

3. BELGIUM

3.1 Legal Framework – Waste Management Plans and Strategies

3.1.1 National Legislation concerning CDW

Flanders (Deloitte, 2015)

There are two legislative documents that concern the management of CDW in Flanders:

- The Decree of 2012 on the management of material cycles and waste ("Materialendecreet" or Materials Decree);
- VLAREMA, which is the implementation order of the Decree of 2012, providing provisions on transport and trade of waste, reporting of waste and resources, use of resource, selective collection by enterprises and extended producer responsibility (EPR) (Deloitte, Screening Template for Construction and Demolition Waste management in: Belgium V2 - September 2015, 2015) [13].

There are two additional documents which refer specifically to recycled granulates:

- Demolition management system – aims to guarantee the quality and traceability of recycled aggregates. It focuses on the processing of granulates, transport of recycled aggregates and the effective use.

The management system resulted in a regulation for ensuring the quality of recycled granulates, entitled the 'eenheidsreglement' that formed the basis for the certification of recycled aggregates.

Brussels Capital Region (BCR)

The CDW management's legislative framework is defined in the following process:

- Before construction, an Environmental Permit (EP) (Ordonnance du 5 juin 1997 relative aux premise d'environnement) must be obtained.
- There is a mandatory recycling process of the stone and sand fraction of CDW [14]
- The fraction should be processed for use as secondary raw material on different projects.

BRUDALEX [15] (entered into force 23 January 2017) is a new legislative framework that aims at assisting the transition to a circular economy in Brussels. The following aspects refers to CDW:

- It is mandatory for holders of CDW to sort and to have their CDW sorted in a sorting facility.

Wallon Region

The basis of the legislation is the waste decree of 27 June 1996. The environment permit in the Walloon region describes conditions for waste management on building sites [16]. The submission of all data gets sent to the Walloon Waste Office (OWD).

3.1.2 Waste management plans (WMP) and Strategies

Flanders

There is no new MINA plan (MINA 5) in development at the moment. MINA plan 4 (effective from 2011-2015) is still being used to provide guidelines for environmental policy, including waste and material strategies/policy [17]. The other two action programs “Resource conscious construction in cycles” (2014-2020) [18] and “Resource conscious construction 2014-2016” [19] are also still in effect.

Flanders is working on a new Executive Plan on Waste and new indicators in a broader sense. It is still unclear when this report will be released.

Brussels Capital Region

The Brussels government is currently evaluating the 4th Waste Plan (**Plan de prévention et de gestion des déchets**, May 2010) of the BCR. A new plan has not yet been released as of yet.

Wallonia

Wallonia published a new “**Waste-Resource Management Plan**” (Plan wallon des déchets-ressources) in 2015. It is divided in six chapters:

1. Framework: sets the overall strategic framework, includes structural actions related to data and the fight against environmental crime
2. Prevention: waste prevention and reuse plan for both industrial and household waste
3. Household waste management: waste management plan for household waste
4. Industrial waste management: waste management plan for industrial waste
5. Management of street cleanliness: plan for public cleanliness and against littering and illegal dumping of waste
6. Financial means which will need to be put in place and spending plan.

The plan has no end date, although it sets objectives for the next ten years, up to 2025.

Wallonia's new plan aims to bring Wallonia in the direction of circular economy following the European Commission's circular economy package from 2 December 2015

Wallonia will develop and/or will increase various policies and corresponding tools in order to increase the quality and relative quantity of waste which can be used as a secondary resource. Amongst these are:

- Compulsory source separation of certain waste streams
- Promotion of building deconstruction instead of demolition.

Wallonia will study the option of backfilling taxation, at least to ensure a form of monitoring, as it is not considered recycling.

Controls of specific waste streams will be reinforced. Amongst those more relevant to the construction sector are:

- Wood waste
- CDW and excavated soil: the following actions will be implemented with the aim of professionalizing the market:
 - ✓ on-site controls of operations
 - ✓ the application of fines
 - ✓ the adaptation of legal texts, if necessary
 - ✓ the definition of task distribution between local and regional authorities, particularly by setting a construction site size threshold setting which level of administration is concerned
 - ✓ Vade-mecum drafting for control services
 - ✓ Development of an excavated soil monitoring operation system

The prevention plan identifies CDW among the priority waste streams in which to develop targets and develop actions (detailed on p. 94 in the Plan). Additionally, construction materials are included in the priority streams for which measures to increase re-use should be developed.

3.1.3 Legal framework for sustainable management of CDW

Flanders

There is a national/regional sorting obligation for Flanders (on-site and for different materials) for certain CDW from enterprises and households [20]. There is a voluntary green public procurement requirement currently in Belgium. The separate collection of hazardous waste, such as waste containing asbestos, is mandatory.

Brussels Capital Region

Currently, there is a national/regional sorting obligation on the reuse of inert waste that has to occur either on-site or by sending it to a sorting centre [21]. Contracting authorities may include environmental clauses in the special specifications for their procurement; however this is not a requirement [22].

Wallonia

There are national/regional sorting obligations for different materials, including metal [23]; paper, metal plastic and glass [24] and for the collection and management of hazardous waste from C&D operations. By 2020, non-hazardous construction and demolition waste (excluding 17054) are subjected to either a preparation for their reuse (recycling, backfilling

operations, etc.), all at a competitive minimum of 70% of weight [24]. There are requirements for sustainable purchasing [25].

3.1.4 Targets

The targets should still be the same as though reported in the EC report **Chyba! Nenalezen zdroj odkazů..** This would be a 70% recovery rate.

3.1.5 End of Waste (EoW) status

Flanders

The EoW criteria established in the Materials Decree of 2012 are still effective. These criteria fall under the national legislative.

Brussels Region

The EoW criteria established in Article 9 of the 'Ordonnance relative aux déchets du 14 juin 2012' are still in effect.

Wallonia

New legislation is under development but has not yet been released yet. "When the legislation will be in place, Federations will try to create an EoW for recycled aggregates and for excavated soil **Chyba! Nenalezen zdroj odkazů..**

3.2 Non legislative instruments (best practices, guidelines, recommendations...)

Flanders

Government projects undertaken with the objective to look at CDW will be initiated under the Materials Programme, which will continue until 2019.

Wallonia

Wallonia has several projects dedicated to CDW, largely focused on Wallonia but incorporates information from Flanders where available. These projects are **WALOSCRAP** and **BATILOOP**, managed by GreenWin and supported by the Walloon Construction Confederation. The focus is to improve the flows generated from construction waste and interaction [27].

3.3 CDW management performance – CDW data

3.3.1 CDW generation data

Eurostat has published the following data (Table 4) for construction waste. The table depicts the waste split into different categories.

Table 4. Eurostat - data for construction waste.

Generation of waste by waste category – Construction [tons]	2014	2012	2010	2008
Total Waste	26.383.330	24.570.406	18.164.766	15.441.861

Generation of waste by waste category – Construction [tons]	2014	2012	2010	2008
Chemical and medical wastes (subtotal)	30.224	105.635	90,663	8.990
Recyclable wastes (subtotal, W06+W07 except W077)	984,756	865,620	1,025,225	1.134.699
Equipment (subtotal, W077+W08A+W081+W0841)	11.240	2.987	2.209	2.847
Animal and vegetal wastes (subtotal, W091+W092+W093)	256.196	211.341	69.368	107.293
Mixed ordinary wastes (subtotal, W101+W102+W103)	862,516	1,136,853	1,725,627	566.214
Common sludges	455	20.063	11.323	626
Mineral and solidified	24.237.943	22.227.907	15.240.351	13.621.193

As can be seen from the table, a large part of the construction waste is composed of recyclable wastes. Additionally, the mixed ordinary waste could possibly be reused/recycled depending on what exactly the composition is of the mixed waste.

3.3.2 CDW treatment data

Brussels Capital Region

Construction and demolition waste (CDW) produced in the BCR: estimates of recycling and/or sorting expressed in ton and as percentage, on the basis of four different studies

Sources: studies commissioned by Environment Brussels: see (1), (2), (3) and (4)

	2011 (1)	May 2012 (2)	May 2012 (3)	Dec. 2013 (4)
Quantity of CDW generated per year	~650000 T (waste stream)	~650000 T	600000 T (collected)	~700000 T (waste stream)
recycled	552500 T		500000 T	
not recycled	~100000 T			
neither recycled nor reused			100000 T	
% recycled	~85%			
% sorted		77%		75%
% not recycled	~15%			
Sorted quantity per year:		~500000 T		525000 T
sorted on the construction site		~400000 T		
Quantity of unsorted CDW per year:		~150000 T		150000 T
mixed CDW that is sorted at sorting centres		~75000 T		

(1) Environment Brussels, 2011. *Technisch verslag - Voorbeeldgebouwen : Het beheer van bouwafval : Fiche 4.3, Info-fiche voor professionelen*, page 4

(2) CERA-ROTOR, May 2012 *Etude sur l'analyse du gisement, des flux et des pratiques de prévention et de gestion des déchets de construction et de démolition en RBC*, page 158

(3) PWC, May 2012 *Analyse des emplois existants et potentiels dans le secteur des déchets en Région de Bruxelles-Capitale*, diagram on page 55

(4) Environment Brussels, *Nieuwsbrief voor ondernemingen*, no. 23, Dec. 2013, page 3

Figure 3. Construction and demolition waste (CDW) produced in the BCR

The CDW generation has been relatively consistent over the last few years, including the percentage that is increased (Figure 3). Unfortunately, there is no further information available after 2013.

Flanders

There was a document [28] released by Flanders that reported treatment data. The data collection was valid up till 2012. There was no backfilling in Flanders, so there were zero values reported for this section. Furthermore, internal recycling was not included in the reported data.

Wallon Region

The region had a valorisation rate of 85% in 2008 [29]. There are been not reportable data available since this.

3.3.3 CDW exports/imports data

For the majority of Belgium, there are no data available on CDW exports/imports. The only data is from 2011, concerns the import/export between the different legislative regions (Flanders, Brussels, Walloon Region). There is, however, a limited amount of exports to the Netherlands for tar asphalt for thermal cleaning.

3.3.4 CDW treatment facilities data

Flanders

In 2014, there were 197 fixed locations that dealt with the sorting of mixed CDW, crushing of rubble and the mixing of lean concrete. There were also 50 mobile installations working under the COPRO-certification in Flanders. There are four landfills for inert waste (category 3) located in Flanders (2013 data).

Brussels Capital Region

In 2016, there were only three sorting facilities in Brussels. CDW were exported to other regions and this still seems to be the case in 2017.

Wallon Region

In 2016, there were 5 landfills for inert waste in Wallonia. 99% of the waste has being landfilled is soil (OWD data) [13]. There are 242 centres authorized to perform the sorting/recycling of construction and demolition inert waste. Out of these, 150 are building contractors.

3.3.5 Future projections of CDW generation and treatment

This information is not currently available for any of the regions.

3.3.6 Methodology for CDW statistics

Please check the Deloitte report on notes on the methodology [13].

3.4 C&D waste management in practice

3.4.1 CDW management initiatives

Flanders

A report [29] of the European Environment Agency (2016) stated that the Materials Programme of Flanders is looking for a profitable system to collect windowpanes (flat glass) in order to produce new glass material. Furthermore, a 'materials methodology for building components is being developed as a measurement tool' to help stakeholders make conscious material choices [31]. The materials methodology is being 'tested in a series of innovative construction projects' in addition to 'pilot projects on flexible construction in social housing' [31].

Wallonia

There is a concentration on the construction sector, especially concerning flat glass. This can be seen by some of the projects that were initiated by GreenWin.

Other projects include the Reverse Metallurgy project. The Reverse Metallurgy project brings together different industrial and academic Walloon partners in order to allow the development of techniques for better recycling metals and to develop measures focusing on

smart steels or new surfaces. The ambition of the Reverse Metallurgy project is to recycle metals so that they can be used as raw materials again [32].

3.4.2 Drivers / barriers to increase CDW recycling

As mentioned in the EC report, one of the main barriers to the increase for CDW recycling is the difference in legislation amongst the Belgian regions and the lack of cooperation between the regions. Facilitating this would significantly increase the possibilities for CDW recycling.

At the moment, 'collaboration agreements' are created between the relevant political entities. The Coordination Committee for International Environment Policy (CCIM/CCPIE), created through such an agreement, created a subgroup on material resource efficiency policy through which CDW would be discussed.

3.5 CDW sector characterization

There is very little information available on this aspect, especially as everything is so different in the three different regions. We will have to tackle this in Task 1.3 so at that point we can hopefully offer more information.

3.5.1 CDW materials (CONCRETE, BRICKS, TILES AND CERAMIC, ASPHALT, WOOD, GYPSUM)

Product description and applications

No data found.

Quantitative analysis

No data found.

Recovery techniques

CDW treatment in case study countries – Belgium selection

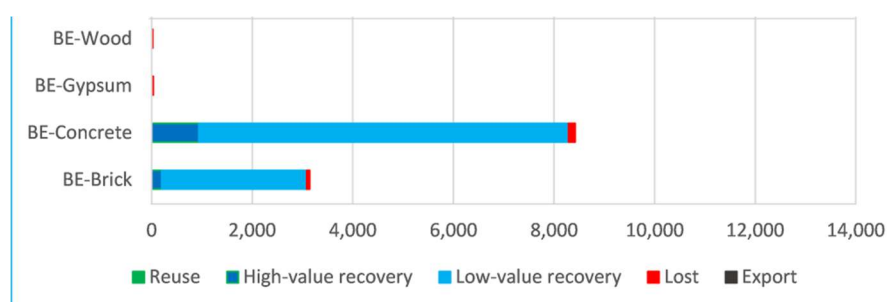


Figure 4. CDW treatment in case study countries – Belgium selection[33]

Figure 4 shows some statistics taken by the HISER project for Belgium (other case study countries included Netherlands, Spain and Finland). As shown, only concrete and brick have a high-value recovery level in Belgium. Wood and gypsum, instead, are largely lost in CDW, whereas a large level of low-value recovery level occurs for concrete and brick.

Furthermore, 'Brick-to-brick' occurs in Belgium, as an abundant of CDW brick is available and the streams area largely well monitored. The gypsum waste management system also seems to be quite sophisticated in Belgium.

There also was a report [34] released by the Vlaams BBT-kenniscentrum focusing on best available techniques for CDW in Flanders.

Environmental and economic impacts of CDW waste management

Currently, there is very little information about the impact of CDW waste on the environment and economic situation in Belgium. This may change when there is review on the WMP.

Drivers / barriers to increase recycling

Flanders

There are several drivers for the increase in CDW recycling, including the:

- Adoption of several sectorial implementation plans
- Taxes on landfilling
- Stony-fraction recycling rate was increased to 95% with the stimulation of both practical and technical solutions and economic benefits (landfill taxes).

In contrast, the barriers are:

- The difference legislations in the Belgium region remains an issue for smoother recycling.
- Modern construction material is more complex and this provides a hindrance to the recycling of waste, resulting in a larger landfill amount
- Logistical aspects can also prove to be a challenge.

Brussels Capital Region

There are several drivers for the increase in CDW recycling, including the:

- The cost of treatment of mixed waste can be 3-10 times higher than the cost of treatment for sorted waste.
- There is legal text that requires government to provide subsidies to non-profit or social organizations that are active in the area of reuse and preparation for reuse.

In contrast, the barriers are:

- Certain legal aspects can be time consuming, such as waiting for the approval to sort containers on public roads.
- The soil ordinance does not encourage the recovery in soils.

It seems to be fairly expensive to try to fulfil different sorting, storage and recycling suggestions [13].

Walloon Region

There are several drivers for the increase in CDW recycling, including the:

- Similarly to Brussels, the treatment costs for sorted waste is less expensive than for mixed waste.
- Legislation is strict and obliges to a high recycling rate for CDW.

In contrast, the barriers are very similar to the barriers of the Brussels region, including the too strict legislations for certain fractions. Additionally, there are no EoW criteria for recycling aggregates.

3.5.2 Recycled materials from CDW

An estimated 90% of the recycled aggregates are used as sub base and base layers in road construction. 10% are used in road-like applications on construction sites. Less than 1% of the recycled aggregate is used in high-grade application. Of particular note, in Flanders there need to be a certification on the environmental qualities for the recycled aggregates [35].

3.5.3 Market conditions / costs and benefits

No data found.