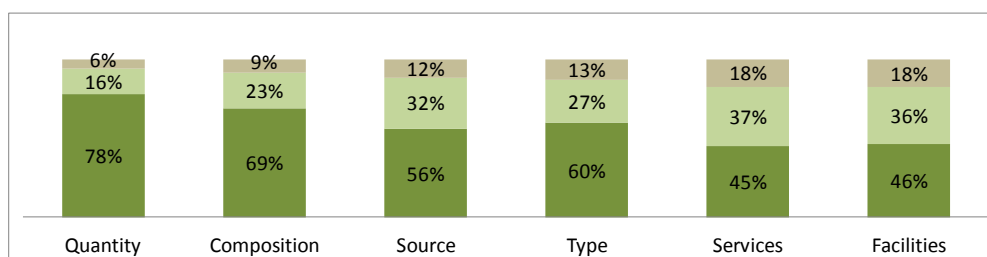
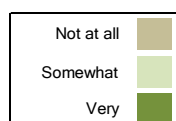
**Reporting**



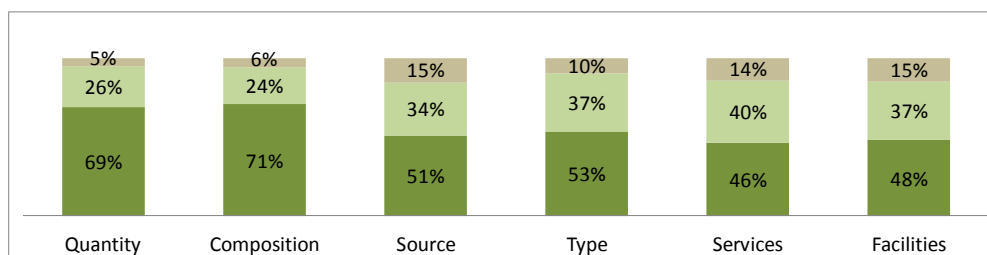
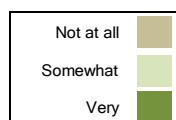
**Contracts**



**Benchmarking**



**Education & communication**



Overall, the quantity of material to landfill was seen as being the most important type of data and was particularly useful for policy, planning, and strategy purposes. The next most important type of data was waste composition, with this also being particularly useful for policy, planning, and strategy purposes. Overall, service and facility data were seen as important by the least number of respondents followed by information on geographic source. Service and facility data was least important in relation to reporting requirements with only around a third of respondents seeing this as 'very' important. Interestingly TAs did not appear to see this information as being more important than other organisations despite it being a requirement for waste assessments (as well as being important for ensuring adequate service provision).

It is worth noting that information on the type (commercial, residential etc.) was seen as more important for policy, planning and strategy purposes compared to other uses. This appeared to apply across most types of organisation (excluding commercial enterprises and product stewardship schemes).

#### 4.3.1 Survey Comments

For the following sections, answers have been drawn from responses to Q9 in the online survey and from the interviews with the reference group. Thirty out of the 290 total respondents answered Q9. Individual responses to Q9 have not been included in the following sections if it was considered that the response was covered by one of the other questions in the survey.

##### **Q9 - Are there any other uses you have for data on waste to landfill that you would like to add?**

- *Volumes of priority waste streams going to landfill (should be reflected in material composition).*
- *Confirmation on landfill closure in relation to future forecast (waste assessment, strategic planning WMMP) for waste to landfill in the district i.e. where will the waste go after landfill closure?*
- *Info in relation to Unique Emissions Factor (UEF) values*
- *Modelling to predict future trends*
- *To monitor mass of cover material*
- *For educational purposes - waste that should not be in landfill but could go to greenwaste or recycling is always helpful*
- *Behaviour change - not necessarily the same as education*
- *Contamination reporting*
- *Hazardous waste to landfill*
- *What about clean fills. They can accept paper, cardboard, plastics, green waste, scrap steel, wood, glass and concrete. I'm looking at a consent right now for a consent that can take all those materials and more. A large proportion of your data might be missing*
- *We gather information on our licensees' waste practices*
- *Data on waste diverted at landfill sites / diverted from landfill sites would be very helpful in fully measuring waste flows to disposal, recycling and recovery.*
- *Making decisions on technology development (scale etc for centralized or distributed technologies)*
- *We have active research and development programmes around waste, and desire increasingly detailed access high quality information regarding waste flows inventories etc.*
- *Research, for which weight, composition, and available facilities are very important, and the other types of info only somewhat important*
- *Differing waste types have correspondingly different leachate. Ongoing updates of waste leachate information is useful*
- *National statistics - waste per capita*
- *Historical data to track changes would be helpful. e.g. Proportion of organic waste in a district before and a few years after implementation of home composting programme...*
- *Potential gas generation, landfill design and specifications*
- *To assess effectiveness of programmes and marketing, to target behaviour change programmes at sectors of population*
- *Which landfills are engineered landfill that generate either electricity or biofuel from landfill gases*

- *Annual performance measures - Annual Report*
- *Need to know the volume/weight of waste buried at non disposal sites under the definition in the Act, their only differentiation being they don't accept household waste.*
- *Inputs and UEF classifications in relation to the ETS - we have ten separate UEFs*

#### 4.3.2 Feedback from central government on data on waste to landfill

##### 4.3.2.1 Statistics NZ

Stats NZ is moving toward developing a material flow analysis that would use waste data in its reporting of SEEA accounts (System of Environmental - Economic Accounting), following the standards developed by the United Nations Statistics Division. Tonnage data for waste to levied disposal sites would be part of 'waste account'. Composition data would also be of value, with the composition ideally based on the European Waste Catalogue to ensure compatibility with other nation's accounts.

The geographic source of waste to levied disposal sites at the TA or regional level would allow reporting of the SEEA accounts at either the regional or national level. Data on source of waste based on Australian and New Zealand Standard Industrial Classifications (ANZSIC) codes would also be required. Industry data at Level 1, which is a high-level division of economic activity into 19 types, would be useful, but more detailed information would provide a more accurate waste account.

A SEEA waste account would not focus solely on the three classifications of waste to levied disposal sites and non-levied disposal sites and diverted materials, but would require information allowing the tracking of waste streams to all forms of disposal, including landfilling, incineration, recycling and recovery, illegal dumping, and other treatments. Data would also be required on waste streams not normally considered in the NZ context, such as those produced by mining and agricultural activity. Data on the movement of natural excavated materials, such as soil, would also be relevant as such movement represents an economic activity that has an effect on the environment.

Due to the highly-detailed nature of waste data that would be required to prepare SEEA accounts that are fully compatible with international standards, Statistics NZ recognises that the process of establishing systems to acquire that data is likely to be incremental in nature. As such, Statistics NZ regards any framework that provides standardised nationwide waste data as a step in the right direction and an improvement on the current situation.

##### 4.3.2.2 Ministry for the Environment

MfE is, essentially, interested in 'big picture' numbers in order to better understand material flows and devise appropriate policy responses. Tonnage to disposal is the most fundamental metric, with composition being important but secondary to overall volumes. MfE suggested that source data may be a starting point to collect data relating to composition, as it could be easier to consistently implement than extensive SWAP analyses. Information is required for a number of purposes, including reviewing the waste levy, the provision of policy advice, and the assessment of other interventions such as the Waste Minimisation Fund.

The table below sets out MfE's waste data needs and priorities. The table was prepared by MfE for this project.

Ministry for the Environment Waste Data Needs		
Data would be used for:		
<ul style="list-style-type: none"> <li>Policy Development</li> <li>Policy Implementation (including funding decisions)</li> <li>Evidence base and reporting</li> <li>Public Awareness and communications</li> </ul>		
Data required	Priority level	Currently collected
Waste Disposal	Waste to <b>levied disposal facilities</b>	Number and location - High
	Volume <sup>1</sup> - High	Yes already collected via OWLS
	Composition/source <sup>2</sup> - High/Medium	Yes already collected via OWLS
	Waste to <b>non-levied commercial disposal sites</b> (e.g. cleanfills, managed fills)	Number and location - High
	Volume <sup>1</sup> - High	Voluntary, so reporting is irregular
	Composition/source <sup>2</sup> - High/Medium	We have some data from studies on these disposal sites; however data collection is not regular or complete.
	Waste to <b>non-levied private disposal sites</b> (e.g. farm dumps)	Number and Location - Medium
	Volume <sup>1</sup> - Medium	
	Composition/source <sup>2</sup> - Medium	
	Waste to <b>non-land based disposal sites</b> (e.g. incinerators)	Number and location - Medium
Material Recovery	Volume <sup>1</sup> - Medium	No
	Waste disposed of via <b>fly tipping</b>	Volume <sup>1</sup> - Medium
		No
	Waste <b>diverted from levied disposal facilities</b> (for reuse, recycling, recovery)	Volume <sup>1</sup> and composition/source <sup>2</sup> - High
	Waste material <b>diverted before it reaches Disposal Facility or other disposal site</b>	Volume <sup>1</sup> and composition/source <sup>2</sup> - High
Availability of infrastructure and services e.g. availability of kerbside recycling collections, number, location, and type of commercial reprocessing facilities		High
		Some information is collected by TA surveys, and TA Waste Assessments but it is varied and inconsistent. We also know what we have funded through the Waste Minimisation Fund.

<sup>1</sup> Volume = weight of waste

<sup>2</sup> For composition the Ministry is primarily interested in information on hazardous waste and priority waste streams. Use of 'source' rather than 'composition' maybe easier to implement. If requiring prioritisation, volume of waste to disposal sites (not just disposal facilities) is of higher priority than composition.

In terms of composition, data on wastes with the highest risk of harm is of most interest, particularly hazardous wastes and priority waste streams such as tyres and agrichemicals, which have been identified by the Ministry as potential areas for Government intervention.<sup>37</sup> MfE would, ideally, like any system to be compatible with ANZSIC coding.

With regards to hazardous waste, MfE would find the following data to be of value:

- the types and quantities of hazardous waste being generated
- where the waste is being generated
- where it is being disposed of
- how it is being disposed of
- the number of compliance issues, the type of these issues, and where they are occurring.

OWLS currently has the capability for disposal facility operators to enter voluntary data on what is diverted after it comes over the landfill weighbridge but, as it is only reported by some facilities, this is not reliable. MfE are also supplied with some data about composition at the landfill but this information is again uneven.

#### 4.3.3 Feedback from regional government on data on waste to landfill

The regional councils consulted as part of this survey had slightly varying approaches, but had in common that they largely played a higher level, strategic and coordinating role in respect of waste issues. In this respect they need data to identify material flows and what is driving them so they can devise strategic approaches to solutions. Tonnage and composition data is most important so they can know what streams to target. Infrastructure is also important so they know what is happening and can identify any gaps. Although most information required is high level, detail is also needed on what makes up waste streams so they can 'drill down', and devise potential interventions for particular issues. The need to know material flows and pathways is tied to also knowing and being able to forecast infrastructure needs.

<sup>37</sup> WasteTRACK (a voluntary system for tracking hazardous wastes) is currently under review by the Ministry so it is unclear what role this might play in the future. The outcomes of this review will be available to inform the Waste Data Framework project.



One of the regional councils tends to focus heavily on the more problematic waste streams such as cleanfill, farm wastes, treated timber, and hazardous waste. In this respect, this regional council's role has clear links to the RMA and the council is able to be more direct in its approach to solutions. The council's data needs were, therefore, for high level data across most waste streams but detailed information is needed around their strategic focus areas to enable it to devise and run programmes.

Despite having the potential to access information on some waste disposal sites through resource consents, this was not a primary source of data for the regional council officers working in the waste arena. None of the councils interviewed had the regular supply of waste data (e.g. quantity or composition) as a standard condition of consents for waste or recovered material processing facilities. This was partly a historic issue and partly due to there being no clear internal systems and pathways for managing the information if it were supplied. Information tends to exist in silos and requires officers to know who is gathering what types of information within the organisation and then taking a proactive role to obtain information. In the absence of internal data sources, the regional councils generally rely on TAs to provide waste data as well as data gathered through various stocktakes and reports.

Key barriers to better information identified include consistent definitions, commercial sensitivity, and a lack of systems.

#### **4.3.4 Feedback from territorial/unitary authorities on data on waste to landfill**

There were a variety of experiences among TAs in respect to waste data. In general, where TAs had a reasonably tight catchment and controlled the facilities within that catchment, the quality of data is good, and the confidence of the TAs that they have most of the information they need is high.

The way that TAs operate their waste services varies, and their data requirements vary with it. Where there is hands-on close management of services and contracts, the data requirements can become extremely detailed, with councils accessing daily information, right down to tracking specific loads and sources. In addition to detailed operational and contract management data requirements, TAs also had clear data needs around planning and strategy. Data is required to determine and justify any course of action by officers to senior management and councillors, and relevant and reliable data is vital for being able to anticipate and plan service provision. Although data is also required for mandatory reporting – and this was mentioned by some councils – those spoken to were more concerned about the ability of data to help them to deliver the core service functions.

Quantity and composition were noted as the most useful basic types of information, and geographic source tended to be a concern only where cross-boundary movements of waste were thought to be substantial. While SWAP data is seen as useful, being able to track it over time is difficult and costly – ideally, seasonal SWAPs would be done annually but this can't be justified in terms of cost. Using defaults for certain waste streams and tracking their proportions over time could be one method for building up an overall picture.

Most TAs get good quality data from their own facilities and via their contracts, and most felt they had a very good knowledge of what happens within the waste streams they control. Virtually all indicated, however, that their knowledge of commercial sector waste and activity was limited and this was a limiting factor in a complete understanding of the full picture. Overcoming issues of commercial confidentiality was seen as key to being able to get better overall data, but it was acknowledged that this could be problematic.

The ability to benchmark their information against other TAs was seen by a number of TAs as potentially very useful, as it is a common request from politicians to know what others are doing and how they compare. A few TAs were not interested in benchmarking, however, as they felt that other situations are different to their own and others' data is unreliable. It was expressed by one TA that, having established their own benchmarks over time, it now made more sense for them to simply track their own performance improvement.

Obtaining waste data via a bylaw licensing approach was discussed with interviewees, and this was generally accepted as an appropriate way forward, although it was also expressed that a more direct approach through requiring data provision by regulation under the WMA would be ultimately simpler and better, rather than having to co-ordinate myriad bylaws and systems.

#### **4.3.5 Feedback from waste operators on data on waste to landfill**

Waste operators use data the most for internal management and reporting purposes. They also need data for council reporting. Tonnage and geographic source are the most vital for these uses. Composition is of less interest but can be useful for identifying opportunities – in this regard it is about knowing what material there is, how much of it, and where it is being generated.

All operators interviewed indicated that they had access to virtually all the information they needed to operate their businesses effectively and that while there may be some interest and benefit to understanding how they fit into the bigger picture, benefits to them from a national waste data framework would be minor. On the other hand, the operators were supportive of a national approach and could see the benefits for the industry as a whole. They also indicated they were willing to be part of a national approach, and accepted their main role would be as suppliers of data. Given that they anticipated receiving the least benefit from the framework but potentially carrying the heaviest burden in terms of generating and supplying information, the view was fairly strongly expressed that the data reporting requirements needed to be reasonable.

It was expressed that, for operators to put the effort into supplying good quality data (even if it were mandatory), they needed to have confidence that the information would be used and that others would also supply good quality data – essentially they do not want to go to extra effort if it is ultimately a waste of time. The classifications used need to be logical and the number of splits kept to a minimum

There were also firm views expressed that they did not want to report information at a TA level. While waste operators accepted that bylaw operator licensing might be the most likely mechanism, there were a number of issues with having to report to TAs. These include:

- putting in potentially over 60 different reports each reporting period
- commercial confidentiality is hard to maintain at a local level – they would be much more comfortable if data is aggregated at a regional or national level
- in some instances TAs are competitors with commercial operators, meaning waste operators would be essentially required to provide information to their competitors
- difficulties in splitting out TA-level data where there are significant cross boundary movements.

It was suggested that operators would be happy for TAs to have TA-level data provided to them from a national or regional repository, but they would want this data aggregated for that TA and to not split out operator market share. It was expressed that, ultimately, MfE needs to take a lead and clearly establish the system that everyone is expected to use. Operators would prefer an independent body be responsible for gathering and collating data and providing this back to users. This would provide assurance around commercial confidentiality. In a discussion of cross-boundary movements it was accepted that, while this data was difficult, if not impossible, to obtain, reasonable estimates could be made for the purposes of supplying data to a national framework.

None of the operators spoken to expressed concerns with being able to access the information they might be required to supply – it was essentially already being gathered at a fine enough level that it could be aggregated up into different classifications than they used currently, if necessary.

Finally, an operator expressed the view that the ultimate purpose of gathering information needs to be kept in mind – the operator felt that as a purpose of the WMA is to protect the environment from harm, it is not just tonnage that is important but the effect of that tonnage through various channels – they questioned whether, for example, we should be worried about tonnage going to landfill if it is not doing harm.

#### 4.3.6 Feedback from other organisations on data on waste to landfill

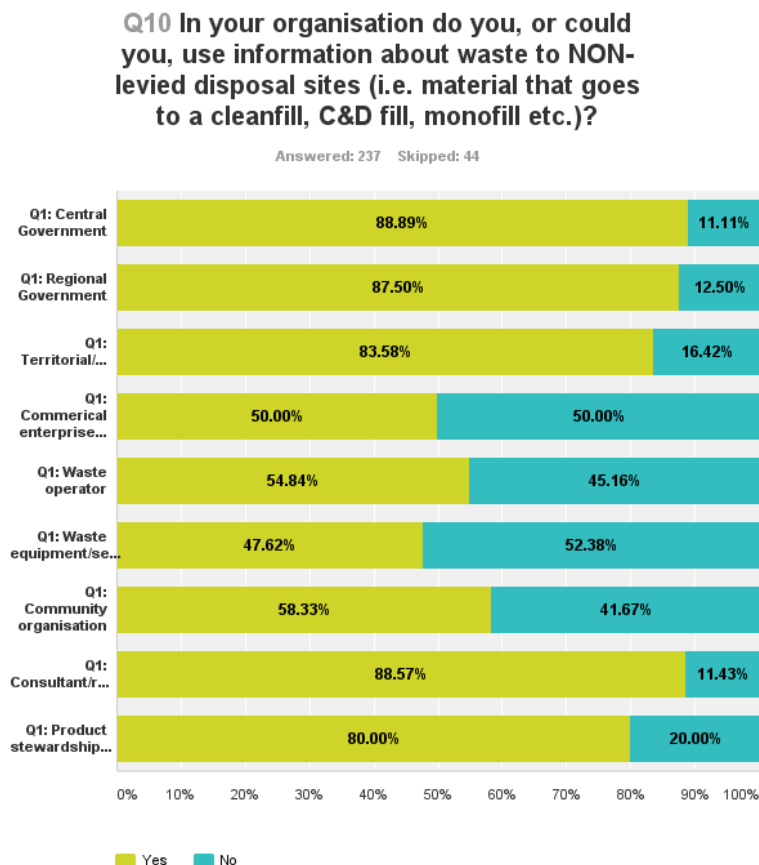
##### 4.3.6.1 Survey Comments:

- *A waste equipment/service supplier uses data on waste to landfill for assessing electricity or biofuel generation from landfills.*
- *A community organisation uses data on waste to landfill for assessing the effectiveness of waste reduction programmes and marketing and for targeting behaviour change programmes at various sectors of the population.*
- *A waste education organisation would use historical data on waste to landfill to track changes resulting from waste reduction initiatives.*
- *An education and research organisation used data on waste to landfill for education and research purposes.*
- *A consulting organisation uses data on the types of waste to landfill for assessing the leachate generating potential of the waste mass.*
- *A consulting organisation specialising in air quality uses waste to landfill data, particularly data on weight, composition, and available facilities.*
- *A consultant/research organisation has an active research and development programmes around waste and desires increasingly-detailed access to high quality information regarding waste flows inventories etc. The organisation also uses data on waste to landfill for making decisions on technology development, for example whether the scale of waste flows favour centralised or distributed technologies.*
- *A consulting organisation would find data on which landfills have methane capture systems useful for calculating greenhouse gas emissions.*
- *An eco-labelling organisation uses data on waste to landfill for evaluating licensees' waste practices.*
- *A community recycling operator uses data to assess the effectiveness of programmes and marketing and to target behaviour change programmes*

#### 4.4 Questions on waste to non-levied disposal sites

Q10 - In your organisation do you, or could you, use information about <u>waste to NON-levied disposal sites</u> (i.e. material that goes to a cleanfill, C&D fill, monofill etc.)?	Number of responses	Percent of responses
<b>Yes</b>	172	69.9%
<b>No</b>	74	30.1%
<b>TOTAL</b>	<b>246</b>	<b>100%</b>
<b>Skipped question</b>	44	

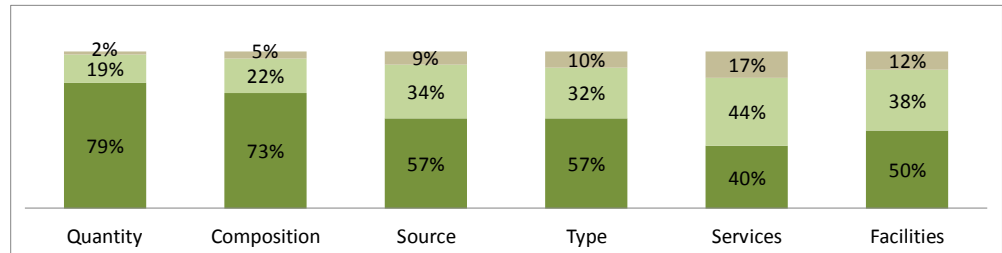
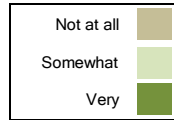
It is notable that fewer respondents indicated that non-levied disposal site data was useful compared to data on levied disposal facility (70% of respondents to the question or 60% of all survey respondents, compared to 88% of respondents to the question saying levied disposal facility data is useful). There were marked differences in rated usefulness between types of organisation. This is shown in the chart below.



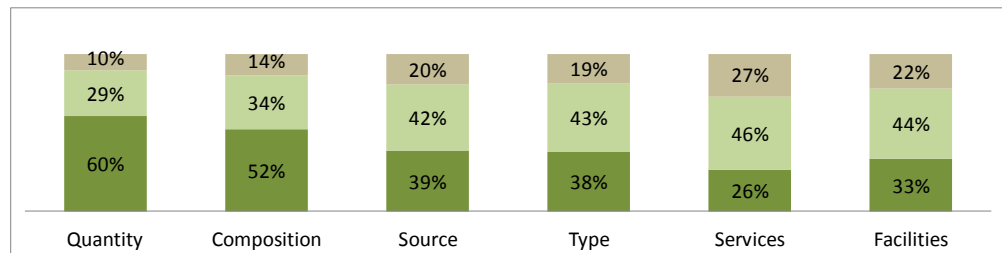
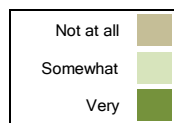
While between 85-89% of Central, regional, and local government and consultants considered non-levied disposal site data was useful, only around 50% of commercial enterprises, waste operators, and waste equipment suppliers agreed.

**Questions 11-15: How important is the following non-levied site information for each data use?**

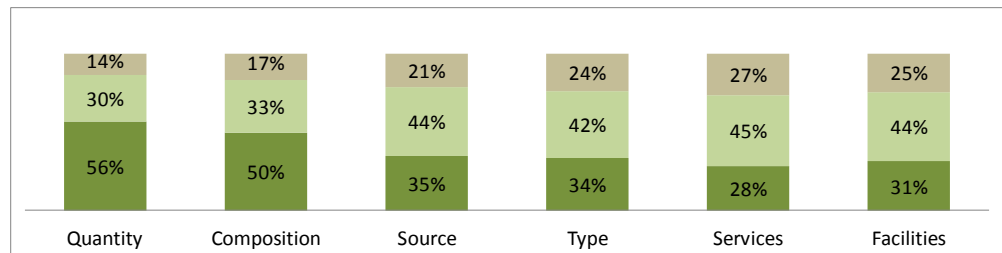
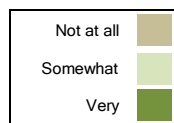
**Policy, planning & strategy**



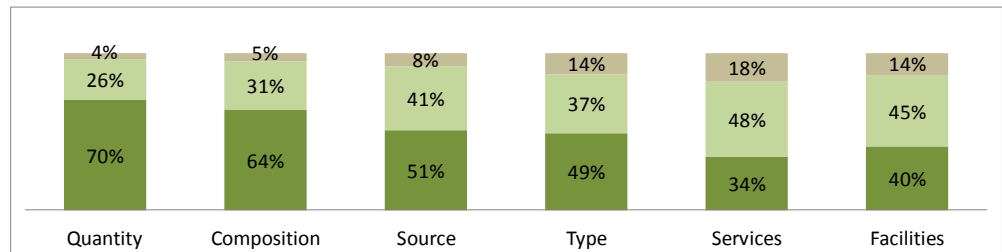
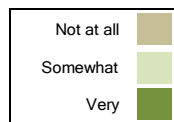
**Reporting**



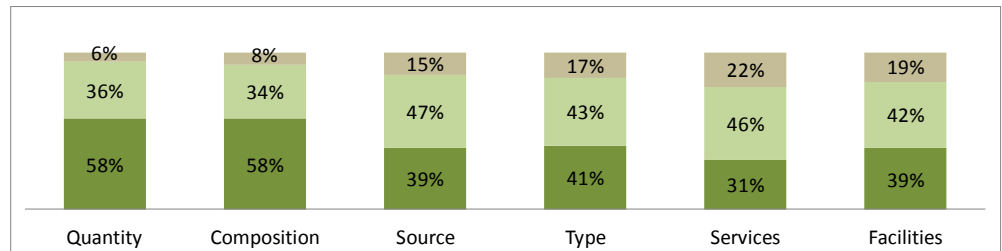
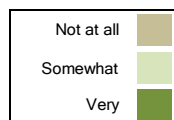
**Contracts**



**Benchmarking**



**Education & communication**



Non-levied disposal site information follows a broadly similar pattern to levied site data, with quantity and composition being viewed as the most important data while services and facilities are seen as important by the fewest number of respondents. Similarly, nearly all types of data were seen as more important for policy planning and strategy compared to other uses.

#### 4.4.1 Survey Comments

For the following sections, answers have been drawn from responses to Q16 in the online survey and from the interviews with the reference group. 17 out of 290 total respondents answered Q16. Individual responses to Q16 have not been included in the following sections if it was considered that the response was covered by one of the other questions in the survey.

##### **Q16 - Are there any other uses you have for data on waste to NON-levied disposal sites that you would like to add?**

- *Keen to know location of sites, volume and composition. It would also be useful to know where the waste for these sites is coming from. We estimate non levied fills make up 56% of waste disposed of to land in NZ and is therefore critically important.*
- *Including farm fills*
- *Tallies between site works and end disposal routes*
- *Information would be mostly useful for dealing with non-compliance at non-levied disposal sites and illegal dumping*
- *Currently HBRC are not involved with the WMA as a core role, however this may change in the future.*
- *Behaviour change*
- *Compliance monitoring*
- *Note on clarification of our use. Statistics New Zealand would use waste data in our reporting of SEEA accounts (System of Environmental - Economic Accounting) following the standards developed by the United Nations Statistics Division.*
- *Working in waste conversion research and development, we are increasingly interested in understanding national waste flows, in order to look for new opportunities for improved environmental performance, cost reduction and added value processing*
- *Law enforcement under the Resource Management Act AND Greater Wellington Regional Council rules regarding discharges to air, water, land.*
- *Yes to better understand how much levy avoidance is taking place, illegal diversion and illegal dumping off waste - there is a major rort going on and active levy avoidance takes places daily*
- *For waste diversion planning both levied and non levied sites are equally important for data collection.*
- *Calculation of overall mass balance in relation to particular resource consents. Some sites take in process and export and are only allowed to hold a certain amount of material on site. Without data the only option is survey which operators are reluctant to pay for so it falls to council for the older style consents.*

#### 4.4.2 Feedback from central government on data on waste to non-levied disposal sites

Statistics New Zealand would use waste data, including data on waste to non-levied disposal sites, in its reporting of SEEA accounts (System of Environmental - Economic Accounting). The SEEA accounts would track all material flows, including waste, through all means of disposal and recovery. The level and types of waste data on waste to landfill, described in section 4.3.2, would also apply to waste to non-levied disposal sites.

As noted in its feedback on waste to landfill, MfE's primary interest is in 'big picture' information. A key piece of this picture is the material that is going to non-levied sites, which could account for in the order of two thirds of all material disposed of (including material to cleanfills and similar and farm wastes). The information MfE would like on non-levied sites is essentially the same as for levied sites – quantity being the main data followed by composition or source. Knowledge of the materials is important from the perspective of understanding the risk of harm from the wastes disposed of to non-levied disposal sites. There is currently no accurate source for this information.

#### **4.4.3 Feedback from regional government on data on waste to non-levied disposal sites**

Despite regional councils having key responsibility and control over cleanfill and other non-levied sites, none had a clear picture of the extent of cleanfilling or the quantity or type of material entering the sites. Most consents issued by those regional councils interviewed did not require reporting of cleanfill tonnages or other data. It would be possible to add this requirement to new consents, but there were not clear systems or pathways within the organisations for managing the data and following up on it. If the requirement was added to new resource consents for cleanfills, then it would take some time for the picture to become complete.

Even if good data on tonnages going into consented sites were obtained, there would still be a chunk missing from very small and illegal sites. One respondent indicated that they felt in some areas there may be thousands of such sites.

Regional councils saw composition and tonnage as key data to collect regarding non-levied disposal sites. Central direction is needed on how to collect it. The question was raised as to the ability to use OWLS to collect non-levied site data as the required information is essentially the same.

#### **4.4.4 Feedback from territorial/unitary authorities on data on waste to non-levied disposal sites**

Most TA officers spoken to indicated they did not often use data on waste to non-levied disposal sites but all felt, often strongly, that it was the missing piece of the data puzzle – until we know what material is escaping from appropriate routes of recovery or disposal we don't really know how well we are doing at recovery.

Smaller authorities with closed catchments and unitary authorities tended to have a clearer idea of the extent to which non-levied disposal sites are (or are not) an issue. Even unitary authorities can compartmentalise the data, though, with consent and monitoring information not routinely shared with waste officers.

The data that is required from non-levied disposal sites by TAs is essentially the same as levied sites, i.e. tonnage and composition (in other words the need to know how much of what is going to a facility). From a facilities planning perspective this is important as TAs need to know what might come their way if steps are taken to divert material. A number of councils mentioned the need to be able to do a mass balance calculation to understand the total flow of materials.

Obtaining the necessary information was seen as potentially problematic, although operator licensing could provide a way forward on this. Even if there is licensing, there is still effort required to chase licensees for data and ensure the accuracy of the data. It was felt there needs to be proper sanctions to ensure licencees supply data.

One territorial/unitary authority noted that particular resource consents require a calculation of overall mass balance at some sites, as well as disposal, process, and export material. Without inward and outward data, topographic surveys are the only means of determining whether consent requirements are being met. Another TA asserts that for waste diversion planning, data collection on both levied and non-levied sites are equally important.

The need for data on waste to non-levied disposal sites for enforcement of resource consents and regional council rules relating to discharges to air, water, and land was emphasised by one TA.

#### **4.4.5 Feedback from waste operators on data on waste to non-levied disposal sites**

Only one of the waste operators spoken to operated a cleanfill site. They use cleanfill data for operational purposes to plan capacity and identify need for new sites.



The other operators contacted did not tend to use non-levied disposal site data in their operations and did not consider this data vital to them for this reason. However, they feel there are issues with material going to non-levied sites that should not be, and that identifying and addressing this 'leakage' from the system was an important consideration moving forward. A key with non-levied sites is that it is perceived that rogue operators undercut legitimate operators and, therefore, a level playing field is needed. Knowledge of what goes into cleanfills and the quantities were seen as critical to ultimately addressing waste management fully in this country. One waste operator identified data on non-levied disposal sites as being of importance for determining future strategy and investments. The view was also expressed that all sites should be levied, even if the levy on inert materials is only \$1 per tonne. This would see all sites treated the same and reporting the same information through the same channels. It was expressed that the new land disposal guidelines will help bring some clarity to this area.

#### **4.4.6 Feedback from other organisations on data on waste to non-levied disposal sites**

An education and research institution emphasises the importance of data on non-levied disposal sites for education, research, and planning. One consultant/research organisation also mentioned the importance of the data for research purposes.

Another consultant/research organisation, working in waste conversion research and development, is increasingly interested in understanding national waste flows in order to look for new opportunities for improved environmental performance, cost reduction, and added-value processing.

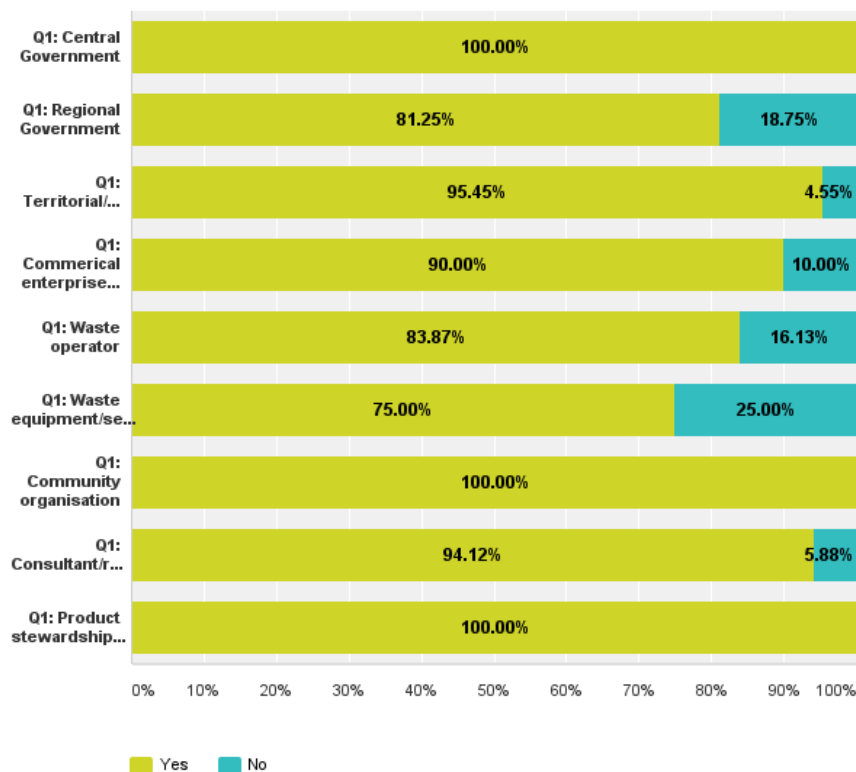
## 4.5 Questions on diverted materials

Q3 - In your organisation do you, or could you, use information about <u>diverted materials</u> (i.e. material that is reused, recycled, or recovered)?	Number of responses	Percent of responses
<b>Yes</b>	218	89.7%
<b>No</b>	25	10.3%
<b>TOTAL</b>	<b>243</b>	<b>100%</b>
<b>Skipped question</b>	47	

Of those answering the question 90% said data on diverted material was useful. However, 47 respondents skipped this question, meaning that out of all survey respondents 75% indicated diverted material data was useful. Once again there were differences by organisation type. This is shown in the chart below.

### Q17 In your organisation do you, or could you, use information about diverted materials (i.e. material that is reused, recycled, or recovered)?

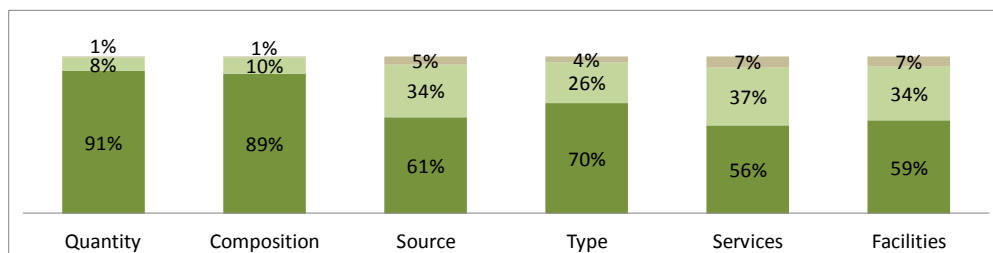
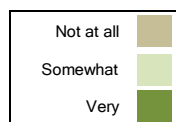
Answered: 234 Skipped: 47



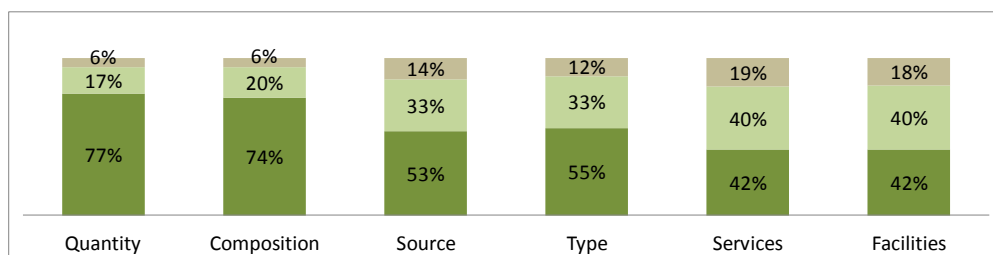
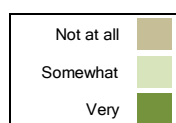
One hundred percent of central government, community organisation, and product stewardship organisation respondents indicated diverted material data was useful. Waste equipment/service suppliers (75%), regional government (81%), and waste operators (84%) were the least likely to find diverted material data useful.

**Questions 18-22: How important is the following diverted material information for each data use?**

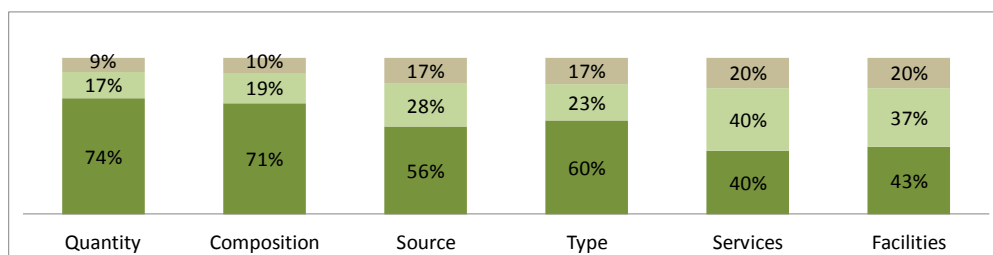
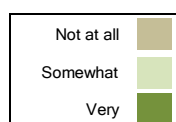
**Policy, planning & strategy**



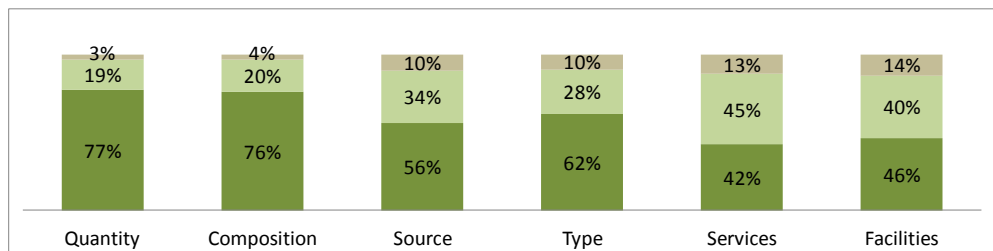
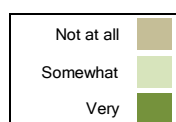
**Reporting**



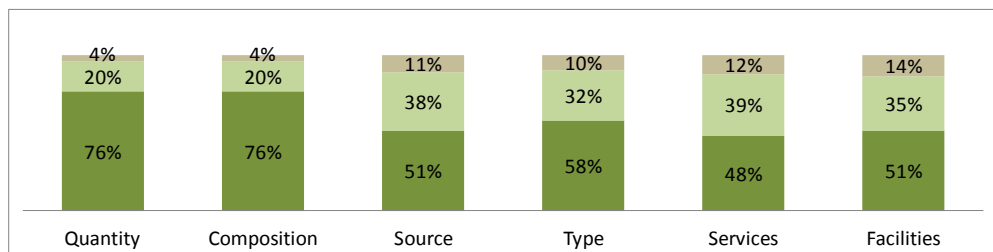
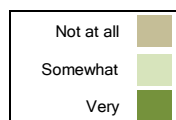
**Contracts**



**Benchmarking**



**Education & communication**



Among those who answered the questions in this section, diverted material data was seen as relatively important – clearly more so than non-levied disposal site data, and similar in profile to levied disposal site data. As with levied and non-levied disposal site data, quantity and composition were seen as the most important datasets, while services and facilities were the least. As with levied disposal site data, the type of activity generating the material was seen as relatively important for policy, planning and strategy purposes compared to other data uses.

#### 4.5.1 Survey Comments

For the following sections, answers have been drawn from responses to Q23 in the online survey and from the interviews with the reference group. Fifteen out of 290 total respondents answered Q23. Individual responses to Q23 have not been included in the following sections if it was considered that the response was covered by one of the other questions in the survey.

##### **Q23 - Are there any other uses you have for data on diverted materials that you would like to add?**

- *We are interested in knowing what infrastructure and services are available.*
- *"Per capita Per route day Direct delivery versus kerbside"*
- *As a means of reducing levy payments*
- *2nd hand re-use sector is important*
- *Behaviour change*
- *Yes receiving actual recovered tonnages verses collected/diverted tonnages*
- *"lobbying government and TAs truthing corporate claims"*
- *We collect data on our licensees' waste practices*
- *Need to create a big picture view for our Regional Waste Management and Minimisation and related education strategies.*
- *At a national level it may be useful in evaluating effect of product stewardship schemes*
- *Whether the diverted materials are exported (in a raw or partially processed state) or used within NZ*
- *Working out diversion levels from future planned commercial and industrial sorting facilities.*

#### 4.5.2 Feedback from central government on data on diverted materials

Statistics New Zealand would use waste data, including data on diverted materials, in its reporting of SEEA accounts (System of Environmental - Economic Accounting). The SEEA accounts would track all material flows, including diverted materials, through all means of disposal and recovery. The level and types of waste data on waste to landfill, described in section 4.3.2, would also apply to data on diverted materials.

For the MfE, diverted material data is one of the areas missing in terms of being able to understand the 'big picture' material flows. Accessing this information is acknowledged, however, as complex and potentially difficult. Key information on diverted materials includes quantity and composition of materials, availability of recycling services, and the location and type of reprocessing facilities.

#### 4.5.3 Feedback from regional government on data on diverted materials

Data on diverted materials was seen as less important by regional councils, but still formed part of the big picture. It helps to understand the scale of issues that are being dealt with and to identify local market opportunities – in this respect it was also seen as helpful to know cross-boundary movements and the scope for dealing with more materials locally. Overall, the regional councils want to know where things go, if there are viable alternatives and, if not, then why not? This enables them to share lessons and coordinate approaches across TAs.

Diverted material data is not gathered directly by regional councils but obtained from TAs and through stocktakes and surveys. The barriers to getting better diverted material data that were identified are commercial sensitivity and not having standard methodology and systems to collect the information. Being able to track material flows on a spatial dimension and linked to facilities would be valuable.

#### 4.5.4 Feedback from territorial/unitary authorities on data on diverted materials

Diverted material data was seen as important for planning and reporting, including preparing waste assessments. It is very important for tendering and service design of collection services, calculating diversion

rates, and evaluating service levels and performance. Diverted material data is also used for education. One council expressed the view, however, that if the market is effectively diverting a material then should councils really care?

Most councils have good information on what is collected by their own services and facilities, however, data on private and commercial collections is limited. Some are able to obtain data just through polite requests to private facilities. While mostly the commercial data is not regarded as essential, it is seen as part of the picture and is also good to know from the perspective of knowing what might come to council facilities if, for example, markets crash and particular materials or streams are no longer economical to collect.

Diverted material data is important from the point of view of being able to demonstrate how well diversion initiatives are working and justifying the investment in them.

Data on reuse centre sales and customer counts, e-waste recovery, and salvage yard throughput in terms of items, sales, and tonnage is important to one TA. Another TA remarked that, at a national level, data on diverted materials might be useful in evaluating the effect of product stewardship schemes.

Creating a 'big picture' view for a regional waste management and minimisation plan and related education strategies was put forward as a use for data on diverted materials by one TA. Another TA would use data on diverted materials that are transported out-of-district for planning purposes.

Definitions are seen as an issue with diverted material data – at what point is something 'diverted', what about contamination, how to account for second hand goods, reuse etc? The view was expressed that it would be good to have nationally consistent definitions of what 'diversion' means.

Commercial data is what is seen as missing from the picture, but this information will be being collected as the operators themselves will need to gather it for their own operational and business purposes – i.e. the data is there, how do we get it? The view was expressed that it would be good to be able to benchmark service delivery so all TAs can work towards a similar set of outcomes. It would also be good to know where material is going – to what extent is it being processed locally versus being exported and what the potential is to better develop local markets? Benchmarking recycling contamination levels would also be useful so best practice could be identified and shared.

#### **4.5.5 Feedback from waste operators on data on diverted materials**

The importance of diverted material data varied between operators. Where operators were active in collecting materials for recovery, this was seen as vital for their operations and for being able to plan and target opportunities. Material type, tonnage, and geographic source are all critical, and this information is used for a range of purposes, including council reporting - recent contracts have much more detailed information requirements. Data is also needed for predicting commodity income while contamination rates are important for improving education. In general, if there is a commercial opportunity it is spotted by the private sector and acted on. The view was expressed that it is hard to see how a data framework will make much difference to this.

One company indicated they tend to identify divertable materials at the start of commercial contracts, but once systems are in place do not tend to track things carefully.

One operator indicated that it would be good to know where materials are going – if for example lots of material is being exported if it was all put together there may be enough to develop local processing or markets. Being able to know what markets are working well and where there is potential would be good. Also being able to show to what extent material is actually being recovered (contamination levels) etc. and show ethical pathways would help in education and public confidence.

In general, diverted material data is important for presenting positive news stories and showing that the industry is worth supporting and investing in.

Most operators tend to know what facilities there are in each locality and what is being taken there – gathering this information would only be useful for new players, meaning existing players might be reluctant to supply it.

In terms of obtaining diverted material data, one operator suggested that most material flows through a limited number of transfer points and this might be the best way of intercepting diverted material data.

The key barrier to getting better diverted material data is seen as the commercial sensitivity of the data.

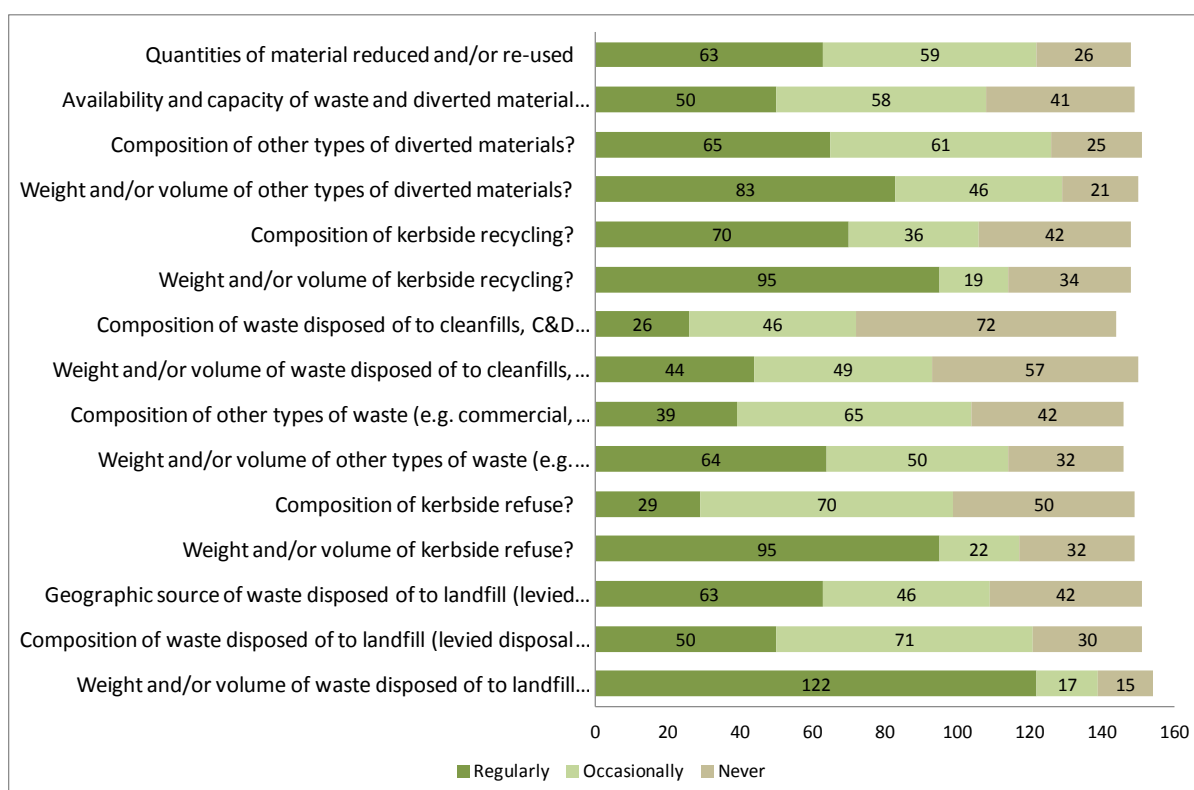
#### **4.5.6 Feedback from other organisations on data on diverted materials**

Research was noted by one consulting/research organisation as a use for data on diverted materials. A waste brokerage and management firm would find data on the destination of diverted materials and contamination rates to be useful. A community organisation would use data on diverted materials for lobbying central and local government and on assessing the validity of corporate claims.

#### 4.6 Questions on current data collection

Q24 - Do you currently gather any data regarding waste to levied sites, non-levied sites or diverted materials?	Number of responses	Percent of responses
Yes	155	67.4%
No	75	32.6%
<b>TOTAL</b>	<b>230</b>	<b>100%</b>
Skipped question	60	

##### Q.25: Does your organisation currently collect data on the following:



Of the 155 survey respondents who indicated that they collect data, the data most commonly collected was weight or volume of waste to landfill, which was gathered by 90% of the respondents.

One hundred percent of Central government and commercial enterprises indicated they gathered levied landfill data, followed by TAs (95%), and regional councils (86%). At the other end of the spectrum, only 25% of consultants and research organisations and 33% of product stewardship organisations gathered landfill data regularly.

Composition of waste to cleanfill was the least frequently gathered information, with 72 (50%) respondents indicating they gathered this information regularly or occasionally. Sixty percent of those gathering composition data were either operators (25 respondents) or TAs (18 respondents).



Composition of kerbside refuse was also less frequently gathered. TAs (88% of respondents) and waste operators (56%) were the most likely to gather this information, together accounting for 74 of the 99 respondents who indicated they gathered this data.

#### **4.6.1 Feedback from central government on data gathering**

Statistics NZ is currently in the process of developing its system of SESA accounts and, as such, is not currently collecting waste data.

MfE indicate that they have no preconceptions as to the form a Waste Data Framework might take, and are keen to let the solution develop through the process. In this regard no options are 'off the table'. However, MfE sounded a note of caution regarding the potential for enacting regulation to deliver waste data framework outcomes. The development and enactment of regulation can only occur if political direction is provided. This requires a strong, evidenced-based case for both the problem and regulatory based solution. It is likely that, for data collection, a voluntary approach would have to have been proven not to work before regulation would be considered. Overall, there is a need to be very clear about the value added from any system to ensure a voluntary approach has the best chance of success.

MfE do not have strong views as to whether data might be reported to a central system or through a regional approach.

#### **4.6.2 Feedback from regional authorities on data gathering**

The information gathered by regional councils is generally through consents and stocktakes or other studies. Resource consent information is limited, although there is scope to expand this. Other data tends to be collected on a more ad-hoc basis.

It was noted that regional councils may have responsibility for other environment reporting under the new environmental reporting bill, and if this is the case it might make sense to add waste to that structure, rather than creating another silo. It was also noted that there may be potential for regional councils to introduce some form of licensing under the LGA.

The use of WasteTRACK was also mentioned and it was noted that this system is hugely underutilised. The question was raised as to whether there is more scope for this approach to be built on.

Being able to share information, not just on data or facilities but on initiatives, would be useful – how do regional councils know whether projects they support have not already been done elsewhere?

#### **4.6.3 Feedback from territorial/unitary authorities on data gathering**

The level of control over the waste catchment is a key for TAs in their ability to confidently gather data. There was seen to be a need for standard terminology and for everyone to be collecting the same data in the same ways. It might require a champion in each region to oversee data collection, for example, and make sure it is being done properly. There also needs to be clarity as to why information is being gathered and what benefit it will have. If there is too much detail or if it is too fragmented a national system will not work.

A number of councils indicated that it would be ideal if a simple application could be developed to extract the required data from weighbridges and automatically compile the information needed for national reporting. One council that operates a landfill indicated that they had already started using their weighbridge records to provide the voluntary data on 'waste source' when reporting waste tonnages through the OWLS system.

Councils were generally willing to change how they gather and report data to align with a national framework as long as the changes made sense.

Although benchmarking was seen by a number of councils as a positive use of data, they wanted to benchmark against district-level data from similar authorities, not against a 'national average'. A counter-view was also expressed that one council would rather benchmark against best practice systems as a means of assessing performance of their systems and that best practice could only be identified when there was consistent national data.

Having a national framework would make it easier for individual councils to deal with waste operators in collecting data, as opposed to a one-on-one situation. There was some concern, however, about operators feeding data in at a national level as local authorities are in the best position to scrutinise data and ensure it is accurate.

In general, TAs saw the framework approach as sound – the view was expressed that a staged approach is sensible to develop confidence that systems work and that data is meaningful and accurate: get the basic data working well first then progressively add the harder stuff; need to fight the temptation to collect everything straight off because you don't necessarily know what you need until you need it.

#### 4.6.4 Feedback from waste operators on data gathering

It was expressed that for operators to put the effort into supplying good quality data (even if it were mandatory) they needed to have confidence that the information would be used and that others would also supply good quality data – essentially they do not want to go to extra effort if it is ultimately a waste of time. The classifications used need to be logical and the number of splits kept to a minimum.

There were also firm views expressed that they did not want to report information at a TA level. While they accepted that operator licensing might be the most likely mechanism, there were a number of issues with having to report to TAs. These include:

- putting in potentially over sixty different reports each reporting period
- commercial confidentiality is hard to maintain at a local level – they would be much more comfortable if data is aggregated at a regional or national level
- in some instances TAs are competitors with commercial operators – meaning they would be essentially required to provide information to their competitors
- difficulties in splitting out TA level data where there are significant cross boundary movements.

It was suggested that operators would be happy for TAs to have TA-level data provided to them from a national or regional repository, but this data would be aggregated for that TA and not split out market share, for example. It was expressed that ultimately MfE needs to take a lead and clearly establish the system that everyone is expected to use. Operators would prefer an independent body be responsible for gathering and collating data and providing this back to users. This would provide assurance around commercial confidentiality. In a discussion of cross boundary movements, it was accepted that, while this data was difficult if not impossible to obtain, reasonable estimates could be made for the purposes of supplying data to a national framework.

None of the operators spoken to expressed concerns with being able to access the information they might be required to supply – it was essentially already being gathered and at a fine enough level that it could be aggregated up into different classifications than they used currently, if necessary.

Other data gathered by operators includes information to develop unique emission factors for ETS reporting and compliance purposes.

A district-by-district approach to gathering waste data could be problematic - different districts or regional councils would vary in how effective they were at implementing a consistent licensing and data gathering system. Current experience from some places that operate licensing processes is that it has been an extra level of bureaucracy and tedious. Therefore, MfE need to implement the system and gather the data for the whole country. If it is not compulsory with everyone required to participate, it will be ineffective.

If data was gathered at a local level, the commercial sensitivities and conflict of interest between private landfills and council-owned landfills would be difficult to resolve.

The key message from operators, however, was not to make the system too onerous, and to keep it as simple as possible. There is a fear that officials might require information from the private sector with no idea about how difficult it is to generate that data. Reporting should not be too frequent, quarterly at most (but supplying monthly data).

#### **4.7 Limitations of survey**

Four factors that potentially limited the validity of the survey results have been identified:

- The online survey was sent only to WasteMINZ members. WasteMINZ membership may not be representative of all those for whom waste data is relevant.
- The sample of WasteMINZ membership who responded to the online survey was self-selecting and may not have been representative of all members.
- Participants for the one-on-one interviews were chosen on the basis of the project team's view that the person had a high level of interest in waste data.
- The online survey was restricted in terms of length and detail by a requirement to keep it short and simple. It was considered that this would maximise the response rate.

The cumulative effect of these factors on the results of the survey has not been assessed.

## 5 Analysis and summary of waste data needs

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### 5.1 Central government

Two of MfE's functions require the availability of reliable waste data - policy analysis and international reporting.

New Zealand has a range of international reporting functions for which MfE is the lead agency. Waste data has been identified as being required for meeting several of these functions. The types of waste data that are needed for this reporting range from the very specific (such as persistent organic pollutant data for the Stockholm Convention) to data that is comprehensive and finely-detailed (such as for the OECD).

These international reporting functions may, in particular cases, not be able to be fully realised because data that is available to MfE is, in some instances, insufficiently detailed or is incomplete. For example, to fully complete the OECD Questionnaire on the State of the Environment would require highly-detailed national-level waste data that is not currently available to MfE.

The lack of adequate waste data for informed policy decision-making has been noted numerous times in central and local government documents over the last two decades. This lack of data is recognised by MfE as hindering its ability to effectively perform some statutory policy advice functions, such as evaluating the effectiveness of the waste levy and assessing priority waste streams for product stewardship intervention.

The regular collection of waste data by MfE is limited to that mandated by or requested in relation to the WMA, related to New Zealand's greenhouse gas emission inventories, and the WasteTRACK voluntary hazardous waste tracking system. Data that is regularly collected under the WMA relates to tonnes of waste to 'disposal facilities', as defined by the WMA, TA reporting of waste levy spend and data reported by Waste Minimisation Fund projects and accredited product stewardship schemes. The disposal data that is currently collected under the WMA represents a relatively small proportion of waste disposed of to land (estimated to be around 30%).

Other intermittent efforts by MfE to collect waste data have been hampered by the lack of national reporting standards, which can make data from different sources incompatible.

It is important for MfE to have good quality data to inform the policy development process; in particular data is required to enable the development of evidence based problem definitions and to ensure that the policy options that are subsequently considered are appropriate. For MfE to more effectively fulfil its functions relating to the provision of advice and development of policy, data on the following is considered a priority:

- number, type, and location of levied and non-levied disposal sites and reprocessing facilities
- quantity and composition or source of material disposed of at levied and non-levied disposal sites
- quantity and composition of diverted materials
- availability of waste infrastructure and services.

Factors MfE considers in identifying priorities are the data's potential use and the risk of harm caused by the waste streams involved.

In general, MfE is most interested in the quantity of waste, with composition of waste being secondary. Data on a national level is of more interest to MfE than regional- or district-level data.

Statistics New Zealand's role with regards to environmental reporting that would require waste data is evolving. Stats NZ is developing a system of environmental-economic accounts that quantify the interactions between the environment and the economy. These accounts would, ultimately, include a waste account, based on an economy-wide material flow analysis. The analysis would provide an overview of the material inputs and outputs of the economy, with waste flows being tracked from generation through to the ultimate means of

disposal or recovery. The waste account would, by convention, include liquid wastes and many aspects of the material flows would be expressed in monetary terms.

Only a small fraction of the waste data required for a complete waste account is currently available. A waste account prepared to international standards would not focus solely on the three classifications of waste to levied disposal sites and non-levied disposal sites and diverted materials, but would require information allowing the tracking of waste streams to all forms of disposal, including landfilling, incineration, recycling and recovery, illegal dumping, and other treatments. Data would also be required on waste streams not normally considered in the NZ context, such as those produced by mining and agricultural activity. Data on the movement of natural excavated materials, such as soil, would also be relevant as such movement represents an economic activity that has an effect on the environment.

## 5.2 Regional government

Under the WMA, regional councils have no mandate related to waste. Under the RMA, regional councils have limited legislated responsibilities relating to waste, other than reducing environmental effects relating to hazardous substance and the issuing of resource consents for land disposal sites. Several regional councils, however, have interpreted their RMA mandate to “achieve integrated management of the natural and physical resources of the region” in a broader sense, and have become more involved with waste management issues. This varying degree of involvement with waste management issues results in regional councils’ waste data needs vary from council to council.

Regional councils have wide-ranging authority with regards to controlling the “discharge of contaminants into or onto land, air, or water”. The powers most relevant to waste data relate to determining whether the disposal to land of particular materials is a permitted activity or whether a resource consent is required and, if so, what the conditions of that resource consent might be. Different regional councils have used these powers in different ways, resulting in ‘cleanfill’ sites being loosely regulated in some areas and waste data being incomplete and uneven.

Few regional councils have introduced resource consent conditions for land disposal sites that require the site operators to provide detailed data. Most sites that receive ‘municipal waste’ report tonnage data but very few report waste composition data. Cleanfill sites, when they are required to report any data, are usually only required to report high-level volume data.

In general terms, waste data arising from regional councils’ role as environmental regulators is inconsistent and incomplete, with the data reporting not being based on any standardised format that would make it compatible with data from other sites. It must be assumed, however, that the councils that do not require consent holders to provide detailed data relating to the land disposal of waste consider the available level of data adequate for fulfilling their responsibilities under the RMA, otherwise higher-quality data would be required of site operators.

A similar level of variation is found in the environmental reporting required of regional councils. Some state of the environment reports include comprehensive information on waste, others include little or none.

While not all regional councils have chosen to become involved with waste management issues in a wider context, a few regional councils have chosen to work collaboratively with TAs on these issues. These collaborations have, in several instances, resulted in the publication of original research containing previously unavailable waste data.

Overall, in fulfilling their obligations under the RMA, regional councils have the power, through resource consent conditions, to collect whatever waste data they consider to be necessary for their policy-making and environmental management roles. Regional plans, however, are only able to regulate specific activities, and some regional councils’ plans permit some activities, such as cleanfilling, and others require resource consents for the same activity.

Across all councils, this has resulted in only high-level data being collected in an inconsistent manner. Those councils that take a wider view of their responsibilities have, in co-operation with TAs, published more complete and/or more highly-detailed information at a regional level than was previously available.

### 5.3 Territorial and unitary authorities

TAs are, perhaps, the pivotal public sector users of waste data. TAs not only contract and deliver services and facilities but also have a number of statutory responsibilities under the WMA to plan for and promote effective and efficient waste management and minimisation in their jurisdiction. Waste data is clearly vital to being able to adequately carry out these functions.

While all TAs have the same obligations to effectively and efficiently manage waste, these obligations are interpreted in different ways. The services provided by councils vary widely, largely based on historical reasons. The differences in TAs' provision of services are carried through to the availability of data to most TAs. Most TAs rely on data from their own services and have little other data available. The data needed by TAs in their role as service providers is different to the data needed for planning and strategising role, although the two are linked.

The waste assessment is the main channel through which TAs report on waste. Looked at on a national level, TAs have chosen to include significantly different types and levels of data in their waste assessment. The main missing type of waste data is from the private sector, and most TAs interviewed also recognised non-levied site data and data on diverted materials (other than kerbside recycling) as significant unknown factors. Some local authorities, however, lack even the most basic data, such as the quantity of waste to landfill from their district. The low level of data provided by some TAs in waste assessments might indicate that policy-making is not based on evidence.

In terms of benchmarking and information sharing, TAs indicated they are most interested in comparisons against other similar regions or districts, rather than against national averages, as each saw there can be significant differences in circumstances that make comparisons invalid. Alternatively, benchmarking against systems identified as best practice is seen as desirable.

Overall, there is a very wide range of what data is available to TAs, but there is no standard for TAs to use to either collect or report on waste data, even when reporting is mandatory, such as in the preparation of waste assessment. Most TAs, therefore, make do with whatever data they get from their own services. For many, that means they don't have adequate data for performing their policy and strategy functions, particularly as they don't have data on private sector waste flows. As a result, whatever policy is made by most TAs is, arguably, inadequately informed. Through bylaws, TAs have the power to collect all the data that is needed to perform their responsibilities adequately, but to date few have chosen to do so. Having better data doesn't mean that TAs would necessarily improve the quality of their planning, but they would have a greater ability to do so.

### 5.4 Waste operators

In many ways, operators are the key to establishing an effective waste data framework. As the main contact point between waste generators and the disposal/recovery system, waste operators are the best-placed to gather several types of waste data – source, geographic source, and volume or weight. Whether they are owned by the public, private, or community sector, waste operators are the generators of all primary data that may eventually flow into a national system. Any system, therefore, has to take account of how operators are able to gather and manage data and, specifically, what data it is both practical and possible for them to generate.

Operators have their own drivers for gathering information – the main driver is simply to enable their operation to function effectively and to be able to plan for future service provision. In general, if somebody is providing waste services, it shows they are getting enough data to function or they wouldn't be in business. Most waste



operators, though, probably lack the data to strategise and plan effectively, but don't consider this to be a major issue. The availability of more and better data could make waste operators more efficient at what they do and help them plan better, but there would need to be a perceived need for there to be a desire to learn how to use the data for this purpose.

In general, without some external driver, waste operators are unlikely to gather significantly more or different data than what they gather currently, as this would essentially mean extra time and cost for them with little perceived benefit. A national waste data framework will inevitably require more time and effort from all parties but it should aim to build, to a large extent, on existing systems and minimise additional burden on operators. Waste operators see the key issues as:

- minimising the number of separate reports required to be submitted to a national system
- keeping the information as simple as possible while ensuring useful data is generated
- ensuring appropriate commercial confidentiality
- ensuring the quality of data in the system (through a level playing field).

If these issues are addressed, this would improve waste operators' confidence that the effort to supply the data is worthwhile.

## 5.5 Other organisations

Other organisations include commercial enterprises, waste equipment and service suppliers, community organisations, consultants and researchers, and product stewardship schemes. Together these groups made up approximately one third of respondents to the survey, with consultants and researchers the largest part of this group alone accounting for approximately 15% of overall survey responses.

None of these groups have mandatory reporting responsibilities, although community organisations often act as operators and so will have similar reporting requirements in these instances. Community sector organisations tend to be focused on creating positive change towards waste minimisation and information that is useful for education and behaviour change is vital for this purpose. Good composition data on what is still going to landfill or other disposal is also important in this regard, as is information on what happens to recovered materials.

Being able to show positive outcomes and good news stories from reuse and recovery of waste is seen as essential. Community organisations also expressed some concern at a lack of information on what happens to material that is 'recovered' – for example information around contamination levels and exports of mixed materials is very opaque. They would like to see better tracking through the 'supply chain' so there is confidence that outcomes are ethical.

All product stewardship schemes in place at present are voluntary, so, while reporting is not strictly 'mandatory', to retain their accredited status under the WMA they must set measurable objectives and report on these to the Minister. What is reported and how is not prescribed, however. In consultation with MfE, product stewardship scheme managers establish their own parameters for data requirements and are also able to establish their own data-gathering systems to meet those requirements.

Consultants and researchers have the most varied and detailed data needs. To a certain extent, their needs are a subset of the needs of their clients, as consultants are often responsible for undertaking studies and supplying information for waste assessments, tenders, and facility development and management. Data is, to a large extent, the consultant and researchers' tools of trade. It is their role to not simply gather and present data, but to analyse it and attempt to discern what is driving the patterns and results that are seen in the data. From this perspective the data needs of consultants and researchers are virtually limitless – the better the data the more powerful and accurate the analysis is able to be.

Standardisation of datasets to enable benchmarking and linking of information is likely to be of particular benefit to this user group and, if delivered, could be expected to lead to more insightful analysis, a developing



consensus around the effectiveness of certain approaches, and, ultimately, better decision making on the part of clients and users of the research.

## 5.6 Cross-cutting themes

A common theme to emerge across organisational sectors is that there is an incomplete picture of how much waste is actually generated and where it goes. Without knowledge of the total picture, the ability to develop effective strategies, plans, and policies is hampered. The biggest gap in this regard is an understanding of what material, and how much of it, goes to non-levied sites including cleanfills, monofills, C&D landfills, and farm dumps.

Another key gap that was regularly mentioned is a complete picture of commercial wastes and material handled by the private sector. This data gap affects most public sector organisations, with the issue of commercial sensitivity regularly raised as a barrier to being able to obtain better information. While private sector waste operators generally have excellent information on their own operations, they are relatively 'blind' when it comes to data from competing organisations. One operator remarked, for example, that when it comes to bidding on municipal contracts (where they are not the incumbent) they are reliant on whatever information the local authority supplies.

Data on diverted materials is considered important by a range of organisations for a number of purposes aside from operational uses. Developing an understanding of the big picture, which is incomplete, and how materials move through the economy was a recurring theme; but data on diverted materials is also considered important for being able to plan and justify diversion initiatives and demonstrate the benefits (economic, social and environmental) of diverting materials.

Another important theme to emerge is that, while there are some key data gaps where little information is actually gathered (in particular non-levied disposal), in general an enormous amount of information is already being gathered, analysed, and used by a wide range of parties, but that it tends to be held in silos. Most TAs, for example, tend to gather a similar range of data but this is held on their own systems and the methods of recording and storing information do not facilitate information sharing or benchmarking. Similarly, private operators generally have detailed information on their own operations but do not share this information for reasons of commercial sensitivity.

In particular, the regional councils interviewed noted that information gathered in one part of their organisation (for example through consent monitoring) was not necessarily readily shared with other parts of the organisation and that accessing such information required a knowledge of what there was and how to find it. In this regard a standardised system that ensures compatible data is gathered across a range of organisations and functions and is appropriately aggregated (to preserve commercial confidentiality) is likely to address a significant proportion of the data gaps that have been identified.

While the focus of this report and the discussions with stakeholders has been on data needs and what information is currently gathered, an emergent point of discussion was how gaps might be addressed and what the barriers were to being able to develop a cohesive, functional, national waste data framework that is able to add value for stakeholders. In relation to this a number of positions emerged.

Operators expressed a strong preference for a simple central or regional system of reporting that would avoid having to deal with myriad different systems and reporting points. Such a system would also facilitate aggregating information to a level that would sufficiently preserve commercial confidentiality. On the other hand, even where reporting is mandatory, monitoring and enforcement activities and data quality checks are required to ensure correct compliance, and these are best carried out at a local level.

Another commonly expressed view was that for operators (private and public) to go to the effort of providing information into a national system, they need to be convinced that such a system will deliver worthwhile

outcomes. This is, to a certain extent, a ‘chicken and egg’ situation – until a national system is in place with high levels of compliance and quality accurate information is being supplied into it, the outputs of such a system will not be accurate, complete, or particularly useful. Perhaps what is required is for all parties to be able to see that any proposed national system is sufficiently well-structured to have the potential to deliver desired outcomes, and that the system has the necessary tools, resources, and commitment from key parties to succeed.

## 5.7 Conclusions

This report has endeavoured to canvass a broad range of waste data needs and to understand what data is currently being captured and accessed by different parties. A clear understanding of both of these elements is fundamental to taking the development of a waste data framework forward.

At the simplest level, it could be said that all organisations that have been canvassed currently have the information they require to perform their functions at a basic level – clearly these functions are being performed and so could continue to be performed with the data available. The question of how well these functions are being performed, and what improvement could be gained by being able to access better data, is another one entirely. What is clear is that all the types of organisations canvassed identified gaps in the available data that, if addressed, would enhance their ability to carry out key functions.

The key points to emerge from the study include:

- Data on waste to levied sites is fundamental for virtually all parties, with tonnage most important, followed by composition and activity source.
- Policy, strategy, and planning were the most commonly cited uses for data, followed by benchmarking.
- There is a large gap in knowledge around material that is going to non-levied sites. MfE estimates this could account for 70% of material disposed of. This data gap is a significant impediment to a full understanding of waste flows, and the ability of organisations to formulate effective waste policy and strategy. There is currently no clear pathway to being able to obtain this information, although there exist a number of possible approaches.
- The public sector in particular has a limited knowledge of waste and recovered material streams that are controlled by the private sector. Issues of commercial confidentiality are a key constraint here, and any framework will have to adequately address this.
- Despite some clear gaps, there is a significant amount of data currently being gathered. However, this information is often held in silos and the lack of standardisation and the methods of recording and storing information do not facilitate information sharing or benchmarking.
- Operators would prefer to report data at a national or regional level to reduce reporting burdens and help preserve commercial confidentiality.
- To provide confidence that a national framework is generating accurate, worthwhile information, any proposed system must supply needed data, be robust in its definitions and protocols, and be backed by appropriate commitment, resources, and tools.

## 5.8 Next Steps

Key elements of the project to take this work forward in Milestone Two include:

- develop a ‘master plan’ that maps out the development of the framework over time, taking account of data needs, the constraints on obtaining desired information, and the steps required to address these constraints. It is anticipated that the master plan will reflect a staged approach with more readily-obtainable data addressed in the first instance, and other information brought into the framework as constraints are progressively addressed.

- research and analyse international data practice, definitions, protocols, and roles
- scope existing definitions, including New Zealand and international definitions, and develop draft definitions, in line with the staged approach proposed<sup>38</sup>
- develop draft data-gathering protocols, in line with the staged approach proposed
- identify key roles and responsibilities for stakeholders in implementing and operating a national data framework, in line with the staged approach proposed.

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<sup>38</sup> Eunomia Research & Consulting Ltd and Waste Not Consulting Ltd (December 2013) *New Zealand Waste Data Framework: Background Document*. Prepared for Waste Management Institute New Zealand

## Appendix 1 – Online survey form

Waste Data Needs	Waste Data Needs
<p><b>Welcome to our survey on waste data needs</b></p> <p>Thank you for taking the time to complete this survey. It will help us understand what your organisation is likely to use waste data for, what data you currently gather, and what types of data you might find most useful.</p> <p>Depending on your answers, the survey should take about 10 minutes to complete.</p> <p>Your response will help us focus the development of New Zealand's Waste Data Framework.</p>	<p><b>Organisation classification</b></p> <p><b>* 1. Which best describes your organisation?</b></p> <p> <input type="radio"/> Central Government  <input type="radio"/> Regional Government  <input type="radio"/> Territorial/Unitary Authority  <input type="radio"/> Commercial enterprise (waste generator)  <input type="radio"/> Waste operator  <input type="radio"/> Waste equipment/service supplier  <input type="radio"/> Community organisation  <input type="radio"/> Consultant/research organisation  <input type="radio"/> Product stewardship organisation  <input type="radio"/> Other (please specify)         </p>

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Waste Data Needs	Waste Data Needs
<p><b>Waste Operators</b></p> <p><b>2. Do you own or operate any of the following? (Check all that apply)</b></p> <p> <input type="checkbox"/> Levied disposal site (a 'disposal facility' under the WMA 2008)  <input type="checkbox"/> Non-levied disposal site (e.g. cleanfill, C&amp;D fill, monofill etc)  <input type="checkbox"/> Waste and/or diverted material collection service  <input type="checkbox"/> Processing or transfer facility (e.g. transfer station, MRF, composting site etc.)  <input type="checkbox"/> Other (please specify)         </p>	<p><b>Material to Levied Disposal Sites</b></p> <p><b>* 3. In your organisation do you, or could you, use information about waste to landfill (i.e. material that goes to a levied disposal facility)?</b></p> <p> <input type="radio"/> Yes  <input type="radio"/> No         </p>

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**Waste Data Needs**

**Material to Levied Disposal Sites**

*Note: If your organisation is not likely to use waste data for the purposes stated in any of the questions leave your response blank and skip to the next question.*

**4. Thinking about your organisation's data needs for policy, strategy, and planning (e.g. Waste Assessments and WMMPs, business planning etc.), how important is the following information regarding waste to landfill?**

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composition (e.g. paper, plastic, glass etc) and/or physical characteristics (e.g. density, calorific value etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. drop-off, transfer station, landfill etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

**5. Thinking about your organisation's data needs for reporting (including statutory reporting such as levy collection and levy spend reporting), how important is the following information regarding waste to landfill?**

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composition (e.g. paper, plastic, glass etc) and/or physical characteristics (e.g. density, calorific value etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. drop-off, transfer station, landfill etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

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**Waste Data Needs**

**6. Thinking about your organisation's data needs for contract management or operational purposes, how important is the following information regarding waste to landfill?**

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composition (e.g. paper, plastic, glass etc) and/or physical characteristics (e.g. density, calorific value etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. drop-off, transfer station, landfill etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

**7. Thinking about your organisation's data needs for benchmarking and information sharing, how important is the following information regarding waste to landfill?**

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composition (e.g. paper, plastic, glass etc) and/or physical characteristics (e.g. density, calorific value etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. drop-off, transfer station, landfill etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

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**Waste Data Needs**

**8. Thinking about your organisation's data needs for education and communication, how important is the following information regarding waste to landfill?**

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composition (e.g. paper, plastic, glass etc) and/or physical characteristics (e.g. density, calorific value etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. drop-off, transfer station, landfill etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

**9. Are there any other uses you have for data on waste to landfill that you would like to add?**

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**Waste Data Needs**

**Material to NON-Levied Disposal Sites**

**\*10. In your organisation do you, or could you, use information about waste to NON-levied disposal sites (i.e. material that goes to a cleanfill, C&D fill, monofill etc.)?**

☐ Yes

☐ No

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**Waste Data Needs**

**Material to NON-Levied Disposal Sites**

*Note: If your organisation is not likely to use waste data for the purposes stated in any of the questions leave your response blank and skip to the next question.*

**11. Thinking about your organisation's data needs for policy, strategy, and planning (e.g. Waste Assessments and WMMPs, business planning etc.), how important is the following information regarding waste to NON-levied disposal sites?**

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composition (e.g. paper, plastic, glass etc.) and/or physical characteristics (e.g. density, calorific value etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. transfer station, cleanfill etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

**12. Thinking about your organisation's data needs for reporting (including statutory reporting such as levy collection and levy spend reporting), how important is the following information regarding waste to NON-levied disposal sites?**

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composition (e.g. paper, plastic, glass etc.) and/or physical characteristics (e.g. density, calorific value etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. transfer station, cleanfill etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

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**Waste Data Needs**

**13. Thinking about your organisation's data needs for contract management or operational purposes, how important is the following information regarding waste to NON-levied disposal sites?**

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composition (e.g. paper, plastic, glass etc.) and/or physical characteristics (e.g. density, calorific value etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. transfer station, cleanfill etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

**14. Thinking about your organisation's data needs for benchmarking and information sharing, how important is the following information regarding waste to NON-levied disposal sites?**

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composition (e.g. paper, plastic, glass etc.) and/or physical characteristics (e.g. density, calorific value etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. transfer station, cleanfill etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

Page 10

**Waste Data Needs**

**15. Thinking about your organisation's data needs for education and communication, how important is the following information regarding waste to NON-levied disposal sites?**

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composition (e.g. paper, plastic, glass etc.) and/or physical characteristics (e.g. density, calorific value etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. transfer station, cleanfill etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

**16. Are there any other uses you have for data on waste to NON-levied disposal sites that you would like to add?**

Page 11

**Waste Data Needs**

**Diverted Materials**

**\*17. In your organisation do you, or could you, use information about diverted materials (i.e. material that is reused, recycled, or recovered)?**

☐ Yes

☐ No

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## Waste Data Needs

### Diverted Materials

Note: If your organisation is not likely to use waste data for the purposes stated in any of the questions leave your response blank and skip to the next question.

#### 18. Thinking about your organisation's data needs for policy, strategy, and planning (e.g. Waste Assessments and WMMPs, business planning etc.), how important is the following information regarding diverted materials?

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type or uses of materials (e.g. metal, paper, plastic, packaging, cans, bottles etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. drop-off, transfer station, composting site, MRF etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

#### 19. Thinking about your organisation's data needs for reporting (including statutory reporting such as levy collection and levy spend reporting), how important is the following information regarding diverted materials?

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type or uses of materials (e.g. metal, paper, plastic, packaging, cans, bottles etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. drop-off, transfer station, composting site, MRF etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

Page 13

## Waste Data Needs

### 20. Thinking about your organisation's data needs for contract management or operational purposes, how important is the following information regarding diverted materials?

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type or uses of materials (e.g. metal, paper, plastic, packaging, cans, bottles etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. drop-off, transfer station, composting site, MRF etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

### 21. Thinking about your organisation's data needs for benchmarking and information sharing, how important is the following information regarding diverted materials?

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type or uses of materials (e.g. metal, paper, plastic, packaging, cans, bottles etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. drop-off, transfer station, composting site, MRF etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

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## Waste Data Needs

### 22. Thinking about your organisation's data needs for education and communication, how important is the following information regarding diverted materials?

	Very	Somewhat	Not at all
Weight and/or volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type or uses of materials (e.g. metal, paper, plastic, packaging, cans, bottles etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic source (e.g. particular transfer station/facility, town, district, region etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type (e.g. kerbside refuse, residential, commercial, industrial, institutional, construction & demolition etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available services (e.g. collections, information, support etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available facilities (e.g. drop-off, transfer station, composting site, MRF etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

#### 23. Are there any other uses you have for data about diverted materials that you would like to add?

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## Waste Data Needs

### Data Collection

#### 24. Do you currently gather any data regarding waste to levied sites, non-levied sites or diverted materials?

- ☐ Yes  
☐ No

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Waste Data Needs	Waste Data Needs																																																																
<p><b>Data Collection</b></p> <p><b>25. Does your organisation currently collect data on the following:</b></p> <table border="1"> <thead> <tr> <th></th> <th>Regularly</th> <th>Occasionally</th> <th>Never</th> </tr> </thead> <tbody> <tr> <td>Weight and/or volume of waste disposed of to landfill (levied disposal facilities)?</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Composition of waste disposed of to landfill (levied disposal facilities)?</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Geographic source of waste disposed of to landfill (levied disposal facilities)?</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Weight and/or volume of kerbside refuse?</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Composition of kerbside refuse?</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Weight and/or volume of other types of waste (e.g. commercial, C&amp;D, special) disposed of to landfill (levied disposal facilities)?</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Composition of other types of waste (e.g. commercial, C&amp;D, special) disposed of to landfill (levied disposal facilities)?</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Weight and/or volume of waste disposed of to cleanfills, C&amp;D landfills, manfills, etc?</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Composition of waste disposed of to cleanfills, C&amp;D landfills, manfills, etc?</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Weight and/or volume of kerbside recycling?</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Composition of kerbside recycling?</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Weight and/or volume of other types of diverted materials?</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Composition of other types of diverted materials?</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Availability and capacity of waste and diverted material processing facilities?</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Quantities of material reduced and/or re-used</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </tbody> </table> <p>Other (please specify)</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div>		Regularly	Occasionally	Never	Weight and/or volume of waste disposed of to landfill (levied disposal facilities)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Composition of waste disposed of to landfill (levied disposal facilities)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Geographic source of waste disposed of to landfill (levied disposal facilities)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Weight and/or volume of kerbside refuse?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Composition of kerbside refuse?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Weight and/or volume of other types of waste (e.g. commercial, C&D, special) disposed of to landfill (levied disposal facilities)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Composition of other types of waste (e.g. commercial, C&D, special) disposed of to landfill (levied disposal facilities)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Weight and/or volume of waste disposed of to cleanfills, C&D landfills, manfills, etc?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Composition of waste disposed of to cleanfills, C&D landfills, manfills, etc?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Weight and/or volume of kerbside recycling?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Composition of kerbside recycling?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Weight and/or volume of other types of diverted materials?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Composition of other types of diverted materials?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Availability and capacity of waste and diverted material processing facilities?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Quantities of material reduced and/or re-used	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p><b>Nearly done...</b></p> <p>Before you go, can you please supply some basic contact information in case we want to get in touch with you further about your responses?</p> <p><b>26. Your contact details:</b></p> <p>Name <input type="text"/></p> <p>Company <input type="text"/></p> <p>Email Address <input type="text"/></p> <p>Phone Number <input type="text"/></p> <p><b>*27. Would you be willing for a member of the project team to contact you to discuss your responses?</b></p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p>Is there a good time to contact you?</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div>
	Regularly	Occasionally	Never																																																														
Weight and/or volume of waste disposed of to landfill (levied disposal facilities)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																																																														
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Quantities of material reduced and/or re-used	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																																																														

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## Appendix 2 – Online survey emails

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### Member E-mails

To: [Email] From: "paul@wasteminz.org.nz via surveymonkey.com"  
Subject: Waste Data Needs Survey

Body:

Dear [FirstName]

As part of WasteMINZ's on-going collaboration on advancing waste issues with industry partners, central, and local government, we are asking our members to assist us by completing a survey on waste data uses and needs. This survey on waste data is associated with WasteMINZ's application to the Waste Minimisation Fund to develop a national waste data framework.

The survey asks questions about:

- what you use and need waste data for
- what types of data you use and need, and
- the types of waste data that you currently collect

We realise this is a complex subject and have tried to make the survey as brief and clear as possible while still gathering the information we need. The survey should take you **less than ten minutes to complete**. We expect the survey may start you thinking about waste data in ways you haven't before.

The link below will take you to the survey. It is important to the survey results that you fill the survey out yourself and do not forward this email to anyone else.

<https://www.surveymonkey.com/s.aspx>

The survey will remain open until **Friday 6 June**, but we encourage you to complete it as soon as possible.

We know how busy you are, so we really appreciate your taking the time to assist us.

Kind regards

Paul Evans  
Chief Executive  
WasteMINZ

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list. <https://www.surveymonkey.com/optout.aspx>

To: [Email] From: "paul@wasteminz.org.nz via surveymonkey.com"  
Subject: Reminder: Waste Data Needs Survey

Body:

Dear [FirstName]

Time is running out to have your say on waste data needs! Our survey closes tomorrow and we would like to hear from as many WasteMINZ members as possible.

This survey on waste data needs is associated with WasteMINZ's application to the Waste Minimisation Fund to develop a national waste data framework and is part of WasteMINZ's on-going collaboration on advancing waste issues with industry partners, central, and local government. .

The survey asks questions about:

- what you use and need waste data for
- what types of data you use and need, and
- the types of waste data that you currently collect

We realise this is a complex subject and have tried to make the survey as brief and clear as possible while still gathering the information we need. The survey should take you **less than ten minutes to complete**. We expect the survey may start you thinking about waste data in ways you haven't before.

The link below will take you to the survey. It is important to the survey results that you fill the survey out yourself and do not forward this email to anyone else.

<https://www.surveymonkey.com/s.aspx>

The survey will remain open until **Friday 6 June**, but we encourage you to complete it as soon as possible.

We know how busy you are, so we really appreciate your taking the time to assist us.

Kind regards

Paul Evans  
Chief Executive  
WasteMINZ

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list. <https://www.surveymonkey.com/optout.aspx>

## Reference Group E-mails

To: [Email] From: "paul@wasteminz.org.nz via surveymonkey.com"  
Subject: Waste Data Needs Survey

Body:

Dear [FirstName]

As part of WasteMINZ's ongoing collaboration on advancing waste issues with industry partners, central, and local government, we are asking all of our members to assist us by completing a survey on waste data uses and needs. This survey on waste data is associated with WasteMINZ's application to the Waste Minimisation Fund to develop a national waste data framework.

The survey asks questions about:

- what you use and need waste data for,
- what types of data you use and need, and
- the types of waste data that you currently collect.

We realise this is a complex subject and have tried to make the survey as brief and clear as possible while still gathering the information we need. The survey should take you **approximately ten minutes** to complete. We expect the survey may start you thinking about waste data in ways you haven't before.

As well as gathering information from the WasteMINZ general membership, we would like to have more in-depth discussions with a small number of individuals, including yourself, who represent the full range of sectors in the waste space. These phone conversations will provide us with more detail about waste data issues and help us provide the qualitative context for analysing and presenting the survey results.

This will be a 20-30 minute phone conversation, timed to take place at your convenience. Once you have completed the survey we will then get in touch to organise a suitable time for the phone interview.

The link below will take you to the survey. It is important to the survey results that you fill the survey out yourself and do not forward this email to anyone else.

<https://www.surveymonkey.com/s.aspx>

This project has been undertaken with very short deadlines, so, we'd appreciate your completing the survey **as soon as you can**.

Kind regards

Paul Evans  
Chief Executive  
WasteMINZ

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list. <https://www.surveymonkey.com/optout.aspx>

To: [Email] From: "paul@wasteminz.org.nz via surveymonkey.com"  
Subject: Reminder: Waste Data Needs Survey

Body:

Dear [FirstName]

Last week we sent you a survey on waste data which is associated with WasteMINZ's application to the Waste Minimisation Fund to develop a national waste data framework.

**This project has been undertaken with very short deadlines, so, we'd appreciate your completing the survey as soon as you can.**

The survey should take you **approximately ten minutes** to complete.

As well as gathering information from the WasteMINZ general membership, we would like to have more in-depth discussions with a small number of individuals, including yourself, who represent the full range of sectors in the waste space. These phone conversations will provide us with more detail about waste data issues and help us provide the qualitative context for analysing and presenting the survey results.

This will be a 20-30 minute phone conversation, timed to take place at your convenience. Once you have completed the survey we will then get in touch to organise a suitable time for the phone interview.

The link below will take you to the survey. It is important to the survey results that you **fill the survey out yourself** and do not forward this email to anyone else.

<https://www.surveymonkey.com/s.aspx>

We appreciate your time and effort in helping us with this important project.

Kind regards

Paul Evans  
Chief Executive  
WasteMINZ

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list. <https://www.surveymonkey.com/optout.aspx>

To: [Email] From: "paul@wasteminz.org.nz via surveymonkey.com"  
Subject: Reminder: Waste Data Needs Survey

Body:

Dear [FirstName]

**Time is running out to have your say on waste data needs!** Our survey closes tomorrow and we would like to hear from you as a key stakeholder.

This survey on waste data needs is associated with WasteMINZ's application to the Waste Minimisation Fund to develop a national waste data framework and is part of WasteMINZ's on-going collaboration on advancing waste issues with industry partners, central, and local government.

The link below will take you to the survey. The survey should take you **less than ten minutes to complete**. It is important to the survey results that you fill the survey out yourself and do not forward this email to anyone else.

[SurveyLink]

The survey will remain open until **Friday 6 June**, but we encourage you to complete it as soon as possible.

In addition to the survey we are also conducting telephone interviews with key stakeholders and would value the opportunity to discuss your waste data needs with you in more detail. If you are willing to participate in a 20-30 minute interview please complete the survey and we will get in touch to organise a suitable time.

We know how busy you are, so we really appreciate your taking the time to assist us.

Kind regards

Paul Evans  
Chief Executive  
WasteMINZ

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list. [RemoveLink]

## Appendix 3 – Interview respondents

The following individuals were interviewed with regards to the waste data needs of their organisations.

Alec	McNeil	Marlborough District Council
Brent	Aitken	Taupo District Council
Chris	Keeling	Environment Canterbury
Damian	Cloeter	Ministry for the Environment
Dave	Hanan	Think Delta
Dave	Wilson	Gisborne District Council
David	Harris	Statistics New Zealand
Dean	Brown	Transpacific Industries Group (NZ) Ltd
Donna	Peterson	Invercargill City Council
Elena	Wrelton	Ministry for the Environment
Gavin	Sole	Selwyn District Council
Graham	Jones	EnviroWaste Services Ltd
Ian	Featherston	Dunedin City Council
Marianna	Tyler	Waikato Regional Council
Marty	Hoffart	Waste Watchers
Mike	Jones	Earthcare Environmental
Mark	Lawson	Smart Environmental
Parul	Sood	Auckland Council
Paul	Bishop	EnviroWaste Services Ltd
Reece	Irving	Bay of Plenty Regional Council
Rick	Thorpe	Xtreme Waste
Simon	Calcinai	Kapiti Coast District Council
Stephen	Oakley	Statistics New Zealand



## Appendix 4 – OECD waste data

OECD QUESTIONNAIRE ON THE STATE OF THE ENVIRONMENT – WASTE	
Generation of Waste by Sector	
	<b>Agriculture, forestry and fishing</b>
	<b>Mining and Quarrying</b>
	<b>Manufacturing industries</b>
	Food, Beverages, Tobacco
	Textile & leather industries
	Wood and Wood Products
	Paper and Paper Products
	Printing and Publishing
	Refineries, etc.
	Chemical industries
	Rubber and Plastics
	Non-metallic Mineral Products
	Basic Metal Industries
	Fabricated Metal Products, Machinery
	Other Manufacturing Industries
	<b>Energy Production</b>
	<b>Water supply, sewerage, waste management, etc.</b>
	<b>Construction</b>
	<b>Other sectors</b>
	<b>Waste from households</b>
Generation, Recovery and Recycling of Selected Waste Streams	
	Paper, paperboard, & paper products
	Waste generated
	Waste collected for recycling
	Imports of w. for recycling
	Exports of w. for recycling
	<b>Glass</b> – detail as for “Paper, paperboard, & paper products”
	<b>Aluminium</b> – detail as for “Paper, paperboard, & paper products”
	<b>Lead</b> – detail as for “Paper, paperboard, & paper products”
	<b>Other non-ferrous</b> – detail as for “Paper, paperboard, & paper products”
	<b>Ferrous metals</b> – detail as for “Paper, paperboard, & paper products”
	<b>Plastics</b> – detail as for “Paper, paperboard, & paper products”
	<b>Packaging material</b>
	Paper & Paperboard – detail as for “Paper, paperboard, & paper products”
	Glass – detail as for “Paper, paperboard, & paper products”
	Plastic – detail as for “Paper, paperboard, & paper products”
	Metal – detail as for “Paper, paperboard, & paper products”
Generation of Selected Waste Streams	
	<b>Construction/Demolition Wastes</b>
	of which Excavated Soils
	<b>Dredged Spoils</b>
	<b>Sewage sludges (dry weight)</b>

OECD QUESTIONNAIRE ON THE STATE OF THE ENVIRONMENT – WASTE	
	Excess manure (dry weight)
	End-of-life vehicles
	Used tires
	Electric and electronic scrap
	Food waste
	Mineral and synthetic oils
	Other waste
<b>Generation, Treatment and Disposal of Non-hazardous Industrial Waste</b>	
	Amounts designated for treatment and disposal operations in the country
	Amounts designated for recovery operations
	Material recovery (recycling)
	Biological recovery (composting etc)
	Incineration with energy recovery
	Other
	Amounts designated for disposal operations
	Amounts going to final treatment
	Incineration without energy recover
	Other
	Amounts going to final disposal
	Landfill
	Controlled landfill
	Other
<b>Generation, Treatment and Disposal of Hazardous Waste</b>	
	Total amount generated
	Imported amounts
	Exported amounts
	Amounts designated for treatment and disposal operations in the country
	Amounts generated
	Amounts to be managed
	Recovery operations
	Incineration with energy recovery
	Recycling, composting, etc.
	Other recovery operations
	Preparatory activities
	Disposal operations
	Physico/chemical treatment
	Biological treatment
	Incineration without energy recovery
	Landfill and other deposit into or onto land
	Release into water bodies
	Permanent storage
	Preparatory activities
<b>Generation of Hazardous Waste by Category</b>	
	<b>Total amount generated (Basel definition)</b>
	Clinical wastes
	Wastes from the production of pharmaceutical products
	Waste pharmaceuticals, drugs, medicines

OECD QUESTIONNAIRE ON THE STATE OF THE ENVIRONMENT – WASTE	
	Wastes from the production of biocides and phytopharmaceuticals
	Wastes from the manufacture and use of wood preserving chemicals
	Wastes from the production and use of organic solvents
	Wastes from heat treatment and operations containing cyanides
	Waste mineral oils
	Waste oil emulsions, mixtures
	Waste containing PCBs, and/or PCTs, and/or PBBs
	Waste tarry residues from refining, distillation, and any pyrolytic treatment
	Wastes from production and use of inks, dyes, pigments, paints, lacquers, varnish
	Wastes from the production and use of resins, latex, plasticizers, glues/adhesives
	Waste chemical substances (not identified and/or new) from R&D or teaching activities
	Wastes of an explosive nature, not subject to other legislation
	Wastes from the production and use of photographic chemicals and processing materials
	Waste from surface treatment of metals and plastics
	Residues from industrial waste disposal operations
	Other hazardous waste
Generation and Collection of Municipal Waste	
	<b>Municipal waste generated</b>
	<b>Municipal waste collected</b>
	By or on behalf of municipalities
	By the private sector
	<b>By origin</b>
	from households
	from commerce and trade, small businesses,
	office buildings, institutions
	<b>By type of waste</b>
	Household and similar waste
	Bulky waste
	Electric and electronic equipment waste
	<b>By type of collection</b>
	Traditional collection of mixed household waste
	Collection of bulky waste
	Separate collection of waste fractions
Composition of Municipal Waste	
	<b>Total amount collected (mixed bags)</b>
	Paper, paperboard, paper products
	Textiles
	Plastics
	Glass
	Metals
	Organic material
	Food waste
	Garden waste
	<b>Amount from separate collection</b>
	Paper, paperboard, paper products
	Textiles

OECD QUESTIONNAIRE ON THE STATE OF THE ENVIRONMENT – WASTE	
	Plastics
	Glass
	Metals
	Organic material
	Food waste
	Garden waste
	Bulky waste
	Other waste
Treatment and Disposal of Municipal Waste	
<b>Amounts designated for treatment and disposal operations in the country</b>	
	Amounts collected – exports
	Amounts to be managed
	Amounts designated for recover operations
	Material recovery (recycling)
	Biological recover (composting etc.)
	Incineration with energy recovery
<b>Amounts designated for disposal operations</b>	
	Incineration
	Landfill
	Of which, controlled landfill
	Other
Waste Treatment and Disposal Installations	
<b>Landfills</b>	
	Number
	Total area
	Remaining capacity
	Annual input
	Of which controlled landfills
	<i>Number</i>
	<i>Total areas</i>
	<i>Remaining capacity</i>
	<i>Annual input</i>
<b>Incineration plants</b>	
	Number
	Capacity
	Of which with energy recovery
	<i>Number</i>
	<i>Capacity</i>
	<i>Energy produced</i>
<b>Treatment plants</b>	
	Number
	Capacity
<b>Permanent storage</b>	
	Number
	Capacity
<b>Other</b>	

## Appendix 5 – Interview pro forma

Interviewer
<b>Name of interviewee</b>
Appointment set
Response #
Date of interview
Start time
What organisation do you work for?
What best describes that organisation? (central govt, regional govt, TA, commercial waste generator, waste operator, waste equip supplier, community organisation, consultant, product stewardship, other)
What does your role within that organisation involve? What are you responsible for?
How regularly do you use data about waste for that role? (constantly, daily, several times a week, etc)
Where does the data you work with come from? (my organisation, provided by contractors, public sources)
<b>WASTE TO LANDFILL</b>
I see from your survey response that you use data about waste to landfill. How important is having that data to your role?
Where do you get that data from? (my organisation, provided by contractors, public sources)
Can you provide further detail around what is most &/or least important to your organisation in terms of: * The uses you have for data (planning, reporting, management etc.)? Why? * The type of data (e.g Tonnage composition, geographic source, activity etc.)? Why? * What other types of information are important to your role (e.g. participation, end markets etc.) Why? * What sort of detail is important? * To what extent do you have the information you need? * What are the barriers to obtaining the information you need? * Are there any risks/issues associated with gathering this information? * Do you have anything you would like to add about levied site data?
If a national waste data framework were able to provide you with different types of data on waste to landfill that you don't already have, what would be the most important types that you are missing?
<b>WASTE TO NON-LEVIED FACILITIES</b>
I see from your survey response that you use data about waste to non-levied facilities. How important is having that data to your role?
Where do you get that data from? (my organisation, provided by contractors, public sources)

<p>Can you provide further detail around what is most &amp;/or least important to your organisation in terms of:</p> <ul style="list-style-type: none"> <li>* The uses you have for data (planning, reporting, management etc.)? Why?</li> <li>* The type of data (e.g Tonnage composition, geographic source, activity etc.)? Why?</li> <li>* What other types of information are important to your role (e.g. participation, end markets etc.) Why?</li> <li>* What sort of detail is important?</li> <li>* To what extent do you have the information you need?</li> <li>* What are the barriers to obtaining the information you need?</li> <li>* Are there any risks/issues associated with gathering this information?</li> <li>* Do you have anything you would like to add about non-levied site data?</li> </ul>
<p>If a national waste data framework were able to provide you with different types of data on waste to non-levied facilities that you don't already have, what would be the most important types that you are missing?</p>
<p><b>DIVERTED MATERIALS</b></p>
<p>I see from your survey response that you use data about diverted materials. How important is having that data to your role?</p>
<p>Where do you get that data from? (my organisation, provided by contractors, public sources)</p>
<p>Can you provide further detail around what is most important to your organisation in terms of:</p> <ul style="list-style-type: none"> <li>* The uses you have for data (planning, reporting, management etc.)? Why?</li> <li>* The type of data (e.g Tonnage composition, geographic source, activity etc.)? Why?</li> <li>* What other types of information are important to your role (e.g. participation, end markets etc.) Why?</li> <li>* What sort of detail is important?</li> <li>* To what extent do you have the information you need?</li> <li>* What are the barriers to obtaining the information you need?</li> <li>* Are there any risks/issues associated with gathering this information?</li> <li>* Do you have anything you would like to add about diverted material data?</li> </ul>
<p>If a national waste data framework were able to provide you with different types of data on diverted materials that you don't already have, what would be the most important types that you are missing?</p>
<p><b>DATA GATHERING</b></p>
<p>In your survey response, you identified some of the types of waste data that your organisation collects. Let's talk about that.</p>
<p>What other types of data does your organisation rely on that we haven't discussed yet?</p>
<p>What would you see as the advantages, if any, of having a national data framework? What might you expect it to provide? Would you be able to do your job better?</p>
<p>What concerns do you have about the possibility of a national framework being implemented?</p>

## Appendix 6 – SEEA waste accounts

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The technical material in this appendix has been provided for this report by Statistics NZ.

A potential use, relating SEEA accounts to policy, can be seen with the European Union's Eurostat work on Economy Wide Material Flow Accounts. A resource efficient Europe is one flagship of the Europe 2020 strategy<sup>1</sup> aiming at a shift towards a resource-efficient, low-carbon economy to achieve sustainable growth. The leading indicator assigned to this policy initiative is termed "*Resource Productivity*". It is the ratio of the volume of gross domestic product (GDP) over domestic material consumption (DMC) and is regularly produced and published by Eurostat.

[http://epp.eurostat.ec.europa.eu/portal/page/portal/environmental\\_accounts/documents/EU's\\_Resource\\_Productivity\\_on\\_the\\_increase.pdf](http://epp.eurostat.ec.europa.eu/portal/page/portal/environmental_accounts/documents/EU's_Resource_Productivity_on_the_increase.pdf)

Below are descriptions of SEEA accounts for Waste, from the Central Framework document. SEEA accounts may be divided into 'waste accounting - direct impacts' and 'waste accounting - indirect impacts'. An 'Air emissions account' (AEA) uses waste data in the form of gaseous and particulate emissions resulting from production, consumption and accumulation processes. The AEA uses waste data but is less dependent on it than the full waste accounts which include emissions to air, water and solid waste flows.

### **System of Environmental Economic Accounting 2012—Central Framework**

[http://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](http://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf)

#### **3.6.3 Accounting for air emissions**

3.233 Emissions to air are gaseous and particulate substances released to the atmosphere by establishments and households as a result of production, consumption and accumulation processes. The SEEA air emissions account records the generation of air emissions by resident economic units, by type of substance.

3.234 In some situations, the gaseous and particulate substances generated through economic activity may be captured for use in other production processes (e.g., methane gas may be captured in landfill sites to generate energy) or transferred between economic units for use in production or for storage (e.g., of carbon emissions). To fully account for the flows of particular gaseous and particulate substances, it may be of interest to record the flows of these substances within and between economic units, in addition to emissions to air.

#### **3.6.4 Accounting for emissions to water and associated releases to economic units**

3.257 Emissions to water are substances released to water resources by establishments and households as a result of production, consumption and accumulation processes. Emissions to water resources can constitute a major environmental problem and cause the quality of water resources to deteriorate. Some of the substances emitted into water resources are highly toxic and thus affect negatively the quality of the receiving water resource. Similarly, the presence of other substances, such as nitrogen and phosphorus, can lead to eutrophication, and organic substances can have effects on the oxygen balance, thus affecting the ecological status of a water resource.

#### **3.6.5 Solid waste accounts**

3.268 Solid waste accounts are useful in organizing information on the generation of solid waste and the management of flows of solid waste to recycling facilities, to controlled landfills or directly to the environment. Measures of the amount of waste in aggregate or of quantities of specific waste materials may be important indicators of environmental pressure. The construction of solid waste accounts allows these indicators to be placed in a broader context with economic data in both physical and monetary terms.