

Waste Strategy Review – Waste Data and Predicted Waste Arisings

Introduction

1 In October 2006 the Department considered, and approved a report on the review of the 2000 Waste Strategy, as incorporated within the 2000 Waste Management Plan (WMP). The review was undertaken to update the plan and produce a long term waste strategy for the Isle of Man, the report provided a update on work carried out to date, an analysis of the type of information, statistics, etc., needed to allow a comprehensive review which, at the present time, are not available (effectively a GAP analysis); an indication of the strategic issues the plan needs to address in order to deliver a sustainable Waste Management Strategy; and a suggested timetable for the areas requiring development over the next few years.

2 One of the GAPs identified was baseline data (see Appendix 1). As indicated baseline data on waste arisings and types is an essential component of any waste strategy. To be able to plan for, and fund, facilities and schemes, the island needs to know how much and what types of waste we will be producing over the next 10-15 years. This report:

- identifies what data is required;
- reviews the current availability of waste data;
- assesses its utility for strategic planning purposes;
- identifies options for enhanced collection of data and the benefits of those options;
- recommends which data option to adopt to enable forecasting of waste arising,
- and develops that data as part of the review of the waste strategy.

What we need

3 To forecast projected waste arisings and requirements for waste management schemes and facilities the following data can be used:

- the amount and type of waste currently and historically produced, by sector;
- the capacity of existing licenced waste management facilities by type of waste, and type of facility;
- routes for managing waste other than licenced facilities, and the amounts and types of waste managed through those routes;
- the estimated growth or reduction in tonnage of waste produced over the strategy period;
- the estimated change in composition of the waste stream over the strategy period;

4 To estimate change in both tonnage (and volume) and composition we need to identify the main factors affecting or influencing waste growth, reduction or change in volume or composition.

Current availability of waste data

5 There are several possible sources of waste data:

- The Waste Management Plan 2000
- Waste Disposal Licence returns
- DLGE weighbridge data for both landfill and EfW (primary and secondary streams)
- Transfrontier Shipment database
- Kerbside study – waste compositional analysis and projected waste arisings
- DLGE Recycling Subsidy Scheme
- DLGE bring bank and battery recycling scheme data
- National database 2003
- DTi waste survey 2004

6 Table 1 summarises the type and level of information provided by each of these data sources. As indicated data on waste arising is extremely limited. Although the 2000 WMP indicates arising information this is in fact disposal data. In addition the composition profile of that information is not considered reliable as no comprehensive methodical analysis was undertaken. The WMP 2000 itself indicates that the data should be subject to fundamental review before it is used to forecast arisings.

Arising v Deposit Data

7 Waste arising data is considered more reliable than deposit data, subject to the caveat that the information is comprehensive, statistically robust, and auditable within a fixed timescale. It provides a benchmark from which waste arisings can be predicted over the strategy period, can inform policies and schemes on waste prevention and reuse, can predict the impact of changes in legislation concerning the management of certain waste types, and the impact of the closure of waste facilities or routes. It includes data on waste disposal/management routes, and can also include details of the movements of waste to specific waste management facilities.

8 Waste deposit data provides, at best, details of waste types and amounts, by method and facility managed, within a given time period. It does not identify the amounts or types of waste managed outside the controlled waste regulatory regime (for example uncontrolled burning, fly tipping, construction projects, kitchen in-sink waste disposal units, biomass burners) or wastes materials reused.

9 For the purpose of the review of the waste strategy, including the forecasting of waste arisings, one option would be to commission a waste arisings survey. There are a number of issues to consider in this respect. Resource implications of such a survey are substantial, particularly if external assistance is employed (estimated cost circa £30k). The survey and analysis would take many months to undertake and complete, inevitably delaying preparation of the strategy. This delay would however need to be balanced against the benefits of obtaining data on arisings. One further factor to consider is the anticipated response rates to a waste arising survey from individual companies within the industrial and commercial sectors. Previous surveys have elicited an extremely low response, and identified a general reluctance to respond. The reasons for this are not known. However it can be assumed that lack of information by companies themselves and a general reluctance to declare what could be sensitive information are contributory factors.

10 Alternatively waste disposal/management data could be used for the purpose of forecasting waste arisings. Although not thoroughly comprehensive or sector specific, deposit data has been available with a high degree of accuracy since the commissioning of the EfW, the introduction of waste charges and the use of the weighbridge. In addition data is available from a number of other sources (the larger scale waste disposal licence holders, TFS, subsidy claims, Public Bring Banks database). Amalgamated this data should provide a sound database for forecasting of waste management requirements.

11 This information could be enhanced further via waste compositional analysis (specifically of commercial and industrial waste), interrogation of fly tipping reports, monitoring of uncontrolled disposal, assessment of waste used in exempt activities (in conjunction with the Planning Directorate). This would also require additional assistance to research and compile the data, and input to a statistical database.

12 To summarise, in terms of meeting the data requirements for the strategy:

- There is no reliable data on waste arisings either current or historic, by sector or type. This could be obtained at a financial cost and a delay in progression the strategy;
- Information on the capacity of licenced waste management facilities (void space and licenced maximum through-put) and tonnage of waste managed at each facility should be available on at least an annual basis from the Department or could be obtained from major licenced waste producers.
- Information on the routes for managing waste other than licenced facilities, and the amount and types of waste managed through those routes is available or can be obtained for most wastes. Research will be needed to identify other routes for disposal of wastes.

13 For the purpose of forecasting waste arisings, base arising data is always preferred. However given the reservations set out above, it is considered that the benefits of acquiring waste arising data are not sufficient to outweigh the time delay in producing the revised waste strategy. A waste arising survey should however be undertaken at some point to better inform the emergent waste strategy. This would best be undertaken as part of the green/organic waste study which the Department has committed to carry out in the next 18-24 months. Whilst data on the total commercial waste produced is known there will be a need to interrogate this data further. The green waste study will need information on the amount and types of organic waste produced by the commercial and agricultural sectors. A waste arising survey would provide this information. However for reasons set out above, this would have to be undertaken on behalf of most companies who are unaware of the amount and type of waste produced. In addition there would be a need to engage companies in this exercise to ensure full cooperation during data collection. Only a representative number of companies would be required for audit of waste arisings. However consultation with the commercial and industrial sectors and their representatives could only be of benefit by involving the waste producers as stakeholders in the waste management strategy.

14 For the purpose of forecasting waste arisings, the following data strategy is proposed:

- 1 Interrogation of delivered EfW data;
- 2 Interrogation of delivered WPN data (and its replacement in the longer term);
- 3 Waste data supplied as a requirement of the waste licencing regime.
- 4 Data supplied through shipments made under TFS;
- 5 Data supplied via the Recycling Subsidy Scheme;
- 6 Information collected from main retailers on materials exported for recycling (eg textiles, WEEE).

Waste Composition – information

15 Waste composition information is required to advise the utility of existing and provision of new facilities. For example reducing the amount of combustible waste will reduce the efficiency of the EfW, increasing the amount of householders participating in home composting will reduce the need for or reliance upon centralised composting schemes.

16 Waste composition data from the Kerbside study is available for collected household waste. This will continue to be monitored through ongoing waste compositional analysis. There is no compositional data on CA site delivered household waste. This is an area that requires further investigation as part of the overall strategy for monitoring the provision of facilities at CA sties.

17 The composition of commercial and industrial waste is less well known. Data is available on the amount of combustible, non combustible, inert and hazardous waste disposed of. Some data is available on materials recycled (for example scrap metals, paper, some WEEE), although some material is removed off island for recycling by UK based companies for which at present there is no data. There is no sector specific composition data, nor data on agricultural wastes.

Waste Composition – change over the duration of the Strategy

18 There are three main reasons why composition may change over the strategy period:

- change in purchasing behaviour – eg consumers buy less packaging in response to a programme for waste minimisation/education
- manufacturer/retail response to new legislation (mainly UK or EU) specifically in response to the packaging directive which requires recovery of a fixed amount or packaging for recycling by any one major producer, or the RoSH Directive which aims to reduce the hazardousness of items and therefore wastes
- introduction of new recycling schemes – which will remove items from waste stream, for example the battery recycling scheme.

19 In addition the location of new industry to the Island may introduce a new waste type(s) for which a management route does not exist or for which existing management capacity is insufficient. This is extremely difficult to predict and will need to be monitored

Waste Data - projected growth or reduction

20 To forecast changes in waste tonnages it is necessary to identify the main factors affecting or influencing waste growth or reduction. Similar undertakings in the UK identify the following factors:

Change in population - natural increase or decrease, inward or outward migration
(IoM 2006 4.9% increase from 2001 to 80,058)

Change in population profile
(61.8%dependency ratio at 2006)

Change in household numbers
(IoM number of private hhds increased by 5.9% 2001 – 2006)

Change in household size
(2001 – 2006 reduction from 2.37 to 2.35)

Health of the economy (growth or decline in GDP)

Cost of living
(3.5%)

Effectiveness of waste minimisation schemes and initiatives
(unknown at present)

Effectiveness of recycling schemes
(current rate estimated at circa 9%)

21 UK estimates for waste growth are between 1% and 3 % per annum. Based on EfW tonnages only, total delivered waste increased from 55,070 in 2005 to 56,139 in 2006. This represents an increase of 1.9% pa, not taking account of any increase in recycling. Applying this increase as a compound rate, the estimated capacity of the EfW (60,000) is exceeded by 2010 (figure 1).

Figure 1 – waste delivered to EfW at 1.9% pa increase

| | |
|------|----------|
| 2005 | 55070.86 |
| 2006 | 56139.26 |
| 2007 | 57228.39 |
| 2008 | 58338.64 |
| 2009 | 59470.44 |
| 2010 | 60624.19 |
| 2011 | 61800.33 |
| 2012 | 62999.29 |
| 2013 | 64221.50 |

22 Projecting an annual growth rate from two annual total figures is not ideal. However there is no reason to anticipate the 1.9% growth is anomalous considering the increase in population, households, and buoyancy of the Manx economy. There will be a need monitor closely the total tonnages delivered annually to the EfW.

Conclusion and Recommendation

23 For the purpose of developing a waste strategy there is a need to identify sources of auditable, contemporary, comparative data from which to project waste arisings over the plan period. There is currently no database of waste arisings, although the kerbside study will provide data on household waste projected arisings. There is no comprehensive database on waste deposits, although data is available from a number of sources. If collated this could provide the Department with a sound database on which to project demand for waste management facilities. A full waste arisings survey should be undertaken in due course specifically to inform the green/organic waste study.

24 The Department is therefore recommended to adopt the following stages for the purpose of drafting the waste strategy:

Stage one

- 1 Interrogation of delivered EfW data;
- 2 Interrogation of delivered WPN data;
- 3 Collation of waste data supplied as a requirement of the waste licencing regime.
- 4 Use of data supplied through shipments made under TFS;
- 5 Use of data supplied via the Recycling Subsidy Scheme;
- 6 Use of information collected from main retailers on materials exported for recycling (eg textiles, WEEE).
- 7 Use of the Kerbside Study domestic waste arisings data
- 8 Undertake compositional analysis of deposited commercial and industrial waste

Stage 2

- 9 interrogation of fly tipping reports
- 10 monitoring of uncontrolled 'disposal'
- 11 assessment of waste used in exempt activities, in conjunction with the Planning Directorate

Stage 3

- 12 Undertake a waste arisings survey of commercial and agricultural sectors

Table 1 summary of Waste Data Sources

| Data source | timescale | Waste type | Arisings or disposal | Comment | Recommended utility for the Review H M L VL |
|--|------------------------------------|--|-----------------------------|---|--|
| WMP 2000 | One off – projected to 2020 | All | arising | The WMP 2000 projects waste arisings by types to 2020. However it includes significant caveats regarding the accuracy of this information for the purpose of strategic planning. The WMP recommends the data is subject to major review and not relied upon as definitive predictions | Very low |
| Waste Disposal Licence returns | quarterly | All controlled wastes | disposal | There is currently no comprehensive database of waste disposal licence information. | Dependent upon availability and reliability. Includes a range of waste types. |
| DLGE weighbridge data for both WPN landfill and EfW (primary and secondary streams) | monthly | All combustible and non combustible | disposal | This information is available for 2005 and 2006 in the following categories: household, commercial and clinical. | High –all waste types but requires further interrogation. Considered accurate. |
| Transfrontier Shipment database | Quarterly | All red and amber list, and unclassified Materials | disposal | Information available from the UK Environment Agency for waste shipped under TFS to the UK. There maybe items not shipped under TFS | High but limited material types |
| Kerbside study – waste compositional analysis and projected waste arisings | One off – projected to 2015 | Domestic | arising | The kerbside study includes projected domestic waste arisings, together with the potential for recycling through kerbside collection schemes. | High – contemporary data but only Household waste |

| | | | | | |
|---|-----------------------|-------------------------|-----------------------------|---|--|
| DLGE Recycling Subsidy Scheme - scrap metal, paper (except bring bank), wet cell batteries. | Monthly claims | Domestic and commercial | disposal | Weighbridge information required for payment of the recycling subsidy. Claims made per shipment. Comprehensive data available since 2004. | High but limited material types |
| DLGE Bring bank and battery recycling scheme data | monthly | Domestic | disposal | Data collected via weighbridge and proxy volume information. | Medium/High but limited material types |
| National Waste Database (2003), DTi waste survey (2004) | One off | commercial | Arising and disposal | Surveys undertaken to estimate waste arisings within commercial sector. Very low response rate to both surveys. In addition data now several years out of date. | Very Low |

Appendix 1

Review of the IoM Waste Management Strategy

Baseline Data required to compile the strategy

- 4.1.2 Baseline data is a key prerequisite for developing a strategy. Without data on waste amounts, types and source it is not possible to monitor change (growth or reduction) or seek to set targets.
- 4.1.3 At present there is no comprehensive reliable data base on the amount of waste arising on the Island and how each tonne or litre of that waste is managed. Since the £100/tonne waste disposal charge was introduced, a significant tonnage of waste, previously recorded at the landfill site, has been diverted to other disposal routes. However, without data from these facilities there is no means of auditing waste movements or the total amount of waste being disposed of.
- 4.1.4 Progress is being made on data collation for certain wastes. For example, for household waste accurate weighbridge data is available for the amount of collected MSW disposed of via the EfW. As part of the work on the kerbside collection strategy, the Department is currently working to itemise this fraction of the waste stream in more detail. However, even for household waste there is still a need for provision of auditable data for waste that is collected at Civic Amenity Sites.
- 4.1.5 The Department will be working with Local Authorities next year to provide universal standards for the operation of Civic Amenity Sites and these will include provision of statistical information on the amounts and methods for 'disposal' of Civic Amenity Site collected household waste.
- 4.1.6 For commercial and industrial waste there is only comprehensive data on the combustible element of this waste category. Whilst this data can be broken down by waste producer it does not provide information on waste composition.
- 4.1.7 There is no comprehensive information on organic or green waste arisings (c&i and domestic), or any proxy data, based on sample surveys (on-Island or UK), which could be applied to Manx companies.
- 4.1.8 Three commercial and industrial sector waste surveys have been undertaken on the Island over the past three years, each seeking to identify types and tonnages of waste produced and disposal methods. The overall response rate to these surveys has been poor. This problem could in part be overcome by requiring submission of obligatory annual waste returns (for larger companies), which is covered through the conditions applied to **some** existing Waste Disposal Licences. The data is incomplete as:-
- not all licences contain such a condition;
 - there is currently no data base of data returns that are completed; and
 - not all companies require a Waste Disposal Licence.

- 4.1.9 Inert waste is particularly problematic to record as it can be utilised in activities that are not technically waste disposal. There is therefore a need for a review of the classifications of 'waste management activity', and specifically the need for a form of registration of activities classified subsequently as exempt from licensing.
- 4.1.10 Therefore, the strategy needs to identify the specific data requirements and promote the introduction of the necessary schemes to obtain, collate, monitor and manage that information.

Without **all** the above information it is not possible to plan for provision of waste management facilities and schemes over the plan period and beyond, or identify legislation required to ensure waste is managed in the best environmentally acceptable method.