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POLICY BRIEF 1



THE CONDEREFF PROJECT

“CONDEREFF – Construction and Demolition Waste Management Policies for Improved Resource Efficiency” is a project under the INTERREG Europe programme that aims to accelerate policy work on construction and demolition waste (CDW) management, improving resource efficiency in the countries of the partnership. Accordingly, CONDEREFF assists the development of infrastructures and methods for recycling and re-use of CDW materials and the introduction of green growth opportunities in the CDW stream.

To achieve these goals, the project facilitates exchanges of experiences and practices, as well as studies regarding CDW, on how project partner regions can move towards the adoption and further exploitation of the best practices and measures applied in the field of waste management.

POLICY BRIEF OVERVIEW

This policy brief reports on the proceedings and highlights of CONDEREFF activity A1.3, titled “Analysis of the available and required C&D recycling capacity in the project territories”. This analysis aims identify the existing CDW recycling capacity in CONDEREFF partnership territories, as well as the future CDW recycling requirements that could emerge from current construction and relevant economic activities. Two questions are addressed:

- What are the existing structures and frameworks that enable and support CDW recycling capacity in project partners’ regions?
- Extrapolating on existing trends, what are future requirements that could arise for the CDW recycling capacity in partners’ territories?

This research has enabled the CONDEREFF project partners to delineate policy changes regarding regulations, infrastructure development, stakeholder involvement, and awareness-raising actions relevant to CDW recycling capacity.



CDW RECYCLING

Nowadays, most CDW is either directly disposed in landfills or processed in recycling plants as aggregates. Considering that recycling of CDW reduces landfill and conserves natural aggregate resources, most environmental policies aim at increasing recycling. In particular, a rise of 25% of the demand for recycled material is expected from 2013 to 2020. Sustainable CDW recycling solutions are valued in accordance with the waste hierarchy as it appears in the following figure.

The Waste Framework Directive includes in Article 11(2) a specific target for the reuse, recycling and other material recovery of CDW:

Prevention

Preparing for reuse

Recycling

Recovery

Disposal

“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.”

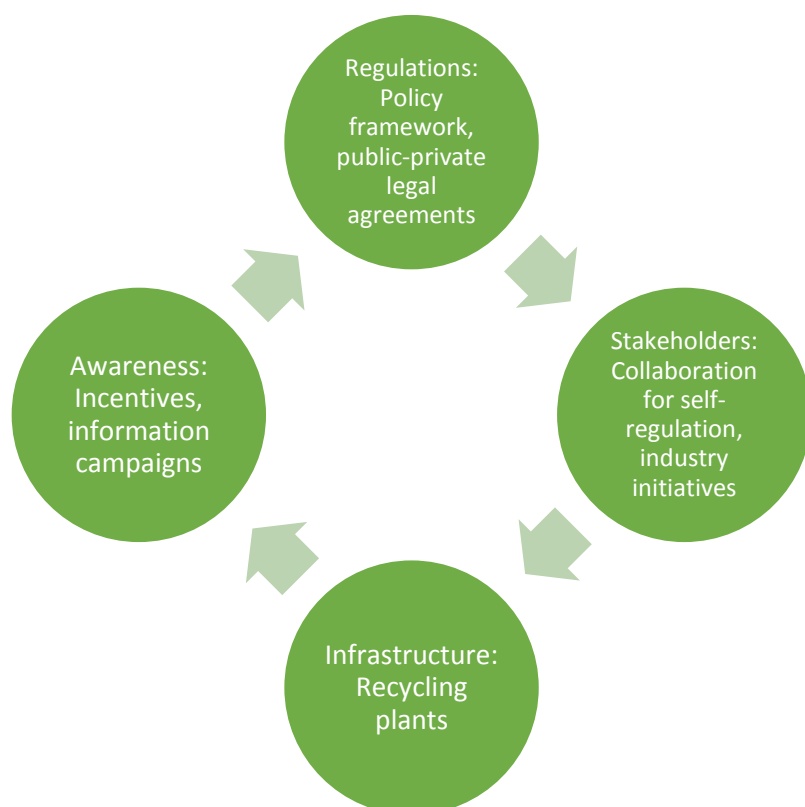


RECYCLING CAPACITY TYPES AND TRENDS

For recycling to be effective in a circular economy model, it should be understood horizontally, addressing the flow of waste across the CD value chain. Identifying the life-cycle of CDW aims to close the loop of CDW stream and increase environmental efficiency.

Recycling capacity should be applied to cover the whole CDW life-cycle. Recycling capacity can be subdivided into two definitions of capacity, immediate and remote. Immediate capacity concerns the infrastructural capacity of a region for treating and recycling CDW, while remote capacity includes all the other non-infrastructural elements that influence and mediate the immediate capacity yet are not directly involved with the practical operations of CDW recycling.

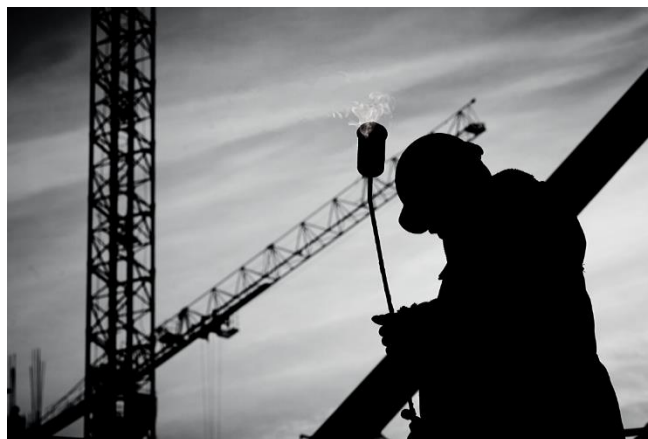
There are four elements that constitute the remote CDW recycling capacity, all enabling and supporting the CDW recycling infrastructure:





FUTURE NECESSITIES

- **Increase in CDW volume & supply.** The forecast that the CDW will increase the next years up to 2050 is a common result of multiple future scenarios.
- **Recycling in the circular economy.** The trend to implement more and more circular economy measures is expected enrich as well waste chain management with more efficient processes and technologies and boost synergies and technology transfer among waste industries.
- **Increased public awareness.** Considering the growing public concerns over environmental problems and climate change, it is expected that raised public awareness on the environment issues, will spill over to calls for more effective zero waste policies and waste management efforts.
- **Shift in construction methods.** Modular and green construction, although they do not hold a large share of construction activities, are expected to affect importantly and streamline the CDW stream.
- **Introduction of technological innovations.** The waste and recycling industry is beginning to embrace technological innovation as a driver for future success.





RESULTS CONCERNING INDIRECT CDW RECYCLING CAPACITIES

- All countries have adopted a waste framework policy, at least at national level.
- All countries have landfill legislation, if not established at national level it is defined at regional.
- All partners have also in their region or country a secondary raw material legislation or standards defined.
- In all the regions, awareness campaigns for CDW recycling with stakeholders are, if not already implemented, on the way.
- Partners quote different guideline and center of resources. Concerning the initiatives, some are identified in Spain, France, Czech Republic and Germany.
- In brief, having regulatory frameworks and legislations is a starting point, then the issue is about enforcement, saying what are the tools, networks and communication channels used to implement the policy instrument?
- Outcomes of the survey show that the main requirements that will lead a change in the quantity and composition of the CDW in the coming years (2018 – 2025) are the increase of demolition rate caused by ageing buildings, coupled with an increase of construction activities and an increase in CDW landfill taxes.
- Technological innovations and improvement of the recycling process (separation, incorporation rate, mobile and semi-mobile sorting and treatment facilities) as well as taxes on primary raw materials are expected to play a major role in the transition.
- To a lesser extent, tiles and ceramic, as well as wood volumes are expected to grow, as almost every material category or remain stable. No clear decrease is expected in the short-term future.
- Regarding the demand for recycled materials, the overall trend is a slight increase of the demand for material of secondary use, with a slight head for Wood, Plasterboard, and Aggregates. These future trends indicate the high level of complexity and uncertainty that the C&D sector starts to experience



LESSONS LEARNED FROM THE BREAKDOWN OF TOTAL CDW STREAM INTO EU WASTE CATEGORIES

The breakdown of total CDW stream into EU waste categories demonstrates a great heterogeneity among regions. Although volumes pertain mainly to the categories “Soil, stones and dredging spoils”, “Concrete, bricks, tiles and ceramics” and “Other construction and demolition material”, relative shares out of total are not unified from one region to another. Additionally, the importance and heterogeneity of the shares “Out of category” shows the difficulty of tracking and filing CDW from one region to another.

- **CDW streams are partially processed via specialized treatment plants, while the remaining part being processed through plants which can't count and track CDW streams.** This can be due to the methodology employed from one region to another to count CDW streams, to the robustness and accuracy of the hypotheses taken and also the scale (local, regional, national) on which statistical models are based, saying it is a matter of consistency of the physical approach and the representability of the samples. Overall, regions can determine the total CDW volumes generated with a certain level of confidence, **however, a gap still exists when it comes to file it in the sense of the EU categories.**

- Concerning recycling rates, it is even more difficult to get comprehensive and reliable data. Consequently, in order to reach a considerably efficient level to perform a relevant analysis, regions should first put in place **effective traceability systems to track CDW streams along the value chain**, down to their final recovery.
- In parallel, a **common calculation rule should be adopted and shared**, in order to confront discrepancies that appear from one region to another.
- While having different economic structures, it is **not clear today why countries display so different volumes of wastes in their respective C&D sector**. If we look for instance the repartition between C&D and Mining and Quarries in Germany, France and Austria, we clearly see an imbalance.
- **Further investigation is needed at local level**, requiring reliable data set to assess if the current treatment capacity will adapt or, if not, how it should be turned to cope with future demand.

CONCLUSIONS OF THE ANALYSIS

- CDW recycling is not cited as homogeneous, resulting in great divergences in what counts towards estimating recycling rates (for example, some countries include excavated material while some others do not).
- It is highly necessary to clarify accounting rules, coupled with the emerging need to track and trace CDW throughout every step of the value chain. The latter adds up an additional layer of complexity to the current challenge of assessing real need for recycling capacity in territories, and reveals the upheaval that the C&D sector is facing to be compliant with the 2008 EU Waste Framework Directive.
- Overall, the demand for recycled C&D materials is expected to increase in the time-frame 2018-2025, but remains light in average, possibly due to the lack of visibility in such a long-term view on the one hand, and due to the high uncertainty of the complex and large possible outcomes that the future may take on the other.
- Evaluating the recycling rate is a process to be taken with serious caution, as results may hide very different accounting structures from one region to another, notwithstanding the difference in scale between partners' territories. From then on, regions will be able to determine how much they recycle from the one hand, and how sized their sorting and recycling capacities are.
- Forecasts and estimations are difficult to make in cases where regions do not know very well about their specific recycling capacities. However, unforeseen rearrangements and releasing might appear, as all actors of the value chain are concerned, from the design choices and the prescriptions written in the tenders in upstream, to the skills and wants of auditors, demolition and recycling companies in the downstream. All of this leveraged by indirect means (regulatory frameworks, taxes mechanisms, training campaigns) and going along with interest and economic reality.

REFERENCES

The Policy Brief is based on the CONDEREFF activity A1.3: Analysis of the available and required C&D recycling capacity in the project territories.

- Allwood, J., Ashby, M., Gutowski, T., and Worrell E (2011). 'Material efficiency: A white paper '. *Resources, Conservation and Recycling* 55: 362 – 381.
- European Commission (2017). Resource Efficient Use of Mixed Wastes Improving Management of Construction and Demolition Waste. Luxembourg: Publications Office of the European Union.
- European Commission (2015). Analysis of Certain Waste Streams and the Potential of Industrial Symbiosis to Promote Waste as a Resource for EU Industry. Luxembourg: Publications Office of the European Union.
- European Commission (2011). Service Contract on Management of Construction and Demolition Waste – SR1. http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf
- Frost & Sullivan (2014). European Construction and Demolition Recycling Services Market: Legislation Drives Recycling Target Toward Multibillion Dollar Market by 2020. Frost & Sullivan.
- Hiete, M. (2013). Waste management plants and technology for recycling construction and demolition (C&D) waste: state- of-the- art and future challenges. In F. Pacheco-Torgal, V. W. Y. Tam, J. A. Labrincha, Y. Ding and J. de Brito, *Handbook of recycled concrete and demolition waste*. Oxford: Woodhead Publishing, 53-75.
- Hiete, M., Stengel, J., Ludwig, J. and Schultmann F. (2011). 'Matching construction and demolition waste supply to recycling demand: a regional management chain model'. *Building Research & Information* 39(4): 333-351.
- European Environmental Agency (2018). Waste prevention in Europe — policies, status and trends in reuse in 2017. EEA Report No 4/2018
- European Environmental Agency (2015). Hazardous waste review in the EU-28, Iceland, Norway, Switzerland and Turkey: Generation and treatment. Luxembourg: Publications Office of the European Union.
- VTT (2012). Directions of Future Developments in Waste Recycling. VTT TECHNOLOGY 60.
- Herman Daly (1996). *Beyond Growth, the economics of sustainable development*.
- Nicholas Georgescu-Roegen (1971). *The Entropy Law and the Economic Process*.



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About us

The CONDEREFF project brings together 8 partners from 7 countries to exchange experiences and practices on how to promote green growth and circular economy through sustainable constructions & demolitions (C&D) waste management.

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