

17. LUXEMBURG

17.1 Legal Framework – Waste Management Plans and Strategies

17.1.1 National Legislation concerning CDW

Main CDW National Legislation in Luxembourg are:

– **Law on Management of Waste (LMW)** n.24 of 21 March 2012, which transposed the WFD in Luxembourg law. Particularly, as reported in DELOITTE Factsheet, the Article 26 “Inert Waste, Construction Waste and Demolition Waste” forecast:

- ✓ Obligations to prevent generation of waste prior to a construction operation (Par. 1)
 - ✓ Building site waste must be collected selectively “to the extent possible” and in case that it is collected in mixed form, it must be submitted to sorting (Par. 2) these obligations apply to works executed by physical persons as long as they are “feasible” (Par. 4)
 - ✓ Obligation to carry out a pre-demolition audit: Prior to any demolition, materials used in the building to be demolished must be identified and listed in a pre-demolition inventory. The inventory must precise selected collection of each material and corresponding treatment in line with waste hierarchy. Contamination by other materials must be avoided. Particular attention must be paid to dangerous substances (Par. 3). These obligations apply to works executed by physical persons as long as they are “feasible” (Par. 4).
 - ✓ Municipalities are obliged to set up infrastructure for selective collection of building site wastes, in particular construction and demolition wastes.
 - ✓ Reuse of collected inert wastes is mandatory in public tender facets relating to construction of roads and other buildings (Par. 7)
 - ✓ A Grand-Ducal regulation can define quality norms for material coming from recycling of inert wastes. These norms may vary according to different use of those materials (Par. 8)
 - ✓ Waste disposal is carried out exclusively within the network of regional landfills. This network is established in compliance with the General Waste Management Plan and the corresponding Sectoral Directive Plan. Other landfills are forbidden (par. 9a)
 - ✓ Regional landfills must be equipped with infrastructures allowing recycling of recoverable inert waste (Par 9b)
 - ✓ The Sectoral Directive Plan on Inert Waste provides that inert waste must be disposed of at the closest landfill to the building site
 - ✓ Authorisation and registration obligations of companies or bodies that collect or transport inert waste from road works, excavation and demolition works (Article 32).
- The Grand-Ducal Regulation of 24 February 2003 on landfilling of waste, as amended.26 The Regulation transposes the 1999 Landfill Directive and notably:
- ✓ Sets out criteria and procedures for admissibility to landfilling of inert waste;
 - ✓ Prohibits landfilling of inert wastes containing hazardous substances in significant quantities;

- ✓ Provides distinction between landfilling and backfilling (see detail in 2.4).

17.1.2 Waste management plans (WMP) and Strategies

In 2010, Luxembourg adopted a **General Waste Management Plan** (Plan général de gestion des déchets).

About CDW, Chapter 24 “Construction site waste” covers three categories of waste: inert waste (including construction and demolition waste), assimilated waste (including packaging) and hazardous waste; Chapter 23 covers “Inert Waste” and concentrates on construction and demolition waste.

Luxembourg used the term “inert waste” to designate “non-

The **Sectoral Directive Plan on Inert Waste** provides that inert waste must be disposed of at the closest landfill to the building site.

Luxembourg's **Waste Management Act** of the March 21st 2012 was implemented in 2012 and lastly modified in December 2014. It is the main act transposing the requirements of the WFD into domestic law. Nearly all requirements of the WFD have been directly transposed into national legal requirements.

The **Waste Prevention Program** of 2010 establishes, for Inert waste (construction and demolition waste) that “the prevention of inert waste can be achieved through reducing construction activities

(e.g. through restrictions on the construction of certain structures such as garages and control rooms, utility rooms and general services rooms) and by integrating waste management considerations into the planning phase”.

17.1.3 Legal framework for sustainable management of CDW

The Law on Management Waste provides:

- Obligation of sorting on site, at national level
- Obligation of provide facilities to collect separately CDW, at municipal level
- Reuse of collected inert wastes is mandatory in public tender facets relating to construction of roads and other buildings.

17.1.4 Targets

Luxembourg's objective for 2020 is 70% recovery, the same as in the EU directive.

17.1.5 End of Waste (EoW) status

The Law on Management Waste of 2012 (LMW) defines “end-of-waste” status exactly in the same words as the Waste Framework Directive (WFD).

In application of the possibility given to Member States by the WFD, the 2012 LMW provides that Grand-Ducal regulations can precise criteria on when certain substances or objects cease to be waste (article 7 par. 2 of the 2012 LMW) and, unless abovementioned

regulations have been taken, decisions can be taken on a case-by-case basis, deciding that certain substances or objects cease to be waste (article 7 par.2 of the 2012 LMW).

As of today, no specific regulations précising criteria for end-of-waste for specific materials have been identified in Luxembourg, apart from EU regulations on that issue (that are directly applicable in Luxembourg).

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

The **SuperDrecksKëscht**[®] in Luxembourg are activities and campaigns of the Ministry for Sustainable Development and Infrastructure, the Chambre des Métiers (Chamber of Trade) and Chambre de Commerce (Chamber of Commerce) regarding the national waste management. The SuperDrecksKëscht[®] is a trademark which was developed within the frame of the waste management obligations of Luxembourg. The orientation is based on the strategy provided by the EU with the hierarchy prevention before preparation for re-use, before recycling, before any other use (as for instance energetic use), before disposal of waste. The task of the SuperDrecksKëscht[®] consists in using and implementing the most recent information in order to achieve a sustainable high-quality material management in the ecological and economic sense. Carrying out these tasks allows showing the lead in the ecological restructuring of our society.

SuperDrecksKëscht label is attributed also to construction sites which are managed according to the waste prevention and management rules of SuperDrecksKëscht: These construction sites are accompanied and audited by counsellors of SuperDrecksKëscht.

17.3 CDW management performance – CDW data

17.3.1 CDW generation data

EUROSTAT database reports the data reported in Table 57 for CDW generated between years 2010 and 2014.

Table 57. EUROSTAT CDW generation data.

	2010 [tons]	2012 [tons]	2014 [tons]
Mineral waste for construction	556.095	523.346	521.386
Metal wastes, ferrous	7.054	7.817	2.238
Metal wastes, non-ferrous	452	987	280
Glass wastes	1.235	802	1.867
Plastic wastes	1.194	1.708	2.035
Wood wastes	13.088	15.334	16.033
Total	8.866.757	7.079.473	5.979.254

Most of the CDW in Luxembourg is constituted by excavation material, like soils and rocks.

17.3.2 CDW treatment data

Data published by EUROSTAT deals with different waste categories but becoming from all the economic activities. Therefore, only for the category “Mineral waste from construction”, data can be considered reliable, as in the Table 58.

Table 58. EUROSTAT database for “Mineral waste from construction”

Mineral waste from construction [tons]	2010	2012	2014
Landfill / disposal (D1-D7, D12)	10.749	7.012	8.494
Deposit onto or into land	10.749	7.012	8.494
Land treatment and release into water bodies	0	0	0
Incineration / disposal (D10)	0	0	0
Incineration / energy recovery (R1)	0	0	0
Recovery other than energy recovery	528.548	517.516	488.214
Recovery other than energy recovery - backfilling	15.000	0	78.659
Recovery other than energy recovery - except backfilling	513.548	517.516	409.555
Total waste treatment	539.297	524.528	496.708

17.3.3 CDW exports/imports data

The only data found are those listed in the DELIOTTE Factsheet.

It reports that Luxembourg exports an important part of its CDW. In 2012, the country exported 386 345 tons of CDW. The quantities of exported non-hazardous and hazardous CDW are almost the same, around 190 000 tons and 197 000 tons. The contaminated soils (category 17 05 03*) represent the majority of exported hazardous CDW: 174 100 tons.

Luxembourg imported 57 772 tons of CDW, among which aluminium (17 04 02) and iron and steel (17 04 05) are the most imported materials. Luxembourg imports very small quantities of hazardous CDW (less than 2 000 tons in 2012).

17.3.4 CDW treatment facilities data

According to EUROSTAT database about “Number and capacity of recovery and disposal facilities by NUTS 2 regions”, In Luxembourg there are 12 landfill for inert waste, while there are 2 landfill for non-hazardous waste and 0 landfill for hazardous waste.

17.3.5 Future projections of CDW generation and treatment

No data found.

17.3.6 Methodology for CDW statistics

The methodology for CDW statistics of data reported in this document follows Eurostat guidelines.

17.4 C&D waste management in practice

17.4.1 CDW management initiatives

See paragraph 17.2

17.4.2 Drivers / barriers to increase CDW recycling

The use of CDW recycled materials are not much diffused in Luxembourg. Generally, CDW are treated to obtain recycled aggregates, but they contain a certain degree of impurity, which changes from one construction site to another.

Furthermore, improved sorting and washing seems to be material-intensive and cost-intensive which leads to the inefficiency of the recycling process. There is a very low profit margin with the present processes. Besides, the limited quantities of material available in Luxembourg make it difficult to improve the processes and stimulate research in this field.

Finally, in the last centuries, Luxembourg's growth and wealth was driven by the steel industry and large reserves of blast-furnace slag, which are by-products from the steel production processes, had been made.

17.5 CDW sector characterization

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

Product description and applications

Among all the CDW materials, concrete represents approximately 30% of total amount of CDW. This amount of concrete waste is the quantity of recyclable concrete.

Additionally, currently in Luxembourg, for concrete waste, there is a high tendency of downcycling of concrete waste for use in road construction, foundation and substructure construction.

In the last decades, Luxembourg profited from these reserves for use in road and railway construction, but they are almost entirely spent. Therefore, the recycled concrete aggregates are used as slag replacement in road and foundation construction, drainage system, etc.

Most of glass waste in CDW is recovered by recycling industries, either to produce glass or isolation materials, while wood coming from the construction sector is sorted and recovered, either recovered through energy recovery or in cogeneration with pellet production.

Quantitative analysis

See paragraph 17.3.1

Recovery techniques

No data found

Environmental and economic impacts of CDW waste management

No data found

Drivers / barriers to increase recycling

See paragraph 17.4.2

17.5.2 Recycled materials from CDW

Main recycled materials from CDW in Luxembourg are recycled concrete aggregates.

The quality of the recycled concrete aggregates generated in Luxembourg depends on several factors.

In Luxembourg, its origin is mainly from demolition of buildings, thus already the initial material is not pure concrete demolition and it has a considerable rate of contamination. Its minor constituents are bricks, tiles, ceramics, soils, gypsum, insulating material, timber, metals, etc. Considering these constraints, the recycled concrete in Luxembourg has an average quality.

The recycled concrete aggregates have to submit a certification of adequacy delivered by an organization approved in the framework of the directive 'Beton mit rezykliertem Zuschlag' from DAfStb (Deutscher Ausschuss für Stahlbetonbau; engl. German Committee for Structural Concrete).

In general, the following are the fields of application for recycled concrete aggregates in Luxembourg:

- Huge quantities are used in road constructions and foundation and substructure construction.
- Slight, minor quantities are used for the base or fill for drainage structures or piping systems. They are used to replace sand and gravel for the levelled assembly of external piping of various systems.

17.5.3 Market conditions / costs and benefits

Currently, there are no state/legislation incentives to recycling. Construction companies do not benefit from any state aids or financial support from the state in exchange for recycling. Yet, it is less expensive for companies to sort materials (and recover them) than not to do so. In fact, the treatment of waste represents a cost for the construction companies. The current market prices provide both incentives to prevent waste generation and for sorting waste that has been produced, as follows:

- Incentive to prevent waste generation: The price is based on the quantity of waste (volume/weight); the less waste is produced, the less the construction company pays to the waste treatment company ("déchetterie")