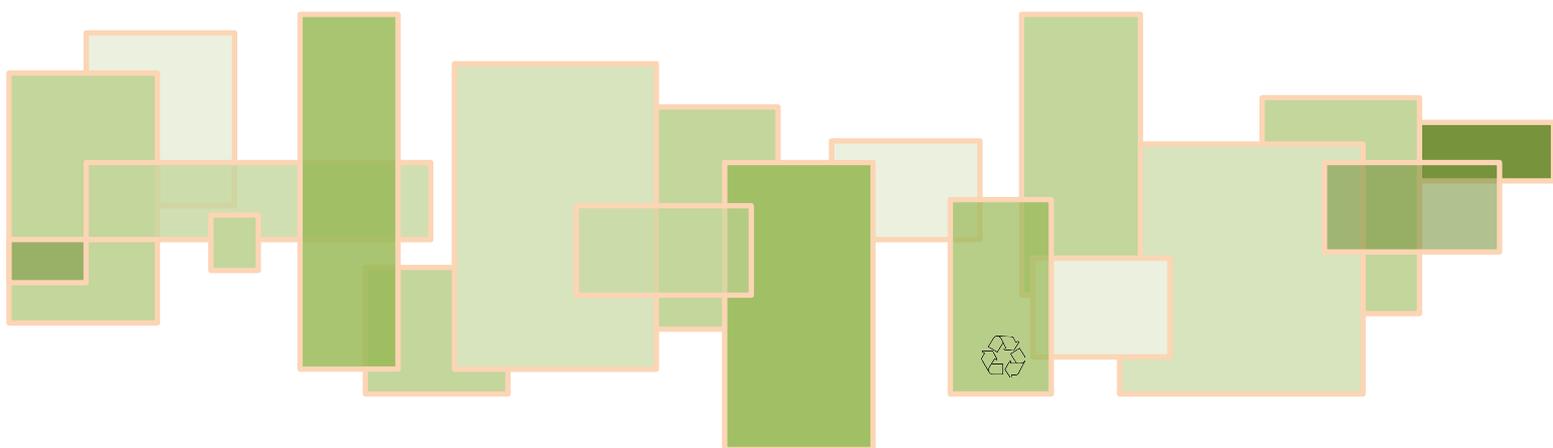


National Municipal Waste Recovery Capacity

An Assessment for the Department of the Environment,
Community & Local Government



V3-April 2014

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Foreword

In 2012 the EPA were tasked by the Department of the Environment, Community and Local Government (DoECLG) to undertake an assessment of municipal waste recovery infrastructural capacities in the State. This report documents the outcome of that assessment. This task was articulated in the DoECLG publication 'A Resource Opportunity – Waste Management Policy in Ireland' (2012).

The EPA assessment, undertaken during 2013, has yielded an electronic register holding estimated **municipal waste recovery capacity** figures for authorised waste activities. The Capacity Register – which is a snapshot in time - comprises different worksheets containing capacity data on:

- EPA waste licences
- EPA IPPC licences
- Sites authorised under an EPA Certificate of Registration
- Local Authority issued Waste Facility Permits, and
- Local Authority issued Certificates of Registration

There is an estimated 5,800 to 6,000 'live' waste facility authorisations in the state.

This assessment report presents a synthesis of the Capacity Register information.

Waste infrastructure capacity information is now also a requirement of national reporting obligations to EuroStat.

A capacity register is a living dataset constantly changing as new consents and operational decisions are made. The data in this study reflects a snapshot in time – May 2013.

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V3-March 2014

Introduction

Under current national regulatory and administrative arrangements there is no single national register of waste infrastructure and capacities in the State. Moreover, the quality of data held by the different bodies regulating waste management activities is hugely variable and often dated. There are an estimated 5,800 to 6,000 live waste authorisations in the State, a number of which are known to be operationally inactive, and many of which do not handle municipal waste. It nevertheless gives an appreciation of the scale of the task in hand.

Municipal waste managed in the State (2.5Mt in 2011) represents less than 15% of the total national waste arising's, and in the most recent EPA waste statistical report (National Waste Report for 2011) it is stated that 47% of this municipal waste is recovered. This recovery rate has increased by 10% in the last five years and is expected to continue to rise in the coming years.

The definition of municipal solid waste (MSW) used by the EPA is *"household waste as well as commercial and other waste that, because of its nature or composition, is similar to household waste. It excludes municipal sludges and effluents. In the context of this document municipal waste consists of three main elements - household, commercial (including non-process industrial waste), and cleansing waste (street sweepings, street bins and municipal parks and cemeteries maintenance waste, litter campaign material)"*.

The operations at Authorised Treatment Facilities (ATFs) for the depollution and dismantling of end-of-life vehicles are classed as a non-municipal waste activity for this project and for the National Waste Report¹. Furthermore, the treatment capacity for municipal sludges and effluents (EWC 20 03 04, 20 03 06) and soils & stone from garden and park wastes (EWC 20 02 02) were also excluded from the municipal waste capacity findings, in line with the definition of municipal waste used.

For the purposes of this assessment, **recovery capacity** is taken as the municipal waste tonnage that is **authorised** for acceptance at a facility. This is quite distinct from 'as-built', or 'developed capacity', for which no national register exists. It is assumed for this work that 'as-built' capacity - where lower than authorised capacity – can, at the operators will, be brought up to the authorised capacity. The Capacity Register further considers 'Projected Additional Capacity'. This latter division includes currently authorised but 'un-commenced' capacity (e.g. Dublin City Council Poolbeg facility Register W0232-01), or additional potential capacity if EPA waste licence review applications currently in hand are processed to completion. Waste facilities that are known not to be accepting municipal waste and are reported as having no foreseeable future in operating, have been excluded from the findings and flagged under the appropriate column within the register.

The capacity assessment differentiates between **pre-treatment recovery activities** (Recovery codes R12 and R13,) and **'final' recovery activities** (Recovery codes R1 to

¹ However, under the EU Waste Statistics Regulation (Eurostat, 2013), end-of-life-vehicles are to be classed as household waste which is municipal waste.

R11), as defined under the Waste Framework Directive 2008/98/EC (see Appendix I for full list of Recovery Codes). This distinction - between pre-treatment activities (which are mainly sorting, bulking, baling and storage) and activities where 'final' recovery takes place (e.g. energy recovery, recycling/reclamation) – is shown to be important as the majority of capacity in the State is in the **treatment** area.

The municipal waste acceptance tonnage displayed in the Capacities Register were sourced from the EPA waste licences and Certificate of Registrations, EPA inspector inputs, or at class of activity's description for the Local Authority facility permits and the Local Authority Certificates of Registration. All findings and tables displayed in this memo have been generated from this newly created national Capacities Register. Importantly, and as noted above, the waste tonnage acceptance limits displayed in the licence may differ to the developed/built capacity. For example, a facility may be licenced to accept 100,000 tpa, but their as-built infrastructural capacity might be only capable of treating 50,000 tpa. The data in the Capacity Register is therefore not to be relied upon as reflecting the 'live' waste capacity for that facility.

It should be noted that all capacity information presented in this memo are in rounded tonnes per annum. Moreover, the Capacity Register is not a living dataset - it is a snapshot in time (as of May 2013). All constraints encountered in the compilation of these data have been documented under the relevant sections in this memo.

Acronyms & Abbreviations

CoR(s): Certificate of Registration

D-code: Disposal Code

EPA: Environmental Protection Agency

EWC: European Waste Code

IPPC: Integrated Pollution Prevention & Control (EPA Acts 1992-2012 authorisation)

LA: Local Authority

MSW: Municipal Solid Waste

R-code: Recovery Code

RMCEI: Recommendation for Minimum Criteria for Environmental Inspection

tpa: Tonnes per annum

WEEE: Waste Electrical and Electronic Equipment

WFP: Waste Facility Permit

WL: Waste Licence

WLAM: Waste Licence Application Management (EPA in-house database)

WMA: Waste Management Act

WtE: Waste to Energy

1. Summary Assessment

Table 1 below presents a summary of determined national consented municipal waste recovery capacity for all grades of waste authorisations.

Table 1: Showing the tonnage of Municipal waste recovery capacity for the State (all authorisations).

Municipal Waste Recovery Parameters	Capacity estimates (in tonnes per annum)
Treatment Recovery Capacity	7,833,000
Pre-treatment Recovery Capacity	2,000,000
Total Municipal Waste Recovery Capacity	c.9,800,000

The individual components (EPA Waste licences, EPA IPPC licences, Local Authority authorisations, etc.) making up this table are set out in the following report sections and tables.

The projected *additional* recovery capacity on municipal waste, for EPA waste licences, has been calculated to 1,765,000 tpa (Table 2). The table takes into account those EPA authorised licenced facilities that have not yet commenced their waste operations (e.g. Poolbeg WtE facility) as well as EPA licensed operators with waste review applications – for additional capacity – currently lodged with the EPA.

Table 2: Projected additional municipal waste recovery capacity for EPA waste licences

Projected Municipal Waste Recovery Parameters	Capacity Estimate (in tonnes per annum)
Treatment Recovery Capacity ^[1]	1,672,000
Pre-treatment Recovery Capacity ^[2]	93,000
Projected Additional Municipal Waste Recovery Capacity	1,765,000

1. The facility's Principal Class of Activity is listed as a Recovery code (R1 to R11; Excluding R12 & R13).
2. The facility's Principal Class of Activity is listed as pre-treatment recovery code (R12 & R13 only).

2. National Municipal Waste Recovery Capacities

EPA Waste Licences (Waste Management Acts (1996-2013))

The EPA Waste Licence register (which EPA is required by law to hold) was the primary source for all waste facilities licensed by the EPA. This Licence Register does not contain information on Capacities; so capacity information was sourced from the latest EPA waste licence and the EPA Inspectors report accompanying the licence application assessment. The maximum municipal waste tonnage to be accepted for recovery, as specified in the licence, was taken as the maximum municipal waste recovery capacity for that facility.

There were many variances found between the older and newer format EPA waste licences as the licence template and legislation has changed over the 15 or so years since commencement: as did the description of waste recovery (and disposal) classes. Furthermore, there was no clear distinction between industrial process waste i.e. production residues (non-municipal waste) and industrial non-process waste, i.e. wastes from offices and canteens (municipal waste). Where a licence described acceptance of 'industrial wastes' this waste was taken as non-municipal in nature and therefore was not included in the findings. These difficulties were resolved by allocating two municipal capacity columns within the Capacity Register. One column displays **definitive** municipal capacity acceptance tonnages per annum and another column displaying additional **potential** municipal waste capacity tonnages per annum. For example, while the municipal waste acceptance at a facility in Munster is 42,000 t/a for "Household" waste, it is not clear what fraction of the 47,000 t/a limit on "Commercial & Industrial" waste is commercially derived municipal waste or industrially derived non-process municipal type waste – and in practice it could be all of it.

A breakdown on how the terms used in waste licences were categorised and used to report whether the waste accepted was counted as definitive municipal or potential municipal waste is illustrated in Table 3 below.

Table 3: Showing examples on how the municipal waste tonnages were allocated based on the terms used within the EPA waste licence.

(A) Definitive Municipal waste terms	(B) Potential Municipal waste terms
<p>Examples</p> <ul style="list-style-type: none"> • Household • Household Waste • Municipal Solid Waste • Street Sweepings • Biodegradables (displays an EWC 20 only) 	<p>Examples</p> <ul style="list-style-type: none"> • Commercial ^[1] • Biodegradables (non-specific) • Commercial & Industrial • Also, where Household waste and commercial waste was combined with other waste streams

1. Not all commercial waste is similar to household waste e.g. the wastes generated from hospitals, laboratories public houses and motor garages.

Table 4 provides a summary on the municipal waste recovery capacity for EPA waste licensed facilities (based principally on class of activity information which was obtained from the EPA waste licence document, and taking into account some EPA inspector input). It aggregates waste recovery capacity data for all current licenced facilities. Excluded from the estimates are those licensed facilities that are closed or inactive and with no reported intention of treating or accepting waste (e.g. the organic recovery facility intended to be co-located with the abandoned Fingall landfill development). Also excluded from the estimates are licences that have lapsed, or are surrendered or abandoned.

Table 4: Municipal waste recovery capacity on operational EPA Waste Licensed facilities.

Municipal Waste Recovery Parameters	Capacity estimate ^[3] (tonnes per annum)		
	Municipal	Potentially Municipal	Total (Municipal + Potential Municipal)
Recovery Capacity (excluding pre-treatment) ^[1]	173,000	1,017,000	1,190,000
Recovery Capacity (pre-treatment only) ^[2]	619,000	615,000	1,234,000
Total Recovery Capacity	792,000	1,632,000	2,424,000

1. The facility's Principal Class of Activity is listed as a Treatment Recovery code (R1 to R11; Excluding R12 & R13).
2. Pre-Treatment Recovery codes R12 & R13 only. Pre-treatment includes compaction, mixing, repackaging, bulking, screening/ sorting, shredding etc. as defined in the 3rd and 4th Schedule of the WMA. Recovery pre-treatment codes are R12 Waste Exchange prior to recovery and R13 storage prior to recovery.
3. Included in these tonnages are licenced entries that have an *Active* status under Facilities Operational Status within the EPA waste licence register.

A total of 2,424,000 tonnes per annum was calculated as a maximum for municipal waste that could be accepted for recovery in the State. Of this amount, some 792,000 tonnes per annum is 'definitive' municipal waste (c.f. Column A in Table 3 above). And a figure of 1,632,000 tonnes is potentially mixed municipal waste that can be accepted per annum for recovery.

Location of operating municipal recovery facilities by Region

Table 5 looks at the national distribution of existing active EPA licenced municipal waste recovery facilities within the state. There are 21 licensed treatment recovery facilities and 23 licensed pre-treatment recovery facilities that are operating within the state. The majority of the **active recovery** facilities are R3 (Organic substance recycling/reclamation) and R12 (Waste exchange prior to recovery) activities. The table also indicates that the Connaught Ulster Region has fewer EPA authorised municipal recovery activities compared to the Eastern Midlands Region and Southern Region.

Table 5: Showing the location of active EPA licenced municipal waste recovery facilities by principal classes of activity ^[1]:

County/ Region	R1	R3	R5	R9	R12 ^[2]	R13 ^[2]	Grand Total
Co. Cavan					1		1
Co. Donegal							0
Co. Galway					1		1
Co. Leitrim							0
Co. Mayo							0
Co. Monaghan							0
Co. Roscommon							0
Co. Sligo							0
Connaught Ulster Region	0	0	0	0	2	0	2
Co. Dublin		3			6	3	12
Co. Kildare		1					1
Co. Laois				1			1
Co. Longford							0
Co. Louth		1					1
Co. Meath	1	2	2			1	6
Co. Offaly		1				1	2
Co. Westmeath						1	1
Co. Wicklow		1					1
Eastern Midlands Region	1	9	2	1	6	6	25
Co. Carlow							0
Co. Clare							0
Co. Cork		3			1	3	7
Co. Kerry					1		1
Co. Kilkenny							0
Co. Limerick					1		1
Co. Tipperary		2					2
Co. Waterford		2			1		3
Co. Wexford			1		2		3
Southern Region	0	7	1	0	6	3	17
Grand Total	1	16	3	1	14	9	44

1. The table only shows active/operating waste licenced facilities; excludes not-commenced facilities.
2. Pre-treatment recovery codes.

Projected Additional Municipal Waste Recovery Capacity

Table 6 captures this *Projected Additional Municipal Waste Capacity*, i.e. municipal waste recovery facilities with applications before the EPA for decision, as well as those facilities with a 'not commenced' status within the capacity register (including the Dublin City Council, Poolbeg Peninsula (W0232-01) waste to energy facility). A future projected estimate of 1,765,000 tonnes per annum municipal waste recovery capacity is estimated, if all applicants were to be licenced and facilities with a 'not commenced' status to commence activities.

Table 6: Showing the Projected future licenced municipal waste recovery capacity.

Municipal Waste Recovery Parameters	Proposed Capacity Estimate (in tonnes per annum)
Recovery Capacity (excluding pre-treatment) ^[1]	1,672,000
Recovery Capacity (pre-treatment only) ^[2]	93,000
Total Proposed Municipal Waste Recovery Capacity	1,765,000

1. The facility's Principal Class of Activity is listed as a Recovery code (R1 to R11; Excluding R12 & R13).
2. The facility's Principal Class of Activity is listed as pre-treatment recovery code (R12 & R13 only).

EPA IPPC Licences

Certain Integrated Pollution and Prevention Control (IPPC) activities are licenced for waste treatment (IPPC class 11.1). During the course of this project, 54 IPPC facilities were identified (e.g. renderers, cement kilns, etc.) that either deal with their own waste at source or accept waste into their processes as a fuel or raw material. In the context of this project it should be noted that not all of these 54 facilities are accepting municipal waste for treatment. The Capacity Register developed as part of this project includes the IPPC facilities that are known to accept municipal waste for treatment/use and are authorised for activity IPPC class 11.1, i.e. the recovery and disposal of waste. Table 7 below gives an estimate of the total authorised municipal waste recovery capacity at IPPC licenced facilities.

Table 7: Municipal waste recovery capacity data on IPPC licensed activities.

Parameter	Capacity Estimate (tonnes per annum)
Authorised municipal waste recovery capacity at IPPC facilities (incl. Waste to Energy)	268,000

Authorised MSW recovery capacity at IPPC plants is essentially the use of solid recovered fuel (SRF) at cement plants in Ireland and is as reported above as 267,875 tonnes per annum. Such cement plants include; Irish Cement Limited, Platin Works (P0030-04), Quinn Cement Limited (P0378-02) and Lagan Cement Limited (P0487-06).

EPA Certificate of Registration

In addition to EPA Waste licensed and IPPC licensed activities, there is also waste treatment capacity at sites authorised under EPA issued Certificate of Registration (CoR). These EPA CoRs are a mixture of Local Authority operated bring banks and civic amenity facilities and are mostly pre-treatment facilities (storage and/or transfer of wastes). There are approximately 2,011 EPA authorised CoRs in the EPA database as of May 2013 (Table 8).

The total number of CoR issued by facility type may not be entirely reflective of the current number of operational facility types e.g. some bring bank centres may have been closed by the local authority due to anti-social behaviour, but the CoR remains active in the EPA database (not expired or not surrendered to EPA).

Table 8: Number of valid EPA issued CoR by facility type.

Facility Type	Certificates issued under both sets of Waste Management facility authorisation Regulations ^{[1][2]} and the WEEE Regulations ^[3] .
Bring Bank/Centre	1,974
Civic Amenity Facility	14
Composting Facility	4
Other/Undetermined	15
Storage/Transfer Facility	4
Grand Total	2,011

1. Waste Management (Permit) Regulations, 1998, as amended.
2. Waste Management (Facility Permit and Registration) Regulations, 2007, as amended.
3. Waste Management (Waste Electrical and Electronic Equipment) Regulations 2005, as amended.

Table 9 below shows the number of authorised classes of activity by Facility type on EPA issued CoR according to the agency's internal database.

Table 9: Showing the number of authorised classes of activity by Facility type on EPA issued CoR.

Class of Activity ^[1]	Pre-treatment (Yes / No)	Bring Bank/ Centre	Civic Amenity Facility	Composting Facility	Other/ Undetermined	Storage/ Transfer Facility	Grand Total
R3	No	305	5	6	4	1	317
R4	No	390	3			1	394
R5	No	492	3	1	8	1	505
R10	No	3			2	2	7
R11	No	2					2
R12	Yes	7				1	8
R13	Yes	1,733	35	4	5	10	1,787
FPR:3:II:1 ^[2]	Yes		24				24
FPR:3:II:2	Yes	84	21				105
FPR:3:II:3	Yes		1				1
FPR:3:II:4	Yes		25				25
FPR:3:II:10	Yes		17			13	30
FPR:3:II:11	No		6	2			8
FPR:3:II:14	Yes		5				5
Total							3,222

1. The class types (R1 to R13) come from both the Fourth Schedule of the WMA 1996 as amended as well as classes of activity (classes 1 to 14) as specified in the Waste Management (Facility Permit and Registration) Regulations, 2007 as amended.
2. Facility Permit & Registration (FPR). The class type i.e., FPR:3:II:1 means Schedule 3: Part II: Class 1 of the Waste Management (Facility Permit and Registration) Regulations, 2007, as amended.

It is also the case that some civic amenity facilities have an EPA CoR but have since been granted a waste licence. For example, Carrowbrowne Landfill site which now operates under a waste licence (W0013-01) but has a CoR (R00372-01) issued under the pre-2007 Facility Permit and Registration Regulations that has not been cancelled. Note also that EPA CoRs issued pre-July 2008 do not contain an expiry date. The tonnages associated with composting facility entries within the capacity register were taken as treatment activities. This tonnage equates to approximately 5,000 tpa based on authorised EWC tonnages (Table 10). There was no authorised tonnage information presented with the EPA CoRs issued under the Waste Management (Permit) Regulations, 1998 (as amended): these are primarily Bring Banks. However, a conservative estimate of capacity can be adduced from waste returns in the National Waste Report for 2011, which suggested c.45t waste per bring bank (Table 10).

Table 10: Municipal waste capacity for EPA CoRs based on authorised EWC tonnages in 2007 Regulations^[1] and an estimated working capacity for bring centres authorised under the 1998 Regulations

Parameter	Capacity Estimate (tonnes per annum)
Treatment Capacity ^[2]	5,000
Pre-treatment Capacity ^[1]	649,000 (rounded)
Pre-Treatment Capacity at Bring Banks authorised under the 1998 Regulations ^[3]	85,000
Total EPA CoR Capacity	739,000

1. Issued under the Waste Management (Facility Permit and Registration) Regulations 2007 (as amended)
2. This tonnage represents composting facilities.
3. Based on 1,888 authorisations (2,011 facilities less the 123 authorised under the 2007 Regulations), assumed conservatively to be all bring banks, authorised under the Waste Permit Regulations 1998. The 2011 National waste report returned an average 45t of waste per bring bank per annum.

Local Authority Waste Facility Permit & Certificate of Registration

The EPA Capacity Register contains a worksheet detailing information on Waste Facility Permits (LA-WFP) and Certificates of Registration (LA-CoR) issued by Local Authorities (LA) in the Republic of Ireland. As there is no integrated national dataset for LA-WFPs and LA-CoRs in the State, we cannot confirm that the register is complete for these waste authorisations.

The LA-WFP and LA-CoR register was initially compiled from the online Waste Facility Permit and Certificate of Registration Database (<http://www.epa.ie/wastepermit/>). The information on <http://www.epa.ie/wastepermit/> website is not live. It relies on the transfer of information from the local authorities to the web facility. Furthermore, there were a number of entries found to be incorrect (e.g. the incorrect expiry dates, typographical errors & varying formats across permit specifics).

The local authority websites, the local authority RMCEI plans, Waste Collection Permit annual return data and other web based sources of information on LA-WFP and LA-CoRs issued by local authorities were also researched, and any entries found from these sources were cross-checked against www.epa.ie/wastepermit/. All permits and certificates with registered expiry dates before 2013 were excluded from analysis.

Several LA-WFP & LA-CoR were not displayed on the online database (www.epa.ie/wastepermit) as these were issued before the amended Facility Permit and Registration Regulations (with which the on-line system is associated). There was a limited amount of information available on these unaccounted permits/ certificates. The relevant local authorities were contacted and asked to provide information, and several gave detailed and comprehensive replies on their waste facilities in their functional areas. These replies were documented and amended to the capacity register. Other local authorities were unable to provide us with the information we required.

According to the data gathered in our Capacity Register, there are approximately 204 facilities authorised (including pending authorisations) by local authorities to accept municipal waste for recovery as shown in Table 11.

Table 11: Estimated number of active CoRs & WFPs issued by local authorities which are authorised to accept municipal waste.

Type	Number
Waste facility Permits	171
Certificate of Registration	33
Grand Total	204

In the majority of LA-WFPs and LA-CoRs the maximum waste tonnage acceptance per annum is not specified, so the Class of Activity thresholds specified in the legislation were used as default capacities where appropriate. Several LA-CoAs deal with non-municipal waste streams (noted in Table 12 below), and tonnages for these activities were not included. Moreover, in some of the Classes of Activity detailed in the Regulations an annual capacity is not specified; rather, the limit on the activity is specified in an 'at-any-one-time' restriction. Certain assumptions were made as part of this assessment as to what an 'at-any-one-time' limit may lead to in terms of an annual capacity.

Having regard to the 'annual capacity limit is set at the largest class' rule in the Permit Regulations - where more than one class is specified – then the maximum potential capacity at permitted sites accepting MSW derived material for recovery is in the order of 6.4M tpa (using the largest capacities available to make up 171 facilities).

The LA-WFP and LA-CoR data needs to be read with caution as: (i) we are unsure that all authorisations are captured in the register; (ii) it is likely that the tonnage allocated to municipal recovery is over-estimated, by assuming that 100% of wastes from particular activities are from municipal sources; and (iii) there are classes of activity which may include municipal waste streams, but there is no maximum annual tonnage acceptance threshold associated with that class, thus estimation had to be generated. The estimated tonnage from the 33 facilities authorised by local authority certificate to accept MSW for recovery is in the order of 33,000 tpa (based on a 1,000tpa maximum capacity for the most common authorised class (Schedule 3, Part II, class 2) – all pre-treatment.

Table 12: Waste Facility Permits per classes of activity under Part I of the Third Schedule ^[1].

Class ^[1] Number	Summary Descriptions	Pre-treatment (Yes / No)	# Authorisations as per ^[2] Principal Class	t/a per CoA ^[3]
1	WEEE storage & transfer	Yes	8	100
2	Recovery of waste vehicles	Non-Municipal Waste		
3	WEEE treatment	No	11	10,000
4	Scrap metal	Non-Municipal Waste		
5	Inert waste	Non-Municipal Waste		
6	Inert waste	Non-Municipal Waste		
7	Inert waste C & D	Non-Municipal Waste		
8	Bio-waste treatment	No	21	10,000
9	Batteries & Accumulators	No	10	1,000
10	Recovery of waste	No ^[4]	121	50,000
11	Reception, storage and transfer of waste for disposal	Disposal - Does not influence recovery capacities		
12	End-of-Life Vehicles	Non-Municipal Waste		

1. From the Waste Management (Facility Permit and Registration) Regulations 2007 (as amended).
2. WFP entries may be authorised to carry out more than one Class of Activity. Some facilities have 2 or more classes. Where two or more classes are specified the capacity is limited by the larger class.
3. Any tonnage per annum figures displayed in this column is sourced from the Class of Activity legislative description.
4. This class is described as treatment Recovery, and in theory all the capacity can be recovered by treatment. It is understood that a great deal of this 'treatment' capacity is in fact transfer related.

A potential municipal waste recovery capacity of ~6,400,000 tonnes per annum (Table 13) was calculated for WFP and CoR sites authorised by local authorities according to the capacity register (bearing in mind the limitation as discussed above).

Table 13: Showing the authorised municipal waste capacity for both LA-WFP & LA-CoR.

Parameter	Capacity Estimate (tonnes per annum) ^[1]
Treatment	6,370,000
Pre-treatment	33,800
Grand Total	c. 6,400,000

1. Tonnage was calculated by summing the largest municipal tonnage according to the LA-WFP & LA-CoR authorised classes of activity.

2. Selected Municipal Stream Specific Capacities

Organic Recovery Capacity

Organic waste recovery capacity estimates were published in the rx3 (www.rx3.ie) market report on Compost Production and Use (McGovern & rx3, 2012) and is the basis for the data in Table 14. The data is an estimate of the organic waste recovery capacity in the Republic of Ireland from all waste sources (both Municipal and non-municipal). The estimate includes both EPA waste licensed facilities along with permitted composting facilities.

Table 14: Organic Recovery Capacity

Organic Recovery Capacity (Composting)	Capacity Estimate (tonnes per annum)
Operating capacity (currently accepting waste)	371,900
Developed capacity (dormant developed capacity & operating capacity)	456,100

It is difficult to determine the composting facilities actual municipal derived organic waste capacity, as the municipal fraction, is sometimes not clearly displayed in the waste authorisation document.

Actual & Potential municipal waste-to-energy recovery capacity

Table 15 below is an estimate of the total authorised municipal waste treatment capacity for waste to energy (and includes both IPPC Activity licences and Waste Facility licences).

Table 15: Potential municipal waste recovery capacity data for incineration with energy recovery

Licensed Municipal Waste to Energy (WtE) Facilities	Capacity Estimate (tonnes per annum)
Waste recovery capacity at IPPC facilities (incl. WtE)	268,000
Indaver Ireland Limited, Carranstown (W0167-02) ^[1]	200,000
Dublin City Council, Poolbeg Peninsula (W0232-01) ^[1] (un-commenced)	600,000
Total	1,068,000

1. Both licences have been amended from a principal class of activity of D10 to an R1 activity in the register.

Remaining MSW landfill disposal capacity

For the benefit of the reader it is considered useful here to include a reference to the residual municipal waste disposal capacity in the State as licenced by the EPA (Table 16). This tonnage equates to a lifespan of **11 years** approximately according to the 2011 National Waste Report (EPA, 2013).

Table 16: Total remaining Municipal Solid Waste landfill disposal Capacity, 2011

Parameter	Capacity Estimate (in tonnes)
Approximate remaining Municipal Solid Waste landfill capacity in 2011	14,500,000

3. Conclusions

The Department of the Environment, Community and Local Government's waste management policy document, published in July 2012 - 'A Resource Opportunity' states that *"Ireland requires an adequate network of quality waste treatment facilities"* and tasked the EPA with assessing the current national municipal waste recovery capacity

The Capacity Register created as part of this assessment represents a start at capturing the diversity of facilities that are authorised to treat and pre-treat waste generated from a municipal source along with creating a log for Ireland's waste infrastructure.

The capacity figures displayed in this report are based on waste acceptance limits coming from the waste authorisations. Many inconsistencies were identified in the area of data representation and database management. Accurate waste capacity information was, and is, difficult to capture, and no single national register exists. Moreover, the information contained on some of the existing registers interrogated does not include capacity data. It would be ideal to see a live comprehensive national register that has a log of Ireland's waste infrastructure and deals with all waste sources & types, and publicly available to all in open format. Such a capacity register would be useful for members of the public as well as stakeholders in the waste industry, including for the benefit of the new waste management planning regions which will be developing waste management plans in 2014 and need quality information on waste infrastructure to hand. The Scottish Environmental Protection Agency (SEPA) has a publically available online waste capacity register that is updated yearly (Scottish Environment Protection Agency, 2013) and replicating such information online for Ireland could be considered.

The data assembled for this assessment are a snapshot in time only, and it would take a lot of effort to maintain this register going forward unless many amendments are made to current reporting systems and databases (refer Recommendations).

Ireland treated a total of c.2.5M tonnes of municipal waste in 2011 (disposal and recovery) (NWR, 2011); and of that, 1,202,569 tonnes was recovered. However only 27% of the 1,202,569 tonnes recovered underwent recycling/reclamation (treatment) in the State and the rest was exported for treatment. According to the NWR, 2011, most municipal paper, cardboard, glass and metals are exported. The EU Proximity Principle (c.f. Article 16 of the EU Waste Framework Directive 98/2008/EC) only applies to waste destined for Disposal and for mixed (un-sorted) municipal waste destined for Recovery.

The Government regulations² on the source separation of food waste from commercial enterprises and households and the national penetration of the 'dry recyclables bin' (currently at 98% for households) suggest that as these requirements are implemented the availability of residual mixed municipal waste for treatment (where Proximity Principle applies) will diminish. The EPA National Waste Report for 2011 indicated in the case of the Household Waste stream (being the larger portion of MSW), that approximately 48% of the generated household waste (1.68Mt) was presented as mixed residual waste.

² Statutory Instrument's SI 508 of 2009, and SI 71 of 2013 respectively

The waste licence Capacity Register indicates that most municipal waste recovery capacity in the State is for treatment activities although anecdotal information would suggest that at many sites authorised to recover MSW by treatment, only pre-treatment activities such as bulking and transfer are being carried out.

The findings of this assessment suggests that Ireland has a municipal waste recovery capacity of c. 9,800,000 tonnes per annum, of which 7,833,000 tonnes per annum is for authorised 'treatment activities' (as opposed to pre-treatment activities). Furthermore, there is a further 1,765,000 tpa of projected additional municipal recovery capacity, which is composed of licenced facilities that have not commenced their waste operations (and are expected to at some stage), and existing operators with waste review applications for capacity expansion currently with the EPA for determination (Tables 17).

Table 17: Summary total of estimated national recovery capacity for MSW Treatment & Pre-Treatment (as of May 2013)

Recovery Activity	Waste Facility Authorisation Type	Capacity estimates (in tonnes per annum)
MSW Pre-Treatment	Municipal waste recovery capacity on operational EPA Waste Licensed facilities	1,234,000
	Municipal waste capacity for EPA CoRs based on authorised EWC tonnages in 2007 Regulations and an estimated working capacity for bring centres authorised under the 1998 Regulations	734,000
	Authorised municipal waste capacity for both LA-WFP & LA-CoR	33,800
Pre-Treatment TOTAL:		c.2,000,000
MSW Treatment	Municipal waste recovery capacity on operational EPA Waste Licensed facilities	1,190,000
	Municipal waste recovery capacity data on EPA IPPC licensed activities	268,000
	Municipal waste capacity for EPA CoRs based on authorised EWC tonnages in 2007 Regulations and an estimated working capacity for bring centres authorised under the 1998 Regulations	5,000
	Authorised municipal waste capacity for both LA-WFP & LA-CoR	6,370,000
Treatment TOTAL:		7,833,000
Overall Estimated Total Municipal Waste Recovery Capacity:		c. 9,800,000

Most wastes are treated for recovery outside of Ireland and thus the capacity register does not portray a true representation of what is actually happening.

4. Recommendations

1. The waste acceptance schedules and details of all authorisations use many different waste descriptions, and in some cases it was not possible to tell whether the waste for acceptance would be municipal or non-municipal from the description. The proportion of tonnage authorised for acceptance that was municipal in nature was therefore difficult to extract. **It is recommended that the requirement to standardise waste descriptions is taken into consideration by all authorising bodies when drafting licences/permits/certificates.**
2. There is no complete national register of waste facility permits and CoR authorised by local authorities in the State. The best attempt has been wastepermit.ie, but work on this project has identified that many authorisations are missing from this website. **Ideally, maintenance of this register should be a shared service of local authorities, centrally managed by one.** (The NWCPO are now managing the Waste Collection Permit register and this has led to improved quality data, real-time data and a central repository). Such a centralised data management facility would be of significant value to the three new waste planning regions too.
3. **Simplification of the waste authorisations is merited** - harmonisation of processing capacities in regulatory classes would assist national capacity management assessments (e.g. all stated in tonnes per annum rather than 'at-any-one-time' limits).

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Appendix I

Recovery Classes as per EU Directive 2008/98/EC

New Recovery Codes	Old Recovery Codes ^[1] (4 th Schedule)	Summary of the Recovery operations descriptions Note: to be read in conjunction with footnotes in Annex II of the Waste Directive
R1	4 .9	Use principally as a fuel or other means to generate energy
R2	4 .1	Solvent reclamation/regeneration
R3	4 .2	Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)
R4	4 .3	Recycling / reclamation of metals and metal compounds
R5	4 .4	Recycling / reclamation of other inorganic materials
R6	4 .5	Regeneration of acids or bases
R7	4 .6	Recovery of components used for pollution abatement
R8	4 .7	Recovery of components from catalysts
R9	4 .8	Oil re-refining or other reuses of oil
R10	4 .10	Land treatment resulting in benefit to agriculture or ecological improvement
R11	4 .11	Use of wastes obtained from any of the operations numbered R1 to R10
<i>R12*</i>	4 .12	Exchange of wastes for submission to any of the operations numbered R1 to R11
<i>R13*</i>	4 .13	Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)

1. Waste Recovery Activities, in accordance with the Fourth Schedule of the Waste Management Acts, 1998 to 2008

*These codes (R12 & R13) refer to *pre-treatment* recovery operations, which must be followed by one of the other recovery operations.