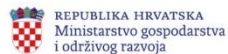




CIRCULAR ECONOMY
APPROACHES IN
SOLID WASTE
MANAGEMENT



Project co-financed by the European Union from the Cohesion Fund

OVERVIEW OF EU AND CROATIAN LEGISLATION ON RECYCLING AND RECYCLABILITY STATUS OF CONSTRUCTION AND DEMOLITION WASTE

DARKO BIZJAK, ENVIRONMENT AGENCY AUSTRIA, 24 AND 25 MAY 2022

Construction and buildings sector in EU

Priority sector - [Circular Economy Action Plan \(2020\)](#)

The construction sector:

- accounts for about 50% of all extracted material;
- responsible for over 35% of the EU's total waste generation;
- generates 5-12% of total national GHG emissions

Saving potentials:

- Potential for circularity is high;
- Greater material efficiency could save 80% of GHG emissions.

Source: A new Circular Economy Action Plan For a cleaner and more competitive Europe COM/2020/98 final

Waste Framework Directive 2008/98/EC

EU target for recovery of construction waste:

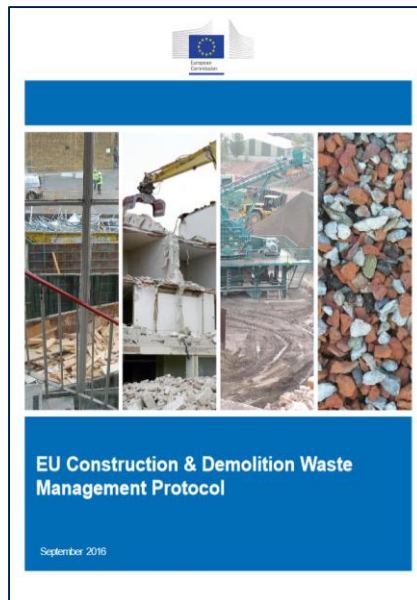
- Increase the preparation for re-use, recycling and other material recovery of non-hazardous construction waste to a **minimum of 70 % by weight by 2020**
 - Waste category 17 05 04 (earth and stones) is exempted
 - **Included backfilling operations** where waste is used as a substitute for other materials

Waste Framework Directive 2008/98/EC

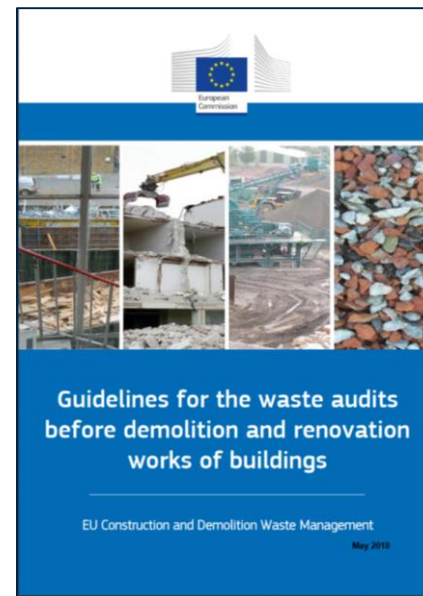
Construction waste objectives:

- promote **selective demolition** to enable:
 - removal and safe handling of hazardous substances
 - facilitate re-use
 - high-quality recycling by selective removal of materials and establishing sorting systems
 - reduce waste generation

EU construction and demolition waste protocol and guidelines



<https://ec.europa.eu/docsroom/documents/20509/attachments/1/translations/en/renditions/native>



<https://ec.europa.eu/docsroom/documents/31521/attachments/1/translations/en/renditions/native>

Construction and demolition waste (CDW) footprint



Legislative framework

Building and construction:

- Building Act (OG 153/13, 20/17, 39/19, 125/19)
- Ordinance on the mandatory contents and format of construction work designs (OG 118/19, 65/20)
- Construction Products Act (OG 76/13, 30/14, 130/17, 39/19, 118/20)

Waste management:

- The Waste Management Act (OG 84/21)
- The Waste Management Plan of the Republic of Croatia for the period 2017 - 2022 (OG 1/22)
- Ordinance on construction waste and waste containing asbestos (OG 69/16)
- Ordinance on waste management (OG 81/20)
- Ordinance on the Waste Catalogue (OG 90/15)
- Ordinance on by-products and withdrawal of waste status (OG 117/14)

Building design



Ordinance on the mandatory contents and format of construction work designs:

- During the design of the building, the designer is obliged to provide **special technical conditions** in the main project for:
 - construction waste management
 - hazardous waste management
- in accordance with special regulations on construction waste management

Building Act

- Basic requirements for construction → sustainable use of natural resources



Hygiene, health and the environment requirements (Art 11)

- the building must be **designed and constructed** so that during its lifetime it does not have an extremely large impact on the quality of the environment during **construction, use or removal** in order to **avoid illegal CDW disposal**

Sustainable use of natural resources (Art 15)

- Buildings must be designed, constructed and removed so that the **use of natural resources is sustainable**, buildings must guarantee:
 - **Reuse or recyclability** of the building, its parts and parts after removal
 - **Durability** of the building
 - Use of **environmentally friendly raw materials** and **secondary materials** in buildings.

Building Act: Building removal project (Art 76)

- technically elaborate the procedure and manner of removing the building
- technically elaborates CDW management measures, i.e. CDW recovery and / or disposal measures



The Waste Management Act

- **Definition:** Construction waste is waste generated by construction and demolition activities
- **Special waste category** - special management conditions are prescribed
- Priority in waste management and waste prevention activities
 - large amounts of CDW,
 - high potential for recycling
- Inadequate construction waste management
 - pollutes the environment,
 - occupies a large volume in landfills

The Waste Management Act

- Obligation to separately collect CDW (Art 22)
- Obligation to ensure CDW treatment (Art 21)
 - The waste producer and waste holder is obliged to ensure:
 - the **treatment of waste** by preparation for reuse, recycling or recovery
 - when this is not possible, it is obliged to ensure the **safe disposal of waste**
- Disposal and incineration of waste in the environment is prohibited (Art 18)
- Landfill tax (Art 100) - not implemented

Ordinance on waste management

- **Conditions for waste management:**
 - general conditions
 - technological processes of waste collection
 - technological processes of waste acceptance
 - technological processes of waste storage

- Forms for keeping the Register on waste generation and flow

Ordinance on construction waste and waste containing asbestos

Liabilities of local government

- **Cities and municipalities are responsible for CDW management**
- The local self-government unit is obliged to determine in its area in the spatial plans:
 - sufficient number of sites or at least one appropriate zone where it can be build a **recycling yard for construction waste**
 - **carry out collection, recovery and disposal activities of construction waste**



Ordinance on construction waste: conditions for construction waste management

- The investor is obliged to **inform** the contractor **about the hazardous waste** that will be generated on the construction site
- **Manner of execution of works** (if technically and economically feasible):
 - reduce mixed construction waste
 - use the surplus material at the place where it originated
 - enable **preparation for reuse and revocation of waste status**
 - **appropriate CDW recovery**

Ordinance on construction waste: conditions for construction waste management

- **Ensure separation:**
 - non-waste materials - which can be reused for the same purpose
 - hazardous waste
- **Prevent mixing:**
 - separated waste
 - hazardous waste with other waste
- **Store separately:**
 - hazardous waste
 - non-hazardous waste that makes up at least 80% of the mass of its waste generated on a particular construction site

Ordinance on by-products and end of waste status

➤ defines criteria and procedures for end-of-waste and by-products procedures

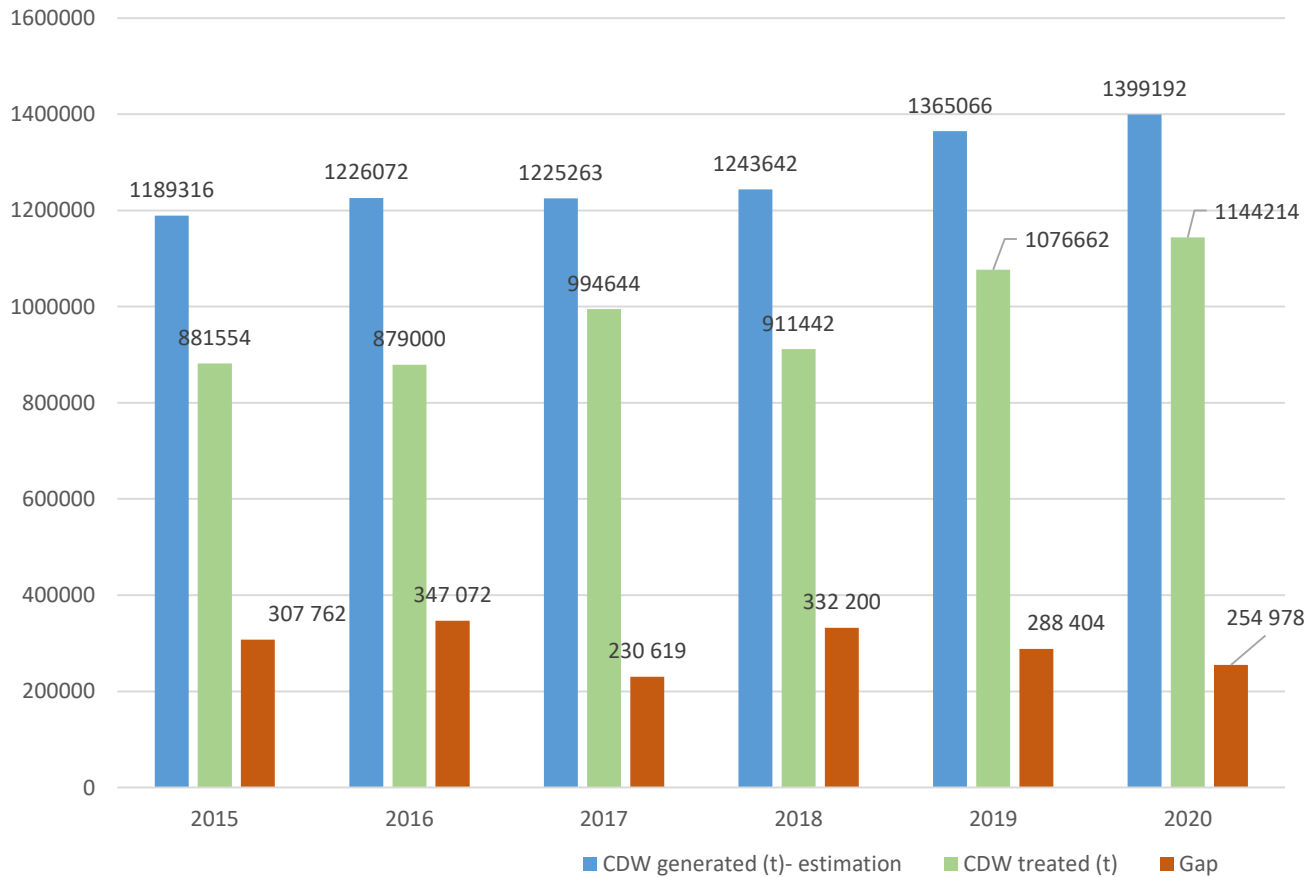
❖ By-product:

- produced during the manufacture or processing of another product
- further use is ensured
- Direct use without further processing which meets the requirements of products, environment, human health
- Register in the by-product register should be obtained

❖ End-of-waste:

- A substance or object, results from the recovery of waste, for use as a resource, to directly replace the use of raw materials
- **Annex 6** -end-of waste special criteria for construction products
- The end-of waste register

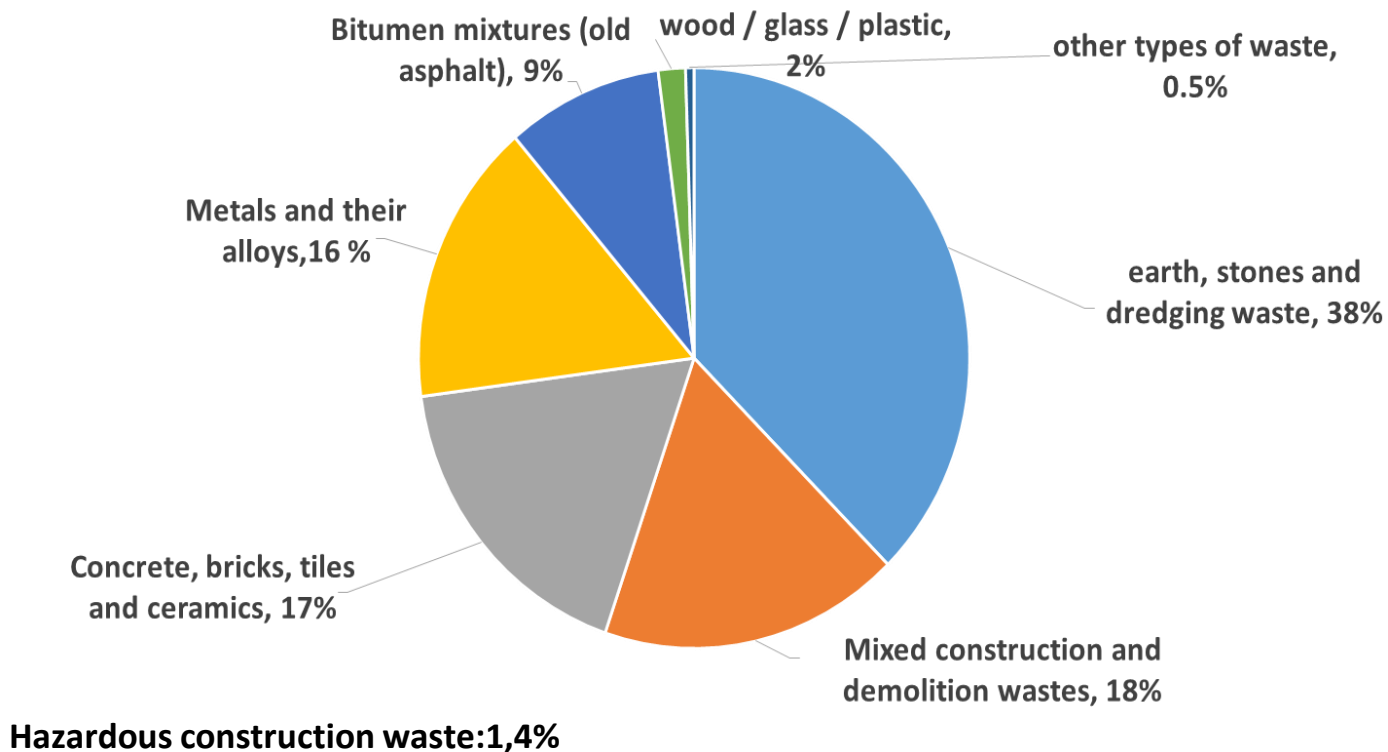
CDW generation and treatment in Croatia (2015-2020)



- Total CDW generation is 1.4 million tonnes (2020)
- In 2020, 30% more CDW was treated than in 2015

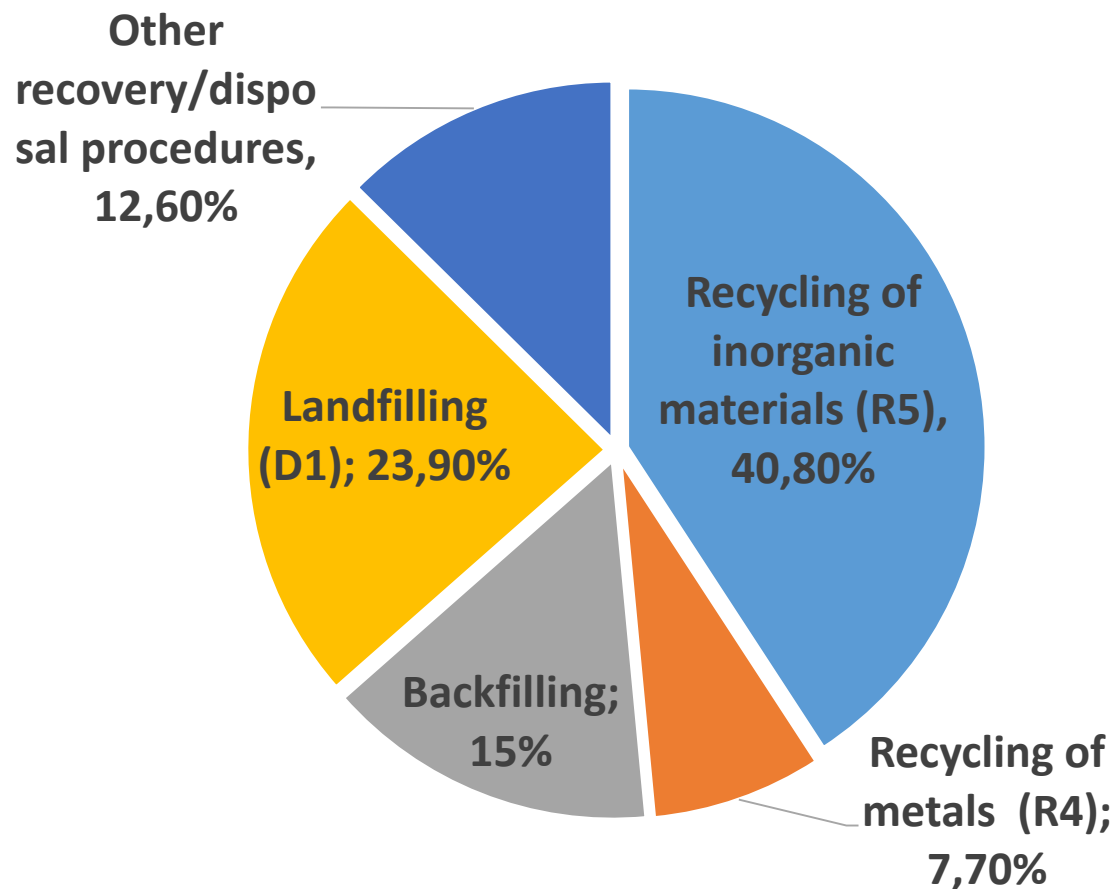
Source: Croatian Construction Waste Management Report (2020)

Estimated quantities of generated construction waste, by waste subgroups



Source: Croatian Construction Waste Management Report (2020)

CDW treatment procedures (2020)



Source: Croatian Construction Waste Management Report (2020)

Achieving EU target: Recovery rate of construction and demolition waste

EU target for recovery of construction and demolition waste 70%

Year	Croatia: CDW recovery rate
2016	61 %
2017	52 %
2018	58 %
2019	67 %
2020	60 %

Obstacles to achieve EU target:

- Insufficient infrastructure for collection and recycling
- Insufficient separation of construction waste
- Insufficient quality monitoring of the amount and flows of construction waste
- Insufficient implementation of selective demolition of buildings
- Encouraging the use of environmentally friendly materials is not stimulated
- Low disposal cost
- Availability and low cost of natural aggregates which reduce the demand for more expensive recycled materials;
- Illegal disposal of CDW



Measures to achieve the EU CDW target

Waste Management Plan 2022:

- ❖ Development of an **Action Plan for separate collection and recycling of CDW**
 - goal is to **collect 75% of the CDW separately**
- ❖ Construction and equipping of **CDW recycling yards**

CDW prevention measures:

- Encouraging the **re-use of demolition material (incentive fee)**
- **Central register of buildings**
- **Promoting sustainable construction:**
Guide to Green and Sustainable Construction
- **Promoting Green Public Procurement**

Recommendations for increasing the CDW recycling rate

- Further investments in CDW collection and material recovery **infrastructure**
- Incentivise **effective separation at the place of origin**
- **Landfill tax** - implementation
- bans/restrictions regarding landfilling of recyclable CDW
- encouraging the use of **recycled construction materials** through (mandatory) **green public procurement**
- prescribe **mandatory control of demolition projects** in order to enable maximum use of usable materials and recovery of waste
- Further develop **markets for recycled materials** - the waste exchange at the Croatian Chamber of Commerce
- **Tax on the use of natural raw materials**

The Action plan for the circular economy in the construction and demolition waste management sector

- The Ministry of the Economy and Sustainable Development, in cooperation with the World Bank, develops:

**Action Plan for the circular economy in
the sector of construction and demolition**

Thank you

Darko Bizjak

National project coordinator
Environment Agency Austria