8. ESTONIA

8.1 Legal Framework – Waste Management Plans and Strategies

8.1.1 National Legislation concerning CDW

The main national legislation concerning waste in Estonia is the "Waste Act" which has several amendments since 2004, but is also transposing the EU Mining Waste Directive 2006/21/EC (2010) and new Waste Directive 2008/98/EC. Waste Act provides the organization of waste management, requirements for preventing waste generation and the health and environmental hazards arising from waste, including measures for improving the efficiency of the use of natural resources and reducing the adverse impacts of such use, and liability for violation of the established requirements.

Even if the Waste Act does not include specific rules for CDW management, it lays down the general rules that should apply for the management of waste according to the waste hierarchy, as presented in the WFD (2008/98/EC). This means that each professional activity related to CDW management falls under appropriate permitting regulations, as described in Chapter 6 of the law.

About environmental impact of waste, paragraph 6 of Waste Act reports that the processes or methods used in waste handling shall not endanger health, property or the environment. The waste handling shall implement all the necessary measures to avoid or reduce as much as possible the environmental nuisances caused by waste, depending on the waste typology.

There is no specific legislation in place for the management of CDW, but the management of CDW is well articulated in the local waste management rules which are issued at municipality level. CDW therefore, is regulated at municipality level with the obligatory rules laid down in the local government waste management rules (Waste Act, Art.71). The local waste management rules are governed by the provisions of the National Waste Management Plan as well as the Regional Waste Management Plans.

8.1.2 Waste management plans (WMP) and Strategies

Estonia has a brand new National Waste Management Plan for the period 2014-2020. A chapter of the new WMP is dedicated to the development of the national Waste Prevention Plan (WPP), according to provisions stated in the WFD (2008/98/EC). As reported in the DELOITTE study, the WMP places specific focus on the promotion and intensification of support for investments and financing to companies engaged in waste recycling in order to enhance their performance and treatment capacity with the aim of contributing to the achievement of both recovery/recycling targets of the WFD, for municipal solid waste and construction and demolition waste. The goal of Estonia, as described in the WMP, is to reduce landfilling as much as possible and recover the highest possible share of CDW.

CDW is considered as a priority waste stream in the WPP section within the WMP of Estonia. Several measures for waste prevention, in line with Annex IV of the WFD, are presented in the WPP and they are also applicable to CDW.

Also within the **Estonian Environmental Strategy 2030**, coordinated and prepared by the Ministry of the Environment, there is a chapter dedicated to waste. This chapter deals with main trends in the sphere of the environment which can be observed both in Estonia and Europe. More and more environmentally sustainable and easily recoverable materials are being used. Disposal of building and demolition waste in landfills is decreasing, as with a view to economic savings other applications have been found for inert waste. More environmentally sustainable and easily recoverable materials are being used in products. The principles of producer liability and "polluter pays" are being enforced and implemented on a growing basis. The environmental impact of landfills is decreasing, as old landfills that fail to conform to environmental requirements are being closed down and environmentally sustainable technologies are being employed for establishing new landfills.

8.1.3 Legal framework for sustainable management of CDW

No data found

8.1.4 Targets

Estonia is one of the very few Member States in EU-28 that have included a more ambitious target in their National Waste Management Plan than that of the Waste Framework Directive (2008/98/EC). The new Waste Management Plan of Estonia (for the period 2014-2020) is setting a target of 75% recovery of CDW by 2020. Taking into consideration that Estonia has already reached the target of the Waste Framework Directive (2008/98/EC), as in 2011 the recovery rate of CDW was at the level of 72%, it is most likely that this target will be fulfilled by 2020.

Therefore, in the Estonian Environmental Strategy 2030, it is set that by 2030 waste disposed to landfills will have decreased by 30% and the harmfulness of waste generated will have been reduced significantly. Among the initiative to do it, it is important to increase the sorting and recovery, including recycling, of waste to minimise the waste amounts to be disposed. Also, the harmfulness of waste and the content of hazardous substances in waste must be reduced, as this would preclude the increase of discharges into air, water and soil in the course of waste handling.

Some indicators produced for the time being, are:

- Generation of hazardous waste ↓. Base level: 7,029,000 tons per year;
- The relative share of recovered waste among all the generated waste, for the following materials: glass, plastics, paper ↑. Base level: 53%, 36%, 45%;
- The ratio of products of concern brought to market to the collected and recovered waste arising from products of concern ↓;
- The relative share of local governments with a waste management system that conforms to requirements ↑↔.

8.1.5 End of Waste (EoW) status

Currently, there are no End of Waste criteria established in Estonia concerning materials from the CDW stream. The principles for establishing End of Waste criteria are clearly articulated in the Waste Act. There is no information available on the status or future planning for development of such criteria.

8.2 Non legislative instruments (best practices, guidelines, recommendations…)

Despite having high recovery rates and the fact that Estonia already surpassed the 70% recovery target of the Waste Framework Directive (2008/98/EC) concerning CDW as early as 2011 (72%), Estonia still faces a problem with acquiring high quality recycling and the production of recycled CDW that can be effectively used back into construction activities. In order to address the current situation and in an effort to overcome the apparent barriers in improving (a) the quality of recycling and (b) the market of CDW recycled products (e.g. recycled aggregates), the waste management sector in Estonia through its **Waste Management Association** initiated the creation of a **Waste Recycling Cluster** (eventually becoming the Recycling Competence Centre).

The activities of the Recycling Competence Centre are mainly focused on the development of different waste recycling projects (incl. international projects), trainings for all stakeholders in waste management/recycling and sharing internationally the experiences of Estonian companies in waste recycling. Further areas of focus include the development of standards and a certification scheme for recycled aggregates.

The Recycling Competence Centre has been successful in establishing partnerships with other cluster networks and recycling associations in the EU (e.g. the Austrian Association for the Recycling of Building Materials - BRV) as well as an extensive network of partners in the Nordic countries, especially Norway, Finland and Sweden. The wide partner network has facilitated knowledge sharing and dissemination, among the international and national partners and the Recycling Competence Centre, and has led to increased uptake of the latest developments and technologies in the sector.

The academic partners in the Recycling Competence Centre, namely the 3 Universities taking part in the initiative, are mainly responsible for the dissemination of research results and demonstration of innovative practices in CDW management and especially the utilization of recycled aggregates in different construction projects (e.g. the construction of a test road with recycled materials).

8.3 CDW management performance – CDW data

8.3.1 CDW generation data

EUROSTAT database reports the following data (Table 25) for CDW generated between years 2010 and 2014.

Table 25. EUROSTAT database for CDW generated between years 2010 and 2014 [tons].

	2010	2012	2014
Mineral waste for construction	203.822	307.980	318.108
Metal wastes, ferrous	33.765	8.943	15.095
Metal wastes, non-ferrous	2.058	263	296
Glass wastes	36	170	287
Plastic wastes	208	166	188
Wood wastes	3.398	9.541	8.036
Total	**436.289**	**657.089**	**671.347**

8.3.2 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 26.

Table 26. EUROSTAT database for "Mineral waste from construction" [tons]

Mineral waste from construction	2010	2012	2014
Landfill / disposal (D1-D7, D12)	21.522	19.779	18.052
Deposit onto or into land	21.522	19.779	18.052
Land treatment and release into water bodies	0	0	0
Incineration / disposal (D10)	0	0	0
Incineration / energy recovery (R1)	4.091	3.078	1.092
Recovery other than energy recovery	582.814	520.223	705.065
Recovery other than energy recovery - backfilling	56.776	113.814	123.459
Recovery other than energy recovery - except backfilling	526.038	406.409	581.606
Total waste treatment	**608.427**	**543.081**	**724.210**

As reported in Deloitte documents, the majority of CDW recovered in Estonia is used for backfilling purposes, which consists a low form of recovery operation according to the waste treatment hierarchy.

8.3.3 CDW exports/imports data

No data has been found, apart what reported in DELOITTE document and shown in the Table 27.

Table 27. Quantities of imports/exports of CDW reported in DELOITTE document

	2011	2012	2013
Imports (Total)	**551 558**	**271 089**	**149 760**
Non-hazardous	551 558	271 089	149 760
Hazardous	0	0	0
Exports (Total)	**227 095**	**200 948**	**239 474**
Non-hazardous	227 095	198 879	237 249
Hazardous	0	2 069	2 225

8.3.4 CDW treatment facilities data

According to DELOITTE document the number of landfills operating in Estonia is declining in the last years.

There are no specific figures for the total available treatment capacity in Estonia, but estimations from the Estonian Waste Recycling Competence Centre indicate that the current installed capacity is more than enough to cover the treatment of CDW generated in Estonia. Actually, there might be a slight overcapacity and many Estonian waste management companies are thinking of importing CDW for recovery.

There is no specific data on mobile vs. fixed treatment units. The waste management companies in Estonia employ a great variety of methods for the collection and treatment of CDW. Most commonly, waste management companies prefer to collect all CDW mixed in large containers and sort it afterwards in their facilities.

8.3.5 Future projections of CDW generation and treatment

No study containing future projections of CDW generation and treatment in Estonia was identified. No such projections were also identified in the new WMP of Estonia for 2014-2020.

However, thanks to the activity of the Recycling Competence Centre, in Estonia there has been a positive trend in recycling of CDW (especially the mineral fraction, which was mostly backfilled in the past) and in the production of recycled aggregates.

Currently, the management of the Recycling Competence Centre is in the process of application for new financing opportunities, as a continuation project to the previous two (namely the Waste Recycling Cluster and the Recycling Competence Centre which just ended its project period at 31 August 2015), looking for EU funding but also for private funding through the companies of EWMA.

8.3.6 Methodology for CDW statistics

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

8.4 C&D waste management in practice

8.4.1 CDW management initiatives

In order to address the current issues of CDW management in Estonia and in an effort to overcome the apparent barriers in improving (a) the quality of recycling and (b) the market of CDW recycled products (as described above), the waste management sector in Estonia through its waste management association initiated the creation of a Waste Recycling Cluster (eventually becoming the Recycling Competence Centre). As the waste management sector in Estonia is widely deregulated, private waste management companies play a major role in the management of CDW. Therefore, the creation of the Recycling Competence

Centre came as a result of the need within the sector to improve and create the appropriate conditions that will increase recycling of CDW and the production of quality recycled products with high added value. The Recycling Competence Centre is an entirely private sector initiative which attracted funding through the EU regional development fund, but did not have any Estonian public financial support.
One of the most important initiative of the Estonian Recycling Centre is the application for official accreditation by the Estonian authorities for establishing a certification scheme for recycled materials (e.g. recycled aggregates). On June 30th, 2015 the Estonian Certification Centre of Recycled Materials was established as the result of waste management/recycling companies and research and educational institutions co-operation project Estonian Waste Recycling Cluster.

The main task of the Estonian Certification Centre of Recycled Materials is certification of waste products.

The first certification scheme was developed for compost and on Feb.17th, 2016 the Estonian Accreditation Centre issued accreditation certificate confirming that the Certification Centre of Recycled Materials conforms the requirements as certification body.

In 2017 it is envisaged that other recycled materials as such as digestate, crushed concrete etc will be included as well.

The Recycling Competence Centre will develop its own certification scheme for recycled aggregates which will set the necessary quality requirements for recycled CDW according to international standards. The development of one single certification scheme, within the CDW recycling sector for recycled products, will enable a uniform approach to secondary materials and harmonize the market environment for accepting such materials for use, on par with natural materials for construction purposes.

8.4.2 Drivers / barriers to increase CDW recycling

Even if in Estonia CDW management legislation exists at national and local level, there is a general satisfactory implementation of rules on CDW management.

Target in the Waste Management Plan of Estonia is set a higher level than that defined in the rest of the Europe, but limited recovery options for CDW are present. Currently, only aggregates are recycled and, at the moment, there are several barriers which hinder the development of higher quality recycling and the uptake of recycled aggregates as raw materials for new construction projects. Most importantly, the mentality in the construction sector which treats recycled materials as inferior to natural raw materials. There is a considerable lack of trust in recycled materials, which are perceived as of lower quality by builders and developers, and proof is needed that recycled materials have equal technical standards to virgin materials. As a result to this mistrust, there is very little or no demand for recycled CDW. Therefore, the market for recycled aggregates is not developed and there is little uptake of this material within the construction sector.

8.5 CDW sector characterization

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

Product description and applications

The main targeted materials for recovery is mineral waste for the production of high quality aggregates. Metals from CDW are separately collected and directed to the market of metals waste for recycling (mainly abroad). Wood CDW is considered very problematic as a material for recovery as there are not many technological available options at the moment for the efficient recovery and use of wood CDW. As a result, the amounts of wood CDW generated are mostly used on site for energy recovery (heating). So far no treatment of the gypsum based materials and sheet glass exist in Estonia. Plastics, rubber and tar materials are mainly burned in permitted waste incineration and co-incineration (cement work) facilities. Most part of mineral CDW is used for backfilling operations. Recycled aggregates are used only for secondary roads (low traffic), bicycle paths, parking lots, etc.

Quantitative analysis

Despite the significant achievement of establishing the national waste register, there are some quantitates of CDW not reported.

Recovery techniques

The majority of CDW recovered in Estonia is used for backfilling purposes, which consists a low form of recovery operation according to the waste treatment hierarchy. Through the activity of the Recycling Competence Centre there are increasing quantitative of CDW that are recycled and can be used as recycled aggregates. At the moment, there are no other recycling options available in Estonia, for recycling other CDW materials.

Demolition works are usually done at a good technical level. Most widely used treatment options (crushing, sieving, etc) for concrete and bricks are available.

Environmental and economic impacts of CDW waste management

No data found.

Drivers / barriers to increase recycling

Provided in section 8.4.2.

8.5.2 Recycled materials from CDW

The market for recycled CDW materials in Estonia is not very developed yet. So far, the major part of mineral CDW is used for backfilling operations (reclamation of old quarries, use on construction works, etc.) and is not recycled to new products.

To this day, the only materials derived from CDW are the recycled aggregates.

8.5.3 Market conditions / costs and benefits

No market and no demand for recycled CDW are attended in Estonia; natural materials are always preferred over recycled materials in the construction works.

There are strong financial incentives in place in Estonia for encouraging recycling and recovery of CDW over landfilling. As landfilling is considered to be rather an expensive option, waste recovery services and infrastructure have developed considerably over the last years.

Currently the resource tax on natural materials is considered to be at very low level and do not represent the actual situation of prospective resource scarcity of natural materials for construction (e.g. aggregates), because discourages the use of recycled materials, as natural materials are still cheaper than their respective recycled materials.