Davide Sabbadin of the European Environmental Bureau (EEB), the EU’s largest network of civil society environmental organisations, gave an overview of the Construction and Building (C&B) sector and its connection with material production and waste creation.

**Material production** for the C&B sector is responsible for more than 900 billion tonnes of CO2 eq. Material consumption must then be reduced. Arcelor Mittal and Thyssenkrupp have committed to carbon neutrality by 2050.

- **Steelworks** are the largest carbon polluters in Europe, excluding power plants. Reducing the use of structural steel at the design stage can result in 36-46% reduction in CO2 emissions. If downgrading steel is avoided, **secondary steel production could increase and meet 85% of the EU’s steel needs by 2050.**

- **Cement production** is a significant source of emissions in the EU: 114 million tonnes of CO2 per year. Clinker production accounts for 60-65% of process emissions in cement production. Cembureau has committed to climate neutrality by 2050, mostly by relying on carbon capture and sequestration (CCS). New cements with different clinkers are being tested, resulting in 20-30% CO2 savings; the industry is targeting a lower clinker content (from 77 to 65%). **Concrete in buildings needs to be used more efficiently** (5-10% reduction). **Possible actions:** reduce concrete use at design stage, reuse structural concrete, design with a view to disassembling the building.

- **Chemicals - particularly plastics:** this sector has pledged to increase the use of recycled plastics (PVC, PP, PE, Polystyrene).

- **Glass production** entails chemical emissions from furnaces. Electrification of large furnaces is not yet available.
Conclusions

– Reducing the demand for buildings and building material is a priority in order to reduce emissions dramatically, but industries do not seem to take this into consideration. It is important to extend the life of buildings and materials.

– Usage should be preferred over ownership of a building, but this means that the industry must change its business model.

– It is important to think circular from the outset.

– Research is needed to improve the quality of secondary cement (clinker reduction) and steel (to avoid downgrading).

Laura Cutaia of ENEA-ICESP presented the orientation paper on the circularity of the construction sector by ENEA, with the participation of INEC, ACR+, EEB and Ecopreneur.

Construction and demolition (C&D) accounts for 50% of material use by weight, 40% of energy consumption and 35% of GHG emissions in the EU. Contributors are steel, cement, plastics, paper, glass and non-ferrous metals.

C&D is the largest waste stream in the EU by weight: in 2016, the EU generated 374 million tonnes of C&DW. The revised Waste Framework Directive (2008/98/EC, amended 2018/851) has set a mandatory target of 70% recovery by 2020. Recovery performances, although high, differ significantly between EU Member States, varying in 2016 from 54 to 100%.

C&D strengths: 1) material recirculation, 2) production improved to reduce material footprint, 3) extension of product lifespan, 4) possibility of recovering C&DW as a substantial alternative to virgin material, 5) implementation of design to improve the quality/quantity of secondary material.

C&D weaknesses: 1) price competition between recycled and virgin material, 2) lack of confidence in quality and structural properties of secondary raw materials, 3) hazardous substance content, 4) lack of sufficient/reliable data on materials in existing buildings, 5) lag between implementing circular actions and their benefits.

Six areas of intervention with measures to be implemented to improve circularity in the B&C sector: 1) integrated policies and governance between construction and extractive sectors, 2) integrated metrics for construction, 3) integrated tools to foster interconnections between construction/extractive and other sectors, 4) territorial initiatives to close the loop in the value chain, 5) educational initiatives to train experts at any level, 6) public awareness-raising initiatives (Made to last, Disown ownership, Get local, Get clean).

Key findings: no carbon neutrality target will ever be achieved if circular economy provisions are not put at the heart of B&C sectoral policies.