

12. HUNGARY

12.1 Legal Framework – Waste Management Plans and Strategies

12.1.1 National Legislation concerning CDW

National Regulatory concerning CDW in Hungary are:

- Act on Environmental Protection (A környezet védelmének általános szabályairól szóló 1995. évi LIII. Törvény)
- Act on Waste (A hulladékról szóló 2012. évi CLXXXV. törvény)
- Governmental Decree on Hazardous waste (A veszélyes hulladékkal kapcsolatos tevékenységek végzésének feltételeiről szóló 98/2001. (VI. 15.) Korm. Rendelet)
- Ministerial decree on the List of waste (A hulladékjegyzékről szóló 72/2013.(VIII. 27.) VM rendelet)
- Ministerial decree on construction and demolition waste (Az építési és bontási hulladék kezelésének részletes szabályairól szóló 45/2004. (VII. 26.) BM-KvVM együttes rendelet)
- Act on the Formation and Protection of the Built Environment (Az épített környezet alakításáról és védelméről szóló 1997. LXXVIII. törvény)
- Government decree on building and construction activity (Az építőipari kivitelezési tevékenységről szóló 191/2009. (I. 15.) Korm. Rendelet).

Particularly, Ministerial decree 45/2004 details rules for CDW management. Requires the waste producer to complete a waste registration form after the construction or demolition work is completed. It does not apply to hazardous waste. According to the Government, the Regulation is lacking guidance on where and how recycled construction materials can be used, or prohibition of their use. It is planned to address these issues in an amendment of this Regulation.

The waste type has to be summarized and exceeding quantities to limits in Regulation 45/2004 (VII. 26) have to be separated for recovery/recycling and treatment method has to be described in the Demolition Waste Registration card (the template is reported in DELOITTE study).

Detailed rules for the management of CDW have to be submitted to the relevant Environmental Authority.

After completing the construction activity a Construction waste registration card (Annex 3 of this document) has to be completed showing the types and quantities of generated waste. Waste transfer notes have to confirm the validity of the data. These two documents have to be submitted to the building authorities together with a request for the occupancy permit.

12.1.2 Waste management plans (WMP) and Strategies

Section 2.4.5 of the current **National Waste Management Plan (NWMP) 2014-2020** is dedicated to CDW. The NWMP has been established within the Government Decree 2055/2013. (XII. 31) on the National Waste Management Plan.

There are 7 regions in Hungary, each region's Environmental Authority is responsible for developing a Waste Management Plan. 270 days after the Regional Plans have been published, the municipalities have to prepare and submit Local Waste Management Plans.

The **National Waste Prevention Program (NWPP)** is part of the NWMP. The NWPP sets targets and measures to be implemented in order to achieve the required level of waste prevention. One of the main goals of the NWMP is to decouple the relationship between economic growth and environmental impacts caused by waste generation. Section 4.4.2.1 is for CDW and includes the following: the program draws attention to the alternative utilization possibilities of unused/dysfunctional buildings and structures. The building\area previously used for production can be refurbished for housing, storage, cultural purposes keeping the main structural features of the building.

The National Environmental Program (NEP) 2014-2019 specializes in environmental awareness in order to enhance sustainable lifestyles, with regards to production and consumption. This program contains a section on CDW describing the targets as well as the recommended measures to be implemented in order to achieve them.

12.1.3 Legal framework for sustainable management of CDW

12.1.4 Targets

Section 92 of ACT CLXXXV of 2012 on Waste define that: the combined share of preparing for re-use and the recycling of non-hazardous construction and demolition waste - other than soil and stone - and other material recovery, including waste used as substitutes in backfilling operations, shall be increased by 31 December 2020 to 70 per cent relative to the total volume produced at the national level.

This target agree with the CDW target within the National Waste Management Plan 2014-2020 and the National Environmental Program (NEP) 2014-2019.

Measures planned to be implemented in order to achieve this target are:

- Increase the use of products made of recycled CDW;
- Enable the competitiveness of these products on the market;
- Establish selective demolition; increase the capacities of CDW recovery facilities;

development of a new enforcement regulation; and creation of economic and legal instruments necessary for increased utilization of CDW.

The NEP provides to avoid landfilling CDW, too.

The measures necessary to achieve these targets which shall be implemented by the relevant Ministries of Hungary, are as follows:

- Regulating the use of CDW for backfilling;
- Developing selective demolition criteria and implementing in use;
- Increasing the capacity of CDW treatment facilities and establishing compulsory CDW recycling;

- Reviewing and updating related legislation (e.g. public procurement, reporting systems, and guidance documents).

12.1.5 End of Waste (EoW) status

The criteria for End-of-Waste (EoW) are established in Article 7, paragraph 9 of the Waste Act 2012 CLXXXV6. These criteria are similar to the ones defined in the European Waste Framework Directive.

Therefore, there is a lack of CDW specific EoW criteria and associated evaluation with no detailed rules for EoW for CDW in existing legislation. In connection with the utilization of recycled construction materials, the current level of Government regulation is also lacking justification of the EoW status.

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

Non legislative instruments that contribute to create conditions for a sustainable management of CDW are BREEAM and LEED.

According to the Government Regulation 312/2012, a demolition plan has to be prepared and it includes the description of:

- Demolition technology
- Outcomes of the building inspection.

In Hungary, there is a range of technical guidelines, standards and code of practice for use of CDW in construction applications, particularly as recycled aggregates in concrete productions.

12.3 CDW management performance – CDW data

12.3.1 CDW generation data

EUROSTAT database reports the data shown in Table 41 for CDW generated between years 2010 and 2014.

Table 41. EUROSTAT database for CDW generated between years 2010 and 2014

	2010	2012	2014
Mineral waste for construction	2.958.097	2.918.973	1.887.959
Metal wastes, ferrous	150.547	90.446	40.493
Metal wastes, non-ferrous	2.778	9.037	2.317
Glass wastes	2.631	3.651	590
Plastic wastes	5.304	6.495	3.513
Wood wastes	3.870	5.130	1.987
Total	4.072.214	4.038.081	3.673.479

DELOITTE document reports different amount of CDW generation data, supplied by Central Hungarian Statistical Office. As written in it, the data downloaded from public database, could be incorrect due to possibilities of waste producers providing data two times for the same time period, or not providing any information, delayed data or other issues.

12.3.2 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 42.

Table 42. EUROSTAT database for Mineral waste from construction between years 2010 and 2014

Mineral waste for construction	2010	2012	2014
Landfill / disposal (D1-D7, D12)	939.070	490.560	331.348
Deposit onto or into land	929.090	490.560	331.348
Land treatment and release into water bodies	0	0	0
Incineration / disposal (D10)	359	1.347	2.479
Incineration / energy recovery (R1)	34	94	51
Recovery other than energy recovery	1.434.971	1.431.518	2.071.360
Recovery other than energy recovery - backfilling	175.178	175.601	309.568
Recovery other than energy recovery - except backfilling	1.259.793	1.255.917	1.761.792
Total waste treatment	2.374.434	1.923.520	2.405.238

The new national Waste Management Plan 2014-2020 NWMP 2014-2020 shows a summary of non-hazardous CDW treatment from 2004-2013 (Table 43) and states the following conclusions:

- The amount of landfilled non-hazardous CDW has decreased since 2004, where 91% was landfilled to 47 % in 2011;
- A major part of CDW ends up at municipal landfills. Sometimes, this form of deposition is required, but in many cases CDW is transported to municipal landfills due to their closer location. Landfilling CDW at municipal landfills significantly reduces their life span;
- The proportion of recovered CDW is growing every year. However, the recovery figures include backfilling;
- Around 60% of hazardous CDW is estimated to be landfilled.

Table 43. Non-hazardous CDW treatment from 2004-2013

Non-Hazardous CDW treatment methods	2010	2011	2012	2013
Landfill	1.232.657	2.076.371	757.639	708.909
Material recovery	2.933.919	2.338.761	3.050.797	3.062.943
Energy recovery	182	75	134	58
Incinerated	178	198	169	240
Total CDW generated	4.166.936	4.415.405	3.808.739	3.772.150

Other waste data source, such as Central Hungarian Statistical Office, reports different amount of CDW treatment data, just because they received data from other different sources.

12.3.3 CDW exports/imports data

Export and import of waste for treatment does not play a significant role in Hungary, although there has been an increase in both areas due to the termination of borders within the Schengen area and globalization of the recovery market. The most often exported CDW type is 17 04 05 iron and steel. No other information has been found.

12.3.4 CDW treatment facilities data

Currently there are 70 compliant landfills in Hungary, their total available capacity in June 2013 was 69,000,000 m³ (source Annex 2 of the NWMP).

In the future, the landfill capacity is expected to be reduced and only five landfills are expected to be developed.

The CDW recycling/recovery operators in Hungary are mostly carrying out pre-treatment activities. The use of mobile recycling/recovery facilities is high. The NWMP 2014-2020 states that the following 5 facilities have recycled the following amounts of CDW in 2011:

- Kaposvár 56,600 tons
- Kecskemét 124,200 tons
- Bodrogkeresztúr 52,000 tons
- Szolnok 28,970 tons
- Eger 125,470 tons.

The number of treatment facilities, waste contractors, and other authorizations regarding CDW Category 17 released by the National Environmental and Nature Protection Inspectorate, the National General Directorate for Disaster Management, are reported in the Annex 4 of DELOITTE document.

12.3.5 Future projections of CDW generation and treatment

As written in the above paragraph, the amount of CDW landfilled has been significantly reducing and the recycling/recovery rate (including backfilling) have increased in recent years. Additional landfill diversion is expected due to the implementation of the Landfill Tax. The amount of generated CDW is closely related to the crisis of development in the

construction industry, which started in 2009. A negative impact is expected due to improvements in the reporting system as it will include lower quantity waste producers. Another important condition is the 2014-2020 EU budget cycle, which is likely to have a beneficial effect on long term construction investments. On this basis, in the first part of the period around 4 million tons of CDW is expected with an increase in the second period. The recovery rate will rise due to the measures put in place as a greater proportion of the CDW will be diverted from disposal to recovery.

12.3.6 Methodology for CDW statistics

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

12.4 C&D waste management in practice

12.4.1 CDW management initiatives

To improve waste management in Hungary and to achieve the targets set out in the various EU Directives between 2014-2020, the required financial resources are set by the Environment Efficiency and Energy Operational Program 26 (KEHOP), the Economic Development and Innovation Operational Programme²⁷ (GINOP) and the Regional and Local Development Operational Programme²⁸ (TOP) available.

Different research projects have been developed in Hungary, with the aim to develop a common approach to a sustainable CDW management and particularly to develop and disseminate tools for recycled aggregates management planning. The working group of the Ministry of Agriculture is developing a guidance for separate collection of CDW and CDW management.

12.4.2 Drivers / barriers to increase CDW recycling

Table 44 shows a list of problems to be addressed, as states by Ministry of Agriculture:

Table 44. Drivers / barriers to increase CDW recycling

Problem	Description	Solution concept
Lack of selective demolition practices	Dismantling priorities: - quickness - cost effectiveness The sorting of materials does not fit in this practice...	Technical guidelines and standards are needed
Recycling is not economical, and it is difficult to sell the product on the market	- Inhomogeneity - The qualification is expensive - The prices of primary raw materials are low - Recycling = waste	Ensure the competitiveness of secondary raw materials - increase the price of primary raw materials OR/AND

Problem	Description	Solution concept
	management activity - Environmental preliminary study!	- positive incentive: decrease VAT for recycled materials
The principles of green procurement are not applied by the construction projects	The goal of the tenderer: to offer the lowest price possible, other important criteria such as environmental protection and sustainability are neglected	- establishment of the legal environment for green public procurements - Compulsory minimum rate of the use of recycled products / materials coming from CDW should be set by construction projects
The detailed rules of a quality assurance system are missing (special rules for secondary raw materials)	- Which ingredients of CDW can be used as secondary raw materials? - What are the detailed quality requirements? - How to handle the contaminated CDW? Etc.	Standards and industry-specific guidelines have to be defined regarding to all relevant sectors
The detailed rules of the end of waste criteria are missing	It is unclear in certain cases when and how the waste can obtain the status of product / secondary raw material.	The clarification / development of an EU-wide regulation could be helpful
Slow connections between the construction sector and environmental authorities	- Complex process, difficult to follow - Too late notifications about constructions and demolitions - Slow (or no) feedbacks (illegal landfilling)	- legislative amendment. Environmental authorities to be informed before the C&D activities, authorization for inspection, verification about the takeover of the waste for treatment
CDW used as technological materials for protection and securing landfills	- Can be used as a legal "loophole". No need to pay landfill tax - It is shown as „recycling“ in the data system	- Defining the maximum rate of using CDW as technological material
The definitions in different acts are not always in accordance	Ministerial decree on construction and demolition waste (2004) – Act on Waste (2012)	Harmonization of terminologies and definitions

12.5 CDW sector characterization

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

Product description and applications

CDW materials produced and recycled in Hungary are:

- Concrete
- Tar
- Mixture of concrete, stone and tar
- Rubble
- Bricks
- Mineral construction waste.

In road construction, CDW materials are generally used in the following application:

- Earthworks
- Pavement structure layers
- Reclamation layers
- Backfilling.

Other possibility of uses are: preparing of bricks and concrete, foundation and floor coverings.

Quantitative analysis

No data found.

Recovery techniques

No data found specific for Hungary.

Environmental and economic impacts of CDW waste management

No data found specific for Hungary.

Drivers / barriers to increase recycling

See Section 12.4.2

12.5.2 Recycled materials from CDW

The Table 45 shows, for each kind of CDW materials, the respective recycled product and its possibility of use (from DELOITTE study).

Table 45. CDW materials and its possibility of use (from DELOITTE study)

Waste	Recycled product	Possibility of use
Concrete	Crushed concrete	Road slabs without bond, smaller roads

Waste	Recycled product	Possibility of use
		boards. Cement road slabs. Agricultural roads, the preparation of concrete additive, filler, drainage layers.
Tar	Crushed tar	Upper road slabs without binder, lower road foundation. Road slabs with a binder. Agricultural roads. Additive for preparing asphalt.
Mixture of concrete, stone and tar	Crushed mixture of concrete, asphalt, stone	Upper road slabs without binder, binder with higher road slabs, agricultural roads.
Rubble	Construction sand and rubble (less than 25% brick content)	Stabilized backfilling and foundations. Sports ground for foundation.
Bricks	Construction sand and rubble (brick content above 25%)	Additive for preparing blocks. Concrete and lightweight concrete aggregate. Stabilization. Backfilling, foundations. Floor coverings.
Mineral construction waste	Crushed mineral material	Backfilling, foundations, the lower layer, drainage sports fields.

12.5.3 Market conditions / costs and benefits

CDW materials in Hungary are not competitive with primary building materials, due to the cost of CDW collection, pre-treatment and recycled CDW production.