

**INDUSTRIAL, COMMERCIAL
WASTE INDUSTRY AND
MUNICIPAL**

**WASTE ARISING
SURVEY FOR
NORTHERN IRELAND**

For the year 1999 to 2000

Summary Report

August 2001

Industrial, Commercial and Municipal Waste Arisings

Survey for Northern Ireland

Summary Report

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August 2001



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1.0 INTRODUCTION

The Waste Management Strategy for Northern Ireland published in March 2000 identifies the need for accurate and reliable information on waste arisings, composition and management methods as an essential part of planning and decision making. As part of the implementation of the Waste Management Strategy, Kirk McClure Morton was commissioned by the Environment and Heritage Service (EHS) to carry out the first comprehensive Waste Arisings Survey for Northern Ireland. This survey was designed to assess and evaluate the quantity of waste produced within Northern Ireland between 1999 and 2000.

The project consisted of the following components:

- Municipal Waste Arisings - A survey of District Councils on municipal waste;
- Commercial & Industrial Waste Arisings - A survey of industry and commerce on the waste they produce; and
- Waste Industry - A survey of waste management companies on waste disposal and treatment.

This summary report provides an insight into the methodology, results, conclusions and recommendations of the survey on waste management within these three sectors.

2.0 MUNICIPAL WASTE ARISING

2.1 This survey builds on the data generated by the Municipal Waste Survey completed as part of the Pilot Study which consisted of the following components;

- A census of municipal waste arisings;
- A sample of commercial and industrial waste producers; and
- A sample of waste management contractors and recyclers.

The questionnaire employed was the same as the Pilot Study and was issued to each of the District Councils within Northern Ireland, with the following additions to the guidance on completing the survey:

1. Guidance on calculating home composted household waste.
2. Guidance on estimating the proportion of commercial waste collected as part of the household waste collection.

All twenty-six of the District Councils in Northern Ireland responded to the questionnaire, with eight Councils returning incomplete questionnaires. Two questionnaires were incomplete due to the lack of a breakdown of treatment and disposal methods employed by the District Councils. Six questionnaires were incomplete due to the lack of a breakdown of information regarding the quantities of each type of waste and by which route the material is recovered.

2.2 Key Points

- Approximately 830,816 tonnes of household waste was produced in Northern Ireland in 1999/2000, compared with 867,503 tonnes in 1998/1999.
- Approximately 1,003,736 tonnes of municipal waste was produced in Northern Ireland in 1999/2000 compared with 959,954 in 1998/1999.
- The household waste recycling rate in Northern Ireland is 6.6%, equating to 54,834 tonnes.
- The household waste composting rate in Northern Ireland is 3.0%, equating to 24,911 tonnes.
- Paper/card, organics and glass account for 64.6% of all household waste materials recycled.

2.3 Key Waste Management Indicators

Key waste management indicators are outlined below in Table 2.1 to provide a snapshot of the 1998/1999 and 1999/2000 waste arisings and recovery for Northern Ireland. These figures are based on the housing stock figures which are calculated on an annual basis by the Department for Social Development.

Table 2.1 Key waste management indicators for Northern Ireland 1998/1999 and 1999/2000

| KEY INDICATOR | 1998/1999 | 1999/2000 |
|---------------------------------------|-----------|-----------|
| No of households | 597,358 | 604,219 |
| Household waste (tpa) | 867,503 | 830,816 |
| Waste per household (tpa) | 1.45 | 1.38 |
| Recovery rate of household waste (%) | 4.9% | 6.6% |
| Commercial and Industrial Waste (tpa) | 87,645 | 158,895 |
| Municipal Waste (tpa) | 959,954 | 1,003,736 |

Note: tpa = tonnes per annum

2.4 Municipal waste Arisings

Municipal waste, and particularly its biodegradable fraction, is a key indicator of waste management performance given its relationship to landfill diversion targets under the Landfill Directive (1999/31/EC). For the purposes of this report the definition used for municipal waste has been taken from the Landfill Directive.

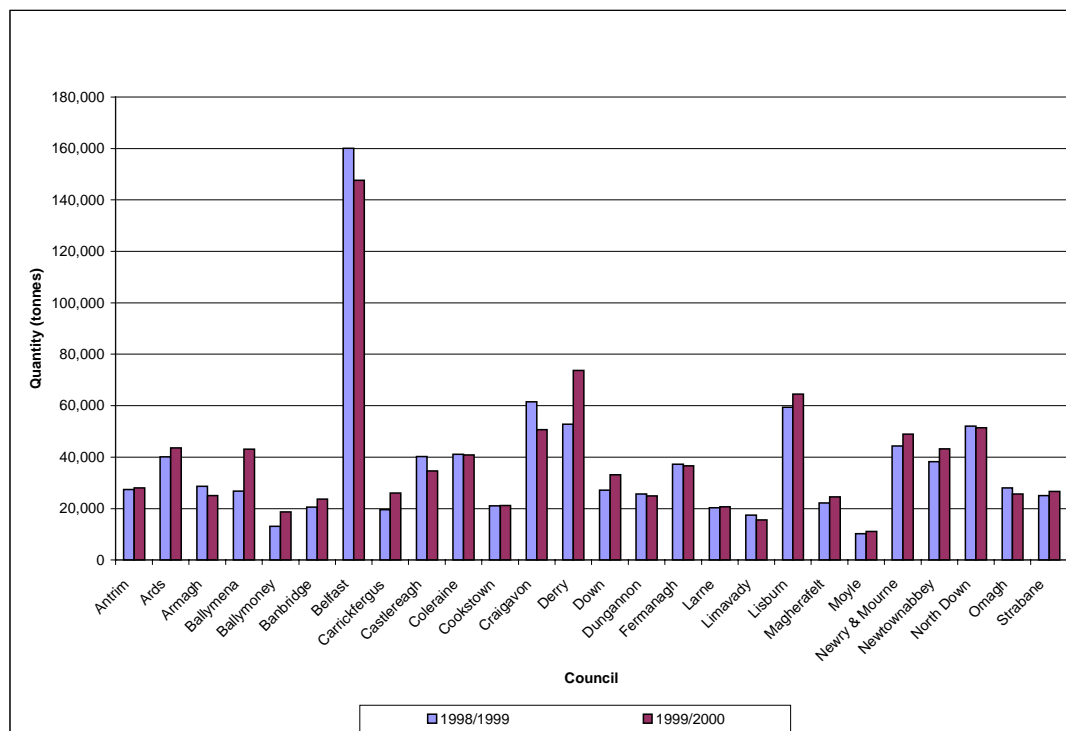
The definition in the Directive states “municipal waste means waste from households, as well as other waste, which, because of its nature or composition, is similar to waste from households.”

A breakdown of the total municipal waste collected within Northern Ireland in 1998/1999 and 1999/2000 by the District Councils in Northern Ireland is shown in Table 2.2 and illustrated in Figure 2.1.

Table 2.2 Municipal waste* collected by District Council (tonnes)

| District Council | 1998/1999 | 1999/2000 |
|---------------------------------|------------------|------------------|
| Antrim Borough Council | 27,451 | 27,973 |
| Ards Borough Council | 40,059 | 43,638 |
| Armagh District Council | 28,681 | 25,009 |
| Ballymena Borough Council | 26,741 | 43,061 |
| Ballymoney Borough Council | 13,039 | 18,683 |
| Banbridge District Council | 20,591 | 23,665 |
| Belfast City Council | 160,095 | 147,687 |
| Carrickfergus Borough Council | 19,610 | 26,058 |
| Castlereagh Borough Council | 40,139 | 34,588 |
| Coleraine Borough Council | 41,121 | 40,802 |
| Cookstown District Council | 21,017 | 21,185 |
| Craigavon Borough Council | 61,460 | 50,681 |
| Derry City Council | 52,799 | 73,760 |
| Down District Council | 27,139 | 33,111 |
| Dungannon District Council | 25,691 | 24,836 |
| Fermanagh District Council | 37,306 | 36,636 |
| Larne Borough Council | 20,257 | 20,677 |
| Limavady Borough Council | 17,418 | 15,567 |
| Lisburn Borough Council | 59,352 | 64,472 |
| Magherafelt District Council | 22,086 | 24,561 |
| Moyle District Council | 10,195 | 11,066 |
| Newry & Mourne District Council | 44,406 | 48,991 |
| Newtownabbey Borough Council | 38,250 | 43,196 |
| North Down Borough Council | 52,042 | 51,481 |
| Omagh District Council | 27,923 | 25,664 |
| Strabane District Council | 25,000 | 26,687 |
| Total | 959,868 | 1,003,736 |

*Municipal Waste includes a percentage of civic amenity waste.

Figure 2.1 Total Municipal waste in Northern Ireland in 1998/1999 and 1999/2000

2.5 Household Waste

Household waste is composed of wastes collected by each District Council such as wheeled bins, bulky collection, civic amenity sites, bring systems and kerbside schemes. For the basis of this report the definition of household waste used has been that given in the Waste and Contaminated Land (NI) Order 1997 and the Collection and Disposal (NI) Regulation 1992. The Order defines household waste as waste from (a) domestic property, that is to say, a building which is used wholly for the purposes of living accommodation; (b) a caravan which usually and for the time being is situated on a caravan site; (c) a residential home; (d) premises forming part of a university or school or other educational establishment; and (d) premises forming part of a hospital or nursing home.

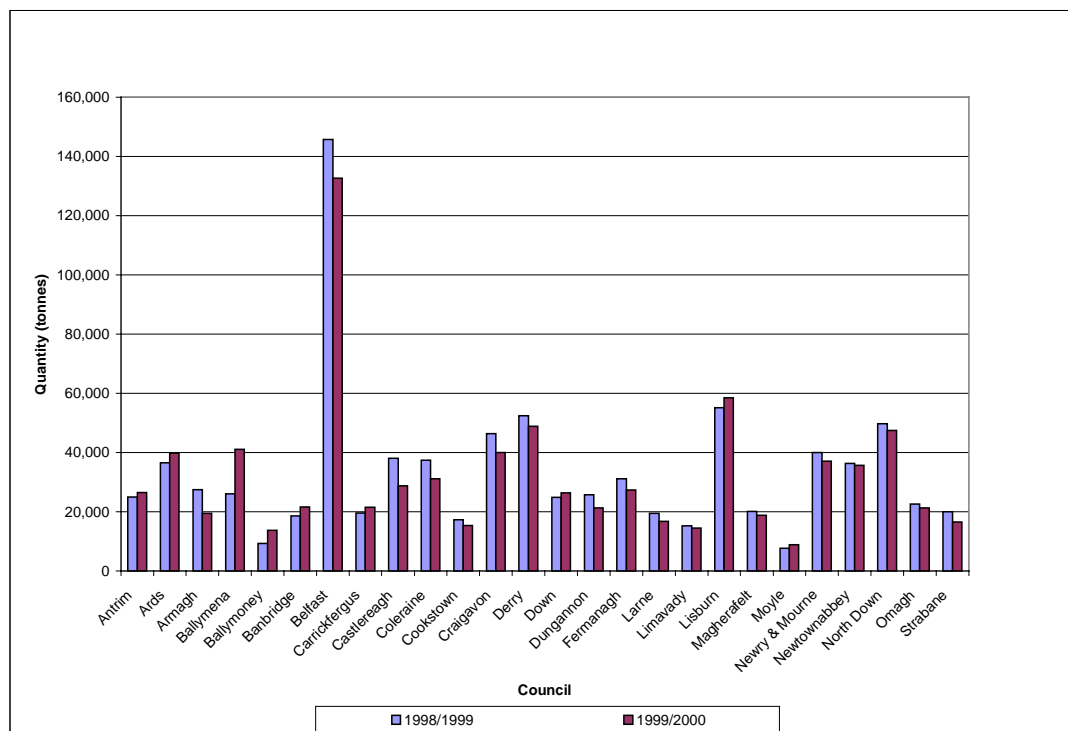
A breakdown of household waste arisings for the years 1998/1999 and 1999/2000 is provided in Table 2.3 and illustrated in Figure 2.2.

Table 2.3 Total Household Waste* Arisings by District Council (tonnes)

| District Council | 1998/1999 | 1999/2000 |
|---------------------------------|------------------|------------------|
| Antrim Borough Council | 24,944 | 26,505 |
| Ards Borough Council | 36,459 | 39,808 |
| Armagh District Council | 27,517 | 19,461 |
| Ballymena Borough Council | 26,091 | 41,061 |
| Ballymoney Borough Council | 9,339 | 13,739 |
| Banbridge District Council | 18,548 | 21,619 |
| Belfast City Council | 145,723 | 132,655 |
| Carrickfergus Borough Council | 19,610 | 21,542 |
| Castlereagh Borough Council | 38,024 | 28,737 |
| Coleraine Borough Council | 37,430 | 31,123 |
| Cookstown District Council | 17,267 | 15,321 |
| Craigavon Borough Council | 46,360 | 39,949 |
| Derry City Council | 52,485 | 48,850 |
| Down District Council | 24,868 | 26,349 |
| Dungannon District Council | 25,691 | 21,340 |
| Fermanagh District Council | 31,069 | 27,268 |
| Larne Borough Council | 19,487 | 16,728 |
| Limavady Borough Council | 15,198 | 14,527 |
| Lisburn Borough Council | 55,112 | 58,502 |
| Magherafelt District Council | 20,086 | 18,741 |
| Moyle District Council | 7,620 | 8,866 |
| Newry & Mourne District Council | 39,962 | 37,041 |
| Newtownabbey Borough Council | 36,280 | 35,709 |
| North Down Borough Council | 49,742 | 47,481 |
| Omagh District Council | 22,591 | 21,309 |
| Strabane District Council | 20,000 | 16,584 |
| Total | 867,503 | 830,816 |
| Average | 33,366 | 31,954 |

*Household waste includes a percentage of civic amenity waste.

Figure 2.2 Household Waste Arisings in Northern Ireland 1998/1999 and 1999/2000



2.6 Waste Quantities Generated per Household.

Assessment of the average quantity of waste generated per household can allow trends in household waste arisings to be monitored. The waste quantity generated per household was determined by using the total quantity of household waste and dividing it by the number of households served. It can provide an effective measure to assess the performance of waste reduction initiatives and evaluate broad trends in household waste generation.

The average quantity of household waste generated per household is estimated to be 1.38 tonnes per household per annum. This can be broken down to highlight the contribution of the different components of household waste [for example, collected household waste and Civic Amenity waste (CA site)]. This shows that of the 1.38 tonnes per household, approximately 75% is collected directly from houses.

In other words, Civic Amenity sites account for 25% of household waste arisings collected within Northern Ireland in 1999/2000.

Table 2.4 illustrates the average quantities of waste generated per household per annum for 1998/1999 and 1999/2000. A breakdown of the waste generated per household per year by District Council is provided in Figure 2.3, while Figure 2.4 illustrates the relative contribution of CA sites and collected household wastes to the total.

Table 2.4 Comparison of average quantities of waste generated per household per annum by District Council 1998/1999 & 1999/2000.

| District Council | 1998/1999 | 1999/2000 |
|---------------------------------|------------------|------------------|
| Antrim Borough Council | 1.58 | 1.60 |
| Ards Borough Council | 1.33 | 1.43 |
| Armagh District Council | 1.58 | 1.10 |
| Ballymena Borough Council | 1.22 | 1.90 |
| Ballymoney Borough Council | 1.07 | 1.55 |
| Banbridge District Council | 1.35 | 1.53 |
| Belfast City Council | 1.30 | 1.19 |
| Carrickfergus Borough Council | 1.39 | 1.51 |
| Castlereagh Borough Council | 1.44 | 1.09 |
| Coleraine Borough Council | 1.71 | 1.40 |
| Cookstown District Council | 1.70 | 1.48 |
| Craigavon Borough Council | 1.66 | 1.41 |
| Derry City Council | 1.53 | 1.41 |
| Down District Council | 1.17 | 1.23 |
| Dungannon District Council | 1.67 | 1.36 |
| Fermanagh District Council | 1.61 | 1.39 |
| Larne Borough Council | 1.62 | 1.38 |
| Limavady Borough Council | 1.61 | 1.50 |
| Lisburn Borough Council | 1.44 | 1.52 |
| Magherafelt District Council | 1.72 | 1.55 |
| Moyle District Council | 1.30 | 1.47 |
| Newry & Mourne District Council | 1.47 | 1.34 |
| Newtownabbey Borough Council | 1.23 | 1.19 |
| North Down Borough Council | 1.68 | 1.60 |
| Omagh District Council | 1.55 | 1.43 |
| Strabane District Council | 1.68 | 1.37 |

Figure 2.3 Total Household waste per household per year by District Council 1999/2000.

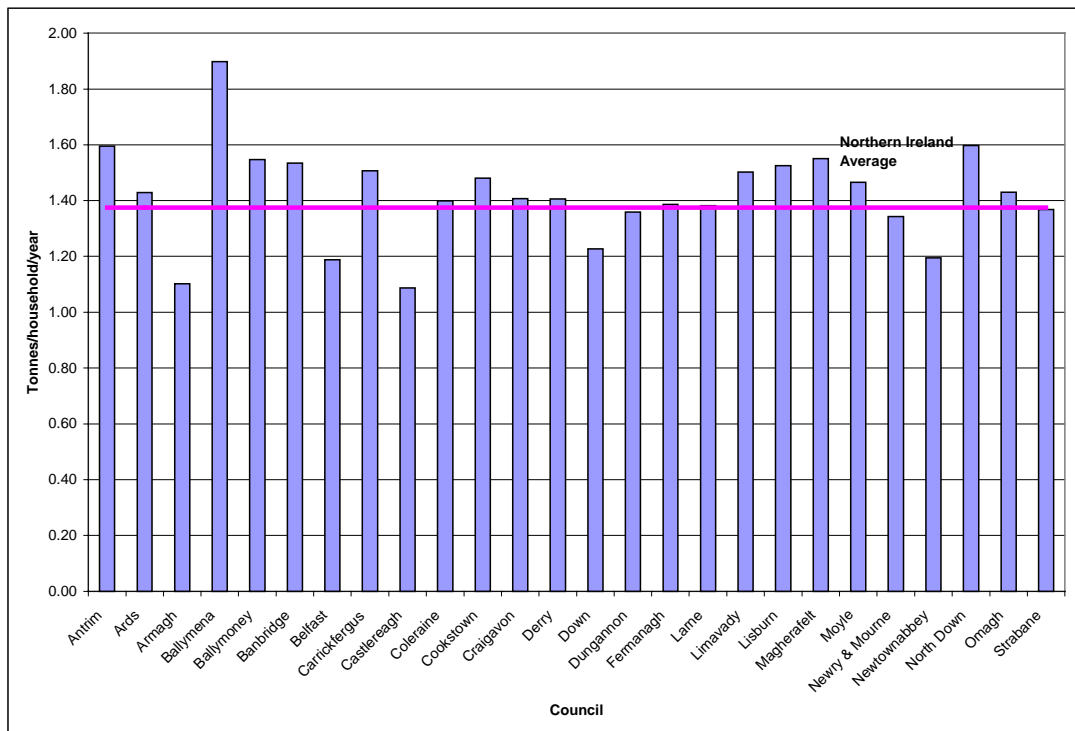
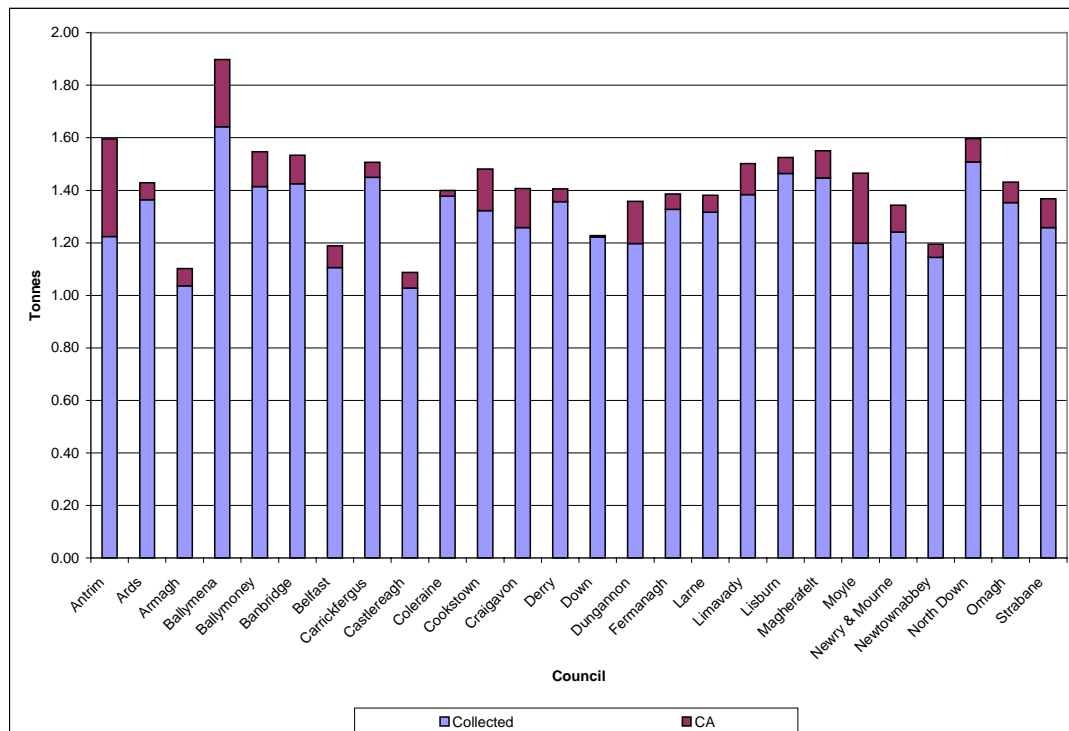


Figure 2.4 Average quantity of household waste generated per household per year by District Council (CA Sites and collected)



2.7 Recovery

The term recovery has been drawn from references in the Waste Management Strategy for Northern Ireland and refers to energy recovery, recycling (or materials recovery) and composting. A key target set out in the Waste Management Strategy for Northern Ireland is 25% recovery of household waste by 2005 (of which 15% must constitute recycling (materials recovery) and/or composting).

The average household waste recovery rate (i.e. the percentage of household waste that is recovered) in Northern Ireland is estimated to be 6.6%, with a total of 54,834 tonnes being recovered in 1999/2000. The estimated recovery rate was calculated by taking the quantity of household waste recovered as a percentage of the total household waste arisings. A breakdown of the recovery rate for each Council area is provided in Table 2.5 and Figure 2.5.

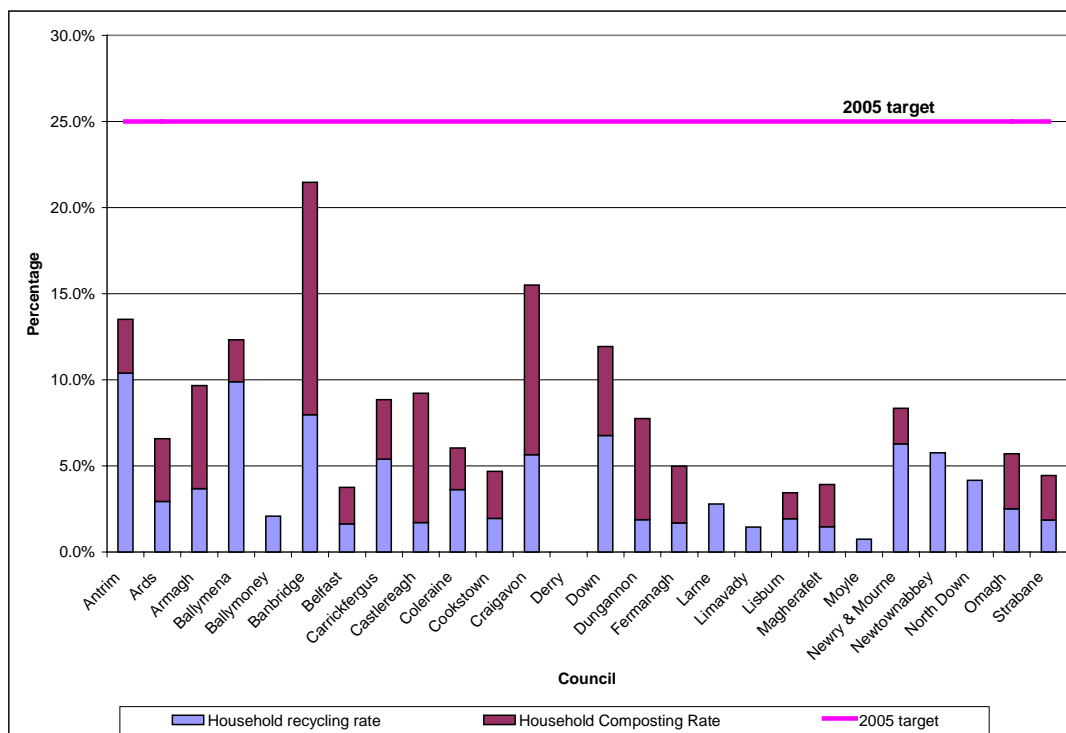
Note: In the absence of any use of energy recovery in Northern Ireland the household waste recovery rate and the household waste recycling rate will be the same.

Table 2.5 Household recovery rate by District Council

| District Council | Recovery Rate |
|---------------------------------|----------------------|
| Antrim Borough Council | 13.5% |
| Ards Borough Council | 6.6% |
| Armagh District Council | 9.7% |
| Ballymena Borough Council | 12.3% |
| Ballymoney Borough Council | 2.1% |
| Banbridge District Council | 21.5% |
| Belfast City Council | 3.8% |
| Carrickfergus Borough Council | 8.8% |
| Castlereagh Borough Council | 9.2% |
| Coleraine Borough Council | 6.0% |
| Cookstown District Council | 4.7% |
| Craigavon Borough Council | 15.5% |
| Derry City Council* | N/A |
| Down District Council | 11.9% |
| Dungannon District Council | 7.8% |
| Fermanagh District Council | 5.0% |
| Larne Borough Council | 2.8% |
| Limavady Borough Council | 1.5% |
| Lisburn Borough Council | 3.4% |
| Magherafelt District Council | 3.9% |
| Moyle District Council | 0.7% |
| Newry & Mourne District Council | 8.4% |
| Newtownabbey Borough Council | 5.8% |
| North Down Borough Council | 4.2% |
| Omagh District Council | 5.7% |
| Strabane District Council | 4.5% |
| Average | 6.6% |

* No data provided

Figure 2.5 Household waste recovery rate by District Council



2.8 Household Waste Recycling Rate (excluding composting)

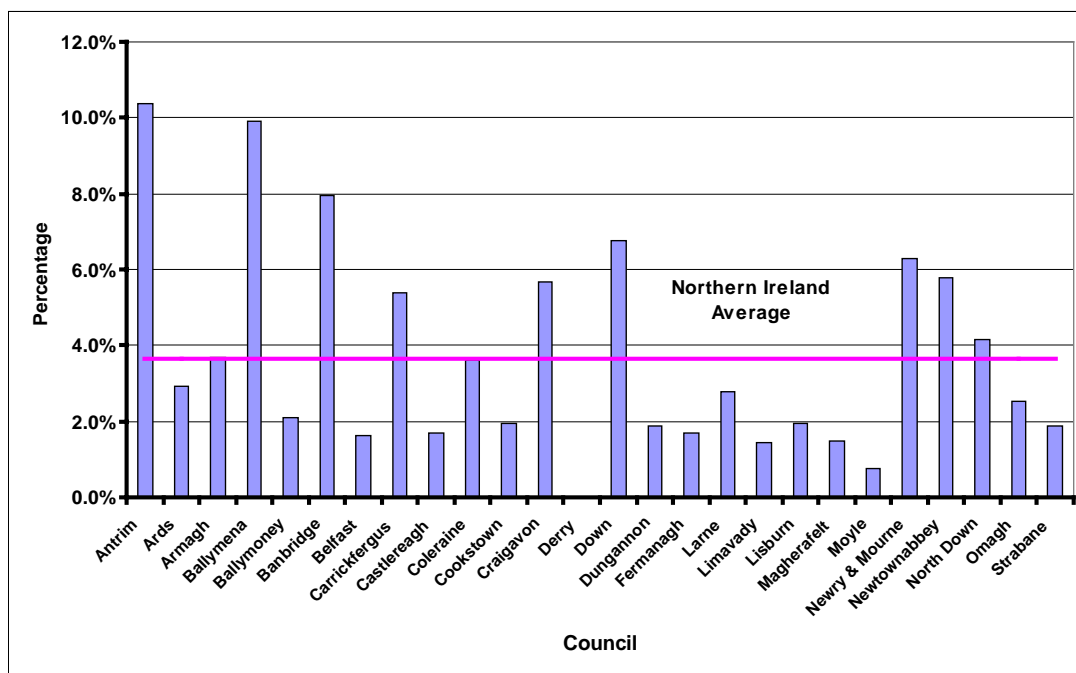
The average household waste recycling rate (i.e. the percentage of household waste that is recycled) in Northern Ireland is estimated to be 3.6%, with a total of 29,909 tonnes being recovered in 1999/2000. A breakdown of the recycling rate figures is provided in Table 2.6 and Figure 2.6.

**Table 2.6 Household recycling rate (excluding composting)
by District Council**

| District Council | Household recycling rate |
|---------------------------------|---------------------------------|
| Antrim Borough Council | 10.4% |
| Ards Borough Council | 2.9% |
| Armagh District Council | 3.7% |
| Ballymena Borough Council | 9.9% |
| Ballymoney Borough Council | 2.1% |
| Banbridge District Council | 8.0% |
| Belfast City Council | 1.6% |
| Carrickfergus Borough Council | 5.4% |
| Castlereagh Borough Council | 1.7% |
| Coleraine Borough Council | 3.6% |
| Cookstown District Council | 2.0% |
| Craigavon Borough Council | 5.7% |
| Derry City Council* | N/A |
| Down District Council | 6.8% |
| Dungannon District Council | 1.9% |
| Fermanagh District Council | 1.7% |
| Larne Borough Council | 2.8% |
| Limavady Borough Council | 1.5% |
| Lisburn Borough Council | 1.9% |
| Magherafelt District Council | 1.5% |
| Moyle District Council | 0.7% |
| Newry & Mourne District Council | 6.3% |
| Newtownabbey Borough Council | 5.8% |
| North Down Borough Council | 4.2% |
| Omagh District Council | 2.5% |
| Strabane District Council | 1.9% |
| Average | 3.6% |

* No data provided

Figure 2.6 Household waste recycling rate by District Council (excluding composting).



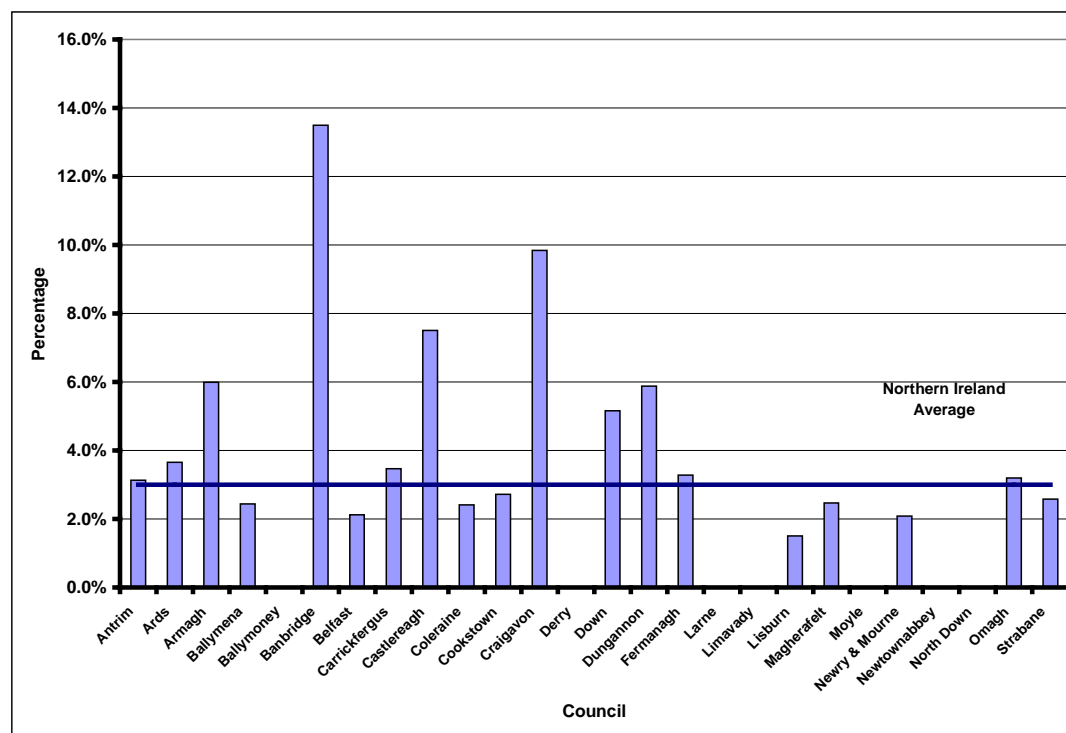
2.9 Composting

The average household waste composting rate (i.e. the percentage of household waste that is composted) in Northern Ireland is estimated to be 3.0%, with a total of 24,924 tonnes being recovered in 1999/2000. A breakdown of the composting rate figures is provided in Table 2.7 and Figure 2.7.

Table 2.7 Household composting rate by District Council

| District Council | Household Composting Rate |
|---------------------------------|----------------------------------|
| Antrim Borough Council | 3.1% |
| Ards Borough Council | 3.7% |
| Armagh District Council | 6.0% |
| Ballymena Borough Council | 2.4% |
| Ballymoney Borough Council | 0.0% |
| Banbridge District Council | 13.5% |
| Belfast City Council | 2.1% |
| Carrickfergus Borough Council | 3.5% |
| Castlereagh Borough Council | 7.5% |
| Coleraine Borough Council | 2.4% |
| Cookstown District Council | 2.7% |
| Craigavon Borough Council | 9.8% |
| Derry City Council* | N/A |
| Down District Council | 5.2% |
| Dungannon District Council | 5.9% |
| Fermanagh District Council | 3.3% |
| Larne Borough Council | 0.0% |
| Limavady Borough Council | 0.0% |
| Lisburn Borough Council | 1.5% |
| Magherafelt District Council | 2.5% |
| Moyle District Council | 0.0% |
| Newry & Mourne District Council | 2.1% |
| Newtownabbey Borough Council | 0.0% |
| North Down Borough Council | 0.0% |
| Omagh District Council | 3.2% |
| Strabane District Council | 2.6% |
| Average | 3.0% |

* No data provided

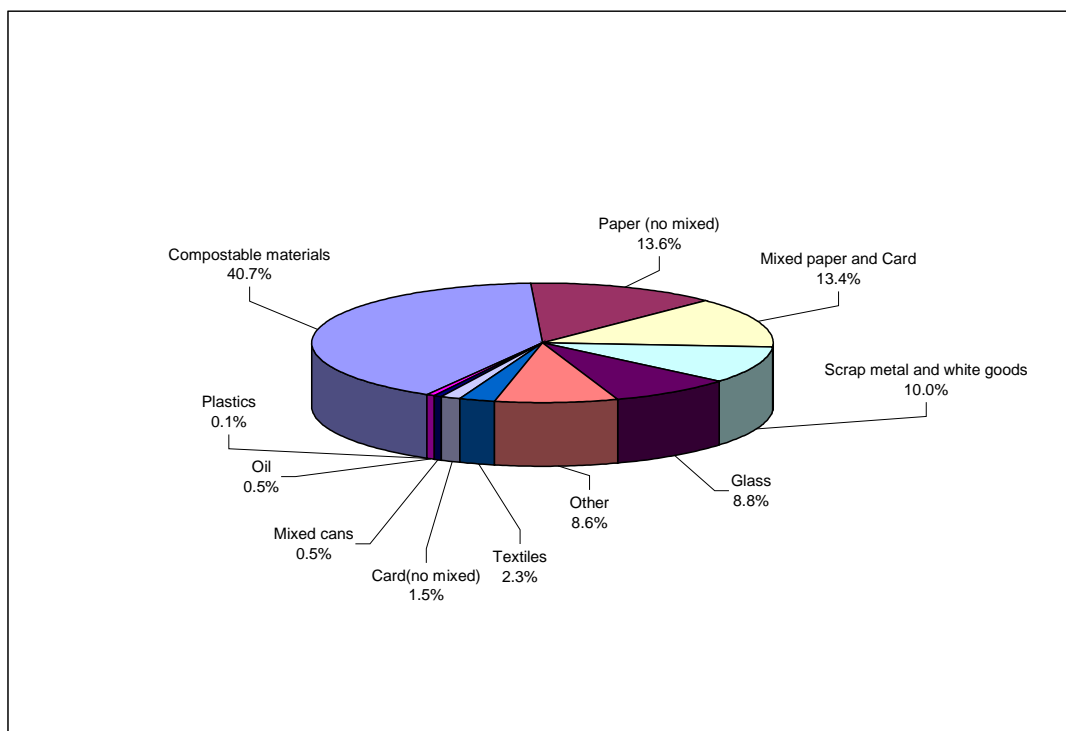
Figure 2.7 Household Waste Composting Rate by District Council

2.10 Estimated Household Waste Recovered

The estimated breakdown of the household waste recovered is provided in Figure 2.8.

Figure 2.8 indicates that 74.6% of the materials collected for recovery (recycling and composting) consisted of four waste types:

- Compostable materials (40.7%)
- Paper and card (mixed and separated) (15.1%)
- Scrap metal and white goods (10.0%); and
- Glass (8.8%)

Figure 2.8 Materials collected for recovery (recycling/composting)

2.11 Promotion of Recycling and Home Composting

The survey also asked District Councils to provide details of the methods used to promote recycling and home composting, as follows:

- Education
- Advice/helpline
- Publicity
- Promotional Visits
- Provision of subsidised bins
- Other
- Not specifically promoted

Tables 2.8 & 2.9 and Figures 2.9 & 2.10 show the methods used to promote recycling and home composting.

Table 2.8 **Methods used to promote recycling**

| Method | No. of District Councils |
|---------------------------|--------------------------|
| Education | 24 |
| Advice/helpline | 12 |
| Publicity | 23 |
| Promotional Visits | 16 |
| Subsidised Bins | 4 |
| Other | 3 |
| Not specifically promoted | 0 |

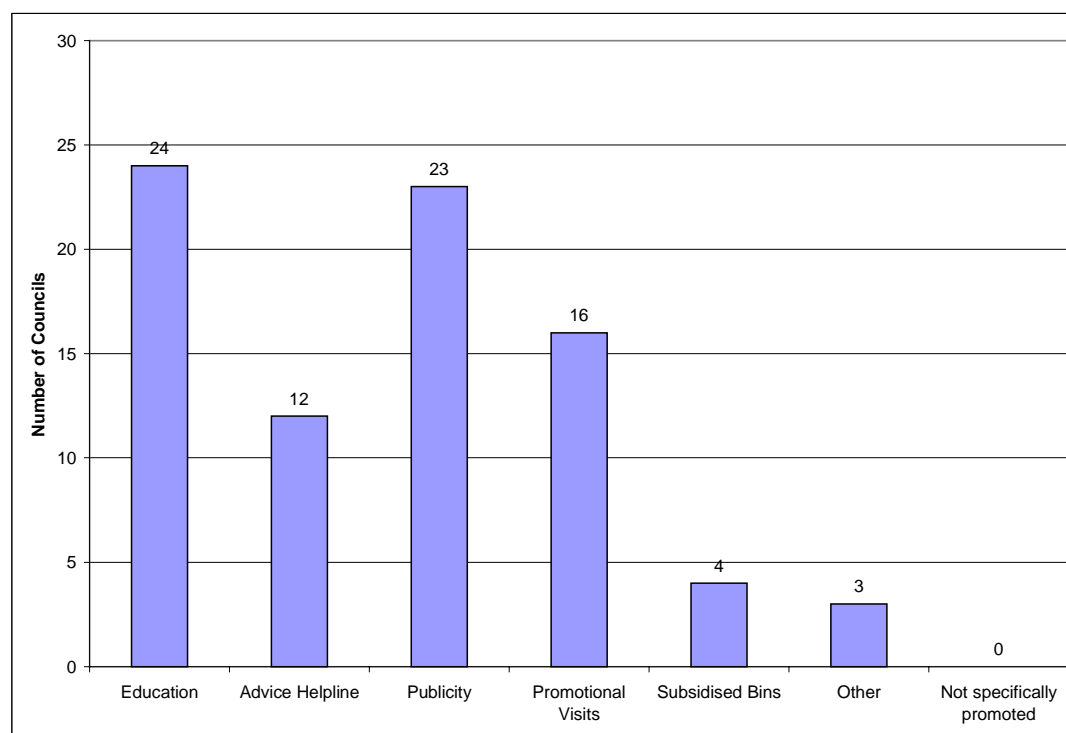
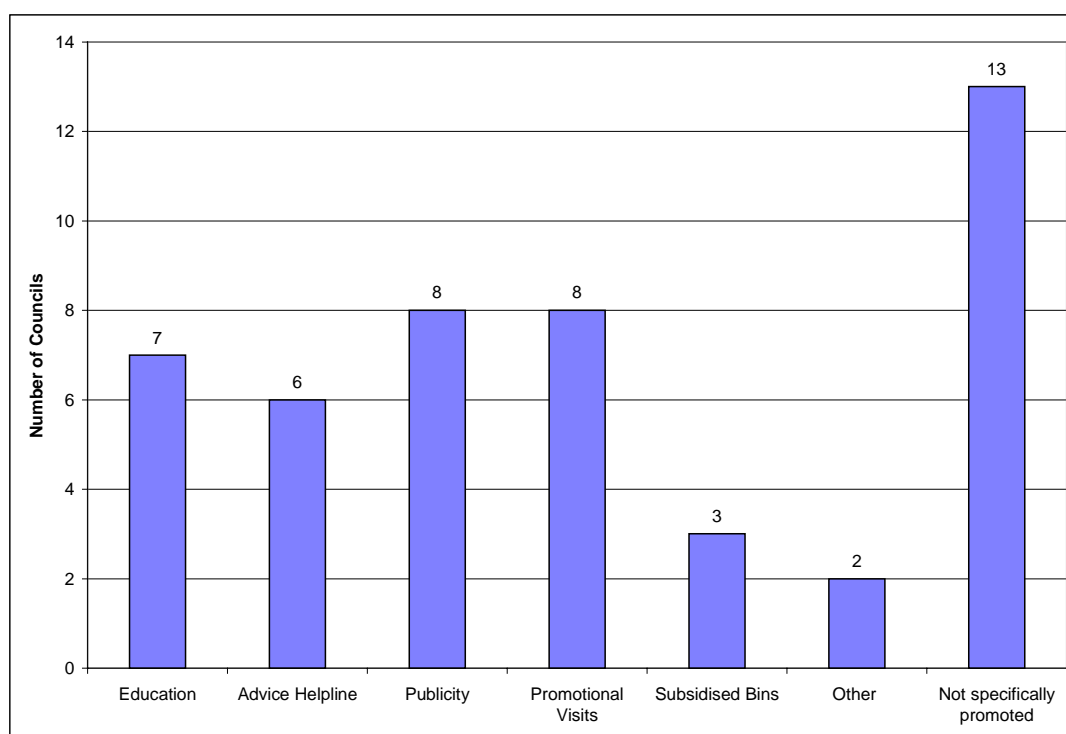
Figure 2.9 **Methods used by District Councils to promote recycling**

Table 2.9 Methods used to promote home composting

| Method | No. of District Councils |
|---------------------------|--------------------------|
| Education | 7 |
| Advice/helpline | 6 |
| Publicity | 8 |
| Promotional Visits | 8 |
| Subsidised Bins | 3 |
| Other | 2 |
| Not specifically promoted | 13 |

Figure 2.10 Methods used by District Councils to promote home composting.



3.0 COMMERCIAL & INDUSTRIAL WASTE ARISING

3.1 The survey for industrial and commercial businesses was designed to elicit responses from 2,500 companies, based on a response rate of 33%.

The questionnaire was based on a design which has been successfully used by MEL Research. It asks for company information including name and address, turnover, number of employees and costs of waste management. It then asks respondents to tick the types of waste container used on their site.

The methodology consisted of the following Key elements:

- to develop a sampling strategy;
- to develop a questionnaire suitable for a postal approach based on the questionnaire designed previously for the EHS;
- to mail the questionnaires;
- to code the data on return;
- to enter the data into the EHS's database;
- to analyse data for year 2000 and prepare a report on the results;
- to deal with queries from sampled companies;
- to receive completed questionnaires;
- to check completed questionnaires and query any missing or unclear responses by phone;
- to chase non-respondents by telephone, re-mailing questionnaires where necessary.

The data collected was then entered into EHS's existing waste arising database.

3.2 Response Analysis

The response rate was lower than the anticipated 33% at just 15.4%. This was almost certainly due to the very condensed time scale in which the survey was undertaken. Due to the time restraints it was hoped that intensive telephone reminders and re-mailings would act as a surrogate for the more tested method of issuing a reminder letter, but this relatively untested method proved to be significantly less effective.

In addition some of the returned questionnaires proved to be unusable despite follow up clarification telephone calls. This was mainly due to key items of information being missing, most commonly the number of employees and the size of waste containers.

Variations in response rates within each district may also be due to non-response error which may lead to the bias of results with the overall respondents not being representative of the population. This is due to the fact that companies from certain districts may be more likely to respond than companies in other districts.

Table 3.1 provides a breakdown of the overall response.

Table 3.1: Summary of response rate

| | | |
|----------------------------|---|-------|
| Sample | | |
| a) | Number in initial sample | 7,888 |
| | i) Out of scope: no longer trading | 3 |
| | ii) Out of scope: type of industry not included | 1 |
| b) | Total valid sample (a –(i + ii)) | 7,884 |
| Response | | |
| c) | Refusal | 71 |
| d) | Unusable due to missing information | 15 |
| e) | Non-response - contacted by phone | 1,049 |
| | - not contacted by phone | 5,112 |
| | - uncontactable by phone | 393 |
| f) | Responded too late to be included | 30 |
| g) | Total usable response | 1,214 |
| Response rate (g/b*100) | | 15.4% |

The overall coverage of the survey within Northern Ireland was designed to be random for both the Industrial and Commercial sectors resulting in the coverage in any one district being similar to that in any other district. In addition the sampling framework was designed to ensure that all types of businesses were included and that selection of a particular type of industry or commercial activity would also be random.

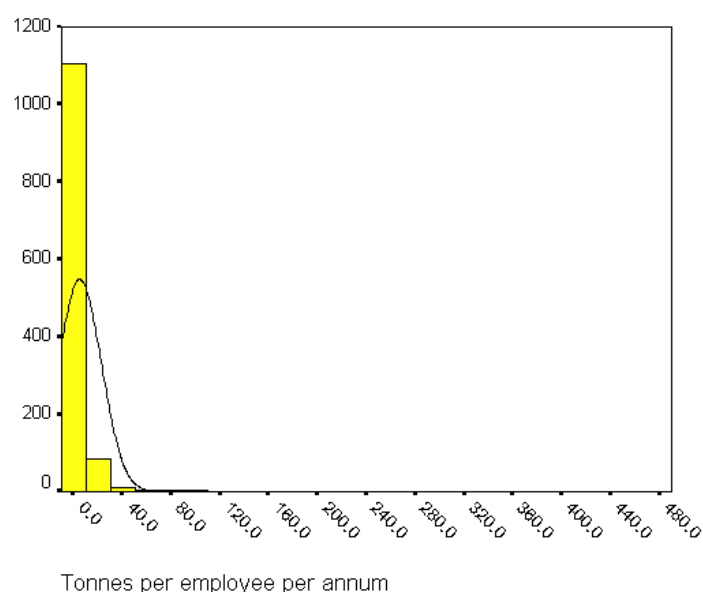
The analysis shows that 14% coverage of industry was obtained across the whole of Northern Ireland. A coverage of 20% or more was obtained in Ballymena, Belfast, Moyle and Newtownabbey while less than 10% coverage was achieved in Dungannon and Omagh. It is not possible to determine whether this represents non-response bias without assigning district councils to each sampled company.

Overall a 3% coverage of commerce was achieved. Coleraine, Cookstown and Craigavon districts fared considerably better at 17%, 9% and 11% respectively. Ballymoney and Fermanagh each had less than 1.5% coverage.

3.3 Results for Northern Ireland

Having derived a total tonnage of waste produced by each company, it was necessary to produce totals for Northern Ireland. The following graph shows the tonnes of waste produced per employee per annum in Northern Ireland as a frequency plot, Figure 3.1.

Figure 3.1: Frequency plot of tonnes of waste produced per employee per annum in the Northern Ireland sample



Overall, 81% of sampled companies have waste production rates of five tonnes per annum or less while just 1% have waste production rates of more than 40 tonnes per employee per year.

3.4 Quantity of waste produced in Northern Ireland

Overall, industry and commerce in Northern Ireland produced between 389,000 and 676,000 tonnes of waste in the year 2000. These figures reflect the lower and upper confidence limits associated with the data, but for simplicity the remainder of the report will refer to the estimated total waste production - 532,500 tonnes. The pilot survey carried out in 1998/99 had estimated a total waste production of 700,000 tonnes.

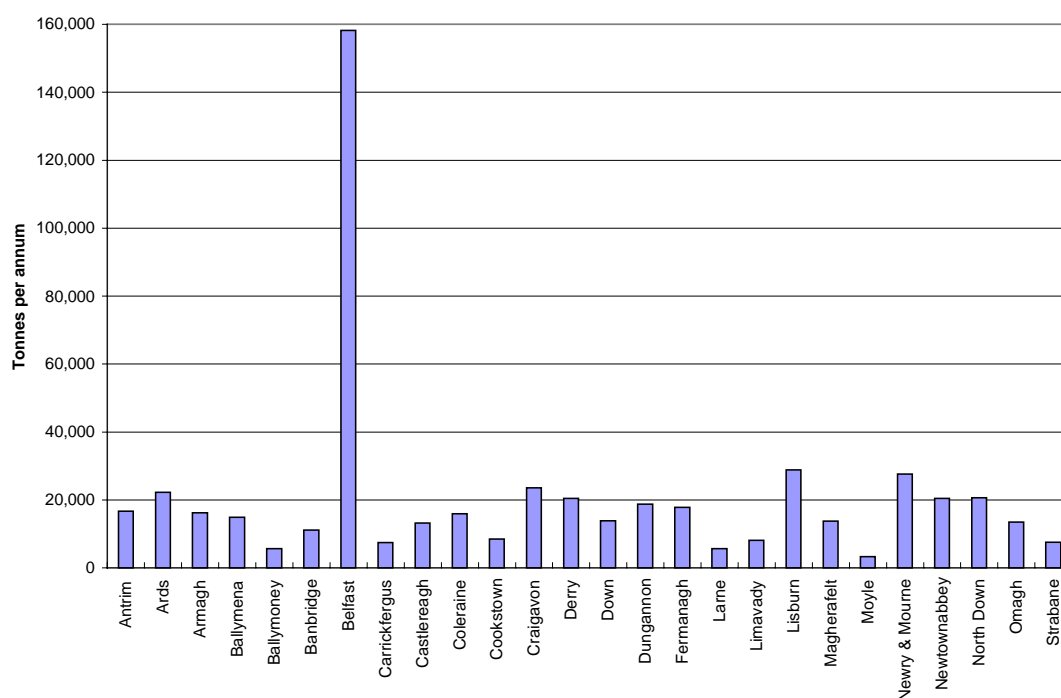
By economic sector

From the results it can be seen that four economic sectors are responsible for nearly one half of the waste produced in Northern Ireland. These are;

- Public administration, defence and social security - produces 10.5% of the total,
- Health and social work - produces 13.6% of the total,
- Retail trade - produces 9.8% of the total, and
- Education - produces 9.5% of the total.

By District

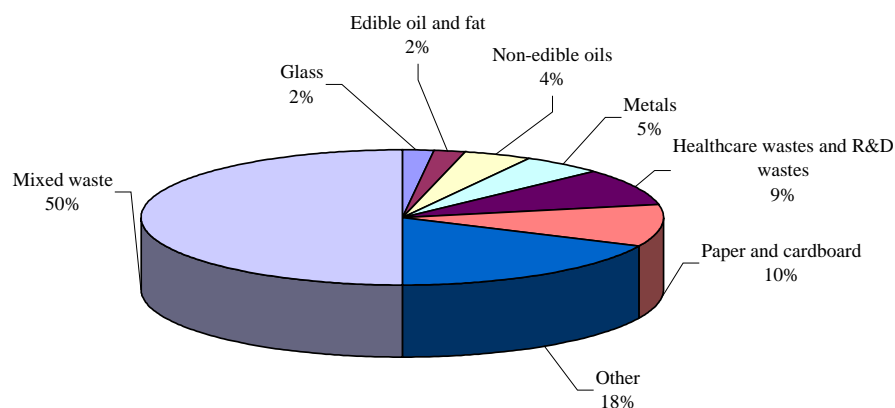
From the following graph (Figure 3.2) which shows the distribution of waste production across the districts, it can be seen that Belfast produces more than one quarter of all industrial and commercial waste (30%) while Moyle produces the least at less than 1% of the total.

Figure 3.2: Tonnes of waste produced in Northern Ireland by District, 2000**By material composition**

From the composition results it was seen that the most commonly produced waste material is mixed waste, that is, waste which consists of two or more different materials mixed together at point of collection. This type of waste typically consists of materials such as paper, cardboard, kitchen waste and metals and is rarely hazardous in nature although it often contains recyclable materials. Mixed waste accounts for 266,600 tonnes per year and 50% of all waste produced.

Non-packaging paper and cardboard makes up 55,700 tonnes, or 10.5% of the waste stream. Paper and cardboard packaging adds a further 8,500 tonnes (1.6%). Healthcare and Research and Development (R&D) wastes make up a significant proportion of the waste produced at 8.9%. By comparison the other waste materials are individually relatively insignificant although together they comprise 29% of waste produced.

Figure 3.3 shows the composition of waste produced in Northern Ireland 2000.

Figure 3.3: Composition of waste produced in Northern Ireland 2000**By waste management method**

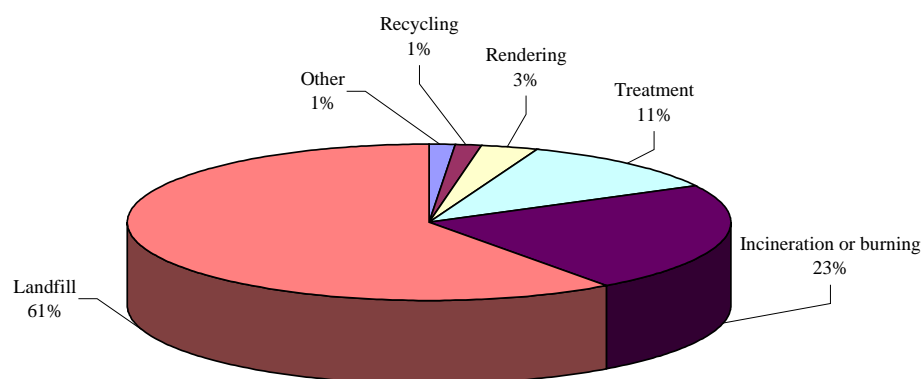
As shown in Figure 3.4 the most common waste management option for waste produced by industry and commerce in Northern Ireland is landfill at 217,300 tonnes or 40.9%.¹ Just less than a third of all waste (31.4%) is recycled, a performance more or less on a par with England and Wales where 35% of waste is estimated to be recycled.² A further 16.4% is incinerated or burned³ and the remainder is managed by other treatment methods.

¹ Slight differences between figures in this section are due to rounding.

² *Waste Strategy 2000 for England and Wales* Part 2 p.14

³ 'Incineration' means burning under controlled conditions in a specially designed furnace whereas 'burning' is uncontrolled combustion, perhaps in a wood burning stove or outside on a bonfire.

Figure 3.4: Percentage of waste managed using different methods in Northern Ireland 2000

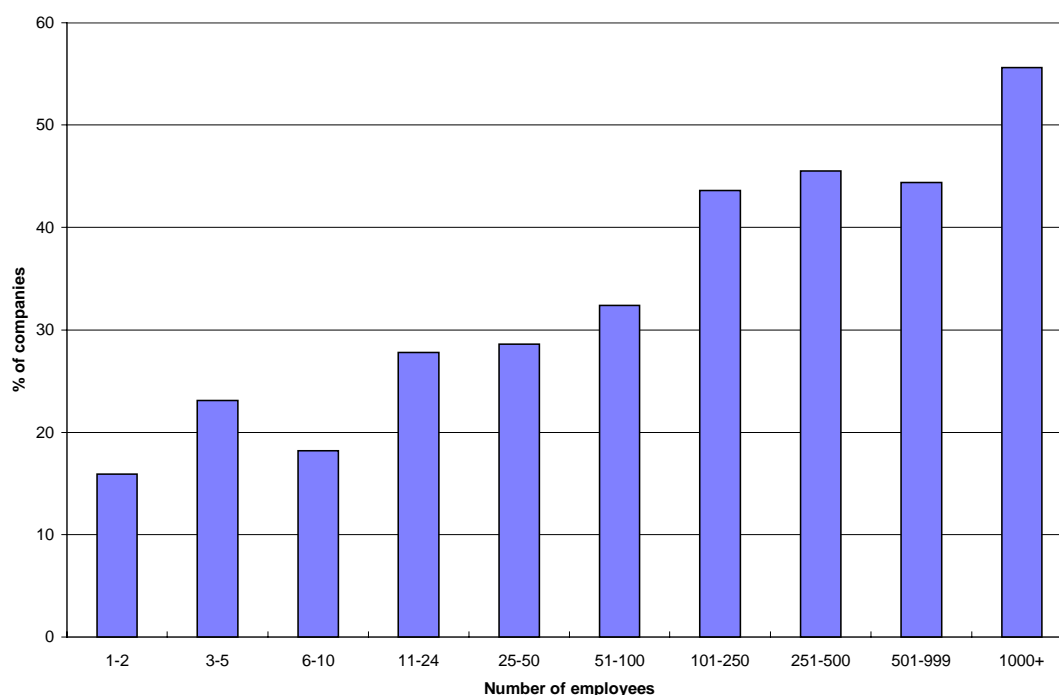


Recycling rates differ across sectors of the economy, with the motor vehicle sale and repair sector performing the best at 71.4% of waste recycled and post and telecommunications performing the worst at 0%.⁴ In quantitative terms, the retail trade recycled the most waste at 36,200 tonnes a year. Public administration, defence and social security recycles 21,800 tonnes a year and education recycles 19,800 tonnes.

Larger companies in terms of the number of people employed tend to recycle more than smaller companies. Figure 3.5 shows the percentage of companies within each size band which recycle at least one waste stream.

⁴ It is unlikely that this sector truly recycles nothing across the whole of Northern Ireland and this result is likely to be a result of sampling bias as only 14 companies are included in the sample.

Figure 3.5: Percentage of companies recycling at least one waste stream by number of people employed



3.5 Quantity of packaging waste produced in Northern Ireland

Overall, 230,100 tonnes of packaging waste was produced by industry and commerce in Northern Ireland in 2000. This represents 43.3% of the waste. Care should be exercised when using these figures, however, as whether or not a material has been counted as packaging was determined by the respondent with only limited guidance or at data coding stage. Mixed waste streams were classified as packaging only where all the components were packaging, so the figures are likely to be underestimates of the true amount.

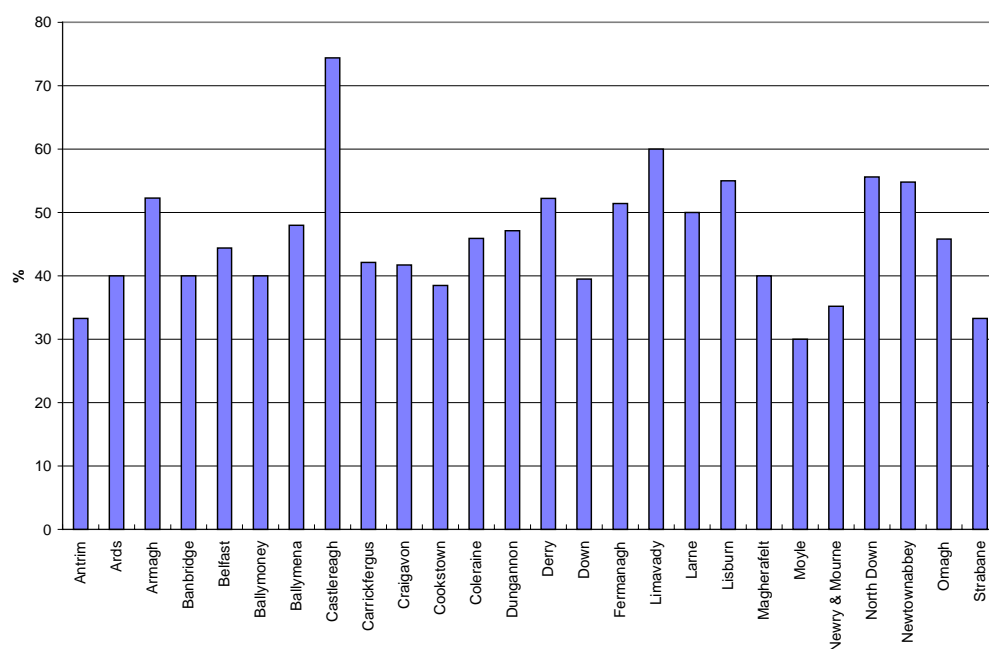
The largest quantities of packaging are produced by the retail trade at 44,500 tonnes in 2000. The education sector is also a relatively large producer of packaging waste at 37,800 tonnes in 2000. Several sectors produce more than three quarters of their waste as packaging waste - manufacture of other machinery and equipment at 89%, manufacture of transport equipment at 85%, the retail trade at 86% and post and telecommunications at 81%.

3.6 Waste Management Behaviour

The questionnaire also asked some general questions about each company’s waste management behaviour, starting with whether they produced any waste stream which could have been recycled but was not.

As shown in Figure 3.6 just fewer than half of the sampled companies stated that they produced waste which could have been recycled but was not. Commercial organisations were slightly more likely than industrial companies to produce wastes which could be recycled but which were not (50% compared with 42%). Companies with more waste streams tended to produce wastes which could be recycled but which were not (40% of companies with one waste stream compared with 86% of companies with between six and eight waste streams, although there were variations in between) as did companies with more employees (36% of companies with 1-2 employees compared with 64% of companies with between 251-500 employees).

Figure 3.6: Percentage of companies producing waste which could have been recycled but which was not by district of location (2000)

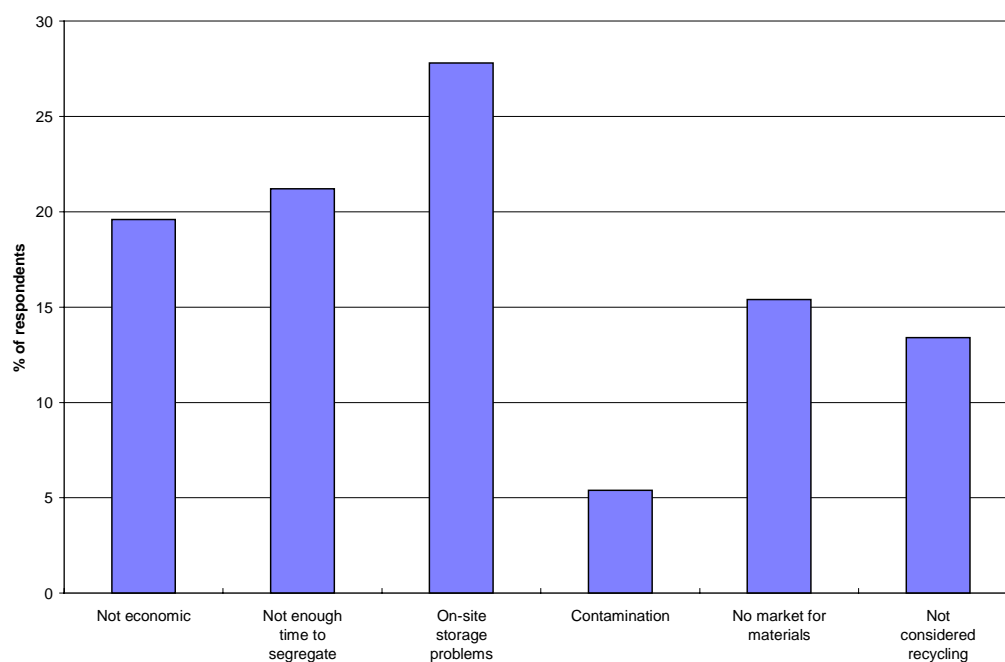


The greatest potential for increasing the level of recycling appears to be in Castlereagh district, where almost three quarters of companies stated that they produced waste which could be recycled but which was not. Moyle is the district with the smallest potential for increasing recycling, but even here just fewer than a third of companies may be able to improve their recycling performance. In most districts between one third and half of companies produced waste which could be recycled but which was not. Assuming the sample is representative of industry and commerce in each district of Northern Ireland, there is clearly scope for increasing the level of recycling achieved.

There are reasons for companies not recycling recyclable wastes. Respondents were provided with a list of reasons of which they could tick more than one. The reasons were:

- not economic;
- not enough time to segregate materials;
- on-site storage problems;
- contamination of materials;
- no market for the materials; and
- not considered recycling.

As seen in Figure 4.7 the most commonly stated reason for not recycling was on-site storage problems (28% of responding companies). The second most common reason was a lack of time to segregate materials (21%) followed by recycling not being economic (20%). Contamination of materials was a problem for only 5% of responding companies.

Figure 3.7: Reasons given by companies for not recycling

The reasons for not recycling have also been analysed by district council, economic sector, number of employees and number of waste streams produced.

Companies were also asked whether they had carried out any waste reduction activities in the year 2000, broken down into materials reduction, water reduction, packaging reduction and energy reduction. Overall, 27% of companies had carried out materials reduction, 18% water reduction, 19% packaging reduction and 30% energy reduction.

In general, companies which produce a greater number of waste streams carried out more waste reduction activities than companies which produced few waste streams, as Table 3.2 shows.

Table 3.2: Percentage of companies which had carried out waste reduction in 2000 by number of waste streams produced

| Number of waste streams | % of respondents which had carried out: | | | |
|----------------------------|---|--------------------|------------------------|---------------------|
| | materials reduction | water reduction | packaging reduction | energy reduction |
| 1 | 23 | 14 | 17 | 24 |
| 2 | 26 | 18 | 20 | 29 |
| 3 | 30 | 24 | 18 | 39 |
| 4 | 38 | 24 | 25 | 47 |
| 5 | 39 | 23 | 27 | 58 |
| 6-8 | 50 | 50 | 43 | 79 |
| 9-11 | 75 | 50 | 75 | 75 |
| 12+ | 67 | 83 | 67 | 67 |

4.0 WASTE INDUSTRY

4.1 Introduction

The questionnaire employed for the survey was the same as that employed for the Pilot Study. The questionnaires were designed to collect information on:

- The collection, treatment and disposal services provided by the company;
- The types of facilities operated by the company, including types and quantities of waste handled;
- The waste management companies opinions on waste management in Northern Ireland.

124 Questionnaires were sent out to a cross-section of waste management companies.

25 questionnaires were returned of which 7 were incomplete.

The response rate equates to 20.2% of the total number of questionnaires sent out.

The responding companies were responsible for the handling of 587,608 tonnes of waste in 1999/2000.

Comparisons between the 1998/1999 and 1999/2000 results can be seen in Figures 4.1 to 4.4.

4.2 Waste Industry Responses to the 1999/2000 Survey

The responses to the 1999/2000 survey accounted for 587,608 tonnes of waste, as opposed to 621,100 tonnes handled by respondents to the 1998/1999 survey. In order to address the poor response from the Waste Industry to the 1999/2000 survey, it is proposed to carry out further work based on site visits to waste industry companies within Northern Ireland.

Figure 4.1 Waste handled by respondents in tonnes by facility type in 1999/2000.

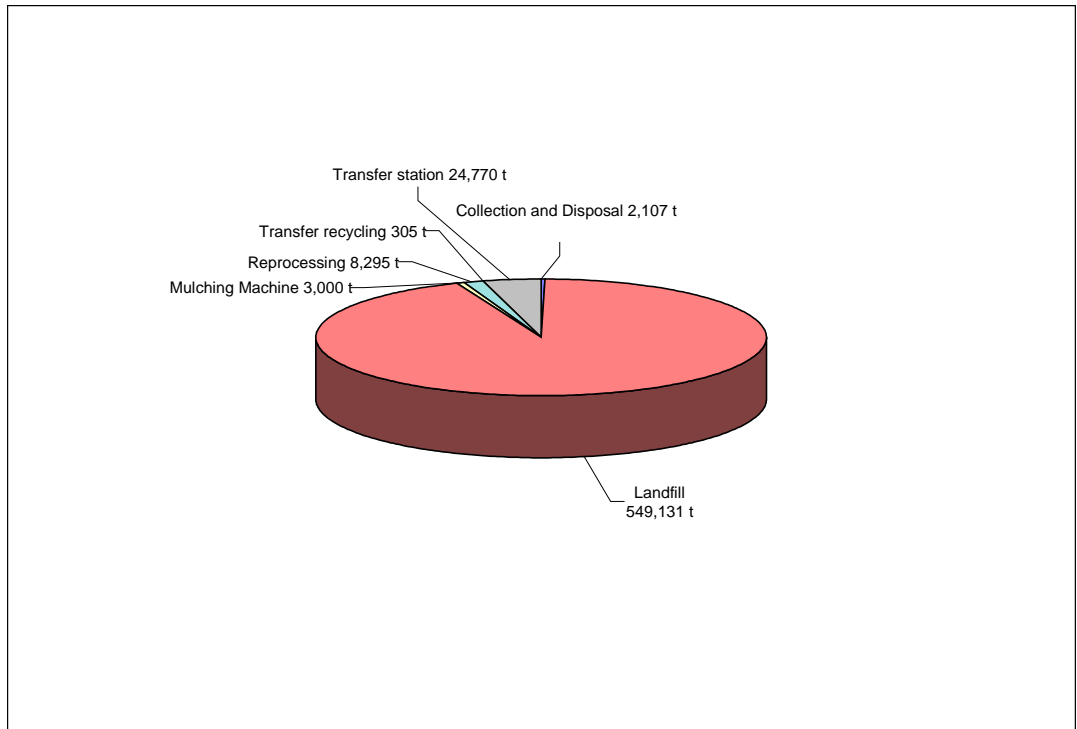


Figure 4.2 Waste handled by respondents in tonnes by facility type in 1998/1999.

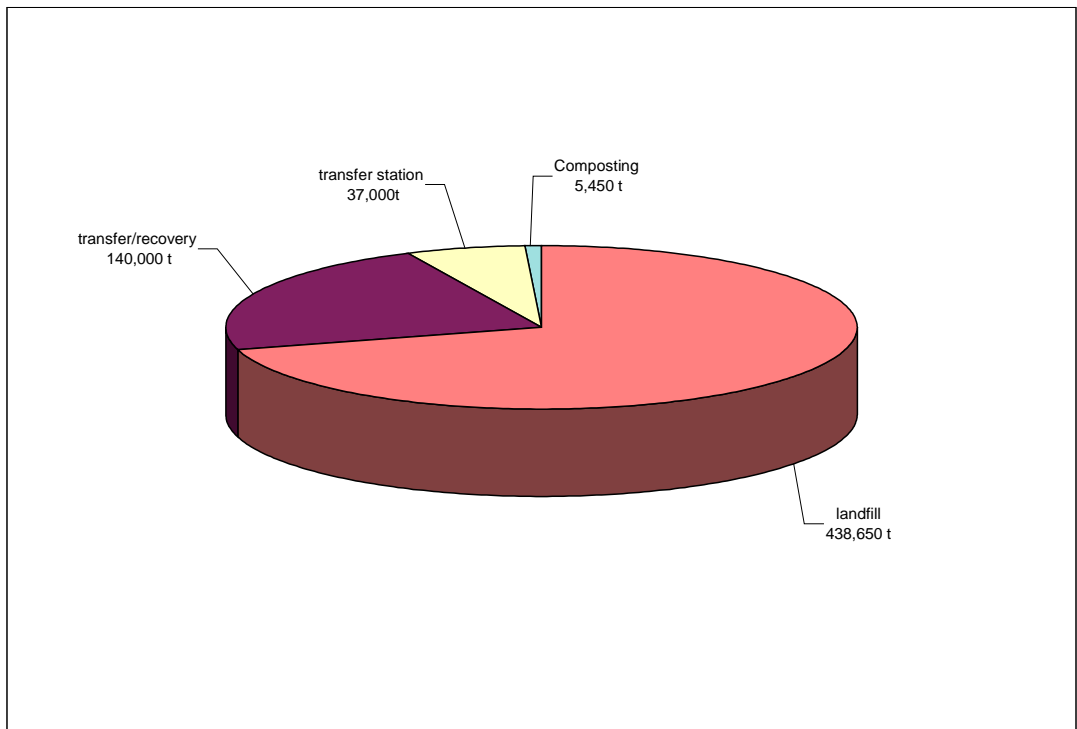


Figure 4.3 Waste sent to the respondents landfill sites in 1999/2000.

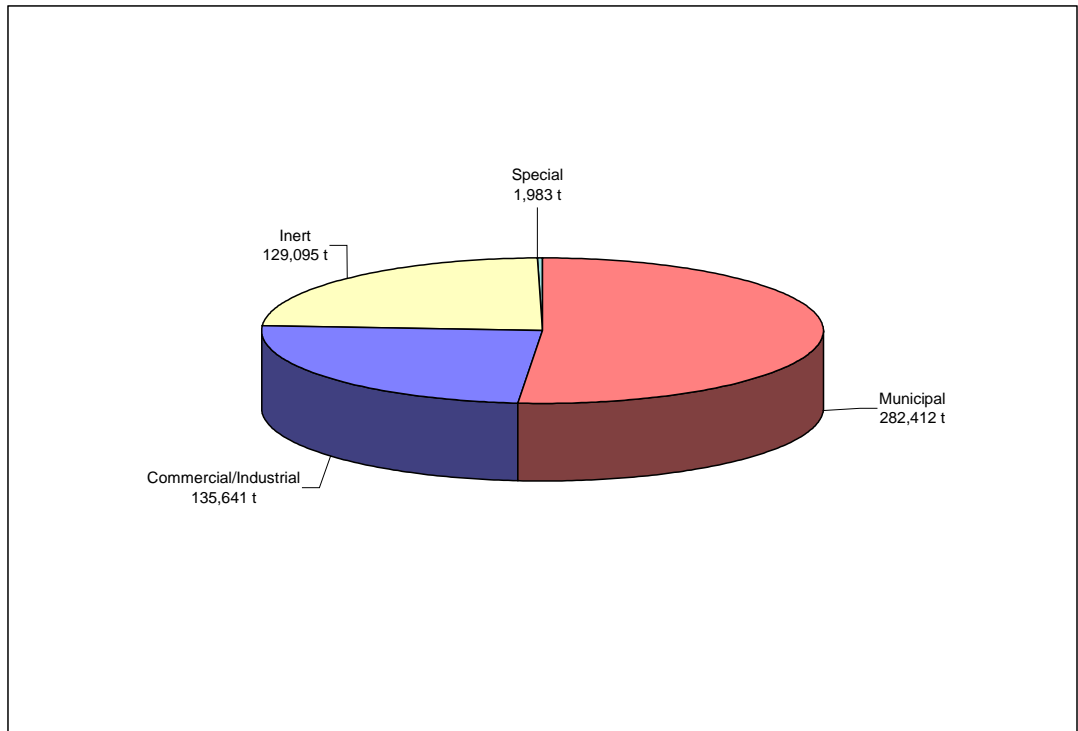
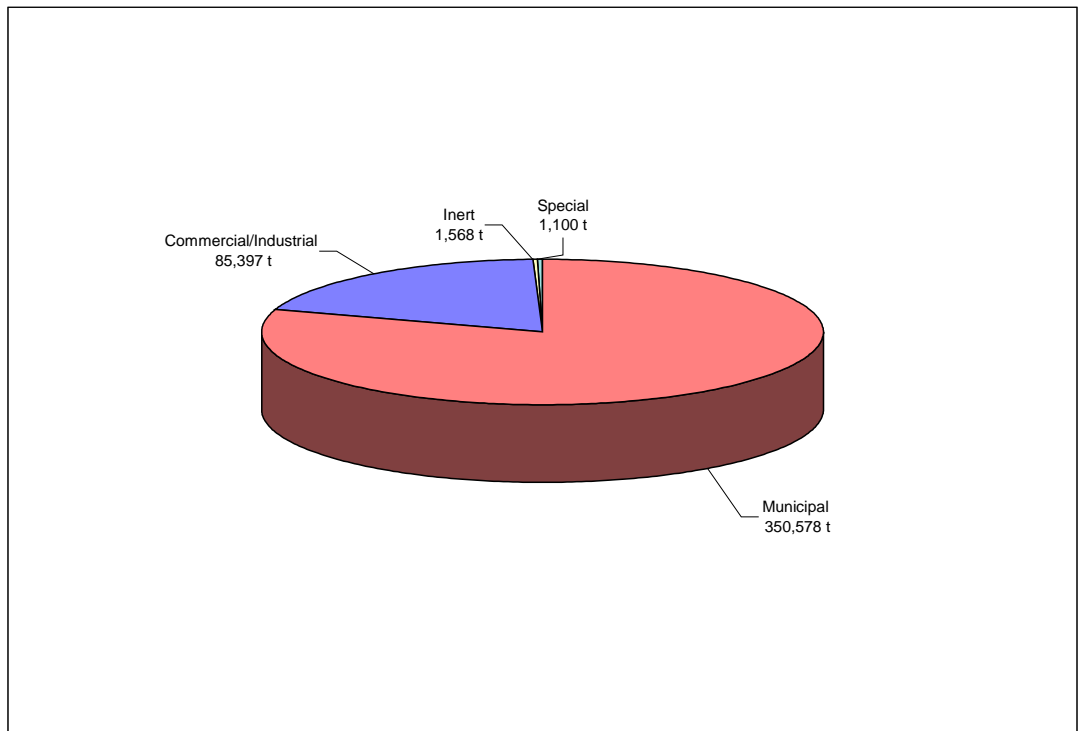


Figure 4.4 Waste sent to the respondents landfill sites in 1998/1999.



4.3 Respondents opinions on waste management in Northern Ireland.

In addition to providing data on waste management services and facilities, respondents were asked for their views on the following waste management issues:

1. What does your company consider to be the key issues for the waste management industry at present? (Table 4.1)
2. How does your company consider waste recovery can be increased? (Table 4.2)
3. What do you consider to be barriers to waste recovery and recycling in Northern Ireland? (Table 4.3)

Table 4.1 Opinions of Waste Industry Contractors on key issues.

| Opinion on Key Issues |
|---|
| “Encourage methods of recycling by education and grant aid to companies that are willing to develop recycling. Introduce policing at the disposal sites to comply with current regulations”. |
| “Government need to make use of the landfill tax to create a better commercial market to make recycling a financial viability”. |
| “Proper Legislation needs to be fully implemented, as at present there is no coherent policy in the area”. |
| “Costs are rising rapidly and making it more unprofitable to collect our customers waste. There are more and more demands and regulations in the legislation which make it very difficult to control and keep up to date There is a lack of disposal sites and recycling plants”. |
| “More availability of suitable landfill sites is needed”. |
| “More money and education of the promotion on recycling is needed”. |
| “Minimise the waste produced for Environmental Protection & Sustainable development”. |
| “There is a lack of sensible long-term planning: The standard rate of landfill tax is too high: and there is too much wasteful packaging”. |
| “Need to establish even more control on waste handling 'duty of care' order to make producer liable”. |

Table 4.2 Opinions of Waste Industry Contractors on how recovery can be increased.

| Opinion on How Recovery can be Increased |
|--|
| “By giving grant aid to companies that are establishing recovery systems”. |
| “Better education and awareness of the general public of environmental issues is needed”. |
| “Increase price for recovered materials”. |
| “EU grants, education of the children and students in what to do with the waste so that they, in turn can put pressure on Local Authorities and government departments”. |
| “Grants given to companies such as ourselves to enable the purchase of machinery to recover more materials for recycling”. |
| “Education and publicity”. |

Table 4.3 Opinions of Waste Industry Contractors on the barriers to waste recovery and recycling are in Northern Ireland.

| Opinion on Barriers |
|---|
| “Lack of convenient facilities and incentives to use them”. |
| “Revenue from recyclables and Local Authorities not giving enough help and finances to small recycling companies”. |
| “Poor market for recycled products”. |
| “Poor price for recovered materials”. |
| “Lack of capital and incentives: Ignorance of how to deal properly with waste and the long-term consequences of not creating it. Learn from the German system: If there were handy collection points more people would use them”. |
| “Limited use on local market of recycled products”. |

Key themes to emerge from the survey of Waste Industry respondent’s opinions are:

- The need for greater investment in education;
- The need to generate markets for recycled/reclaimed materials;
- Lack of grant and capital investment

5.0 CONCLUSIONS

5.1 The Waste Management Strategy for Northern Ireland sets out ‘improving our understanding’ as one of the set of six core policy measures, which make up the Strategy. Within ‘Improving and Understanding’, accurate baseline data is identified as essential for the proper management of wastes.

The Strategy commits the Department to undertake a series of actions to improve waste data, including:

- Publish the report on the comprehensive baseline data survey;
- Report on trends in waste arisings and publish results from the waste management data collection and reporting systems on an annual basis;
- Undertake further and on-going data collection activities to improve the understanding of the baseline for waste reduction.

5.2 Municipal Waste

The 1999/2000 Northern Ireland Waste Arisings Study represents an on-going process of development and implementation, and the results of the survey of District Councils on municipal waste represents an important building block in this process. Key elements of waste data generated by the Study include:

- An increase in the household waste recycling rate from 4.9% in 1998/1999 to 6.6% in 1999/2000;
- An increase in the quantities of municipal waste generated from 959,954 tonnes in 1998/1999 to 1,003,736 tonnes in 1999/2000.

Combined with the results of the Industrial and Commercial Waste Survey, the results of the Study represent a comprehensive survey of waste arisings in Northern Ireland that will meet the data needs of the Waste Management Strategy for Northern Ireland, and both assist and support District Councils in meeting their statutory obligations with respect to the preparation of waste management plans.

5.3 Industrial and Commercial Waste

The completion of the first comprehensive survey of Industrial and Commercial Waste Arisings in Northern Ireland has produced the following key outputs:

- Industrial and Commercial waste arisings in Northern Ireland for the year 2000 are estimated to be 532,500 tonnes per annum;
- The most common waste management method for the waste produced by industry and commerce in Northern Ireland is landfill at 217,300 tonnes or 40.9%;
- Just over one third of all waste is recycled (31.4%), compared with a recycling rate for industrial and commercial waste in England and Wales of 35%;
- Commercial organisations are slightly more likely than industrial companies to produce wastes which could be recycled but were not (50% as compared with 42%);
- The most commonly stated reason for not recycling was on-site storage problems (28% of responding companies), followed by lack of time to segregate materials (21%) and recycling not being economic (20%);
- Overall, 27% of companies had carried out materials reduction, 18% water reduction, 19% packaging reduction and 30% energy reduction; and
- In general, the greater number of waste streams produced by a company, the greater the number of waste reduction activities are carried out.

As such, the Study represents a major milestone in the development of the Strategy and, in particular, in the fulfilment of the commitments set out in the Strategy with respect to actions to improve waste data.

5.4 Recommendation for future surveys

During the survey a number of issues were identified which, if addressed prior to the next survey being undertaken, should result in a greater response rate and more accurate waste data being received. As a result the following recommendations are suggested:

- 1) Survey to be a statutory obligation to encourage completion of the questionnaire;
- 2) Survey forms to be issued with EHS headed paper;
- 3) Adequate survey time to be provided to allow follow up letters, phone calls and site visits to be undertaken. A minimum 3 month survey period should be provided in future tenders;
- 4) An emphasis on site visits to larger companies, as these generate most waste, to verify the accuracy of the information provided;
- 5) The sampling and analysis methodologies to be agreed prior to tender award or prior to the commencement of the contract;
- 6) Companies to be given the opportunity to provide the data in an electronic media;
- 7) The survey should be accompanied with a public relations / awareness campaign to promote the survey with businesses;
- 8) Key business sector non government organisations should be involved to promote awareness through their membership, eg, CBI, CoC, etc;
- 9) The database should be modified to allow the separation of measurement quantities and units and to reflect the use of the EWC classification system.



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