

European Circular Economy Stakeholder Platform



European Circular Economy Stakeholder Platform (ECESP) Coordination Group

Leadership Group on Construction

Orientation paper

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Introduction

The construction sector is responsible for nearly 50% of the material use in EU by weight and the building sector consumes 40% of the EU energy and represents 35% of our GHG emissions (without counting the embodied emissions).

The largest contributors to these figures are the main carbon-intensive value chains: steel, cement, plastics, paper, glass and non-ferrous metals. Building and construction (B&C) policies therefore have an increasing relevance to reduce both emissions from industry and the direct emissions of the sector.

Opportunities for emissions savings through reduced use of virgin materials and more productive use of materials should be unleashed through the economic policies addressing the whole value chains of B&C sector and deserve a central place in EU climate and environmental policies.

EU policy background

The **EU Green Deal**¹ is the ambitious plan of the European Commission for an integrated political framework aimed to boost the efficient use of resources by promoting their circular use, to restore biodiversity and to cut pollution.

The construction sector plays an important role in the recent EU Green Deal. Indeed, it calls for a renovation wave for the building sector in 2020 and for a revision of the construction products regulation promoting a design of new and renovated buildings oriented towards the circular use of resources. Moreover, several policies falling under the umbrella of the EU Green Deal are strictly linked with the construction sector and its closely interconnected sectors, such as the mining quarrying and the waste management.

In the **Circular Economy Action Plan**², the European Commission has committed to launch a comprehensive Strategy for a Sustainable Built Environment in 2021. Beside the revision of the construction product regulation, this Strategy foresees to strengthen the circular use of materials through the improvement of the durability and adaptability of the built assets, the integration of life cycle assessment (LCA) into public procurements, the revision of material recovery targets with a focus on insulation materials, and the safe and circular use of excavated soil to reduce soil sealing. In addition, the EU Circular Economy Action Plan highlights the connection with the **EU Bioeconomy Strategy**³, promoting the circular use of bio-based resources. These policy initiatives will also contribute to achieve EU carbon neutrality by 2050, one of the goals of the **EU Climate Law**⁴.

The importance to address the sustainability of

construction products and improve the energy efficiency of the EU building stock to achieve carbon neutrality is also mentioned in the **EU Industrial Strategy**⁵.

The extraction of raw materials may also be a cause of loss of biodiversity and natural capital. To this end, in its **EU Biodiversity Strategy**⁶ the European Commission has highlighted the importance of including considerations on biodiversity in decision-making processes at all levels. Methods, criteria, and standards based on life cycle approach and natural capital accounting will be developed in 2021 to describe the essential features of biodiversity, its services, values, and sustainable use. Moreover, construction activities are listed in the EU Biodiversity Strategy as drivers of soil degradation, which is causing considerable environmental and economic consequences in the EU. Hence, healthy eco-systems, green infrastructures and nature-based solutions should be integrated in urban planning.

During the COVID-19 pandemic, the European Commission has put forward an ambitious **recovery plan** aimed to kick-start the European economy, boost the green and digital transitions, and make it fairer, more resilient and more sustainable for future generations⁷. The upcoming renovation wave, foreseen by the EU Green Deal, is seen as an opportunity for job-creation in construction, renovation and other labour-intensive industries. The European Commission will provide financial and regulatory support to this renovation wave of the building stock with the aim to at least double the yearly renovation rate of existing building stock. A boost to the renovation sector has been recently provided also at the national scale. For example, in May 2020, Italy has incentivised the refurbishment of the existing building stock through tax cut for interventions related to improvement of buildings energy efficiency and seismic adaptation.

¹ Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. The European Green Deal. COM/2019/640 final

² Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A new Circular Economy Action Plan For a cleaner and more competitive Europe. COM/2020/98 final

³ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A sustainable Bioeconomy for Europe: Strengthening the connection between economy, society and the environment. COM/2018/673 final

⁴ Proposal for a Regulation of the European Parliament and of the Council establishing the framework for achieving climate neutrality and amending Regulation (EU) 2018/1999 (European Climate Law). COM/2020/80 final

⁵ Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. A New Industrial Strategy for Europe. COM/2020/102 final

⁶ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. EU Biodiversity Strategy for 2030 Bringing nature back into our lives. COM/2020/380 final

⁷ Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. The EU budget powering the recovery plan for Europe. COM/2020/442 final

EU policies for the construction sector

Besides the abovementioned overarching policies, there are other EU policies and initiatives that interest the building and construction sector.

According to the **European Waste Framework Directive⁸**, amended in 2018, Member States are asked to support selective demolition techniques to ensure proper handling of hazardous substance as well as to facilitate re-use and high quality recycling, and to ensure the establishment of sorting systems for specific waste streams, i.e. wood, mineral fractions, metals, glass, plastic and plasters. In addition, the European Commission is asked to explore the possibility of defining targets for preparing for re-use and recycling of construction and demolition waste by 2024.

The European Commission has also provided non-binding guidance on the management of construction and demolition waste as well as for the audits before demolition and renovation works of buildings.

The **EU construction and demolition waste protocol and guidelines⁹** addresses different actors of the building sector, such as industry practitioners, public authorities, certification bodies, and clients using recycling materials, and it is aimed to increase confidence in the construction and demolition (C&D) waste management process and the trust in the quality recycled C&D materials.

The document **Guidelines for the waste audits before demolition and renovation works of buildings¹⁰** is aimed to promote a proper planning and implementation of demolition and renovation activities, during which the safety of workers is ensured and waste streams are managed correctly.

In addition, the European Commission has put in place a voluntary reporting framework to improve the sustainability of buildings, called **LEVEL(s)¹¹**. The LEVEL(s) framework comprehends a tool supporting the design and the construction of sustainable buildings, improving energy and material efficiency.

EU policies and initiatives for raw materials, mining and quarrying

The mining and quarrying sector is closely interlinked with the construction sector.

In 2008, the European Commission adopted the **Raw Materials initiative¹²** aimed to ensure a fair and sustainable supply of raw materials from the global market, a sustainable supply of raw materials within the EU borders, and an efficient use of resource use through recycling. In addition, the European Commission has developed a **Raw Materials Information System (RMIS)¹³**, a web-based platform reporting information on non-fuel, non-agricultural materials from primary and secondary sources.

The mining and quarrying sector is responsible for the generation of a considerable quantity of waste stream in the EU. A specific legislative framework for the management of waste from the extractive industries has been put in place by the EU to complement applicable horizontal legislation. This framework includes the **Extractive Waste Directive¹⁴**, a **report on the implementation of this directive¹⁵**, a **document on Best Available Techniques** for the management of waste from extractive industries¹⁶, and the **Seveso III Directive¹⁷** which includes in its scope operational tailings disposal facilities.

⁸ Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste

⁹ European Commission, 2018. EU Construction and Demolition Waste Protocol and Guidelines.

¹⁰ European Commission, 2018. Guidelines for the waste audits before demolition and renovation works of buildings

¹¹ <https://ec.europa.eu/environment/eussd/buildings.htm#toolkit>. Accessed in June 2020

¹² Communication from the Commission to the European Parliament and the Council - The raw materials initiative: meeting our critical needs for growth and jobs in Europe {SEC(2008) 2741}. COM/2008/0699 final

¹³ <https://rmis.jrc.ec.europa.eu/>. Accessed in June 2020

¹⁴ Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC - Statement by the European Parliament, the Council and the Commission

¹⁵ REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS on the implementation of Directive 2006/21/EC on the management of waste from extractive industries and amending Directive 2004/35/EC. COM/2016/0553 final

¹⁶ JRC, 2018. Best Available Techniques (BAT) Reference Document for the Management of Waste from Extractive Industries, in accordance with Directive 2006/21/EC; EUR 28963 EN

¹⁷ Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC

Contribution of the B&C to the achievement of EU carbon neutrality

The combined approach of circular economy provisions and digital innovation will deliver as much as 296Mtons of GHG emissions¹⁸ from heavy industry alone (56%) and create markets for the industry to apply product and process innovation and investment opportunities towards climate neutrality production and reuse and recycling of materials. Valorisation of different types of waste streams and improved materials efficiency will be relevant across most industries. Material recirculation could lead to save up to 178Mtons of CO₂ (mostly in the plastic sector)¹⁹. Production improvement can lead to products with a lower material footprint (better use of materials, better design) and process rationalisation also play a major role: i.e. 15% of building materials are wasted during construction. Combined measures would have a potential of 56Mtons of CO₂ reduction. Finally the extension of lifespan of products (i.e. via multipurpose design of buildings) and a better and more intense use of these (European office buildings are only used 40% of their capacity, even during office time) will contribute up to an additional 64Mtons of CO₂ reduction, as less products will be needed.

These efforts are needed to achieve European and global climate targets: the 2C scenario of IPCC calculated that a budget of 800Gt (billions of tons of CO₂ equivalent emissions) is available within this century. As construction needs are currently growing, embedded emissions in the main B&C related products alone can lead to 900Gt of emission in the same time. This is because much carbon is either built into the products themselves and then released at their end of life (plastics) or is inherent to the current chemistry and production process (steel, cement).

From these figures it is quite evident that carbon neutrality cannot be achieved without tackling embedded emissions and that these emissions are mostly concentrated in the energy intensive sectors producing materials and intermediary products related to B&C: metals, plastics, cement. One of the most promising and cost-competitive paths to decarbonise these products is the circular economy.

The obvious conclusion is that no carbon neutrality target will ever be achieved if circular economy provisions will not be put at the heart of B&C sectorial policies.

¹⁸ The Circular Economy: a powerful source for climate mitigation, Material Economics, 2019.

¹⁹ ibidem

Database and certification schemes

Green building codes, standards and rating systems (environmental labels / environmental certifications) have adopted LCA provisions as an important step towards bringing a performance basis to sustainable design. In all the applications, data reliability and comparability are fundamental requirements. Recent studies have highlighted the presence of uncertainty factors in the comparative assessments of construction products making the harmonization of datasets a priority.

At EU level, there are several initiatives in this direction. The European Commission launched Level(s); a foundational framework of common European indicators to measure the sustainable performance of buildings across their [whole life cycle](#). It is currently in its test phase, and its ambition is to create a 'common European language' for the whole sector value chain, that can help build data, empower debate and drive action. In this context, the development of national databases for construction products becomes a priority in order to support the development and regulation of public policies and promote the acquisition of environmental labels/certifications (Environmental Product Declaration - EPD, Product Environmental Footprint - PEF, Made Green in Italy, LEED, BREEAM).

To date initiatives of national databases on construction sector are active in Germany, France and Italy.

- [Ökobau.dat](#) is a German database for construction materials and building services provided by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB).
- [Base-Carbone](#) is a France LCA database that include also construction sector.
- Arcadia Project is started to develop an Italian LCA database for 15 supply chains including some for the construction sector.

Description of focus and topics

To improve the circularity of resources in the construction sector, six areas of interventions have been identified, as reported in Figure 1.

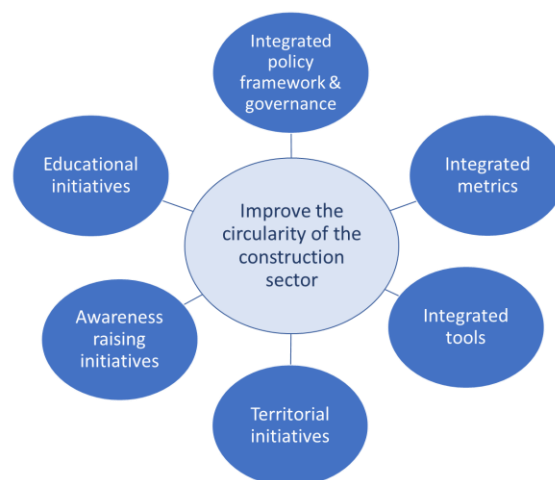


Figure 1: Key areas of intervention to improve the circularity of resources in the construction sector

Integrated policies and governance between construction & extractive sectors to integrate secondary supply and urban planning.

Despite the EU legislative framework is more and more oriented towards a circular economy, in some EU some countries legislative barriers exist hampering the possibility of reusing specific material streams. These barriers may arise in the national implementation of general principles of EU directives. In this context, it is evident that a European integrated legislative framework is needed to strengthen the interconnections between the construction and extractive sectors and other sectors potentially providing secondary raw materials, and to incentivise the safe use of high-quality secondary raw materials.

Actions to be implemented:

- Assessment, qualification, planning and valorisation of primary geological deposits and secondary deposits considering European need scenarios. In a resource efficiency perspective, the supply of materials for the construction sector should be related to the availability of substitute secondary raw materials, also considering stocks present in the buildings and their release over time considering an urban mining of the built environment.

- Creation of cross connections between construction and extractive sectors and others. Resource efficiency policies should guide and promote the use of all the available resources including raw materials, products and by-products but also residues and wastes both from construction and also from extractive and other sectors. The potential substitution of raw materials by residues produced in other industrial sectors should be investigated and pursued in order to identify the current reuse rate, the potential not yet exploited as well as the operational constraints and the critical issues²⁰.
- Application of the hierarchy of use (from most wanted to least wanted): re-use of existing under-used buildings (repurposing), avoiding waste generation by privileging building for deconstruction and re-use, recycling of not re-usable C&D material, backfilling.
- Adoption of a comprehensive perspective, based life cycle thinking approach for sustainable assessment. This allows to take into account impacts along the entire supply chain, including embedded emissions, and to consider multiple environmental impacts, highlighting possible trade-offs.
- Support to the circular use of bio-based products in the C&D sector. Bio-based products, indeed, can play an important role in reaching carbon neutrality. However, they can be responsible for other environmental impacts, such as land use and biodiversity loss. Therefore, a sustainable supply of bio-based products should be ensured.
- Promote the development and the implementation of GPP – Green Public Procurement and certification systems:
 - Circular public procurement.

Awarding criteria or technical specifications about minimum recycled content, shortening of the supply chain, etc. taking into account life cycle approaches (e.g. Life Cycle Assessment, Life Cycle Costs Analysis Material Flow Analysis).

- Circular schemes. Set up certification schemes mobilizing the local stakeholders to trigger circularity by certifying operations such as selective demolition in order to increase transparency about the quality of the recycled materials.

Development of integrated metrics for construction

In all the applications related to green building codes, standards and rating systems, data reliability and comparability are fundamental requirements. The development of sectorial and integrated policies (e.g. resource efficiency plans) also requires a complete knowledge on materials/resource/by-products/waste flows within the construction chain and other interrelated sectors²¹. In this context, the implementation of integrated metrics for construction become a priority. These metrics requires the development and the implementation of indicators, dataset based on primary data and integrated tools for the whole value chain.

Actions to be implemented:

- Definition of indicators for circular economy in the C&D value chain, already available or to be built, for representing the performance of the system according to the circular economy scheme (inputs, product as service, sharing, lifetime extension, outputs). These indicators, if developed at supply chain level, will be very useful to measure and monitor economic circularity and the efficient use of resources.
- Creation of datasets about construction &

²⁰ Luciano A., Reale P., Cutaia L., Carletti R., Pentassuglia R., Elmo G., Mancini G. (2018) Resources Optimization and Sustainable Waste Management in Construction Chain in Italy: Toward a Resource Efficiency Plan. Waste Biomass Valor. <https://doi.org/10.1007/s12649-018-0533-1>

²¹ Luciano A., Reale P., Cutaia L., Carletti R., Pentassuglia R., Elmo G., Mancini G. (2018) Resources Optimization and Sustainable Waste Management in Construction Chain in Italy: Toward a Resource Efficiency Plan. Waste Biomass Valor. <https://doi.org/10.1007/s12649-018-0533-1>

extractive sectors to measure the circularity in terms of Life Cycle Thinking (LCT). Given the presence of uncertainty factors in the comparative assessments of construction products, as highlighted in recent studies, the development of national dataset and LCA databases and their harmonization become a priority. This will support the development and regulation of public policies promoting the acquisition of environmental labels/certifications (Environmental Product Declaration - EPD, Product Environmental Footprint - PEF, Made Green in Italy, LEED, BREEAM). Another priority is given by the implementation of datasets on materials/resource/waste flows.

- Use of existing indicators, such as the Consumer and other useful footprints measure environmental performances with the aim of reducing environmental impacts taking into account supply chain activities (from extraction of raw materials, through production and use, to final waste management). The Consumer Footprint is a set of life cycle-based indicators assessing the environmental impacts of an average EU citizen developed by the Joint Research Centre²². The approach of the Consumer Footprint can be used to evaluate the effects of policy-relevant scenarios related to the circular use of resources, highlighting hotspots along the supply chain as well as trade-offs between different environmental indicators. Product Environmental Footprint (PEF) and Organisation Environmental Footprint (OEF) allow measuring the environmental performances along the life cycle of products and services respectively. These measures can be used for predictive process optimization, eco-design, identification of significant impacts, environmental declaration and dissemination of environmental information.

Integrated tools to foster

interconnections among construction/extractive and other sectors

To ensure a circular use of materials, it is necessary to create interconnections between the construction/extractive sectors, other sectors producing potential secondary raw materials and, more in general, all the actors involved in the value chain.

Despite the construction & extractive sectors are interconnected industries and interact also with input–output relationships, there is a lack in the approach to the management of the entire value chain. This is confirmed also in the difficulty of finding uniform data for the value chain in official statistics. A holistic approach to the management of the construction value chain helps to develop a set of criteria for closed-loop cycle materials and components.

Actions to be implemented:

- Development and promotion of innovative tools for RMs traceability and identity card of complex products in order to implement an efficient and effective material detection and separation and a safe and efficient product dismantling and sorting enabling highly selective recycling. This brings to a safe and efficient processes for depolluting and disassembling complex products and buildings.
- Development and promotion of platforms for data sharing, stakeholder platforms, Industrial Data Platforms (IDPs). Multi-user platform and multi data platforms designed and developed to manage the entire value chain provide support to all those involved throughout the various stages of construction activities. Such a platform should include technical standards, environmental law; databases; tools to facilitate and transparently manage trading of natural, artificial, and recycled aggregates; interactive catalogues with declarations of building

²² Sala S., Beylot A., Corrado S., Crenna E., Sanyé-Mengual E, Secchi M. (2019) Indicators and Assessment of the environmental impact of EU consumption. Consumption and Consumer Footprint for assessing and monitoring EU policies with Life Cycle Assessment, Luxembourg: Publications Office of the European Union, ISBN 978-92-79-99672-6, doi:10.2760/40326

products; and interactive maps for the geolocation of treatment plants, producers, and construction sites²³.

- Development and promotion of platforms to create and support the market of building materials (raw and secondary materials). A platform that represents a meeting point between supply and demand comparing also products for technical and environmental performance allows to reduce environmental impacts, promote an informed and transparent use of recycled products, and to encourage a more sustainable use of natural resources.
- Development and promotion of tools and guidelines to make workers of the public sector and policy aware about benefits and possible criticalities of circular use of resources.
- Development and promotion of information Management Systems (IMS) incorporating concepts such as material passports, key performance circular indicators liaising with the EU LEVEL initiative, Building Information Modelling, can effectively support the transition to a green and digital economy and pull the market of the second raw materials. IMS can also trigger reuse schemes when it comes to building components. At a larger scale, such IMS can support urban planning processes, also in terms of mitigation and adaptation to climate change. The IMS can also contribute to properly design and implement economic instruments.

Territorial initiatives to close the loop in the value chain

Creating synergies between industries is essential to increase the circularity of the system. For this reason, it is important that territorial initiatives are put in place to support the creation of industrial symbiosis at the local level.

Actions to be implemented:

Support to local ecosystems, such as

- The ICT platform developed in the H2020 FISSAC project is meant to facilitate the establishment of industrial symbiosis creating local ecosystem with the various stakeholders across the value chain. It is a web-based participatory decision support tool that allows the assessment of different scenarios in terms of environmental, economic and social performances.
- Italian Platform for Industrial Symbiosis , as a support to SMEs to individuate symbiosis opportunities at territorial scale. The Industrial Symbiosis Platform has been addressed in particular to small medium enterprises (SMEs) and other local operators to enable the transfer of resources (materials, energy products, water, services and expertise) and to offer other operational instruments (legal database, tools LCA and Ecodesign, Best practices database, etc.)
- Analysis of secondary materials and scraps from extractive sector. Assessment of resources that can be recovered from scraps from extractive sector (quarries and mines), from active and abandoned sites.

Educational initiatives to form experts at any needed level with an integrated approach and awareness-raising initiatives

Despite the increasing interest in the circular use of resource, there is a lack of experts with a comprehensive knowledge of the raw materials management who can efficiently support the implementation of circularity principles in the construction supply chain. In this context, the creation of educational initiatives aimed to define new professional figures would be beneficial.

Education initiatives to be implemented:

²³ Luciano, A., Cutaia, L., Cioffi, F., & Sinibaldi, C. (2020). Demolition and construction recycling unified management: the DECORUM platform for improvement of resource efficiency in the construction sector. *Environmental Science and Pollution Research*, 1-12.

- Promotion of lifelong learning, especially focused on issues related to main educational gaps, such as the recovery of materials and metals from industrial waste and to entrepreneurial and managerial education²⁴
 - Promotion of courses aimed to high-level professional qualifications, ensuring that managers have the appropriate knowledge and skills to tackle the complex challenge of resource circularity in the construction sector. An example of this type of initiatives is the Raw materials manager course proposed by the EIT RawMaterials Academy²⁵.
 - Definition of specific school programs on the sustainable management of raw materials, at different education levels, i.e. high schools, university courses (e.g. degree in engineering of resources, economy of resources), and PhD courses.
- Consumers buying properties that were designed to be easily repaired, maintained, upgraded, reused and/or repurposed;
 - Consumers buying refurbished real estate.
- Disown ownership
 - Consumers sharing properties that are not used/lived intensively (office swaps, co-working);
 - Consumers renting or leasing instead of buying;
 - Consumers co-housing, in order to optimise common spaces.
 - Get local
 - Consumers buying local sustainable building materials (i.e. tiles, timbers, bricks) when building new properties.
 - Get clean
 - Consumers choosing building techniques that do not imply more materials consumption than strictly needed (i.e. steel) and limit waste during the construction phase (i.e. reusing bricks during renovations);
 - Consumers avoiding construction materials with toxic components at procurement phase– e.g. building with certified toxic free products.

Citizens awareness raising initiatives

It would be important to make citizens aware of the environmental impacts of their consumption choices as well as of the possible benefits associated with circular consumption. While the scope of circular consumption is wide, ranging from transport to housing, food to leisure, products and services related to B&C can also be associated to system-changing consumption patterns, though the peculiarity of this market of course may limit the available choices for consumers and need specific focus and policies.

Actions to be implemented:

Support campaigns and initiatives aimed to make consumers aware on the environmental impacts of the C&D sector, considering the following increasing trends:

- Made to last
 - Consumers preferring dwellings

In order to complement the above illustrative directions, additional approaches as well as respective barriers and opportunities could be further explored.

Further investigation is needed to assess what type of information should be made available and/or required along the supply chain down to the final user, based on integrated metrics discussed above. This information schemes such as the energy and CO₂ label, market incentives and permitting measures could help to streamline sustainable circular consumption patterns in the C&D sector.

²⁴ Ceruti F., Gavinelli L., Chierici R., Mazzucchelli A., 2019. Lifelong Learning in Europe: An Analysis of Raw Materials Professionals' Learning Needs. In Entrepreneurial Decisions, Ed. Springer Nature

²⁵ <https://rcgreece.labmet.ntua.gr/rms-manager-raw-materials-manager-course-train-future-managers/>. Accessed in June 2020

There is room for exploring what are the marketing approaches that could nudge towards such consumption patterns in the C&D sector. How to open the eyes and the choice of final users on the merits of more sustainable housing remains the ultimate question related to circular consumption in the B&C sector.

Proposed activities for 2020

- Position paper
- Workshop

Planning for 2020

- 1 July - strategy paper (outlining the sector situation and activities for what needs to be done to improve circularity) to be shared internally among CG members
- 15 July – publication of papers online
- 15 September – preparation of workshop content and format
- Autumn – presentation of papers as a basis for the workshops at the annual conference
- 3-4 November – Annual conference
 - 4 November – Workshop

Annex: the sectors in number

Construction

Enterprises – number

GEO/TIME	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
European Union - 27 countries (from 2020)	:	:	3.025.382	3.045.057	3.027.669	3.174.834	3.118.683	3.197.745	3.193.012	3.265.623
European Union - 28 countries (2013-2020)	:	:	3.290.721	3.302.249	3.290.255	3.445.604	3.409.659	3.512.568	3.523.557	3.607.215
European Union - 27 countries (2007-2013)	3.177.088	3.292.331	:	:	:	:	:	:	:	:
Austria	29.878	31.196	31.573	32.174	33.518	34.227	34.564	35.078	36.157	35.349
Belgium	81.796	92.203	95.117	95.549	96.791	105.998	102.699	106.444	114.645	103.653
Bosnia and Herzegovina	:	:	2.343	2.137	2.019	3.503	3.618	3.791	4.003	:
Bulgaria	23.606	21.164	19.543	19.068	18.738	18.908	19.367	19.526	19.889	20.537
Croatia	27.083	24.671	21.987	20.170	19.236	18.359	17.575	17.598	17.994	18.823
Cyprus	9.888	9.599	9.266	8.640	7.603	7.197	7.399	7.330	7.886	8.452
Czechia	163.097	173.872	176.251	175.799	170.494	170.806	172.479	174.910	177.390	180.261
Denmark	33.135	31.588	31.575	31.300	30.707	31.281	31.197	31.973	32.643	33.378
Estonia	7.911	7.446	7.888	8.376	8.870	9.029	9.500	10.167	10.931	:
Finland	42.444	42.485	42.785	42.781	42.844	41.827	41.616	40.891	41.110	40.681
France	403.863	456.747	464.125	512.864	536.488	575.733	494.099	507.048	468.974	470.884
Germany	240.747	238.924	243.115	274.002	267.849	338.535	332.411	358.919	338.475	338.080
Greece	112.952	:	92.699	86.873	84.622	86.992	74.337	77.229	61.833	62.736
Hungary	69.611	67.354	65.322	60.284	55.471	56.765	60.724	63.871	69.658	77.412
Iceland	:	:	:	:	:	:	4.614	5.023	5.328	5.332
Ireland	57.472	52.607	50.256	49.530	48.502	47.349	50.546	51.568	57.255	57.255
Italy	623.355	607.771	590.555	572.412	549.846	529.103	511.405	508.696	502.775	:
Latvia	7.137	6.874	6.579	8.000	8.767	9.424	11.057	11.752	11.590	11.606
Liechtenstein	:	:	:	:	:	:	:	:	:	:
Lithuania	12.112	12.201	16.995	20.242	22.736	27.543	29.067	31.151	31.708	32.319
Luxembourg	3.106	3.220	3.300	3.365	3.512	3.542	3.634	3.760	3.930	3.821
Malta	3.592	4.034	3.924	3.835	3.623	3.758	3.646	3.949	3.906	4.255
Netherlands	112.193	127.684	128.189	134.589	152.519	154.748	160.728	167.022	173.775	187.652
North Macedonia	:	:	3.774	3.909	3.982	3.959	4.133	4.408	4.483	4.928
Norway	49.135	49.283	50.566	52.763	54.064	55.150	56.654	57.377	57.964	58.429
Poland	226.387	233.019	239.232	233.731	223.794	230.497	244.361	264.440	281.953	326.052
Portugal	116.686	105.463	97.980	87.592	81.335	77.844	77.906	78.866	81.629	83.248
Romania	60.135	49.348	43.503	44.607	45.382	47.813	48.341	49.717	52.792	55.978
Serbia	:	:	:	:	:	:	:	7.622	7.281	7.562
Slovakia	5.474	91.432	90.886	86.412	81.902	85.907	85.016	87.665	95.114	98.411
Slovenia	19.499	19.190	18.940	18.392	18.066	18.133	18.289	18.706	18.668	19.220
Spain	377.029	371.025	342.257	320.872	320.086	346.822	377.795	367.601	376.235	382.547
Sweden	81.258	87.119	91.540	93.598	94.368	96.694	98.925	101.868	104.097	99.307
Switzerland	20.290	20.033	19.905	20.078	21.065	21.661	21.576	21.364	21.425	21.340
Turkey	106.878	:	:	:	:	:	:	:	:	:
United Kingdom	275.968	265.336	265.339	257.192	262.586	270.770	290.976	314.823	330.545	341.592

Source 1: Source: EUROSTAT (2020)

Production value - million euro

GEO/TIME	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
European Union - 27 countries (from 2020)	:	:	1.342.149	1.299.579	1.251.449	1.298.892	1.322.160	1.350.000	1.449.657	1.565.939
European Union - 28 countries (2013-2020)	:	:	1.555.108	1.528.574	1.486.501	1.571.084	1.648.588	1.640.000	1.738.037	1.881.688
European Union - 27 countries (2007-2013)	1.580.264	1.566.513	:	:	:	:	:	:	:	:
Austria	39.374	38.790	40.267	42.190	42.335	43.374	44.959	46.388	48.498	52.014
Belgium	49.160	53.419	58.122	56.614	56.018	59.023	63.745	69.259	71.018	88.124
Bosnia and Herzegovina	:	:	1.300	1.389	1.317	1.693	1.478	1.592	1.643	:
Bulgaria	9.866	6.775	6.554	6.596	6.493	7.641	9.128	5.916	6.878	8.050
Croatia	9.528	6.945	6.062	5.384	5.160	5.128	5.615	5.641	5.929	6.479
Cyprus	3.961	3.802	3.255	2.638	1.894	1.716	1.757	2.147	2.839	3.341
Czechia	30.490	31.877	30.667	27.482	25.336	24.981	27.184	25.788	28.684	32.594
Denmark	25.645	22.982	25.358	26.458	25.804	27.502	30.067	32.357	35.267	37.616
Estonia	1.924	1.677	2.241	2.707	2.805	2.766	2.684	2.923	3.413	:
Finland	23.875	24.372	27.258	29.047	28.721	29.315	30.593	33.587	37.763	38.195
France	247.284	254.942	272.497	284.008	282.296	290.927	276.935	281.544	293.685	297.556
Germany	167.641	173.472	197.709	213.720	217.858	242.724	244.677	255.588	273.989	295.404
Greece	15.656	:	11.398	10.858	10.238	9.423	9.731	8.793	9.393	9.504
Hungary	7.903	7.371	6.982	6.477	7.313	8.357	8.930	7.932	10.537	13.893
Iceland	:	:	:	:	:	:	1.101	1.634	2.145	2.103
Ireland	19.956	14.049	13.532	7.904	9.758	14.103	15.604	19.965	25.588	30.203
Italy	206.943	227.625	210.383	202.693	181.368	168.117	165.208	162.870	165.334	166.919
Latvia	3.289	2.712	3.170	3.871	4.259	4.155	4.019	3.047	3.882	4.745
Liechtenstein	:	:	:	:	:	:	:	:	:	:
Lithuania	2.712	2.740	3.436	3.570	3.998	4.840	4.833	4.563	5.218	6.176
Luxembourg	3.915	3.913	4.123	4.352	4.349	4.808	5.118	5.547	5.853	6.047
Malta	767	750	757	802	816	961	1.113	:	1.214	1.367
Netherlands	91.735	84.743	88.944	81.883	77.554	77.125	80.310	86.482	96.054	106.057
North Macedonia	:	:	959	962	1.088	1.019	1.213	1.398	1.317	1.242
Norway	35.016	38.784	45.758	54.640	55.014	54.114	53.776	55.969	59.517	62.060
Poland	46.629	50.415	57.351	49.363	49.061	59.975	60.106	57.494	64.090	71.104
Portugal	32.790	32.111	27.611	20.839	18.295	16.899	17.256	16.440	18.262	20.179
Romania	18.721	18.067	19.087	18.134	17.983	16.727	18.413	17.190	17.685	21.132
Serbia	:	:	:	:	:	:	:	4.181	4.928	6.006
Slovakia	6.345	8.483	8.372	7.227	6.233	7.396	9.578	8.877	9.967	10.965
Slovenia	6.640	5.670	4.856	4.486	4.194	4.536	4.321	4.063	4.625	5.579
Spain	271.777	198.417	156.058	119.303	99.206	103.533	111.564	115.839	124.556	149.865
Sweden	40.713	48.257	56.099	60.976	62.106	62.839	68.711	72.326	79.437	79.417
Switzerland	43.137	46.326	55.000	57.843	59.343	60.629	68.078	66.214	66.096	67.826
Turkey	44.091	:	:	:	:	:	:	:	:	:
United Kingdom	208.131	208.807	212.959	228.995	235.052	272.193	326.428	288.860	288.381	315.749

Source 2: Source: EUROSTAT (2020)

Value added at factor cost - million euro

GEO/TIME	2009	2010	2011	2012	2013	2014	2015	2016	2017
European Union - 27 countries (from 2020)	:	:	419.552	404.937	395.663	405.715	409.728	430.000	461.633
European Union - 28 countries (2013-2020)	:	:	499.759	492.429	487.013	510.323	534.432	540.000	570.937
European Union - 27 countries (2007-2013)	508.332	496.073	:	:	:	:	:	:	:
Austria	14.176	13.907	14.285	14.992	15.083	15.663	15.898	16.779	17.602
Belgium	14.237	14.854	15.992	15.687	15.712	16.518	16.427	16.723	18.249
Bosnia and Herzegovina	:	:	403	500	402	491	486	544	530
Bulgaria	2.226	1.339	1.327	1.243	1.175	1.367	1.692	1.385	1.591
Croatia	2.840	2.205	1.707	1.415	1.547	1.593	1.711	1.706	1.871
Cyprus	1.738	1.484	1.219	936	592	494	498	617	795
Czechia	6.724	6.659	6.493	6.025	5.529	5.463	6.242	5.971	6.633
Denmark	9.113	8.134	8.583	8.864	9.087	9.605	10.314	11.178	11.605
Estonia	604	505	711	916	916	878	877	1.027	1.141
Finland	8.337	8.121	8.710	9.437	9.257	9.326	9.591	10.587	11.539
France	82.860	85.539	87.650	86.460	86.689	88.666	82.456	83.354	91.548
Germany	61.516	67.434	75.258	79.087	81.035	90.490	94.089	101.464	109.329
Greece	4.085	5.370	3.893	4.542	4.337	2.380	2.698	2.033	2.452
Hungary	2.572	2.386	2.367	2.195	2.407	2.757	3.035	2.549	3.548
Iceland	:	:	:	:	:	:	583	875	1.189
Ireland	4.068	1.804	1.845	3.232	4.184	5.599	5.797	6.922	9.227
Italy	59.281	60.489	58.410	53.409	48.764	46.551	47.419	48.009	48.891
Latvia	611	502	575	757	832	867	851	740	903
Liechtenstein	:	:	:	:	:	:	:	:	:
Lithuania	736	665	823	952	1.089	1.327	1.352	1.404	1.521
Luxembourg	1.857	1.886	1.963	2.108	2.067	2.315	2.421	2.624	2.789
Malta	214	265	255	261	270	284	323	:	437
Netherlands	27.914	27.018	27.267	25.217	24.041	24.533	25.188	26.907	28.193
North Macedonia	:	:	284	323	366	322	386	454	449
Norway	12.185	13.331	15.122	17.725	18.011	17.723	17.502	17.677	18.837
Poland	15.350	13.468	16.981	13.325	15.545	14.114	12.812	13.349	14.934
Portugal	9.345	8.531	7.242	5.799	5.322	5.189	5.260	5.234	5.807
Romania	5.158	4.696	4.607	4.156	5.842	4.715	3.726	4.212	4.511
Serbia	:	:	:	:	:	:	:	956	1.064
Slovakia	1.299	2.477	2.317	2.467	1.526	1.660	2.044	1.930	2.317
Slovenia	1.735	1.379	1.309	1.241	1.152	1.320	1.278	1.252	1.432
Spain	78.408	62.992	49.404	40.579	31.793	31.708	34.371	36.951	38.709
Sweden	13.686	16.155	18.362	19.635	19.874	20.333	21.358	22.486	24.061
Switzerland	19.646	21.593	25.420	26.144	25.109	26.510	29.459	29.454	28.676
Turkey	8.753	:	:	:	:	:	:	:	:
United Kingdom	78.267	78.850	80.207	87.493	91.351	104.608	124.705	111.851	109.304

Source 3: Source: EUROSTAT (2020)

GDP in construction, output approach, per cent share of GVA

GEO/TIME	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Albania	17,3	14,9	14,6	13,1	11,8	9,9	10,1	10,1	10,4	10,3	9,7
Austria	6,8	6,5	6,3	6,4	6,4	6,4	6,2	6,3	6,5	6,7	6,9
Belgium	5,6	5,4	5,6	5,4	5,3	5,3	5,2	5,2	5,2	5,4	5,4
Bosnia and Herzegovina	6,1	5,1	4,8	4,6	4,5	4,7	4,6	4,6	4,7	4,7	..
Bulgaria	9,6	7,2	6,3	5,9	4,9	4,4	4,4	4,0	4,2	4,2	4,6
Croatia	8,0	6,2	5,7	5,0	5,0	5,0	5,0	5,0	5,1	5,2	5,4
Cyprus	9,6	8,4	7,0	6,0	4,8	4,2	4,0	4,6	5,3	6,3	7,0
Czechia	6,7	6,9	6,2	5,9	5,7	5,5	5,6	5,5	5,3	5,6	5,9
Denmark	5,1	4,4	4,6	4,6	4,5	4,6	5,0	5,5	5,5	6,3	6,2
Estonia	7,1	5,8	6,9	7,4	7,0	6,2	6,1	6,6	6,8	7,4	6,9
Finland	6,8	6,6	6,6	6,8	6,7	6,5	6,6	7,1	7,2	7,3	7,6
France	6,2	6,0	6,0	5,8	5,9	5,7	5,5	5,4	5,5	5,6	5,8
Germany	4,1	4,3	4,4	4,5	4,4	4,5	4,5	4,7	4,7	5,0	5,5
Greece	5,0	4,5	3,5	3,4	2,9	2,4	2,1	2,5	2,3	2,5	2,7
Hungary	4,9	4,2	4,1	3,9	4,0	4,2	4,3	3,6	4,4	5,4	6,5
Iceland	4,7	4,5	4,3	4,5	4,8	5,5	5,6	6,9	7,4	7,8	7,3
Ireland	2,7	1,5	1,0	1,7	2,2	2,5	2,1	2,3	2,7	2,9	3,0
Italy	6,0	5,7	5,6	5,3	4,9	4,5	4,4	4,3	4,3	4,3	4,3
Latvia	7,9	4,9	6,1	6,5	6,6	6,8	6,5	5,4	5,8	6,6	6,8
Liechtenstein	..	..	..	..	..	..	..	..	..	..	..
Lithuania	6,6	5,8	6,5	6,1	6,7	7,4	7,3	6,7	6,7	7,0	7,3
Luxembourg	5,8	5,3	5,5	5,2	5,1	5,7	5,5	5,7	5,7	6,1	6,0
Malta	4,6	4,7	4,7	4,4	4,4	4,0	3,8	3,6	3,6	3,6	3,8
Montenegro	6,6	6,0	5,9	5,6	4,5	4,2	4,5	6,7	6,9	7,0	..
Netherlands	6,0	5,3	5,1	4,6	4,3	4,3	4,3	4,4	4,5	4,8	5,1
North Macedonia	6,5	6,5	6,1	6,6	8,2	8,0	8,1	8,0	7,5	6,2	..
Norway	5,6	5,3	5,4	5,7	5,8	6,0	6,3	6,6	6,6	6,5	6,7
Poland	8,5	8,5	8,7	8,0	7,4	7,8	8,0	7,0	7,0	7,6	7,7
Portugal	6,3	5,8	5,5	4,9	4,5	4,2	4,1	4,0	4,1	4,3	4,5
Romania	11,8	8,9	7,2	8,4	7,9	7,1	6,7	6,7	5,7	6,1	7,1
Serbia	4,3	4,1	4,5	4,5	3,6	3,8	4,5	4,7	5,0	5,4	6,8
Slovakia	9,5	8,7	8,8	8,9	7,5	7,9	7,9	7,6	8,2	7,9	7,7
Slovenia	7,8	6,4	5,9	5,8	5,3	5,7	5,4	5,2	5,4	5,7	5,8
Spain	10,7	8,8	7,5	6,6	5,8	5,6	5,8	5,9	6,0	6,2	6,5
Sweden	5,9	5,7	5,9	6,1	6,0	6,1	6,3	6,4	6,8	6,8	6,8
Switzerland	5,3	5,4	5,6	5,6	5,7	5,3	5,5	5,5	5,4	5,3	5,3
Turkey	6,3	6,9	8,2	8,5	9,2	9,2	9,3	9,7	..	..	..
United Kingdom	5,7	5,6	5,7	5,8	5,9	6,0	6,3	6,2	6,2	6,2	6,2

Source 4: Source: UNECE (2020)

Volume index of production % change on previous period

GEO/TIME	2015M01	2015M06	2016M01	2016M06	2017M01	2017M06	2018M01	2018M06	2019M01	2019M06	2020M01
European Union - 27 countries (from 2020)	0,6	-0,8	2,2	-0,1	-3,1	-0,1	-0,6	0,7	-2,4	0,2	3,3
European Union - 28 countries (2013-2020)	0,8	-0,8	1,6	-0,2	-1,8	-0,2	-1,2	0,6	-1,3	-0,2	2,5
Euro area - 19 countries (from 2015)	0,5	-0,7	3,1	-0,1	-3,4	-0,4	-0,9	0,4	-3,2	0,5	3,8
Austria	6,3	2,2	3,7	-0,9	-1,8	-1,3	-0,4	0,3	-2,9	1,0	4,0
Belgium	0,7	-1,1	5,1	1,1	-4,8	-0,5	1,8	-0,1	-3,0	-0,6	1,6
Bulgaria	3,5	1,4	-19,7	2,2	-14,5	0,6	4,5	0,2	0,9	-0,5	0,3
Croatia	-1,2	0,5	1,1	-1,0	-11,1	1,5	-6,7	0,0	3,9	-0,4	2,6
Czechia	9,7	0,6	0,7	-1,9	-7,3	1,0	-0,6	-0,9	2,3	1,0	2,5
Denmark	2,5	1,2	1,6	2,1	-1,2	0,0	-0,6	4,1	-0,8	-3,9	1,7
Finland	-0,6	0,3	0,0	0,5	4,1	-1,3	1,3	1,5	-4,7	-0,6	2,3
France	1,8	-1,1	6,4	-0,5	0,1	-2,5	-5,6	3,9	-4,8	1,1	2,2
Germany	-0,6	-1,9	2,3	0,7	-5,6	-0,2	-1,6	-2,1	-3,2	1,0	5,8
Hungary	4,2	-2,9	-25,8	8,1	0,7	-0,6	3,7	7,7	6,2	0,5	1,7
Italy	-0,4	-0,9	-0,7	1,4	-6,3	-2,2	-0,8	1,6	-1,2	0,3	7,8
Luxembourg	0,3	-2,7	7,1	0,1	-15,9	-1,6	9,9	-2,1	-6,5	6,3	3,9
Netherlands	-1,2	3,1	1,9	-1,4	0,1	2,3	0,6	1,0	-0,8	-1,0	1,8
North Macedonia	-2,8	2,7	3,1	-5,7	-7,3	-33,3	-14,9	-11,3	-5,1	46,5	2,9
Poland	-0,4	-3,4	-5,1	-4,5	-2,8	2,4	6,7	3,2	-3,5	0,0	8,9
Portugal	-0,5	-0,3	0,5	-1,5	3,1	0,6	1,7	0,3	1,1	-0,6	-0,9
Romania	-6,8	2,2	-18,4	-2,9	9,7	2,7	5,1	-4,1	8,4	-3,4	22,4
Slovakia	6,3	0,4	-7,3	0,0	3,2	2,9	6,2	4,5	-6,0	-1,4	4,3
Slovenia	-1,2	-1,8	-7,2	-0,2	-24,4	16,1	9,8	-2,0	6,8	-6,9	10,2
Spain	0,8	-0,1	4,6	-1,8	-6,5	4,0	7,2	-2,3	-3,4	0,4	-0,2
Sweden	0,5	-2,4	2,1	0,5	2,0	2,6	-2,4	1,2	1,1	-1,6	-9,6
United Kingdom	1,5	-0,8	-0,3	-0,5	1,9	-0,1	-2,6	0,9	2,6	-1,4	0,2

Source 5: Source: EUROSTAT (2020)

* Seasonally and calendar adjusted data

Mining & Quarrying (B081 - Quarrying of stone, sand and clay)

Enterprises – number

GEO/TIME	2010	2011	2012	2013	2014	2015	2016	2017	2018
European Union - 27 countries (2007-2013)	15.895	:	:	:	:	:	:	:	:
European Union - 27 countries (from 2020)	:	14.861	:	13.586	14.000	13.848	:	:	13.000
European Union - 28 countries (2013-2020)	:	15.351	:	14.020	14.000	14.264	:	13.000	:
Austria	323	320	322	315	309	311	313	308	270
Belgium	234	:	166	169	171	177	168	195	126
Bosnia and Herzegovina	:	165	140	141	138	140	145	142	:
Bulgaria	261	254	259	266	246	259	245	231	226
Croatia	276	255	243	224	212	205	199	196	204
Cyprus	:	:	:	:	:	:	:	:	:
Czechia	245	257	270	271	290	280	298	301	303
Denmark	139	144	136	129	120	127	127	127	123
Estonia	84	68	69	83	88	86	88	88	:
Finland	345	344	343	334	340	331	325	378	351
France	1.520	1.454	1.403	1.462	1.393	1.285	1.189	854	787
Germany	1.581	1.476	1.593	1.450	1.642	1.541	1.468	1.379	1.383
Greece	444	:	:	353	660	569	585	516	530
Hungary	348	343	319	328	318	311	292	270	246
Iceland	:	:	:	:	:	24	24	28	25
Ireland	263	261	:	:	:	247	:	:	:
Italy	2.243	2.225	2.119	2.025	2.032	1.968	1.926	1.736	:
Latvia	140	137	162	168	157	159	156	163	167
Liechtenstein	:	:	:	:	:	:	:	:	:
Lithuania	51	56	61	68	86	86	97	99	99
Luxembourg	10	10	10	10	10	10	10	10	10
Malta	46	:	:	:	:	:	:	:	48
Netherlands	117	120	114	128	123	126	124	115	112
North Macedonia	:	89	86	96	88	104	117	:	141
Norway	575	610	610	623	629	646	646	636	630
Poland	1.365	1.519	1.433	1.177	1.330	1.443	1.435	1.465	1.877
Portugal	1.212	1.143	1.057	1.026	945	912	879	886	900
Romania	940	882	852	828	846	836	810	777	777
Slovakia	63	95	81	106	114	103	123	111	142
Slovenia	92	90	88	86	84	80	76	78	72
Spain	2.288	2.165	2.074	1.729	1.720	1.839	1.679	1.751	1.698
Sweden	497	500	495	479	470	461	446	459	378
Switzerland	186	182	180	202	197	197	195	188	194
Total	:	:	:	:	:	:	:	:	:
Turkey	:	:	:	2.366	2.188	:	:	:	:
United Kingdom	513	490	458	434	423	416	402	395	380

Production value - million euro

GEO/TIME	2010	2011	2012	2013	2014	2015	2016	2017	2018
European Union - 27 countries (2007-2013)	26.842	:	:	:	:	:	:	:	:
European Union - 27 countries (from 2020)	:	25.200	23.231	22.106	22.479	22.146	:	21.075	20.893
European Union - 28 countries (2013-2020)	:	28.697	27.549	28.316	28.769	29.405	:	27.374	27.544
Austria	801	792	817	858	865	839	849	883	865
Belgium	825	:	779	716	796	609	678	709	447
Bosnia and Herzegovina	:	65	66	67	66	61	66	68	:
Bulgaria	114	121	118	118	129	228	202	204	219
Croatia	164	187	137	145	160	138	138	166	196
Cyprus	:	:	:	:	:	:	:	:	:
Czechia	582	596	556	529	527	584	572	611	678
Denmark	165	249	265	237	222	286	264	317	332
Estonia	45	60	:	:	63	65	:	:	:
Finland	419	483	424	376	339	308	317	345	378
France	5.543	5.886	5.750	5.894	5.161	4.591	4.581	3.163	3.184
Germany	4.210	4.875	4.861	4.621	5.410	5.576	5.407	5.699	5.077
Greece	618	:	:	341	410	384	280	390	401
Hungary	168	144	132	154	206	191	162	193	248
Iceland	:	:	:	:	:	20	26	36	34
Ireland	295	270	:	:	:	304	:	:	:
Italy	2.733	3.065	2.368	2.196	2.356	2.346	2.223	2.162	2.131
Latvia	34	56	64	66	:	65	51	67	78
Liechtenstein	:	:	:	:	:	:	:	:	:
Lithuania	50	71	67	93	99	84	91	115	122
Luxembourg	69	74	75	75	71	74	75	77	84
Malta	11	:	:	:	:	:	:	:	17
Netherlands	482	457	431	370	418	438	516	489	502
North Macedonia	:	:	36	39	:	:	44	61	:
Norway	834	960	1.098	1.075	1.052	1.003	956	1.033	1.045
Poland	1.557	1.876	1.670	1.429	1.344	1.381	1.221	1.418	1.890
Portugal	686	647	520	482	461	472	461	521	541
Romania	:	:	:	:	:	:	:	:	423
Slovakia	117	131	108	136	127	154	168	186	211
Slovenia	127	122	117	127	145	152	142	161	173
Spain	2.580	2.294	1.865	1.556	1.558	1.641	1.514	1.518	1.451
Sweden	776	872	945	859	861	712	718	755	723
Switzerland	1.286	:	1.646	:	:	:	:	:	:
Total	:	:	:	:	:	:	:	:	:
Turkey	:	:	:	2.387	2.577	:	:	:	:
United Kingdom	3.309	3.497	4.318	6.210	6.290	7.258	6.085	6.299	6.652

Value added at factor cost - million euro

GEO/TIME	2010	2011	2012	2013	2014	2015	2016	2017	2018
European Union - 27 countries (2007-2013)	9.231	:	:	:	:	:	:	:	:
European Union - 27 countries (from 2020)	:	8.938	7.878	7.593	7.772	7.847	7.634	7.633	:
European Union - 28 countries (2013-2020)	:	9.872	9.034	9.425	9.752	10.178	9.718	9.531	:
Austria	326	321	319	354	365	350	358	378	:
Belgium	266	:	256	242	269	211	242	263	:
Bosnia and Herzegovina	:	25	24	27	25	28	31	29	:
Bulgaria	42	40	42	40	49	85	81	77	:
Croatia	57	63	53	47	71	56	56	63	:
Cyprus	:	:	:	:	:	:	:	:	:
Czechia	203	194	176	169	179	203	202	218	:
Denmark	67	85	85	74	79	103	106	107	:
Estonia	15	20	:	:	23	27	:	:	:
Finland	121	131	120	111	103	93	101	104	:
France	1.876	1.901	1.766	1.786	1.442	1.341	1.332	912	:
Germany	1.695	1.889	1.926	1.797	2.160	2.146	2.057	2.149	:
Greece	272	:	:	170	191	207	146	219	:
Hungary	69	61	55	68	86	88	75	95	:
Iceland	:	:	:	:	:	10	11	17	:
Ireland	87	89	:	:	:	100	:	:	:
Italy	981	1.044	740	724	768	833	838	811	:
Latvia	13	22	22	23	:	20	16	23	:
Liechtenstein	:	:	:	:	:	:	:	:	:
Lithuania	20	29	28	39	37	37	43	53	:
Luxembourg	33	36	32	32	30	27	31	33	:
Malta	3	:	:	:	:	:	:	:	:
Netherlands	189	157	114	110	126	145	142	163	:
North Macedonia	:	:	19	22	:	:	22	32	:
Norway	264	321	367	371	381	376	352	371	:
Poland	433	756	551	438	474	526	469	555	:
Portugal	257	227	181	175	163	178	173	192	:
Romania	:	:	:	:	:	:	:	:	:
Slovakia	36	48	34	35	42	49	55	60	:
Slovenia	46	42	39	40	49	50	50	56	:
Spain	979	869	697	606	570	575	545	556	:
Sweden	202	257	267	249	252	230	228	243	:
Switzerland	536	:	629	:	:	:	:	:	:
Total	:	:	:	:	:	:	:	:	:
Turkey	:	:	:	616	628	:	:	:	:
United Kingdom	869	934	1.156	1.832	1.979	2.331	2.084	1.898	:

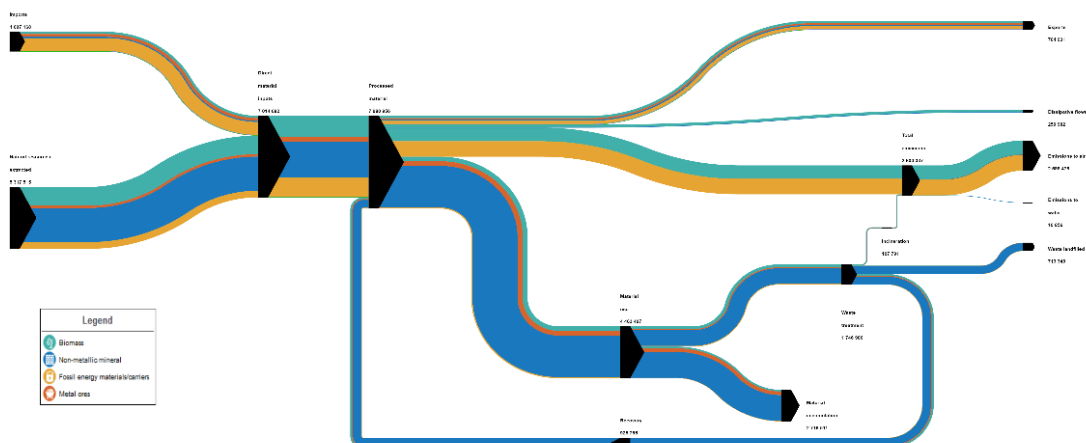
Employees – number

GEO/TIME	2010	2011	2012	2013	2014	2015	2016	2017	2018
European Union - 27 countries (2007-2013)	169.400	:	:	:	:	:	:	:	:
European Union - 27 countries (from 2020)	:	150.907	141.893	134.921	130.000	:	128.871	125.379	:
European Union - 28 countries (2013-2020)	:	167.261	164.815	152.297	150.000	149.211	144.712	142.851	:
Austria	4.019	3.846	3.917	3.893	3.926	3.917	4.026	4.165	:
Belgium	2.643	:	2.473	2.350	2.501	2.301	2.297	2.324	:
Bosnia and Herzegovina	:	1.979	1.745	1.703	1.662	1.566	1.680	2.014	:
Bulgaria	3.938	3.851	3.832	3.770	3.414	4.599	4.490	3.994	:
Croatia	2.587	2.349	2.156	2.128	2.016	1.877	1.854	1.840	:
Cyprus	:	:	:	:	:	:	:	:	:
Czechia	5.678	5.505	5.423	5.185	4.938	4.958	5.001	4.960	:
Denmark	641	860	825	772	779	805	705	708	:
Estonia	739	712	:	:	686	695	:	:	:
Finland	1.776	1.795	1.579	1.498	1.387	1.302	1.307	1.424	:
France	23.037	22.039	21.129	20.581	18.068	16.150	15.562	11.122	:
Germany	25.748	26.381	25.352	25.042	27.448	28.308	26.597	28.244	:
Greece	4.176	:	:	2.852	2.915	2.454	1.970	2.369	:
Hungary	2.919	2.603	2.356	2.407	2.593	2.518	2.400	2.479	:
Iceland	:	:	:	:	:	94	116	113	:
Ireland	1.522	1.334	:	:	:	1.448	:	:	:
Italy	14.551	13.759	12.621	12.027	12.147	11.817	11.364	10.721	:
Latvia	643	724	784	895	949	1.021	894	888	:
Liechtenstein	:	:	:	:	:	:	:	:	:
Lithuania	1.008	1.173	1.158	1.229	1.311	1.358	1.352	1.433	:
Luxembourg	284	285	275	266	252	248	261	272	:
Malta	145	:	:	:	:	:	:	:	:
Netherlands	852	861	781	786	756	724	728	807	:
North Macedonia	:	1.227	:	1.111	1.100	1.085	1.267	:	:
Norway	2.723	2.860	2.996	2.978	2.911	3.010	3.091	3.153	:
Poland	18.241	18.136	17.214	15.605	14.906	15.130	15.164	15.199	:
Portugal	9.260	8.552	7.435	6.759	6.456	6.362	6.266	6.416	:
Romania	7.741	7.626	7.934	7.431	7.210	8.179	8.177	7.617	:
Slovakia	1.690	1.843	1.682	1.820	1.524	1.524	1.734	1.682	:
Slovenia	920	897	836	777	781	854	861	907	:
Spain	18.485	15.864	13.897	11.781	11.117	11.055	11.175	10.899	:
Sweden	2.665	2.532	2.567	2.484	2.382	1.856	1.838	1.908	:
Switzerland	:	:	:	:	:	:	:	:	:
Total	:	:	:	:	:	:	:	:	:
Turkey	:	:	:	42.726	39.934	:	:	:	:
United Kingdom	14.234	16.354	22.922	17.376	16.649	:	15.841	17.472	:

Scraps from the sectors Material flow for the EU.

Material flow diagrams 2017 for

European Union (27 countries)
Thousand tonnes



Sources: env_ac_mfa , env_ac_sd , env_wassd

Source 6: Source: EUROSTAT (2020)

Total waste Construction – tonnes

GEO/TIME	2004	2006	2008	2010	2012	2014	2016
European Union - 27 countries (from 2020)	667.020.000	726.740.000	763.450.000	757.070.000	729.810.000	739.970.000	787.480.000
European Union - 28 countries (2013-2020)	766.250.000	836.290.000	864.450.000	875.980.000	843.940.000	870.250.000	923.670.000
Albania	:	:	:	:	:	:	:
Austria	27.935.266	31.321.626	31.389.803	20.927.070	33.468.558	40.265.570	44.914.816
Belgium	11.037.080	13.089.651	15.441.861	16.852.673	17.132.768	18.347.257	19.573.150
Bosnia and Herzegovina	:	:	:	:	0	:	:
Bulgaria	2.998.621	1.023.303	1.828.761	78.880	1.032.651	1.340.467	2.089.131
Croatia	646.282	18.820	129.223	7.656	674.661	618.158	1.291.506
Cyprus	488.499	298.346	431.231	1.068.282	965.177	634.801	876.525
Czechia	8.130.735	8.379.849	10.650.635	9.353.673	8.592.900	9.409.944	10.141.985
Denmark	4.273.801	5.802.368	5.674.326	3.142.215	7.454.350	11.263.066	12.224.799
Estonia	488.537	717.105	1.099.100	436.289	657.089	671.347	1.173.517
Finland	20.842.637	23.145.712	24.455.231	24.645.393	16.033.874	16.296.811	13.825.168
France	210.041.309	225.310.888	252.979.840	260.699.131	246.702.428	227.607.180	224.355.946
Germany (until 1990 former territory of the	191.562.719	196.536.165	197.206.500	190.990.217	197.527.868	206.466.169	220.499.432
Greece	3.324.000	6.829.161	6.828.051	2.086.080	812.519	479.999	610.638
Hungary	1.735.609	3.045.335	3.240.063	4.072.214	4.038.081	3.439.941	3.591.723
Iceland	18.500	:	:	12.289	10.820	32.832	43.112
Ireland	11.286.882	16.599.466	13.547.588	1.609.762	1.132.275	1.884.390	1.521.590
Italy	49.150.771	52.315.620	69.731.942	59.340.134	52.965.743	51.670.600	54.576.762
Kosovo (under United Nations Security Co	:	:	:	:	0	4.516	167.645
Latvia	8.243	19.339	12.040	21.551	7.509	454.281	111.133
Liechtenstein	:	:	247	31	106.623	516.704	441.557
Lithuania	357.380	348.968	412.045	356.772	419.136	434.737	505.758
Luxembourg	6.979.984	6.774.547	8.282.055	8.866.757	7.079.473	5.979.235	7.614.894
Malta	2.810.774	2.492.522	1.698.659	988.070	1.044.088	1.241.079	1.354.892
Montenegro	:	:	:	:	0	107.036	630.654
Netherlands	49.619.394	56.716.248	58.886.879	78.063.887	79.166.644	90.734.851	98.551.957
North Macedonia	:	:	:	0	7	9.491	87
Norway	1.101.407	1.252.051	1.498.376	1.542.803	1.880.543	2.572.427	3.056.136
Poland	1.677.539	14.141.031	6.929.512	20.818.234	15.367.995	17.010.251	18.890.577
Portugal	2.625.939	3.607.449	1.364.419	1.287.140	1.087.141	1.185.489	1.710.703
Romania	91.397	33.740	318.097	734.946	1.325.341	1.048.011	320.811
Serbia	:	:	:	0	363.706	274.769	547.473
Slovakia	1.403.965	916.228	1.301.760	1.786.430	806.184	1.386.685	967.275
Slovenia	907.963	994.886	1.376.225	1.509.476	535.154	815.010	543.690
Spain	46.319.660	47.323.392	44.926.463	37.946.523	26.129.151	20.418.071	35.827.923
Sweden	10.271.183	8.943.363	3.310.326	9.381.226	7.655.935	8.866.720	9.810.987
Switzerland	:	:	:	:	:	:	:
Turkey	:	:	0	:	:	:	:
United Kingdom	99.234.124	109.545.987	100.999.493	118.910.602	114.120.793	130.284.145	136.196.492

Source 7: Source: EUROSTAT (2020)

Treatment of Mineral waste from construction and demolition, hazardousness and waste management operations – tonnes

GEO/TIME	2010	2012	2014	2016
European Union - 27 countries (from 2020)	387.100.000	389.420.000	368.240.000	386.150.000
European Union - 28 countries (2013-2020)	461.850.000	459.510.000	444.300.000	467.160.000
Albania	:	:	0	:
Austria	9.048.253	10.119.988	13.924.473	15.559.258
Belgium	3.801.437	5.348.034	4.904.358	5.354.837
Bosnia and Herzegovina	:	:	:	:
Bulgaria	1.375.189	1.630.337	2.174.205	2.048.311
Croatia	340.193	612.746	795.946	674.338
Cyprus	330.553	159.543	123.859	197.338
Czechia	5.316.105	6.193.268	6.141.543	7.730.658
Denmark	3.627.729	3.575.918	4.032.136	4.460.828
Estonia	1.351.489	1.286.420	1.161.507	948.549
Finland	36.334.239	17.011.929	5.180.025	5.625.586
France	84.477.076	81.138.535	80.041.437	83.679.541
Germany	99.300.970	102.589.195	104.772.325	111.916.338
Greece	4.323.698	2.419.594	689.646	1.800.590
Hungary	3.521.110	2.842.826	3.396.764	3.837.036
Iceland	71.551	65.926	421.751	574.155
Ireland	827.278	556.587	999.345	969.379
Italy	51.918.786	52.345.528	53.416.972	57.125.970
Kosovo	:	:	:	0
Latvia	211.237	395.449	343.715	233.012
Liechtenstein	:	:	:	:
Lithuania	699.834	706.768	881.963	1.046.445
Luxembourg	3.740.933	3.253.577	2.957.673	3.168.668
Malta	756.746	508.558	1.068.406	1.172.248
Montenegro	:	:	4.131	3.331
Netherlands	24.414.123	24.488.630	23.587.291	24.193.633
North Macedonia	311.869	60.926	16.687	:
Norway	1.385.876	3.319.438	4.066.467	4.593.101
Poland	15.495.589	16.814.312	19.902.270	15.063.461
Portugal	1.711.840	1.809.012	2.255.812	2.539.382
Romania	5.198.579	5.666.727	5.601.883	6.171.941
Serbia	47.640	415.340	614.553	728.003
Slovakia	1.352.761	1.440.122	1.181.299	1.765.956
Slovenia	1.890.004	1.418.981	1.490.875	1.432.238
Spain	21.382.390	41.071.138	22.560.184	21.022.138
Sweden	4.345.864	4.012.741	4.650.103	6.399.941
Turkey	1.687.996	:	14.654.343	25.092.143
United Kingdom	74.762.248	70.104.133	76.070.727	81.017.934

*The amount of C&DW generated is calculated as the sum of waste categories W061 ferrous metal wastes, W062 non-ferrous metal wastes, W063 mixed ferrous and non-ferrous metal-wastes, W071 glass wastes, W074 plastic wastes, W075 wood wastes, and total of waste category W121 mineral waste from construction and demolition.

Source: EUROSTAT (2020)

Import – export C&D Hazardous Wastes

Import C&D Hazardous Wastes - tonnes

	Austria	Denmark	Finland	Ireland	Italy	Luxembourg	Netherlands	Norway	Switzerland
Estonia			30.475						
Germany	942	7.939		212	27.539	37.279	57		65.016
Sweden								3.672	
United Kingdom				11.922					

Source 8: Source: EUROSTAT (2020)

* This table includes raw data as reported directly to The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

Export C&D Hazardous Wastes – tonnes

	Austria	Belgium	Denmark	Estonia	France	Germany	Netherlands	Poland	United Kingdom
Finland				30.262					
Germany	3.249				149.521		62.796	18.032	
Republic of Ireland		12				3			2.694
Sweden			4.312			5			
United Kingdom							1.960		

Source 9: Source: EUROSTAT (2020)

* This table includes raw data as reported directly to The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.