

16. LITHUANIA

16.1 Legal Framework – Waste Management Plans and Strategies

16.1.1 National Legislation concerning CDW

Main National Legislation in Lithuania are:

- **Law on Waste Management** of 16 June 1998, Nr. VIII-787, with last amendments in 2011, which transposes the Waste Framework Directive;
- Order of the Minister of Environment No D1-367 on the **Requirements on waste generation and management account**, adopted 3/05/2011;
- **National Strategic Waste Management Plan** for the period of 2014-2020, approved by the Resolution of the Government of the Republic of Lithuania, with the last amendments in June 2016;
- **Requirements for regional and municipal waste management plans** approved by the order of the Minister of Environment No D1-1004 and adopted 16/12/2010;
- Order of the Minister of Environment No 699 on the **Environmental Protection Requirements for Waste Incineration**, adopted 31/12/2002 with the last amendments on 14 October 2011;
- Order of the Minister of Environment No 217 on the **Rules on Waste Management**, adopted 14/07/1999 with the last amendments on 3 May of 2011;
- Order of the Minister of Environment No. 444 on the **Rules on Construction, Operation, Closure and Care after closure of Landfills of Waste**, adopted 18 October 2000, as amended;
- **National Waste Prevention Programme**, adopted in 2013.

16.1.2 Waste management plans (WMP) and Strategies

The main objectives of the National Waste Management Plan are:

- to prevent the effects of waste pollution by the recovery of material and energy;
- to ensure a waste management framework that would address the issues of the general population, guarantee environmental quality and agree to the standards of market economy;
- to set waste management targets, action plans and evaluation measures, in order to implement WFD in the required time frame.

16.1.3 Legal framework for sustainable management of CDW

Waste management legal framework in Lithuania has been strengthened since the 2000's and in 2006, the order by the Minister of Environment No. D1-637 "For the rules of construction waste management" set requirements for construction and demolition waste management. Waste quantities, waste codes and waste treatment activities shall be indicated. Rules clearly indicate requirements for the records on CDW on site. It is also indicated the strict obligation to establish separate collection of municipal solid waste, inert waste (concrete, bricks, ceramic and others), recyclable waste (packaging, paper, glass,

plastic and others), hazardous waste and non-recyclable waste. Non-hazardous waste can be temporarily stored on site for one year, and hazardous waste - for 6 months. The builder must provide the documents of waste transportation to an appropriate waste treatment facility for the commission which evaluates the quality of building at the time of works have been finished. Requirements of waste shredding, reuse of waste on site, waste transportation, recovery and disposal are also set in the rules as well as specific requirements for management of asbestos waste.

16.1.4 Targets

The National Waste Management Plan states:

“CDW management system should be organized by the way to ensure that by 2020, the preparing for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials, of non-hazardous construction and demolition waste excluding naturally occurring material defined in category 17 05 04 in the list of waste shall be increased to a minimum of 70 % by weight.”

16.1.5 End of Waste (EoW) status

There is no EoW criteria established in Lithuania for CDW stream. There is a direct use regulation for metals, scraps, glass and copper.

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

Non legislative instruments that contribute to create conditions for a sustainable management of CDW is BREEAM certification. In November 2016 the second international conference Green Buildings – Vilnius 2016 took place, with the aim to help investors, developers, design and construction teams and occupiers to use natural resources more efficiently.

16.3 CDW management performance – CDW data

16.3.1 CDW generation data

EUROSTAT database reports the data reporting in Table 55 for CDW generated between years 2010 and 2014.

Table 55. EUROSTAT CDW generation data.

	2010 [tons]	2012 [tons]	2014 [tons]
Mineral waste for construction	227.330	313.056	392.140
Metal wastes, ferrous	10.904	12.192	17.231
Metal wastes, non-ferrous	387	76	288
Glass wastes	310	188	77
Plastic wastes	132	1.921	211
Wood wastes	5.101	2.084	1.765
Total	356.772	419.136	434.737

16.3.2 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 40.

Table 56. EUROSTAT database for “Mineral waste from construction”

Mineral waste from construction [tons]	2010	2012	2014
Landfill / disposal (D1-D7, D12)	86.034	52.591	44.989
Deposit onto or into land	86.034	52.591	44.989
Land treatment and release into water bodies	0	0	0
Incineration / disposal (D10)	25	227	13
Incineration / energy recovery (R1)	0	0	0
Recovery other than energy recovery	234.810	404.445	530.431
Recovery other than energy recovery - backfilling	0	66.113	113.364
Recovery other than energy recovery - except backfilling	234.810	338.332	417.067
Total waste treatment	320.869	457.263	575.433

16.3.3 CDW exports/imports data

No data found.

16.3.4 CDW treatment facilities data

According to EUROSTAT database about “Number and capacity of recovery and disposal facilities by NUTS 2 regions”, In Lithuania there are 3 landfill for inert waste, while there are 11 landfill for non-hazardous waste and 0 landfill for hazardous waste.

Even if those are the official data reported by EUROSTA, in Lithuania there are more than seven hundreds of landfills, six hundreds of them being less than 1 ha. Most landfills, especially small ones, are illegal. CDW is disposed in such landfills, particularly in those situated a bit further from big towns, however, to evaluate the disposed quantities is almost impossible, because the waste quantity and class in these landfills are not registered in the National Waste Accounting Database. However, in the National Strategic Waste Management Plan it is planned to close all landfills which fall short of the environmental requirements and to manage waste by regional principle. It is planned to establish ten regional non-hazardous landfills and one hazardous landfill where disposing inert CDW will be prohibited. However, presently most of CDW is still disposed in the household waste landfills.

16.3.5 Future projections of CDW generation and treatment

Two scenarios can be seen in the future household CDW waste management system: to organize inert waste landfills and to deliver CDW to recycling companies, taking into consideration that until 2012 in Lithuania it is expected to manage the waste regionally, while disposal of inert CDW in new landfills will be prohibited. In this case, an adequate system of CDW collecting needs to be established. A CDW collecting system located far away from recycling companies could be integrated into a regional waste management system. In this case, separate sites for inert CDW should be organized at the Waste Transfer Stations (WTS). Two scenarios are possible: CDW collected in the station would be transported to recycling companies or mobile crushing equipment should be used, i.e. the waste would be treated in WTS. It is important to evaluate the forecast CDW amounts in each WTS territory, the distances between recycling companies, demand of recycled products in WTS regions, etc. The system should be evaluated not only in the economic, but also in environmental aspects (e.g., the influence of transportation on air pollution, etc.).

16.3.6 Methodology for CDW statistics

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

16.4 C&D waste management in practice

16.4.1 CDW management initiatives

See paragraph 16.2

16.4.2 Drivers / barriers to increase CDW recycling

In Lithuania, it is not profitable to recycle CDW. Three main problems are defined in the CDW management system in Lithuania. There are illegal disposal, insufficient sorting of CDW at source and unlimited landfilling. The landfill and recycling company waste management costs differ only 2 times. This could be one of the most practical reasons why CDW is disposed in landfills. In fact, the average difference between sorted and unsorted waste costs in Lithuania is a little higher; however, more important is the difference of costs of waste management in landfills and in recycling companies.

16.5 CDW sector characterization

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

Product description and applications

Lithuanian CDW system is structured, with two CDW streams from different sources – domestic and industrial construction and demolition activities. The household waste stream comprises about 7% of the total CDW stream. Municipalities are responsible for household

CDW management and industrial waste producers are responsible for their own waste management.

The composition of construction and demolition waste may be different, depending on a building being demolished. When constructions of unfinished buildings are demolished, demolition waste consists of concrete, metal, ceramics. In case the old buildings, that are not rehabilitated and cannot be exploited, are demolished, demolition waste of these buildings demolished consists of concrete, ceramic bricks, tiling or slating, wood, thermal insulation materials, metal and various finishing materials.

Quantitative analysis

See paragraph 16.3.1

Recovery techniques

Two main reprocessing methods are employed during the reprocessing of buildings' demolition waste:

- (1) Waste reprocessing in concrete breakstone production line or in a special site;
- (2) Waste reprocessing at a location where waste is created, i.e., at a construction site or at location where building is being demolished.

Despite the type of a building being demolished and reprocessing method, main reprocessing stages of the demolition waste are the same: initial preparation of construction and demolition waste, crushing, sorting, metal separation, initial sieving, milling, metal separation, sieving. During demolition of the buildings, excavators, hydraulic alligator shears, metal separation aggregates are used most often. After the demolition works waste is reprocessed by employing special equipment used for the milling and sorting. Shredders, milling machines, magnetic separators, sieving machines as well as air separators, that separate thermal insulation materials, wallpaper and other impurities from concrete pieces, are used in reprocessing processes. After thorough implementation of all breakstone production stages, coarse and fine aggregates of various fractions are obtained.

According to the European legislation, in Lithuania, the recycling technologies may be of three levels:

- level 1: mobile crusher and sieving plant;
- level 2: level 1 plus metal removal and more complex sorting/sieving;
- level 3: level 2 plus hand sorting, washing plant and facilities for other CDW streams (wood, etc.).

Recycling technologies used in Lithuania could be attributed to various levels.

In Lithuania there are companies, such as JSC “Bionovus”, JSC “Vaidva”, that provide services not only for the demolition of various buildings, for the collection as well as reprocessing of construction waste, but also sell the breakstone produced from the demolition waste.

JSC “Aviridis” (technologies of level 3) accepts all CDW of Waste Catalogue code 17, i.e. not only inert, but also wood, plastic, glass, hazardous (asbestos and others) waste. The JSC “Bega”, JSC “Mitnija”, “Visagino statybininkas” use semi-mobile crushers with a magnetic metal separator, which could be classified as a second level. The other companies use level I technologies when mobile equipment is used to recycle only inert CDW. Consequently, 90% of recent recycling technologies in Lithuania are used only to manage more or less sorted inert CDW.

Collection service is another important aspect of recycling. Only one of the recycling companies (JSC “Aviridis”) provides such services. Most collectors are the companies, managing household landfills. They are renting containers to collect CDW. All CDW covered by code 17 are collected in one container, therefore recycling without special sorting is impossible. It is one of the factors stimulating CDW landfilling.

Environmental and economic impacts of CDW waste management

No data found

Drivers / barriers to increase recycling

See paragraph 16.4.2

16.5.2 Recycled materials from CDW

CDW in Lithuania are treated to obtain coarse and fine aggregates of various waste fractions. These aggregates, depending on their fraction, are used for the construction of passages and roads, passing ways, sidewalks, as well as for the manufacturing of new construction products.

The most popular and the most expensive breakstone is produced without small fractions, because for the production of this breakstone additional production stages are required, such as cleaning and separation from fine and very fine particles, and this requires additional energy consumption. However, nowadays in Lithuania crushed concrete is utilized only for the base of motorways.

16.5.3 Market conditions / costs and benefits

The analysis has shown that the technological recourses in Lithuania can be used to recycle sorted inert CDW. To install the level III recycling centres where all sorts of CDW are accepted, big investments are needed. To install such a site costs 10 times more than to buy a good mobile crushing equipment. Besides, the sorting of CDW at recycling sites is less favourable (by waste management hierarchy) to the environment than sorting CDW at the

source. Therefore, the system's improvement should be concentrated not to establish new recycling companies or recycling sites, but to increase the capacity of existing private recycling companies, stressing the importance of separate sorting and collection and the control of illegal disposal.