Northern Ireland 2008 Exemptions Survey Report

Supporting the WSRR Report

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Contents

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1. EXECUTIVE SUMMARY

1.1 A survey was carried out during 2009 by Capita Symonds on behalf of NIEA to determine how much waste was managed on exempt sites in Northern Ireland during 2008. The survey did not cover the simple storage of waste: some element of treatment and/or disposal was involved. One hundred and sixty six survey forms were sent to a number of different groups of operators of registered exemptions, and the overall response rate, after reminders had been sent, was 63%.

1.2 The survey population was broken into groups of directly comparable operators to allow the responses to be grossed up to generate estimates of the tonnage for all the key activities. These are reported in Table 1.1 below.

1.3 After discounting those waste flows which are collected by or on behalf of District Councils (and which are shown below in brackets), the total quantity of waste estimated to be managed on registered exempt sites in Northern Ireland during 2008 was between 621,903 and 760,104 tonnes at the 90% confidence interval (i.e. 691,004 tonnes ± 10%).

Table 1.1: Consolidated results from all exempt sites in 2008

Description	Tonnes grossed-up
Hardcore mixed with soil	22,991
Excavated materials (soil, rock etc)	486,370
Mixed concrete, brick etc (incl. hardcore)	60,942
Road planings	41,407
Green / woody waste collected by (or for) DCs	(11,629)
Green / woody waste from other sources	1,839
Waste wood collected by (or for) DCs	(7,475)
Waste wood from other sources	50,876
Spent mushroom compost	236
Horse bedding	79
Sludges spread on land	3,118
Glass	2,683
Scrap metal	63
Waste tyres	2,469
Mobile phones	<0.1
Plastics	7,403

Paper and card	4,275
Refrigeration oil	2
Undifferentiated mixed waste	6,250
Total	*710,108*
Total omitting waste collected by (or for) DCs	*691,004*

Source: Capita Symonds

1.4 The most significant waste stream managed on registered exempt sites is construction, demolition and excavation waste (CDEW), which accounts for 89% of the total. All other waste streams are small in comparison. Taking this knowledge in conjunction with the fact that 77% of the total quantity of waste managed on exempt sites arises from sites where users are obligated to supply information on request, suggests that the running of biennial exemption surveys may not be necessary to generate a reliable estimate of the total waste managed at such sites. In particular, it is recommended that NIEA consider the merits of requesting data annually from those operators of exempt sites who are obligated to make information available, on request.

2. BACKGROUND TO THE EXEMPTIONS SURVEY

Introduction

2.1 This report presents the results of a survey of companies and individuals that held exemptions from waste management licensing from NIEA during 2008. The exemptions surveyed were those thought to involve the use or disposal of waste, **not** simply its storage. The exemptions were granted under Schedule 2, Part I of the Waste Management Licensing Regulations (NI) 2003. Such exemptions are often described by reference to the paragraph numbers within Schedule 2.

2.2 The information requested through the survey was required to enable NIEA to complete its return to Defra (and via Defra to Eurostat) under the Waste Statistics Regulations No. 2150/2002. The information was also collected with the intention of updating current statistical information relating to the arisings and management in Northern Ireland of commercial and industrial waste, and construction, demolition and excavation waste (CDEW).

Survey populations

2.3 On 17 February 2009 166 survey forms were sent out. The recipients of these 166 forms can be categorised as follows:

- Group 1 (companies that handle CDEW): 91 forms, further sub-divided as follows
  - (i) 32 forms to companies that process CDEW (Group 1A)
  - (ii) 54 forms to companies that spread CDEW on land (Group 1B)
  - (iii) 5 further forms (not included in the counts above) to companies that both process and spread CDEW (i.e. that fall into both Groups 1A and 1B)
- Group 2 (companies that handle green waste and some waste wood): 26 forms, further sub-divided as follows:
  - (i) 11 forms to companies that carry out composting activities (Group 2A)
  - (ii) 15 forms to companies that deal in other ways with green waste and waste wood (Group 2B)
- Group 3 (companies that spead sludges on land): 17 forms
- Group 4 (companies that handle dry recyclates): 21 forms, further sub-divided as follows:
  - (i) 2 forms to companies that handle waste glass
  - (ii) 5 forms to companies that handle vehicle parts
  - (iii) 2 forms to companies that handle WEEE
  - (iv) 1 form to a company that handles waste textiles
  - (v) 11 forms to companies that handle waste plastics as well as paper and card (6 of which only handle waste plastics)

- Group 5 (companies that handle miscellaneous wastes): 11 forms, further subdivided as follows:

  (i) 3 forms to companies that handle waste wood

  (ii) 3 forms to companies that burn unspecified waste

  (iii) 2 forms to companies that handle waste tyres

  (iv) 2 forms to companies that handle waste oil / refrigerants

  (v) 1 form to a company with an unknown process

2.4 The above categorisation was originally based on applicants' own descriptions of their activities, including any restrictions on the tonnages to be handled. It was subsequently confirmed by reference to the paragraph numbers (from Schedule 2 of the Waste Management Licensing Regulations (NI) 2003), under which the exemptions were granted.

Response rate

2.5 By late March 2009, 56 replies had been received (representing an overall return rate of just over 33%), and 110 follow-up forms were sent to non-respondents on 27 March. Although the return rate reached 50% following these two mailings, a further reminder was sent to non-respondents who held an exemption under one of the paragraph numbers which carries an obligation to provide information on request (namely paragraphs 9, 10, 11, 13, 19, 45 and 46 of Schedule 2 of the Waste Management Licensing Regulations (NI) 2003). This final mailing, sent on 5 June 2009, went to 27 exemption holders from Group 1B, six from Group 2A and five from Group 3.

2.6 By the end of July 2009, the three mailings, combined with a small number of individual approaches to selected exemption holders by NIEA staff, had generated returns covering a total of 103 out of 166 exemptions (representing an overall response rate of 62%). One very late return was received at the beginning of September, taking the overall response rate to 63%. Of the remaining 62 survey forms, two were returned with the information that the exemption holder had gone out of business (and the information requested was therefore unavailable), and five were returned as undeliverable by the Post Office.

2.7 An overall response rate of 63% is relatively high for a survey of this sort, and is attributed to the simplicity of the questions asked. Although it would have been possible to ask more (and more complex) questions which, if answered, would have provided additional useful information, it was agreed prior to the initial mailing, and based on Capita Symonds' experience of such surveys, that this would very likely depress the response rate. On balance it is concluded that the chosen approach (to ask very simple questions and go for a high response rate) was most sensible.

Reporting

2.8 This report presents the results, by Group (1A to 5), as of the mid-September 2009, by which point no new returns had been received for two weeks and only one had been received in six weeks, signifying that the survey could reasonably be considered to be complete.

2.9 Where tables are included below, they generally employ the same format as was used in the survey forms.

Grossing-up and confidence intervals

2.10 Because the survey population was segmented from the outset by activity (i.e. divided into groups of comparable operators), and (in the case of Group 1B) further divided by likely scale of operations, it was assumed that there were no grounds for assuming that respondents and non-respondents from within any group or sub-group would differ in any predictable way from others in that same group or sub-group.

2.11 On this basis, the mean values reported by respondents were treated as the best available estimates for the mean values for the group or sub-group concerned, allowing grossing-up to be very simple. In a group of N exemption holders of whom n responded reporting t tonnes of waste, the estimate for the group as a whole (T tonnes) can be calculated by the simple ratio n/N = t/T, and therefore T = t x N/n.

2.12 In other words, in the case of a group of 25 exemptions from which 15 responses were received reporting 3,000 tonnes of waste handled, the estimated total tonnage would be 25/15 multiplied 3,000 tonnes, or 5,000 tonnes.

2.13 All of the main tonnage estimates come with a range at the 90% confidence interval (in other words, the reader can be 90% confident that the true estimate lies within the stated range). In the text the results are generally reported in the format 'XX to YY tonnes at the 90% confidence interval (i.e. ZZ tonnes ± aa%)'. Where, as is quite often the case, the actual tonnage reported by respondents is greater than ZZ tonnes – aa%, the lower end of the tonnage band is reported as the reported tonnage (as represented by XX tonnes above). In those instances where this occurs, the distribution of reported tonnages is positively skewed (typically involving several nil returns, several small tonnages and a small number of much higher tonnages).

2.14 The confidence intervals were calculated using the standard approach to calculating such intervals around grossed up sample totals for strata[1]. In those instances where the confidence intervals appear surprisingly wide, the explanation can be found in the small number of data points from which those totals were estimated (characterised as 'n' in paragraph 2.11 above), and the large variation around the mean of those data points. This has the effect of reducing the precision of any estimate made from the sample, and hence increasing the width of the estimated confidence intervals. Furthermore, many of the distributions associated with small survey groups exhibited positive skew, which can introduce further errors into the estimate. However, the estimate of the confidence interval around the grossed-up total waste managed on all exempt sites produces smaller confidence bands, being derived from the sum of several random variables (i.e. the sums of the grossed up totals and variances of each stratum). This yields an overall grossed-up total from which the confidence interval can be constructed using the summed variances in each stratum.

[1] See Cochran (1977) Sampling Techniques, 3rd edition

3. PROCESSING CDEW INTO AGGREGATES AND/OR SOIL

3.1 Thirty seven forms were mailed to companies believed (from the information available pre-survey) to be involved in processing CDEW into aggregates and/or soil (i.e. 32 plus 5 Group 1A companies, as described in paragraph 2.3 above). Twenty responses were received (representing a response rate of 54.1%). Seven of these were nil returns.

3.2 Grossing-up of the data that was reported has been done by re-allocating those materials which were reported by respondents under the heading 'other' to the closest appropriate alternative, and multiplying the reported tonnages by 37/20.

3.3 The respondents' own descriptions of the 'other' input materials (in Table 3.1) were 'concrete and blocks: rejects and out-of-specification materials from production plant in quarry' (2,662 tonnes), 'aggregate waste from bitmac plants' (18,000 tonnes) and 'utilities arisings' (10,683 tonnes). Their descriptions of the 'other' output materials (in Table 3.2) were 'Type 4 recycled asphalt' (two lots, of 10,114 and 5,511 tonnes).

Table 3.1: Group 1A respondents – CDEW processing, input materials

Description	Tonnes reported	Tonnes grossed-up
Hardcore mixed with soil	744	1,376 Plus 19,764 (from 'other')
Excavated materials (soil, rock etc)	16,078	29,744
Mixed concrete, bricks etc	770	1,425 Plus 4,925 (from 'other')
Road planings	4,199	7,768 Plus 33,300 (from 'other')
Metals and wood	0	0
Other (please specify)	31,345	(Re-allocated, as shown above)
Total	*53,136*	*98,302 ± 50%* *53,136-147,453*

Source: Capita Symonds

Table 3.2: Group 1A respondents – CDEW processing, output materials

Description	Tonnes reported	Tonnes grossed-up
Hardcore / fill / aggregate	48,252	89,266 Plus 28,906 (from 'other')
Topsoil	500	925
Other useable soil / low-grade fill	2,800	5,180
Steel	230	426
Other metals and wood	0	0
Other (please specify)	15,625	Re-allocated (as shown above)
Residual waste materials (i.e. non-useable soil / mixed materials / fines)	0	0
Total	*67,406*	*124,701 ± 60%* *67,406-199,522*

Source: Capita Symonds

3.4 The difference between the totals in Tables 2.1 and 2.2 comes about as a result of some companies selling materials during 2009 that had been stockpiled in previous years. It is concluded that the best estimate of 2008 waste arisings and management would be based on the figures given in Table 3.1.

3.5 A further 54 forms were mailed to companies thought (pre-survey) to be involved in spreading CDEW onto land (i.e. the main part of Group 1B). Thirty five responses were received from this group, and a small number of these respondents (five, of whom one could not provide tonnage figures) also reported that they were processing CDEW. Grossing-up of the returns from these unexpected processors of CDEW was done by multiplying their reported tonnages by 54/35.

Table 3.3: Group 1B respondents – Additional CDEW processing, input materials

Description	Tonnes reported	Tonnes grossed-up
Hardcore mixed with soil	1,200	1,851
Excavated materials (soil, rock etc)	1,397	2,155
Mixed concrete, bricks etc	150	231
Road planings	220	349
Any other materials	0	0
Total	*2,967*	*4,578 ± 56%* *2,967-7,142*

Source: Capita Symonds

Table 3.4: Group 1B respondents – Additional CDEW processing, output materials

Description	Tonnes reported	Tonnes grossed-up
Hardcore / fill / aggregate	1,307	2,017
Residual waste materials (i.e. non-useable soil / mixed materials / fines)	460	710
Total	*1,767*	*2,727 ± 65%* *1,767-4,500*

Source: Capita Symonds

3.6 The figures from Tables 3.1 and 3.3 have been added together to generate Table 3.5, which represents an overall estimate of the tonnage of CDEW materials being processed by exemption holders. Likewise, the figures from Tables 3.2 and 3.4 have been added together to generate Table 3.6, which provides an estimate of the output materials from those same sites.

Table 3.5: All Group 1 respondents – CDEW processing, input materials

Description	Tonnes reported	Tonnes grossed-up
Hardcore mixed with soil	1,944	22,991
Excavated materials (soil, rock etc)	17,475	31,899
Mixed concrete, bricks etc	920	6,581
Road planings	4,419	41,407
Metals and wood	0	0
Other (please specify)	31,345	(Re-allocated to categories above)
Total	*56,103*	*102,880 ± 46%* *56,103-150,205*

Source: Capita Symonds

Table 3.6: All Group 1 respondents – CDEW processing, output materials

Description	Tonnes reported	Tonnes grossed-up
Hardcore / fill / aggregate	49,559	120,189
Topsoil	500	925
Other useable soil / low-grade fill	2,800	5,180
Steel	230	426
Other metals and wood	0	0
Other (please specify)	15,625	(Re-allocated to categories above)
Residual waste materials (i.e. non-useable soil / mixed materials / fines)	460	710
Total	*69,173*	*127,428 ± 56%* *69,173-198,788*

Source: Capita Symonds

3.7 These results are much lower than the recycling estimates from the 2005/06 survey, because the two surveys are measuring different things. The following explanation, while somewhat complex, does seek to indicate how and why the two estimates are so different. The terminology used in relation to the 2005/06 survey is explained more fully in the report of that project.

3.8 The 2005/06 estimates were based on 12 non-nil responses, from operators who between them reported recycling 264,369 tonnes of aggregates / soil. Eight of those 12 responses came from the group described as 'those thought more likely to be actively engaged in CDEW recycling' (or 'probables'). Three of the other four returns came from those operators who, it was thought, might well be involved in recycling ('possibles'), and one came from the 'sweep-up' group (of those thought unlikely to be involved, at least on a large scale).

3.9 Only one of the eight respondents in the 'probables' group also appears on the 2008 Exemptions list. The other seven reported recycling 221,500 tonnes between them (i.e. 83.8% of the total reported by that group in 2005/06). All three of the 'possibles' operators who reported in 2005/06 are also on the 2008 Exemptions list. By contrast, three of the operators who have reported CDEW recycling activity in 2008 were not on the 2006 mailing list.

3.10 It has to be concluded that although the two mailing lists have a reasonable overlap, they are by no means the same. In summary:

- 15 of the 23 2008 Exemptions Group 1A operators (as distinct from Group 1A sites) were also on the 2006 mailing list (and eight were not).

- 15 of the 51 operators who would clearly have been carried forward from the 2006 list to an equivalent 2008 list also appear on the 2008 Exemptions Group 1A list. (This should be a statement of the obvious, since it confirms the information in the previous bullet point, but from a different standpoint). In 2005/06 those 15 operators were classified as follows: one 'probable' recycler and 14 'possibles'.

- 36 of the 51 operators from the 2005/06 list were not on the 2008 Exemptions Group 1A list. In 2006 those 36 operators were classified as follows: 16 'probables', 19 'possibles' and one 'sweep-up'.

3.11 This is largely a reflection of the fact that much crushing and screening is done using hired equipment on construction sites which do not require, and are therefore not covered by, an exemption.

4. SPREADING CDEW ON LAND

4.1 None of the 32 Group 1A companies classified (pre-survey) as only processing CDEW actually reported spreading any material on land. The only source of data is therefore the group of 59 Group 1B sites (i.e. 54 plus five from the list in paragraph 2.3) operated by companies thought (pre-survey) to be involved in land spreading. Thirty eight responses were received (64.4%). Eighteen of these were nil returns.

4.2 To improve the precision of the estimate, this group has been further sub-divided into:

(i) eight sites likely to involve large tonnages of CDEW ('large sites')

(ii) fifty one sites likely to involve lesser tonnages of CDEW, or where there was no prior indication as to scale of operation ('other sites')

4.3 Returns have been received from all eight of the large sites, four of them being nil returns (not because the sites were not 'real', but because they had not been active during 2008). These returns report spreading 390,500 tonnes of unprocessed clean soil / excavation material (or materials that had been processed by someone else before it reached their sites). Given the 100% response rate from this sub-group, no further grossing-up of this element of the total is required.

4.4 Thirty returns were received from the operators of 'other sites' (14 of them being nil returns for aggregates and subsoils, some of which report some use of topsoil only).

4.5 The 30 returns from 'other sites' report spreading 34,080 tonnes of unprocessed clean soil / excavation material (or materials that had been processed by someone else before it reached their site); plus 3,550 tonnes of soil / excavation material that they had processed themselves; plus 31,977 tonnes of hardcore / broken bricks / fill / aggregate / road planings most of which had been processed to some degree. A grossing-up factor of 51/30 produces estimates of 57,936 tonnes plus 6,035 tonnes plus 54,361 tonnes (a total of 118,332 tonnes).

4.6 The estimates from the two sub-groups (large and others) have to be added together to generate the estimated total tonnage of CDEW spread on land. The outcome of this is as follows:

(i) 424,580 to 480,825 tonnes of unprocessed clean soil / excavation material (or materials that had been processed by someone else before it reached the reporting site) at the 90% confidence interval (i.e. 448,436 tonnes ± 7%);

(ii) 3,550 to 11,329 tonnes of soil / excavation material that the respondents had processed themselves (i.e. 6,035 tonnes ± 88%); and

(iii) 31,977 to 83,076 tonnes of hardcore / broken bricks / fill / aggregate / road planings most of which had been processed to some degree (i.e. 54,361 tonnes ± 53%).

4.7 Because responses were received from the operators of all of the 'large sites', the only uncertainty surrounds the grossing-up of responses from the 'other sites', which are small by comparison.

4.8 In all three cases, the lower figure in the range is the actual tonnage reported, which is higher than the theoretically possible lower band calculated from the central estimate.

5. COMPOSTING

5.1 Eleven forms were mailed to companies believed (pre-survey) to be involved in composting. Eight responses were received (72.7%), but one of these provided no information beyond the fact that all the compost produced was then used on site.

5.2 Grossing-up was done by multiplying the reported tonnages by 11/7 (to account for the absence of information in one return, as explained above).

Table 5.1: Group 2A respondents – Input materials

Description	Tonnes reported	Tonnes grossed-up
Green / woody waste collected by (or for) DCs	7,400	11,629
Green / woody waste from other sources	900	1,414
Waste wood collected by (or for) DCs	1,893	2,975
Waste wood from other sources	1,280	2,011
Spent mushroom compost	150	236
Other (horse bedding)	50	79
Total	*11,673*	*18,344 ± 58%* *11,673-28,984*

Source: Capita Symonds

Table 5.2: Group 2A respondents – Output materials

Description	Tonnes reported	Tonnes grossed-up
Compost	3,950	6,207
Re-useable timber	0	0
Cattle bedding	1,242	1,952
Other wood products	0	0
Other (please specify)	0	0
Residual waste materials (i.e. non-useable materials)	500	786
Total	*5,692*	*8,945 ± 70%* *5,692-15,207*

Source: Capita Symonds

5.3 Just under 80% of the tonnage reported in Table 5.1 (i.e. the green and wood waste collected by / for District Councils) and therefore most of the data in Table 5.2 as well, should overlap what is reported via WasteDataFlow, and should therefore not be carried over into the WSRR Report.

6. OTHER (NON-COMPOSTING) GREEN AND WOODY WASTE TREATMENTS

6.1 Fifteen forms were mailed to companies believed (pre-survey) to be involved in the treatment of green / woody waste, but not by composting it. Six responses were received (40.0%).

6.2 Grossing-up was done by multiplying the reported tonnages by 15/6.

Table 6.1: Group 2B respondents – Input materials

Description	Tonnes reported	Tonnes grossed-up
Green / woody waste collected by (or for) DCs	0	0
Green / woody waste from other sources	170	425
Waste wood collected by (or for) DCs	1,800	4,500
Waste wood from other sources	4,110	10,275
Spent mushroom compost	0	0
Other (please specify)	0	0
Total	*6,080*	*15,200 ± 93%* *6,080-29,336*

Source: Capita Symonds

Table 6.2: Group 2B respondents – Output materials

Description	Tonnes reported	Tonnes grossed-up
Compost	0	0
Re-useable timber	155	388
Cattle bedding	3,995	9,988
Other wood products	1,850	4,625
Other (please specify)	10	25
Residual waste materials (i.e. non-useable materials)	50	125
Total	*6,060*	*15,150 ± 94%* *6,060-29,391*

Source: Capita Symonds

6.3 As with Tables 5.1 and 5.2, some of the data in Tables 6.1 and 6.2 should overlap what is reported via WasteDataFlow.

7. SPREADING SLUDGES ON LAND

7.1 Seventeen forms were mailed to companies believed (pre-survey) to be involved in spreading / injecting sludges onto land. Fourteen responses were received (82.4%). Nine of these were nil returns (or only involved storage of sludge, with no spreading to land). Grossing-up was done by multiplying the reported tonnages by 17/14.

7.2 Most respondents had a good appreciation of the dry matter content (which ranged from 1.75% to 20-30%). Almost all of the material spread by respondents was cake rather than liquid, and most was spread on non-food crops.

7.3 The 14 respondents reported spreading 3,067 tonnes dry matter, which generates an overall estimate of between 3,067 and 6,331 tonnes at the 90% confidence level (i.e. 3,724 tonnes ± 70%).

7.4 The very large majority (2,897 tonnes, or 94.5%) of the reported tonnage was sewage sludge. If the total is estimated distinguishing between sewage sludge and other sludges, then both the estimated total and the estimated range are appreciably lower, because the sewage sludge figure is certain, and the variability in the 'other' returns is much smaller than when all of the returns are dealt with in a single group. Taking this approach, which is preferred as the better one, the total tonnage of sludge spread on land is calculated as being between 3,067 and 3,224 tonnes at the 90% confidence interval (calculated from 2,897 tonnes plus {170 tonnes x 13/10} = 3,118 tonnes ± 3.4%).

8. DRY RECYCLABLES

Glass

8.1 Both holders of exemptions were related to the recycling of glass, and both reported the same tonnage. Since both forms were submitted by the same person, it is concluded that the second (in the name of a consultancy) was in effect a duplicate of the first (in the name of the waste management company). The overall estimate is therefore 2,683 tonnes crushed and sold for re-use (which is the tonnage reported separately by both of them). The uses to which the waste glass was put in 2008 included water filtration, shot blasting and construction aggregate.

Vehicle spares and scrap metal

8.2 Two out of five companies involved in vehicle spares and scrap metal reported handling 25 tonnes of spare parts and 10 tonnes of waste tyres. Grossed up by a factor of 5/2 this produces estimates of 62.5 tonnes and 25 tonnes respectively.

8.3 The only report of non-ferrous metals (from one of the mixed waste collection companies) was trivial (<100kg).

WEEE and waste textiles

8.4 No replies were received from the two WEEE operators or the one waste textile company, but they were contacted by NIEA in order to obtain an update on their activities.

8.5 One of the WEEE operators accepts large household appliances, including refrigerators, which they break down and pass on as metals and refrigerants to specialist waste managers. Their total tonnage exceeds 200 tonnes, and they now hold a waste management licence. Their returns are included with those from other licensed facilities.

8.6 The other WEEE operator refurbishes and exports mobile phones, at a rate of only 20-30 kgs per year.

8.7 The waste textile company provided a verbal nil return for 2008.

Plastics, paper and card

8.8 Four out of the six companies solely involved in plastics recycling responded, reporting that they handled a total of 3,078 tonnes, broken down as follows:

(i) one collected 950 tonnes of polythene film which it sorted, shredded, washed and baled, sending 930 tonnes to reprocessors in England and Scotland, with 20 tonnes of residual waste being sent to landfill;

(ii) one collected 2,000 tonnes of good commercial plastic waste, which they then reprocessed back into pellets for onward sale. They sent 60 tonnes of residual waste to landfill;

(iii) one collected 88 tonnes of plastics which were sent to wide range of reprocessors. They also sent 8 tonnes (8 skips) of residual waste to landfill; and

(iv) the fourth collected 40 tonnes which were crushed, chipped and sent back to the original producer for re-use.

8.9 Two out of the five companies involved in both paper / card and plastics recycling responded, reporting a further 960 tonnes of plastics between them (which are not included in the previous paragraph). Since the average tonnage of plastics per respondent was similar in the two sub-groups, they can be combined for the purposes of grossing up. Multiplying the reported tonnages (3,078 tonnes plus 960 tonnes) by a factor of 11/6 produces a grossed-up estimate of 7,403 tonnes of plastics.

8.10 Those same two companies that are involved in both paper / card and plastics collected 1,710 tonnes of paper / card and 2,500 tonnes of undifferentiated mixed waste. One sent 150 tonnes of paper and card to a reprocessor in England; the other sent 1,560 tonnes of paper and card to reprocessors in Northern Ireland (paper) and the Netherlands (card). Grossing-up using a factor of 5/2 generates an estimate of 4,275 tonnes of paper and card and 6,250 tonnes of mixed waste.

9. MISCELLANEOUS

9.1 Eleven forms were mailed to the remaining companies (Group 5) and nine were returned (81.8%). Although the materials and processes vary considerably, there is also overlap between respondents (in the materials that they handle), so the reported tonnages are grossed-up by a factor of 11/9.

9.2 The grossed-up results are:

(i) 147 tonnes of waste timber for re-use;

(ii) 36,380 tonnes of waste timber for manufacturing (almost all into composite board);

(iii) 2,063 tonnes of waste timber for burning;

(iv) 2,444 tonnes of tyres broken down for recycling (rubber, wire, fibre); and

(v) 2,444 litres (est 2.4 tonnes) refrigeration oil for recovery.

10. TOTAL WASTE MANAGED ON EXEMPT SITES IN 2008 IN NORTHERN IRELAND

10.1 After discounting those waste flows which are collected by or on behalf of District Councils (and therefore accounted for in the estimates of municipal waste managed in Northern Ireland based on Waste Data Flow[2]), the total quantity of waste estimated to be managed on registered exempt sites in Northern Ireland during 2008 was between 621,903 and 760,104 tonnes at the 90% confidence interval (i.e. 691,004 tonnes ± 10%). The breakdown of this figure can be seen by reference to Table 10.1. The figures used in that table are the 'central estimates', and the ranges given in earlier tables and the text are not repeated there.

10.2 Of the total of 691,004 tonnes:

(i) 611,710 tonnes (89% of the total) is accounted for by CDEW;

(ii) 530,344 tonnes (77% of the total) is accounted for by those exempt sites[3] where users are obligated to provide information when it is requested; and

(iii) 36,380 tonnes (5%) is accounted for by waste which is managed within the curtilage of the site where it originally arose. This revision of the total (to 654,624 tonnes) is necessary for the purposes of the Waste Statistics Regulation, which does not require the reporting of wastes managed within or upon the site where it is produced. The tonnage removed relates to the 36,380 tonnes of waste timber used for manufacturing estimated from the miscellaneous exempt site survey (see para 9.2).

Table 10.1: Consolidated results from all exempt sites in 2008

Description	For details see:	Tonnes grossed-up
Hardcore mixed with soil	Table 3.5	22,991
Excavated materials (soil, rock etc)	Table 3.5, para 4.6	486,370
Mixed concrete, brick etc (incl. hardcore)	Table 3.5, para 4.6	60,942
Road planings	Table 3.5	41,407
Green / woody waste collected by (or for) DCs	Table 5.1	(11,629)
Green / woody waste from other sources	Tables 5.1 and 6.1	1,839
Waste wood collected by (or for) DCs	Tables 5.1 and 6.1	(7,475)
Waste wood from other sources	Tables 5.1 and 6.1 and para 9.2	50,876
Spent mushroom compost	Table 5.1	236
Horse bedding	Table 5.1	79

[2] Waste Data Flow is a tool used by all waste disposal authorities in Northern Ireland to report the quantities of municipal solid waste collected and managed by District Councils. This fraction includes composting wastes and other woody wastes also captured in the exemptions survey.
[3] Sites obligated to report tonnages managed at exempt sites include sites managing wastes in accordance with paragraphs 9, 10, 11, 13, 19, 45 or 46 as stated within Schedule 2 of the Waste Management Licensing Regulations (NI) 2003.

Sludges spread on land	Para 7.4	3,118
Glass	Para 8.1	2,683
Scrap metal	Parass 8.2, 8.3	63
Waste tyres	Paras 8.2, 9.2	2,469
Mobile phones	Para 8.6	<0.1
Plastics	Para 8.9	7,403
Paper and card	Para 8.10	4,275
Refrigeration oil	Para 9.2	2
Undifferentiated mixed waste	Para 8.10	6,250
Total		*710,108*
Total omitting waste collected by (or for) DCs		*691,004*

Source: Capita Symonds

11. RECOMMENDATIONS FOR FUTURE YEARS

11.1 The results show that the most significant waste stream managed on registered exempt sites is CDEW, which accounts for 89% of the total. All other waste streams are small in comparison. Taking this knowledge in conjunction with the fact that 77% of the total quantity of waste is managed on exempt sites where users are obligated to supply information on request, suggests that the running of biennial exemption surveys may not be necessary to generate a reliable estimate of the total waste managed at such sites.

11.2 In light of this, it is recommended that NIEA consider the merits of requesting data annually from the operators of those paragraph numbers where the exemption holder is obligated to make information available on request. It would be possible to use this data as the basis for an estimate of the actual total. In conjunction with this approach, it would be beneficial to review the number of different types of exemption registered year to year for which users are not obligated to provide data to NIEA. By doing this, any significant biennial variation in the registered number of such sites would provide indicative evidence of a change in the proportion of the total such waste might make. This would then provide a basis against which to estimate the total quantities of waste managed on non-obligated reporting exempt sites.

11.3 It is recommended that NIEA review the development of a reporting tool which allows for the collection of information from those individuals or organisations which register an exemption for which they are obligated to make information available, on request. For this reason, it is recommended that use be made of the survey form as used for this exemption survey, which produced a large response rate due to its simplicity, but with the addition of a field to capture data relating to the source of waste.