

A WASTE DATA STRATEGY FOR SCOTLAND

Contents

1. Purpose of the waste data strategy.....	4
2. Background to the waste data strategy.....	4
3. Vision for the future.....	7
Scope of Waste Data Strategy	7
4. Waste data requirements.....	9
Statutory requirements.....	9
Zero Waste Plan requirements	9
Requirements of key data users	9
5. Waste data – current availability and gaps	11
6. Waste data – issues.....	15
Commercial and industrial waste arisings	15
Household waste arisings	16
Recycling data.....	16
Statutory returns	17
Capacity data	17
Exports of waste	18
Site types	18
Biodegradable waste landfilled	18
Producer responsibility data	18
Fly-tipping	19
Waste composition	19
Materials streams	19
Data quality and multiple reporting	19
Reuse and preparing for reuse	20
Waste prevention.....	20
7. Waste data - outcomes	22
8. Next steps.....	25
Overview	25
Example of the process to achieve the commercial and industrial waste arisings data outcome.....	26
9. How will data quality be managed?.....	27
10. How will waste data be published?	27
11. Review of Waste Data Strategy	27

Annexes	28
Annex A - Methodology for prioritising outcomes.....	28
Annex B - Drivers - Issues - Outcomes - Indicative detailed actions - Organisations involved	29
Annex C - Prioritisation of outcomes and timescales	36
Acronyms and Abbreviations	37

1. Purpose of the waste data strategy

- 1.1. The strategy aims to improve the information available on waste and deliver the following benefits:
- Give an improved understanding of what waste is produced and how it is managed.
 - Provide information to support the development of new business opportunities including the development of new waste management infrastructure.
 - Allow businesses and local authorities to benchmark their waste management performance
 - Aid policy development and support the successful implementation of Scotland's Zero Waste Plan.
 - Monitor the progress towards domestic and European targets.
 - Raise public awareness of waste management issues.

2. Background to the waste data strategy

- 2.1. SEPA implemented the first Waste Data Strategy in 2000 to provide a framework for SEPA's work on the collection, validation, recording and reporting of waste data for Scotland.
- 2.2. In 2008 a review of the strategy was carried out at the request of the Scottish Government (SG) following the publication of the Zero Waste Scotland vision. The aim of the review was to ensure that Scottish, UK and European waste information requirements were met for the foreseeable future.
- 2.3. The Scottish Government published its Zero Waste Plan in 2010 following the publication of the revised Waste Framework Directive and the Climate Change (Scotland) Act. The Plan specified the requirement to produce a revised Waste Data Strategy to take account of the needs of the Zero Waste Plan, and in particular the data requirements detailed in Annex A to the Plan.
- 2.4. Work began on a new strategy for Scotland in late 2010. It was written by the Scottish Environment Protection Agency (SEPA) and Zero Waste Scotland (ZWS) in consultation with a Stakeholder Steering Group¹. In March 2011 the draft strategy was put out for public consultation and the views of a wider audience have helped to shape this strategy.
- 2.5. Figure 1 illustrates the timeline for key events that have led to the development of the current Waste Data Strategy.

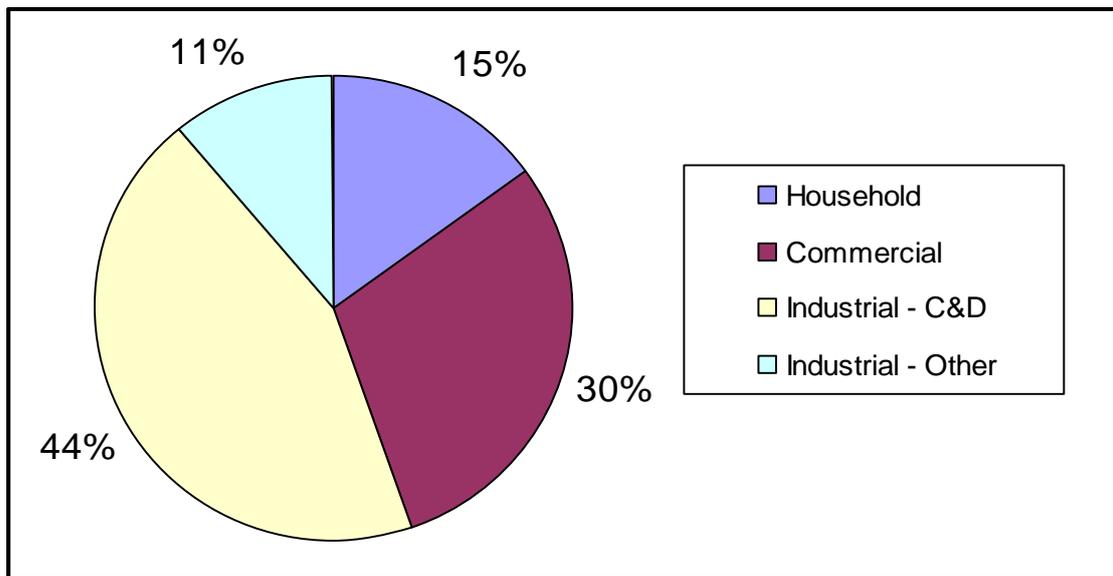
¹ Steering group members: SEPA, ZWS, Scottish Government, CoSLA, SESA, Scottish Enterprise, CRNS, Caledonian Environment Centre.

Figure 1: Timeline for key events that have led to the development of the Waste Data Strategy for Scotland



- 2.6. Considerable progress has been made since 2000 in improving the way waste is managed in Scotland. There has been a:
- 58% reduction in the total amount of waste sent to landfill;
 - an increase from 5% to 37% in the amount of local authority collected municipal waste recycled/composted.
- 2.7. In 2008 the total controlled waste arisings in Scotland were 19.5 million tonnes. Of this, 10.8 million tonnes were classified as industrial waste which includes construction and demolition (C&D) waste, 5.8 million tonnes were commercial waste and 2.9 million tonnes were household waste. Figure 2 shows the percentage of controlled waste arisings associated with each source.

Figure 2: Percentage of controlled waste arisings by waste source



2.8. In Scotland, waste data is collected primarily by SEPA, as part of its regulatory duties. SEPA collects information from local authorities, waste management sites and some industrial sites on a range of wastes. Other organisations such as Zero Waste Scotland and Scottish Water collect data on specific waste streams. Once Scottish waste leaves Scotland for management elsewhere there is limited data available.

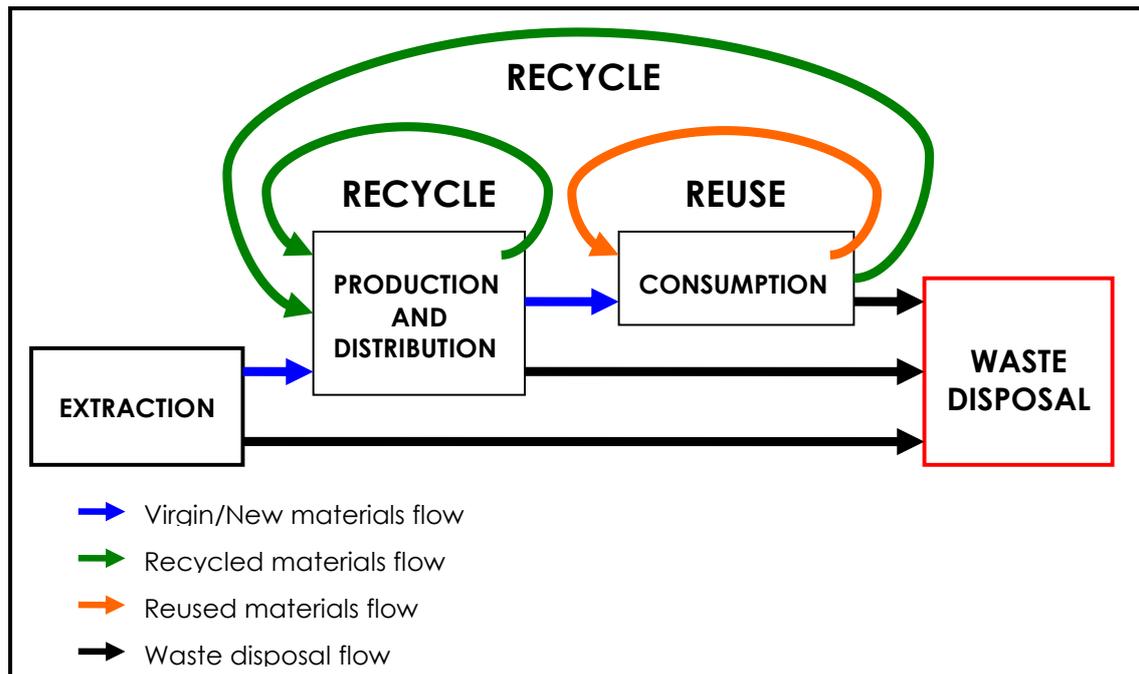
3. Vision for the future

- 3.1. To produce high quality, robust waste data that will help Scotland to change the way society uses and disposes of resources.
- 3.2. Implementation of the Waste Data Strategy for Scotland will deliver a substantial improvement in our understanding of what waste is produced and how it is managed. It will provide the information-base upon which waste producers, the resource management sector, the Scottish Government and regulators can work towards delivering the objectives of the Zero Waste Plan.
- 3.3. This strategy focuses on collecting data where there is a clearly defined requirement. It prioritises data requirements so that appropriate resources can be focused upon the collection and reporting of the most important data. It will also ensure that the administrative burden is both minimised and proportionate to the amount and nature of the waste produced.
- 3.4. The work of organisations that collect and interpret waste data will be coordinated by the strategy, ensuring that data is collected and interpreted in an efficient manner and that the information requirements of key data users are met.
- 3.5. The strategy will ensure that we make the most of the waste data that we have by presenting information in a form which allows it to be easily used by both key data users and the wider public. Importantly it will also promote key messages for the general public to influence society's attitude to acquiring, using and disposing of resources.

Scope of Waste Data Strategy

- 3.6. The strategy identifies the waste data requirements over the period until 2025. It covers the work of the organisations in Scotland with responsibilities for managing waste data and influences those organisations within England, Wales and Northern Ireland who provide data on Scottish waste.
- 3.7. The strategy is forward looking, recognising that future progress will be directed by the waste hierarchy from disposal through recycling onto reuse and prevention. This will allow Scotland to make the most efficient use of resources by minimising its demand on primary resources, and maximising reuse, recycling and recovery.
- 3.8. The strategy aims to track how resources flow through society and in particular what happens to those resources once they are disposed of. The ultimate objective is to be able to produce a mass balance and hence know where and how all of the waste produced is managed and transformed into a resource that is placed back into the production, distribution and consumption markets. Figure 3 shows a resource flow diagram.

Figure 3: Resource flow diagram



4. Waste data requirements

- 4.1. The main drivers for the collection and reporting of waste data are:
- statutory waste data reporting requirements;
 - obligations defined by the Zero Waste Plan;
 - waste data needs of key data users.

Statutory requirements

- 4.2. Statutory waste data reporting obligations for Scotland are identified in current European, UK and Scottish legislation (Figure 4). The main statutory waste data reporting requirements are:
- waste arisings and management tonnages broken down by waste source and waste type/material;
 - recycling rates for specific waste source and waste type/material;
 - tonnage of biodegradable waste landfilled;
 - waste management capacity;
 - waste transfers from relevant sites.

Zero Waste Plan requirements

- 4.3. The Zero Waste Plan identifies the waste data requirements that will underpin delivery of the Zero Waste Plan aims and objectives (Figure 4). The main data requirements are:
- Scottish waste arisings and waste management method split by waste from households, commercial and industrial (C&I), and construction and demolition;
 - biodegradable municipal waste (BMW) landfilled in Scotland;
 - special waste produced in Scotland;
 - waste imports and exports, split by management method;
 - additional waste management capacity requirements.

Requirements of key data users

- 4.4. The key waste data users include SEPA, the Scottish Government, the waste management industry, local authorities, campaign and lobbying groups, educational and research establishments and members of the public. Figure 4 shows the main waste data required by key data users.
- 4.5. These organisations require good quality waste data to inform waste management and environmental policy decisions and investment in waste management infrastructure. Current waste data requirements of key data users are summarised in Figure 4. The main data requirements are:
- waste prevention initiatives and data;
 - Scottish waste arisings and management data;
 - regional waste management capacity;
 - waste material flows.

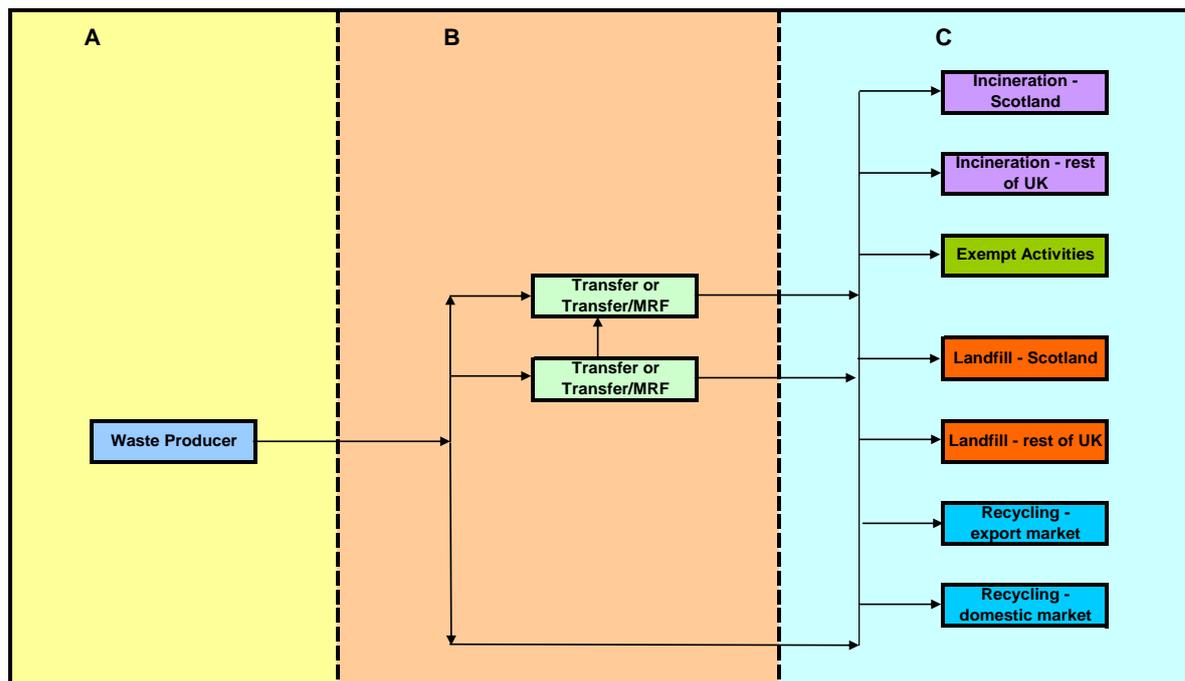
Figure 4: Main waste data strategy drivers

Statutory Reporting Requirements	Scotland's Zero Waste Plan Requirements	Key Data Users Requirements
<ul style="list-style-type: none"> • EU Waste Framework Directive 2008 (Including all relevant domestic legislation e.g. Environment Protection Act 1990 , Waste Management Licensing (Scotland) Regulations 1996, Pollution Prevention and Control (Scotland) Regulations 2000, Special Waste Amendment (Scotland) Regulations 2004) • EU Waste Statistics Regulation 2002 • EU Landfill Directive 1999 • European Pollutant Release and Transfer Register (E-PRTR) Regulation 2006 • Climate Change (Scotland) Act 2009 • The Transfrontier Shipment of Waste Regulations 2007 • The Producer Responsibility Obligations (Packaging Waste) Regulations. 2007 • The Waste Electrical & Electronic Equipment Regulations 2006 • The Waste Batteries and Accumulators Regulations 2009 • Local Government Act 1992 • Landfill Allowance Scheme (Scotland) Regulations 2005 • Waste (Scotland) Regulations 2011 	<ul style="list-style-type: none"> • Total Scottish waste arisings • Waste from household arising, split by waste management method and local authority, and by local authority expressed in kg/capita/year • Scottish waste arisings and management method split by household, C&I and C&D • Scottish C&D waste arisings by management method • Scottish recycling and composting, split by waste from households, C&I and C&D • Household recycling and composting rates, split by local authority in terms of tonnage and carbon • Scottish waste incineration, split by waste from households, C&I and C&D • Scottish waste landfilled, split by waste from households, C&I and C&D • Biodegradable Municipal Waste (new definition) landfilled in Scotland, split by waste from households and commercial and industrial • Special waste produced in Scotland • Waste imports/exports by management method • Scottish packaging waste arisings • Household recycling collection numbers and methods, split by local authority • Waste compositional analysis • Individual material streams flows • Waste flows through the waste management system • Infrastructure maps • Geographical waste management capacity • Additional waste management capacity • Data to monitor the waste prevention programme 	<ul style="list-style-type: none"> • Waste prevention initiatives and data • Scottish waste arisings and management data • Waste managed in Scotland • Local authority collected waste arisings and management data • Commercial and industrial waste arisings and management data • Progress towards domestic/ European targets and performance indicators • Waste infrastructure maps • National waste management capacity • Geographical waste arisings and management flows • Waste material flows/market reports • Detailed waste compositional analysis for all waste • Comprehensive data on fly-tipping and litter • Sewage sludge data • Offshore waste data • Audit Scotland's performance indicators • Information on waste management planning decisions • Electronic access to WML, PPC and exempt site data returns

5. Waste data – current availability and gaps

- 5.1. This section describes the current data availability and flows of waste through the waste management system. It also identifies the points at which waste data is currently captured and also highlights any existing data gaps.
- 5.2. Figure 5 gives a simple overview of how waste currently flows through the waste management system from the waste producer, via intermediate treatment if any, to its final destination.

Figure 5: Waste management flows



- 5.3. In reality however it is a much more complex picture as waste may pass through a number of different facilities or be mixed with other waste streams before reaching its final destination. These waste flows are illustrated in Figure 6 which also shows the points at which data is currently measured and identifies where data is not currently available. The remainder of this section should be read in conjunction with Figure 6.
- 5.4. There are three main sources of waste: households, commerce and industry. Waste from industry includes waste from the construction and demolition sector.
- 5.5. Scottish local authorities report data on waste collected from households and commercial and industrial waste collected by or on behalf of the local authority using [WasteDataFlow](#). In addition data on fly-tipping is collated by Keep Scotland Beautiful on behalf of Zero Waste Scotland.

- 5.6. Data on waste produced by the commercial and industrial sector is collected directly from businesses by SEPA using voluntary waste surveys. This data is supplemented by data from other sources including:
- estimates of waste produced by the agriculture, fishing and forestry sectors that are obtained by modelling;
 - sewage sludge arisings that are reported to Scottish Water;
 - data on offshore waste from the oil and gas industry that is reported to the Department of Energy and Climate Change (DECC);
 - off-site waste transfers from a number of industrial premises that are reported to SEPA for SPRI/E-PRTR² reporting;
 - data on waste produced by the construction and demolition sector is obtained from statutory returns.
- 5.7. When non-hazardous waste is transported it is accompanied by a Duty of Care³ waste transfer note but the data held on the note is not reported directly to SEPA. When hazardous waste is transported it is accompanied by a special waste consignment note and this data is submitted to SEPA. In 2009 around 100,000 consignment notes were issued and used in Scotland.
- 5.8. A large proportion of waste that arises in Scotland passes through around 1,100 licensed or permitted waste management sites in Scotland which are regulated by SEPA. These sites submit largely paper-based statutory returns to SEPA which provide information on the types and quantities of waste handled by these facilities. However the data does not currently provide adequate information on the economic origin of the waste, for example, by business sector, particularly if the waste is mixed with waste from other sources at the point of collection or at a transfer station.
- 5.9. Statutory returns from licensed or permitted sites do not contain information on the waste that is transformed on site to a final product. This makes the identification of waste recycled difficult.
- 5.10. A number of licensed/permitted sites are authorised to carry out more than one waste management activity. This causes difficulty when reporting data on the amount of waste handled by each activity.
- 5.11. Waste may also be used in some industrial processes that are not classed as waste management sites. With the exception of co-incineration processes and accredited reprocessors, data is not currently available from the majority of these sites.
- 5.12. Waste is also handled on sites that are undertaking activities that are exempt from Waste Management Licensing. In 2008, around 9,000 sites were registered under either a complex or simple exemption. Statutory annual waste data returns are required from sites with complex exemptions which handled approximately 5.5 million tonnes of waste in 2008. However, there is no requirement for simple exemptions to report on the waste they handle. This is a data gap that particularly affects the reporting of waste that is recycled.

² Scottish Pollutant Release Inventory (SPRI)/European Pollutant Release and Transfer Register. (E-PRTR). http://www.sepa.org.uk/air/process_industry_regulation/pollutant_release_inventory.aspx

³ <http://www.netregs.gov.uk/netregs/63197.aspx>

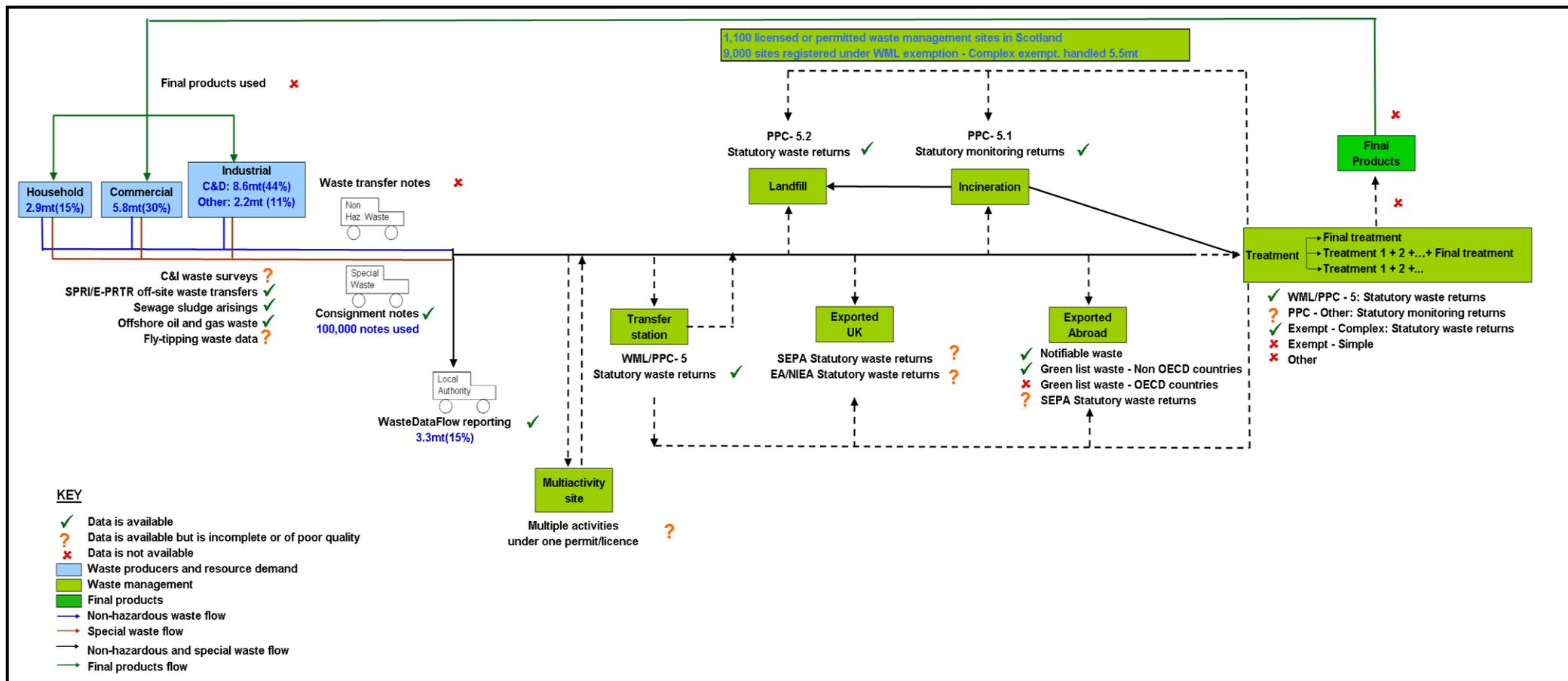
- 5.13. Once waste leaves Scotland it is difficult to track. Some data is available from SEPA statutory returns on waste that is exported to the rest of the UK or abroad from a waste management site in Scotland. Data on waste landfilled in the UK is generally good but information on waste recycled or incinerated in the rest of the UK is very limited. No data is currently available on green list waste⁴ sent to developed (OECD⁵) countries, although some of this waste will be reported in SEPA statutory returns from waste management sites.
- 5.14. Information on waste management capacity for licensed or permitted waste management sites in Scotland is available from the relevant licence/permit. However, generally it only indicates whether the site operates within certain capacity thresholds and the actual site capacity is not provided. In addition, information on capacity for individual activities within a multi-activity site is not provided.
- 5.15. SEPA is not able to report on waste activities using commonly known terms for site types, such as composting site and transfer station, due to a lack of standard definitions for waste management activities.
- 5.16. Data is not currently reported on waste prevention but will be required in the future to monitor the Government's forthcoming Waste Prevention Programme (WPP).

⁴ Green list waste is non-hazardous waste which can be exported under a lower level of control to EU/OECD countries and some non-OECD countries for recycling.

http://www.sepa.org.uk/waste/waste_regulation/transfrontier_shipment.aspx

⁵ Organisation for Economic Co-operation and Development (OECD)

Figure 6: Waste management flows and reporting



6. Waste data – issues

- 6.1. This section describes the main issues associated with the collection and reporting of accurate waste data and includes further information on the data gaps identified in Section 5.

Commercial and industrial waste arisings

- 6.2. Accurate data on commercial and industrial waste is needed to:
- understand how much waste is produced in Scotland and help businesses benchmark their waste activities against others in their sector;
 - identify business opportunities to reuse and recycle waste by highlighting the potential resource value of commercial and industrial waste arisings;
 - inform the waste management industry and ensure effective planning of new waste management facilities;
 - provide information and evidence for the development and monitoring of government policies as well as providing a sound basis for statutory reporting.
- 6.3. Data on the type, quantity and management method of commercial and industrial waste produced by economic sector is needed for statutory reporting and to support delivery of the Zero Waste Plan.
- 6.4. Current data is based on estimates derived from 3,231 businesses⁶ who responded to a survey carried out by SEPA in 2006. This data has subsequently been used to produce estimates of waste arisings annually from 2006 to 2009 and will also be used to produce 2010 data. Confidence in these annual estimates is therefore low.
- 6.5. Data on waste produced by the agriculture, forestry and fishing sectors is currently obtained from models. The quality of this data is in need of improvement.
- 6.6. Data collected quarterly from waste management sites provides good information on how waste is managed. However there is very limited information on the type of business that produced the waste and thus in its current form the data cannot be used to provide information on commercial and industrial waste produced by economic sector. Further work is needed to assess the potential of existing data to provide information on waste arisings.
- 6.7. Reporting detailed information on waste produced by large PPC sites is not currently a regulatory requirement but gathering data on waste arisings from these businesses is one way of improving data on commercial and industrial waste.
- 6.8. A new way of collecting data is therefore needed that will provide more accurate information. To help achieve this, the Scottish Government introduced regulations⁷ under the Climate Change (Scotland) Act 2009 that give SEPA powers to request data directly from businesses.

⁶ This represents about 2% of the estimated number of waste producers

⁷ <http://www.legislation.gov.uk/sdsi/2010/9780111010662/contents>

Household waste arisings

- 6.9. Currently the reporting on household waste arisings and management includes not only waste originating from households but also waste from other commercial premises such as campsites and charity shops, in line with the UK definition of household waste⁸. In the future, household waste will mean “waste from households” only.

Recycling data

- 6.10. Data on the amount of waste recycled in Scotland (regardless of origin) is important for statutory reporting. In addition, the amount of Scottish waste recycled (regardless of where this occurs) is a data requirement of the Zero Waste Plan.
- 6.11. Waste that is collected for recycling may pass through a number of facilities before reaching the place where it is recycled into a final product. At any stage it may be mixed with wastes from other sources and be diverted to a range of final destinations depending on market forces. This makes it very difficult to track and measure at each stage in the recycling chain.
- 6.12. Currently it can be difficult to identify waste management sites where waste is recycled because only waste materials imported and exported from the site are reported to SEPA on site returns. For example, mixed construction waste may enter a site, be sorted and processed into aggregate (non-waste) and only a small amount of mixed waste will be shown leaving the site. No information is provided on the waste recycled on site.
- 6.13. Some industrial processes such as glass manufacturers and metal foundries use waste materials to produce a product, but because these processes are not permitted as waste activities, they cannot be identified unless they are registered with SEPA as accredited reprocessors.
- 6.14. The point at which recycled waste is measured may change in the future when End of Waste criteria are published by the European Commission. The criteria will push back the point at which some materials are considered to be “fully recovered” and this may provide additional challenges for reporting.
- 6.15. In addition, a significant amount of waste may be recycled by activities that are registered as simple exemptions and currently these activities are not required to report information to SEPA.
- 6.16. The reporting of data from WasteDataFlow on waste sent for recycling by local authorities is important for monitoring domestic and European household waste recycling targets. The quality of waste data relating to the final destination of this waste needs to be improved, especially where waste is exported to recycling markets.

⁸ Defined in Schedule 1 of the Controlled Waste Regulations 1992
<http://www.legislation.gov.uk/uk/si/1992/588/schedule/1/made>

- 6.17. The Zero Waste Plan requires an additional way of reporting the recycling of Scottish waste based on a resource displacement carbon metric as well as tonnes of waste recycled.

Statutory returns

- 6.18. The correct use of the European Waste Catalogue to describe waste is essential for the accurate reporting of waste data. There is not always a consistent approach to the coding of waste by waste management operators and businesses on statutory returns. This can be improved by the development of guidance and training for relevant sectors.
- 6.19. The quality and/or lack of information provided on special waste consignment notes is an area for concern. In addition, the current limitations of SEPA's database, means that it is not possible to capture detailed data on some movements of special waste.
- 6.20. Scottish Pollutant Release Inventory/European Pollutant Release and Transfer Register (SPRI/E-PRTR) data on off-site transfers of waste is important to identify the amount of waste produced from industrial activities and has the potential to provide data on industrial waste arisings for certain sectors. However, there is currently no reporting requirement for detailed information on waste types. Also, not all sites that are required to report do so and SEPA is not able to identify missing sites in all cases. Sites that do report lack an understanding of what needs to be reported despite the development of SEPA guidance.

Capacity data

- 6.21. There is a statutory requirement for Scotland to report to Europe on the capacity of recovery and disposal facilities. The quality of the permitted capacity data needs to be improved, particularly for sites that process recyclable materials into a final product. Where reportable activities form part of a multi-activity site it is not possible to separate out the individual capacities for these activities. In order to support investment in new waste infrastructure or increase the productivity of existing infrastructure it is important to have information on the actual operational capacity of facilities, not just their permitted capacity, together with the capacity for individual materials.

Exports of waste

- 6.22. The recycling of Scottish waste often takes place outside Scotland, either in the rest of the UK or abroad. As a result accurate data is not always available. There is currently a data gap for waste exported abroad for recycling in developed (OECD) countries as this information is not presently reported to SEPA.

Site types

- 6.23. Licenses issued by SEPA for waste management activities use legal terminology which designates activities at the sites as keeping, treating and/or disposal. This means that SEPA is unable to provide data based on terms commonly used in the waste management industry, such as composting site and transfer station. Standard site definitions for activities need to be developed which will enable SEPA to produce data that is meaningful to key data users. This issue has an effect on the accuracy of the waste infrastructure maps and the capacity reports published by SEPA as the site types used have not been derived from standard definitions.

Biodegradable waste landfilled

- 6.24. Currently, reporting by SEPA of the amount of Biodegradable Waste (BW) and BMW sent to landfill in Scotland is based on multiplying the tonnage of each waste type landfilled (classified using EWC code) by a biodegradability factor associated with each of the EWC codes. In order to improve the accuracy of this data other methods need to be investigated.
- 6.25. In addition, the split of the BMW landfilled data between household, commercial and industrial sources is required under the Zero Waste Plan.

Producer responsibility data

- 6.26. Actual data on the arisings of waste packaging, batteries and WEEE in Scotland or the UK is not currently available. Estimates, based on the quantity of these materials placed on the market, are used as a surrogate for waste arisings and as the basis for monitoring and reporting European recycling targets.

Fly-tipping

- 6.27. Local authorities collect data on the amount of fly-tipped waste they deal with but not all authorities report this data in the national Flycapture database. In addition, other landowners who are affected by fly-tipping on a regular basis may also wish to report data in Flycapture to help raise awareness of the problem. This is important because fly-tipping and litter are of particular concern to the public.

Waste composition

- 6.28. Having sector-specific information on the composition of mixed commercial and industrial waste will help the Scottish Government target initiatives to drive change. Whilst some data is available on the composition of mixed household waste there is none available on mixed commercial and industrial or construction and demolition waste. In addition, waste composition data is required to calculate the recycling of Scottish waste based on the resource displacement carbon metric. Obtaining data on all mixed waste streams would support the development of business opportunities and focus attention on specific materials.

Materials streams

- 6.29. Information on individual material streams, particularly paper, metal, plastics and glass, is required to monitor Zero Waste Plan aims and objectives as well as ensuring that Waste Framework Directive requirements are fulfilled. Although SEPA holds data on waste types by EWC code, reporting waste flows by material type is a new area of work and may be challenging.

Data quality and multiple reporting

- 6.30. The quality of all waste data that is collected and reported needs to be continually assessed and improved. This includes the introduction of electronic data collection systems that will also increase efficiency.
- 6.31. An issue that can also affect data quality is multiple reporting. This occurs when the same or very similar data is reported to different organisations, or different departments within the same organisation. For example, operators of regulated activities can be required to report the same data to SEPA more than once for different purposes.

Reuse and preparing for reuse

- 6.32. Currently, preparing for reuse is included in the Scottish recycling and composting targets and the Zero Waste Plan consultation discussed the need for a specific target for preparing for reuse. Therefore, as further progress is made up the waste hierarchy then having the capability to measure 'preparing for reuse' and related data will become more important. An example of this is understanding the quantities of items sent for reuse from Household Waste Recycling Centres by local authorities.
- 6.33. However, reuse and repair activities managed by the Third sector and others (e.g. freecycle, ebay, architectural salvage) will be difficult to monitor. To address this, separate targets with associated data reporting may need to be set up to monitor specific Waste Prevention Programme projects.

Waste prevention

- 6.34. Indicators to measure whether waste has been prevented are difficult to develop and are often linked to resource productivity and GDP. Like reuse, data requirements will be tailored to specific waste prevention projects brought forward under the Government's Waste Prevention Plan. A clearer picture of the monitoring requirements of the Plan will be available in the next twelve months and these will be fully considered when the strategy is reviewed.

Table 1 summarises the waste data issues and associated drivers for improvement.

Table 1: Waste data issues and associated drivers for improvement

Type of issue	Detailed data availability and quality issues	Drivers*
C&I waste arisings	Accuracy of total C&I waste arisings by economic sector	Statutory/ZWP/KDU
Household waste arisings	Change in household waste reporting definition	Statutory/ZWP/KDU
Recycling data	Completeness of data on C&I waste recycled in Scotland	Statutory/ZWP/KDU
	Carbon metric	ZWP/KDU
	Reporting of final destination of local authority collected waste in WasteDataFlow	Statutory/ZWP/KDU
Statutory returns	Correct/consistent use of EWC codes in waste data returns	ZWP/KDU
	Raw data quality for special waste produced and managed in Scotland	Statutory/ZWP/KDU
	Data gaps for off-site transfers of waste	ZWP/KDU
Capacity	Lack of accurate operational capacity for waste management sites	Statutory/ZWP/KDU
Imports/Exports	Completeness of data on C&I waste managed outside Scotland	Statutory/ZWP/KDU
Site type	Lack of definition for waste management site types	Statutory/ZWP/KDU
	Completeness of waste infrastructure information	ZWP/KDU
Biodegradable Waste (BW) landfilled	Identification of BW landfilled	Statutory/KDU
	BMW landfilled data split by household and C&I sources	ZWP/KDU
Producer Responsibility data	Arisings data based on estimates on UK WEEE/batteries placed on the market	ZWP/KDU
	Arisings data based on estimates on UK packaging placed on the market	ZWP/KDU
Fly-tipping	Incomplete fly-tipping data reported in Flycapture as not all local authorities take part	KDU
Waste composition	Lack of data on composition of mixed waste	KDU
Material streams	No previous reporting requirement for individual material streams	KDU
	No previous reporting requirement for data on waste flows	ZWP
Data quality	Need to review data quality assurance systems Identify and eliminate multiple reporting	Statutory/ZWP/KDU
Waste prevention	No data is currently available Future data requirements are unknown	ZWP/KDU

*KDU: Key Data Users, ZWP: Zero Waste Plan

7. Waste data - outcomes

- 7.1. The Waste Data Strategy is for all of Scotland's waste data. It sets out a vision to produce high quality, robust waste data that will help society get a better understanding of how it manages its waste and resources. To achieve this vision, the strategy prioritises the improvements in data required and describes these as outcomes. Section 8 then considers the actions which need to be taken to meet the priority outcomes.
- 7.2. The outcomes have been prioritised as high, medium and low using criteria based upon the drivers for improvement and the scale of the improvements in waste data which will be achieved. Annex A explains the methodology used to prioritise the outcomes.
- 7.3. Table 2 lists the high priority outcomes and the main organisations that need to be involved in order to achieve these. The most critical issues to be resolved by the high priority outcomes are:
 - accuracy of commercial and industrial waste arisings data;
 - change in the current household waste reporting definition;
 - completeness of the Scottish waste recycling tonnage and capacity.
- 7.4. Table 3 identifies the medium priority outcomes. The main issues to be resolved by these outcomes are:
 - accuracy of waste management capacity data;
 - accuracy of special waste data;
 - the identification of all sites that use waste as a feedstock for their processes.
- 7.5. The lower priority outcomes relate to waste data requirements that have less critical issues and require or allow a longer time to be improved. Table 4 identifies these outcomes.
- 7.6. Tables 2, 3 and 4 include two columns which indicate the delivery date for the outcomes and the timeframe over which the continuous improvement will occur. The delivery date indicates the date by which improvements to the system will have been implemented. Once the improved system has been implemented based on SEPA's experience it may take a few cycles (usually annual cycles) for both the quantity and quality of the data to reach a level whereby the confidence in the data is high.
- 7.7. Further information on each outcome (the main drivers, data availability, quality issues, indicative detailed actions and organisations involved) are given in Annex B.
- 7.8. Annex C prioritises the outcomes in terms of need, drivers, data improvement, score, resources and difficulty and, in each case, identifies the timescales for the implementation and improvement phases and the organisations involved.

Table 2: High priority outcomes

High Priority Outcomes	Organisations involved	Delivery date
An improvement in the quality, quantity and detail of C&I waste arisings by economic sector	SEPA/SG/ZWS/EA/NIEA/Waste Management Industry/Businesses/DECC/Oil&Gas UK/CIWM/Scottish Water/Forestry Commission/MCA	2012
The reporting of household waste arisings and management is in line with the WFD and ZWP	SEPA/ Local Authorities/SG	2012
An improvement in the quality, quantity and detail of C&I waste recycled in Scotland	SEPA/Waste Management Industry/Businesses	2013
The development and implementation of recycling guidance to support the ZWP	SEPA/SG/ Local Authorities/Waste Management Industry	2011
The implementation of reporting on individual material streams	SEPA/Scottish Enterprise/ZWS/Waste Management Industry	2013
An improvement in the quality, quantity and detail of all wastes imported to and exported from Scotland, including that exported for recycling	SEPA/ZWS/EA/SG/ Waste Management Industry	2015
An improvement in the consistency and accuracy in the use of EWC codes in waste management returns	SEPA/ ZWS/Waste Management Industry/Businesses/EA/Defra	2013
An improvement in the data quality assurance systems and identification of multiple reporting	SEPA/EA/SG/ZWS/Data Providers	2015
The development and implementation of a standard set of definitions for waste management activity types	SEPA/Waste Management Industry	2013
The development of a resource displacement carbon metric for all waste recycled in Scotland	SG/ZWS/SEPA/CIWM/Scottish Local Authorities/ Waste Management Industry	2013
An improvement in the reporting of final destination for recycled materials in WasteDataFlow	SEPA/Local Authorities/SG/EA/Waste Management Industry	2013

Table 3: Medium priority outcomes

Medium Priority Outcomes	Organisations involved	Delivery date
An improvement in the accuracy of special waste produced and managed in Scotland	SEPA/Waste Management Industry/Special Waste Producers	2013
The identification of all sites that use waste as a feedstock for their processes	SEPA/Relevant PPC sites	2013
An improvement in the quality, quantity and detail of the biodegradable element of waste sent to landfill	SEPA/ZWS/Defra	2013
An improvement in the quality, quantity and detail on the operational capacity of waste management sites	SEPA/Waste Management Industry	2015
An improvement in the quality, quantity and detail of off-site transfers of waste for SPRI/E-PRTR reporting	SEPA/Industry	2013
The provision of data on the composition of mixed waste	SG/ZWS/Businesses/Waste Management Industry	2011
The development of waste data products that provide a much better understanding of the flow of materials through the waste management system	SEPA/Scottish Enterprise/ZWS	2013
An improvement in the quantity of data reported on fly-tipping	ZWS/Local Authorities/SG/Other stakeholders	2013
The development of data reporting to monitor waste prevention	SG/SEPA/ZWS	2013

Table 4: Lower priority outcomes

Lower Priority Outcomes	Organisations involved	Delivery date
The identification of Scottish packaging waste arisings	SEPA/relevant stakeholders	2015
The identification of WEEE and battery waste arisings	SEPA/relevant stakeholders	2015
An estimate of the amount of BMW landfilled in Scotland split by household and C&I sources	SEPA/SG/Local Authorities/Waste Management Industry Businesses	2015

8. Next steps

Overview

- 8.1. The development and maintenance of a Waste Data Strategy for Scotland will be a continuous process of analysis and review. An outline of the process is illustrated in Figure 7.

Figure 7: Waste Data Strategy development process



- 8.2. Work began in late 2010 to assess the effectiveness of current data collection and reporting and identify future data needs. This work forms the basis of this consultation document.
- 8.3. Once feedback from the consultation has been taken into account then the Waste Data Strategy will be published. Many of the issues identified by the strategy will be handled by SEPA and ZWS as part of their regular work. Stakeholder working groups will be set up to address the more complex issues so as to achieve the required outcomes. After implementation the final stages of the process will include assessing the progress of the outcomes before entering the review stage and beginning the whole process again.

8.4. In order to illustrate the process associated with the delivery of one of the more complex outcomes a proposed approach for improving commercial and industrial waste arisings data has been used as an example. This process is explained in detail in the following section.

Example of the process to achieve the commercial and industrial waste arisings data outcome

8.5. Improvement in the quality and detail of commercial and industrial waste arisings data by economic sector is highlighted as a high priority outcome for the Waste Data Strategy. Ultimately the waste management industry, businesses and other stakeholders will all contribute to the provision of better data but the detail of how this will happen will be developed by the project working group. As the method for collecting improved data on commercial and industrial waste has yet to be developed the following outline process is described in general terms.

Table 6. Outline process and indicative timetable for reporting commercial and industrial waste arisings

Indicative Timetable	SEPA	Stakeholders (waste management industry, businesses and others)
June 2011	Set up project working group	Representatives join the project working group (WG)
June to December 2011	Develop project workplan and communication plan	Contribute to project workplan and communication plan (WG)
	Produce a methodology for collecting C&I data	Contribute to methodology for collecting C&I data (WG)
	Develop new web-based data collection system or adapt existing systems	Contribute to data collection system development (WG). Volunteer stakeholders test system
	Produce data reporting guidance for relevant stakeholders	Review SEPA guidance (WG)
	Inform stakeholders of data reporting requirements	Collect relevant data
Early 2012	Collate and verify submitted data.	Report 2011 data to SEPA
Mid 2012	Publish high-level C&I data for 2011	Improve the quality of the data reported to SEPA
Late 2012	Publish more detailed data on C&I waste produced in 2011.	
2013 onwards	Review data gathering and reporting systems. On-going work to improve the quality of data submitted.	Contribute to data reviews

9. How will data quality be managed?

- 9.1. This Waste Data Strategy has been developed with direction from a Stakeholder Steering Group. The views of this group have been taken into account in developing the strategy. This document is intended to extend consultation to a wider group of data users and providers. Although this process should ensure that we produce the agreed priority waste data products we also want to make sure that the strategy meets expectations when it is produced.
- 9.2. It is proposed to create a permanent Technical Advisory Group (TAG) which will review the waste data products resulting from this strategy. This Group will provide the forum for stakeholders to raise concerns and issues, and to suggest improvements in the process of collecting and delivering waste data. It is proposed that this group should meet once or twice a year. Creating this more formal mechanism to provide feedback on waste data products will ensure the continued improvement of the service. The remit of the TAG will be developed in conjunction with the members of the group.

10. How will waste data be published?

- 10.1. Waste data will be published on-line wherever possible.
- 10.2. The Scottish Government is developing a website which will bring together a wide range of information on the environment. It is proposed to develop a section of the forthcoming Scotland's Environment Website as the forum for publishing waste data. This means that all waste data will be accessible from a single high-profile location. The types of data that will be included are set out in Figure 4.

11. Review of Waste Data Strategy

- 11.1. This strategy will be reviewed every three years. There will be a planned review in 2014 which will assess progress and identify any revisions required.

Annexes

Annex A - Methodology for prioritising outcomes

- A.1 The outcomes identified in section 7 were prioritised according to two sets of criteria: main drivers and data improvement. The criteria and scoring values used are identified in Tables A.1 and A.2.

Table A.1. Main drivers criteria

Description	Tag	Value
Statutory	Statutory	1
Zero Waste Plan	ZWP	1
Key Data Users	KDU	1

Table A.2. Data improvement criteria

Description	Tag	Value
Low improvement in data	Low	1
Medium improvement in data	Med	2
High improvement in data	High	3

- A.2 Based on the values identified in the Tables A.1 and A.2, the outcomes with an overall score of 2 were assigned low priority, the outcomes with a score of 3 to 4 were assigned medium priority and the outcomes with a score of 5 to 6 were assigned high priority.
- A.3 The results of this exercise were discussed with the Stakeholder Steering Group and as a result the priorities of some of the outcomes were changed. Three outcomes initially scored as high priority were changed to medium priority and two outcomes initially scored as medium priority were changed to low priority.
- A.4 Additional criteria were taken into account when identifying delivery timescales. These criteria considered the amount of resource needed and the difficulty of achieving the outcomes.

Annex B - Drivers - Issues - Outcomes - Indicative detailed actions - Organisations involved

Driver	Data availability and quality Issues	Desired outcome	Indicative detailed actions	Organisations involved
Statutory ZWP Key data users	Accuracy of total C&I waste arisings by economic sector	An improvement in the quality, quantity and detail of C&I waste arisings by economic sector	<ul style="list-style-type: none"> • Work with the other UK environment agencies to develop an electronic Duty of Care (eDoC) system for the UK by 2014 as the primary data source • Develop project to collect data on C&I waste in the interim period for reporting years 2011-2016 <ul style="list-style-type: none"> • Set up project working group and develop workplan • Produce a methodology for collecting C&I data • Develop web-based data collection system or adapt existing systems and produce data reporting guidance • Communicate data reporting requirements to stakeholders • Collate, verify and publish C&I data for 2011 • Review procedures and improve quality of data • Investigate the potential of existing regulatory data and mechanisms to provide C&I data • Develop and implement procedures to ensure other relevant data is available for reporting including: <ul style="list-style-type: none"> • Data from the agriculture, fishing and forestry sectors • Sewage sludge arisings data • Offshore waste data 	SEPA/SG/ZWS/EA/NIEA/Waste Management Industry/Businesses/DECC/Oil & Gas UK/Scottish Water/Forestry Commission/MCA/CIWM
Statutory ZWP Key data users	Change in household waste reporting definition	The reporting of household waste arisings and management is in line with the WFD and ZWP	<ul style="list-style-type: none"> • Development and implementation of reporting guidance for local authorities • Identification of options for local authorities to identify the breakdown between household and commercial waste from mixed household/commercial collections 	SEPA/Local Authorities/SG

Driver	Data availability and quality Issues	Desired outcome	Indicative detailed actions	Organisations involved
Statutory ZWP Key data users	Completeness of data on C&I waste recycled in Scotland	An improvement in the quality, quantity and detail of C&I waste recycled in Scotland	<ul style="list-style-type: none"> • Site returns to include information on material outputs that are no longer waste • Improve recycling data from simple exemptions • Identification of industrial processes that input and recycle waste as part of their processes and require them to provide SEPA with waste data returns • Improve data collection systems for complex exemptions 	SEPA/Waste Management Industry/ Businesses
Statutory ZWP Key data users	Improve information on recycling	The development of recycling guidance to support the ZWP	<ul style="list-style-type: none"> • Development of recycling guidance for the ZWP targets (already delivered) • Implement changes to data reporting for local authorities in line with the recycling guidance • Consider the development of recycling guidance for all sectors 	SEPA/SG/Local Authorities/ Waste Management Industry
Statutory ZWP Key data users	No previous reporting requirement for individual material streams	The implementation of reporting on individual material streams	<ul style="list-style-type: none"> • Development and implementation of methodologies for analysing and reporting information on individual material streams 	SEPA/Scottish Enterprise/ZWS /Waste Management Industry

Driver	Data availability and quality Issues	Desired outcome	Indicative detailed actions	Organisations involved
Statutory ZWP Key data users	Completeness of data on C&I waste managed outside Scotland	An improvement in the quality, quantity and detail of all wastes imported to and exported from Scotland, including that exported for recycling	<ul style="list-style-type: none"> • Identification of waste from Scottish waste management sites recycled outside Scotland (rest of UK and abroad) and production of a methodology for reporting this • Set up information protocols with the EA • Identification of waste sent for recycling from Scotland directly to sites in the rest of UK and abroad • Review options for collecting data on green list waste exports • Support the development of an electronic data collection system for Annex VII export data 	SEPA/ZWS/EA/ SG/Waste Management Industry
Statutory ZWP Key data users	Correct/consistent use of EWC codes in waste data returns	An improvement in the consistency and accuracy in the use of EWC codes in waste management returns	<ul style="list-style-type: none"> • Development and implementation of EWC coding guidance • Provide training for operators and businesses • Enable the use of electronic waste data returns • Improve the design of the licensed/permitted site return form • Influence the European Commission to improve the range of EWC codes 	SEPA/Waste Management Industry/ZWS/ Businesses/EA/Defra
ZWP Key data users	Need to review data quality assurance systems and eliminate multiple data reporting	An improvement in the data quality assurance systems and data providers only required to report the same data once	<ul style="list-style-type: none"> • Review current data quality assurance systems • Identify methods for improvement of data quality assurance systems • Introduce electronic data collection systems • Implementation of new proposed methods • Identify organisations that carry out multiple reporting and work with them to streamline reporting • Continue development of the SEPA Generic Data Returns (GDR) project for regulatory data • Roll out GDR to operators 	SEPA/EA/SG/ ZWS/Data Providers

Driver	Data availability and quality Issues	Desired outcome	Indicative detailed actions	Organisations involved
ZWP Key data users	Lack of definitions for waste management site types	The development and implementation of a standard set of definitions for waste management activity types	<ul style="list-style-type: none"> • Agree a set of standard definitions for waste management activities • Classify all sites according to the definitions • Incorporate them in relevant SEPA systems • Include WFD Recovery and Disposal codes on permits and licences issued by SEPA • Report standard site types in waste infrastructure maps and capacity reports 	SEPA/Waste Management Industry
ZWP Key data users	Carbon metric	The development of a resource displacement carbon metric for all waste recycled in Scotland	<ul style="list-style-type: none"> • Identify weighting factors for the carbon metric for all wastes • Apply factors and report 	SG/ZWS/SEPA/CIWM/Local Authorities/Waste Management Industry
Statutory ZWP Key data users	Reporting of final destination of local authority collected waste in WasteDataFlow	Review the reporting of final destination for recycled materials in WasteDataFlow	<ul style="list-style-type: none"> • Assessment of information currently reported • Investigate other sources of information for final destination • Review existing reporting guidance for local authorities 	SEPA/Local Authorities/SG/EAWaste Management Industry

Driver	Data availability and quality Issues	Desired outcome	Indicative detailed actions	Organisations involved
ZWP Key data users	Raw data quality for special waste produced and managed in Scotland	An improvement in the accuracy of special waste produced and managed in Scotland	<ul style="list-style-type: none"> • Assessment of information currently reported • Development and implementation of methodology to improve quality of the data • Development and implementation of reporting guidance for relevant waste management operators 	SEPA/Waste Management Industry/Special Waste Producers
Statutory ZWP Key data users	Completeness of waste infrastructure information	The identification of all sites that use waste as a feedstock for their processes	<ul style="list-style-type: none"> • Identification of industrial sites that input waste as part of their processes • Collect and report data on the waste that they handle 	SEPA/Relevant PPC sites
Statutory ZWP Key data users	Identification of BW landfilled	An improvement in the quality, quantity and detail of the biodegradable element of waste sent to landfill	<ul style="list-style-type: none"> • Improve the quality of the data on biodegradable fraction associated with waste types landfilled by EWC code • Undertake waste composition analysis of waste landfilled • Assessment of methodology options for the identification of BW/BMW landfilled • Implementation of preferred option 	SEPA/ZWS/ Defra
ZWP Key data users	Lack of accurate operational capacity for waste management sites	An improvement in the quality, quantity and detail on the operational capacity of waste management sites	<ul style="list-style-type: none"> • Develop a methodology for identification of operational capacity • Implement methodology • Development and implementation of a methodology for the identification of recycling capacity for different sites (e.g. based on recycling throughput for multi-activity sites) • Relevant SEPA inspectors to review the data reported on incineration capacity on an annual basis 	SEPA/Waste Management Industry

Driver	Data availability and quality Issues	Desired outcome	Indicative detailed actions	Organisations involved
ZWP Key data users	Lack of data on composition of mixed waste	Provision of data on composition of mixed waste	<ul style="list-style-type: none"> Undertake waste composition studies of mixed waste from commerce, industry and waste collected by local authorities 	SG/ZWS/ Businesses/ Waste Management Industry/Local Authorities
ZWP Key data users	No previous reporting requirement for data on waste flows	The development of waste data products that provide a much better understanding of the flow of materials through the waste management system	<ul style="list-style-type: none"> Assess applicability of methodology used to report waste flows in Area Waste Management Reports Development of material waste flow reports for Scotland 	SEPA/Scottish Enterprise/ZWS
Key data users	Incomplete fly-tipping data reported in Flycapture	An improvement in the quantity of data reported on fly-tipping	<ul style="list-style-type: none"> Provide support to encourage all local authorities to take part Use EWC codes to describe the waste Consider expanding reporting to other stakeholders eg British Waterways, Forestry Commission, Scottish Water 	ZWS/Local Authorities/SG/ Other stakeholders
ZWP Key data users	No data currently available to monitor waste prevention	Data available to monitor waste prevention	<ul style="list-style-type: none"> Develop indicators for waste prevention Introduce data reporting systems Report on indicators 	SEPA/SG/ZWS
Statutory ZWP Key data users	Packaging waste arisings data based on estimates on UK packaging placed on the market	The identification of Scottish packaging waste arisings	<ul style="list-style-type: none"> Consult with relevant stakeholders on alternative methods of estimating packaging waste arisings 	SEPA/relevant stakeholders

Driver	Data availability and quality Issues	Desired outcome	Indicative detailed actions	Organisations involved
Statutory Key data users	WEEE/batteries waste arisings data based on estimates on UK WEEE/batteries placed on the market	The identification of WEEE and battery waste arisings	<ul style="list-style-type: none"> Consult with relevant stakeholders on alternative methods of estimating WEEE and battery waste arisings 	SEPA/relevant stakeholders
ZWP	BMW landfilled data split by household and C&I sources	An estimate of the amount of BMW landfilled in Scotland split by household and C&I sources	<ul style="list-style-type: none"> Development and implementation of a methodology to split BMW to landfill between household and commercial and industrial sources 	SEPA/SG/ Local Authorities/ Businesses/ Waste Management Industry

Acronyms and Abbreviations

BMW	Biodegradable Municipal Waste
BW	Biodegradable Waste
C&D	Construction and Demolition
C&I	Commercial and Industrial
CIWM	Chartered Institute of Wastes Management
CoSLA	Convention of Scottish Local Authorities
CRNS	Community Resources Network Scotland
DECC	Department of Energy and Climate Change
Defra	Department of the Environment Food and Rural Affairs
EA	Environment Agency (England & Wales)
E-PRTR	European Pollutant Release and Transfer Register
EU	European Union
EWC	European Waste Catalogue
GDR	Generic Data Returns
KDU	Key Data Users
LA	Local Authority
LACMSW	Local Authority Collected Municipal Solid Waste
MCA	Maritime and Coastguard Agency
MRF	Material Recovery Facility
NIEA	Northern Ireland Environment Agency
OECD	Organisation for Economic Co-operation and Development
PPC	Pollution Prevention and Control
SEPA	Scottish Environment Protection Agency
SESA	Scottish Environmental Services Association
SG	Scottish Government
SPRI	Scottish Pollutant Release Inventory
UK	United Kingdom
WEEE	Waste Electrical and Electronic Equipment
WFD	Waste Framework Directive
WML	Waste Management Licence/Licensing
WG	Working Group
WPP	Waste Prevention Programme
ZWP	Zero Waste Plan
ZWS	Zero Waste Scotland