



2. AUSTRIA

2.1 Legal Framework – Waste Management Plans and Strategies

2.1.1 National Legislation concerning CDW

Austria has recently replaced its multitude of regulations concerning handling and treatment of CDW recently with the Recycled Construction Materials Regulation, which came into force on 1st January 2016 and was last changed on 28th October 2016 [1].

The main aim of this regulation is to guarantee environmentally compatible Reinforced Concrete building materials and legal certainty for their users and producers.

Specific requirements for recycling-oriented demolition and separation as well as manufacture and construction with recycled construction materials are determined. These ensure that the European Waste Framework Directives obligations are met. Furthermore, a link to a new Austrian standard on the use of recycled aggregates (ÖNORM B 3140) is established. This standard covers a wider range of end uses than EN 12620.

ÖNORM B 3151 establishes a standard method for the dismantling of buildings. It clearly states that removed building components have to be used elsewhere if possible. Furthermore, it provides templates for a material building survey and reporting prior to dismantling.

2.1.2 Waste management plans (WMP) and Strategies

The Federal Minister of Agriculture, Forestry, Environment and Water Management is required to release a Federal Waste Management Plan at least once every six years. The fifth and latest Federal Waste Management Plan was released in 2011. The next one is being published in 2017.

This plan serves to accomplish the requirements and principles set by the Waste Management Act of 2002 (AWG 2002) and it is available in English language [3].

The European Waste Framework Directive of 2008 was implemented in the Austrian Waste Management Act in 2010. Therefore, it implements a similar 5-step European Waste Hierarchy as seen in German standards [4].

The Federal Waste Management plan features a comprehensive guide covering waste streams, treatment facilities, material requirements, waste prevention, treatment principles, shipment guidelines and remediation of contaminated sites.

2.1.3 Legal framework for sustainable management of CDW

The legal framework for sustainable management of waste is reported Table 2.





Table 2. Leg	al framework f	or sustainable	management of CDW.
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Legal framework				
National or regional obligation for selective demolition	Dismantling is covered in the recently established Recycled Construction Materials Regulation, which points to ÖNORM B3151 (recovery oriented dismantling).			
National or regional sorting (on-site or in sorting facility)	Sorting should take place on-site if the CDW exceeds a certain tonnage. Mixing the CDW on-			
National or regional separately collect different materials (iron, steel, plastic, glass, hazardous waste etc.)	site and sorting it later in a facility is only allowed when sorting on-site causes unreasonable financial strain			
Green public procurement requirements	Recovery is part of the set requirements in building demolition. Specific guidelines and standards must be followed. Dismantling must take place according to the state of technology			

2.1.4 Targets

Concerning the targets of re-use, recycling and recovery of CDW, Austria refers to the European Waste Framework Directive target.

2.1.5 End of Waste (EoW) status

The end of waste status is defined under the Waste Management Act in Section §5 and Recycled Construction Materials Regulation in Section §14 and it complies with the criteria set by the European Waste Framework Directive:

- the object is normally used for this specific purpose,
- there is a market for it
- there are quality criteria that take into account waste-specific pollutants into account, especially in the form of technical or legal standards or recognised quality guidelines, and
- the object does not cause any greater environmental pollution or risk than a comparable primary raw material or a comparable product from a primary resource [2].

Harmful substances, materials and threshold values for pollutants and that must be avoided are stated in section 3 § 7 and annex 2 of the Recycled Construction Materials Regulation.

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

 Federal Waste Management Plan (FWMP): The FWMP already mentioned in paragraph 1.2 serves to support achievement of the objectives and principles of the Waste Management Act of 2002.





- The Austrian Construction Materials Recycling Association [5] provides several guidelines, leaflets and best practice checklists covering various aspects of treating construction residue and using recycled construction materials.
- The Resource Management Agency (RMA) [6] has published a primer aims at improving overall sustainability in construction.

2.3 CDW management performance – CDW data

2.3.1 CDW generation data

In 2014, Austria's mineral building waste amounted to approximately 9,5 million tonnes (Figure 1) [7].

This amount fluctuates every year, since it heavily depends heavily on the level of construction and demolition activities.

Section §17 of the Austrian Waste Management Act states that owners (i.e. producers, collectors and processers) of waste have to keep continuous records on type, quantity, origin and whereabouts of their waste.

Treatment plants of hazardous waste must also report origin, quantity and whereabouts of their hazardous and non-hazardous waste.

Hazardous waste

Regular producers of hazardous waste in Austria have to register themselves electronically and to report hazardous waste production.



Figure 1. Groups of waste in Austria 2014, source: Federal Ministry of Agriculture, Forestry, Environment and Water Management.

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2.3.2 CDW treatment data

8,7 of 9,5 million tonnes were processed in treatment facilities [7]. The amount of processed CDW has risen constantly over the last two decades.

Only 570.000 tonnes were sent to landfill, mostly due to inhomogeneity of waste streams. This amount has remained somewhat constant over the last decade [7].

2.3.3 CDW exports/imports data

Austria imported 46.000 tonnes and exported 17.000 tonnes of CDW in 2014 [7].

2.3.4 CDW treatment facilities data

Austria has 411 CDW stationary and mobile treatment facilities as of 2014. Their combined capacity is estimated to exceed treatment of 10 million tonnes per year [7].

These facilities are capable of separating iron scrap, wood and plastic from mineral fractions. Then, the mineral fractions are used to produce construction aggregates with specific granularity.

2.3.5 Future projections of CDW generation and treatment

No future projections were found for Austria.

2.3.6 Methodology for CDW statistics

Waste figures follow Eurostat guidelines.

It should be noted that the rise in numbers after 2009 might be a result of increased reporting compliance, rather than increased waste production. For the time being, no changes in methodology for CDW statistics are planned.

2.4 C&D waste management in practice

2.4.1 CDW management initiatives

Austria has one national and several regional CDW management initiatives.

The national platform [8] consists of a market platform for supply and demand of recycled CDW.

The Resource Management Agency (RMA) hosts several initiatives related to legal incentives for urban mining waste [9], a concept for the sustainable use of CDW [10] and a framework for the development of a regional network for the reuse of building components [11].

2.4.2 Drivers / barriers to increase CDW recycling

A list of Drivers / barriers to increase CDW recycling ais reported in Table 3.

Table 3. Drivers / barriers to increase CDW recycling.



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Factor	Drivers	Barriers
Quality of RC-material	The recently implemented Recycled Construction Materials Regulation [1] greatly increases transparency and common properties of recycled CDW materials	
Price		Primary raw materials are still available at low prices. Therefore, secondary building materials lack attractiveness
Legal	Austria has a standardised, national legal framework for the use of recycled CDW materials	Trade and use of RC-materials must be within the waste legislation framework. Accounting and licensing costs are therefore to be considered by the manufacturers.
Public procurement		No fixed quota for recycled materials or similar requirements
Reputation		RC-materials have a negative image and are not trusted y the constructers
Guideline	A nation-wide guideline that complies with EU standards	

2.5 CDW sector characterization

Austria's CDW sector is characterized by many small businesses with 10 and 50 employees. Smaller companies tend to declare themselves as building company, not as recycler. That leads to the conclusion that there could be even more small businesses that do not show up in the statistics.

Most of these businesses (roughly 80%) are organized in the Austrian Association for Recycling of Building Materials. This association works closely together with federal ministries.

2.5.1 CDW materials (CONCRETE, BRICKS, TILES AND CERAMIC, ASPHALT, WOOD, GYPSUM) *Product description and applications*

No data about specific CDW material groups has been found.

Quantitative analysis

No data about specific CDW material groups has been found.

Recovery techniques

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No data about specific CDW material groups has been found.

Environmental and economic impacts of CDW waste management

No data about specific CDW material groups has been found.

Drivers / barriers to increase recycling

No data about specific CDW material groups has been found.

2.5.2 Recycled materials from CDW

Austria's CDW plants are constantly increasing the number of quality labelled recycling materials they produce (Figure 2). The labels are provided by a third party.



Figure 2. Quantity of labelled recycling materials in Austria

2.5.3 Market conditions / costs and benefits

As mentioned above, primary raw material prices are still too low to give secondary building materials a significant market share.

The main incentive is given by the law for Remediation of Contaminated Sites (ALSAG), which charges EUR 9,20 per ton of mineral building waste that is not recovered in a proper way [12].