

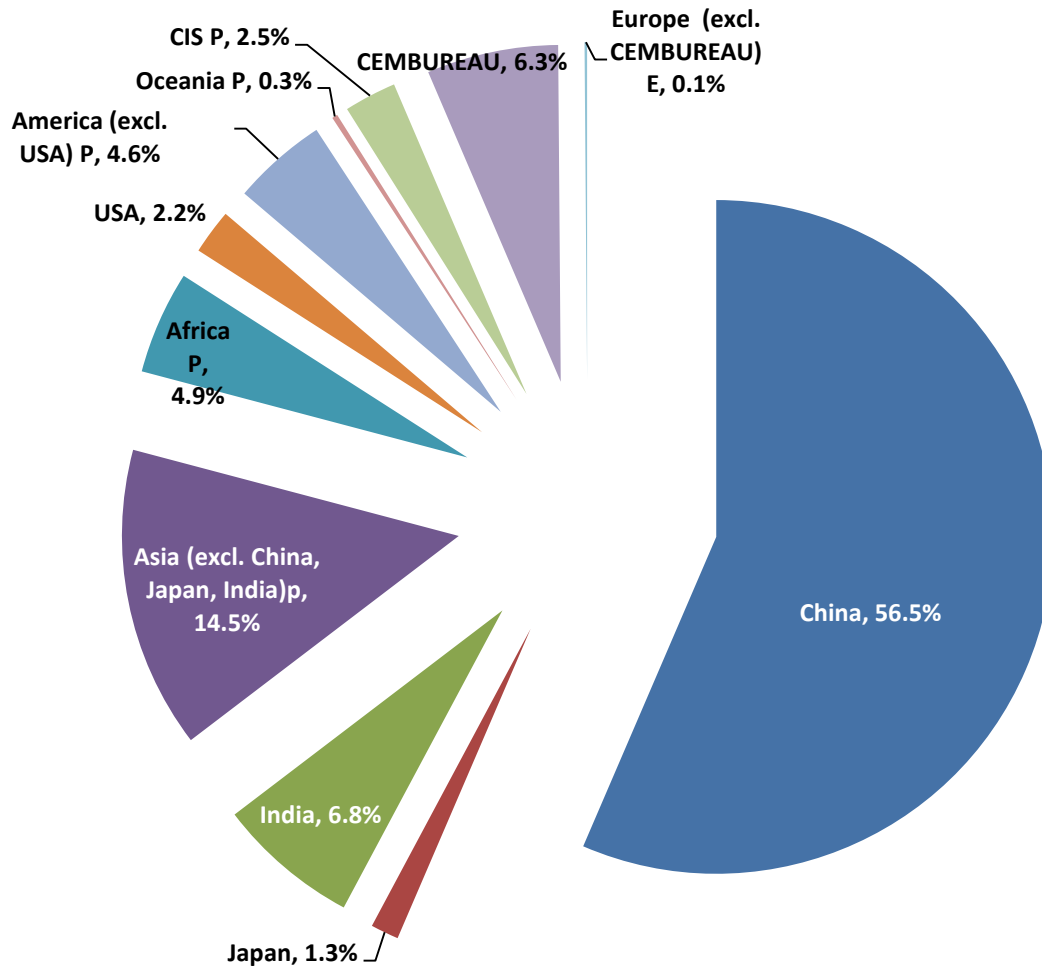
The top of the slide features a background image of a long, multi-arched concrete bridge spanning across a body of water under a clear sky.

THE CEMENT INDUSTRY'S 5 C APPROACH

EU PAVE EVENT: “SUSTAINABLE ROADS TOWARDS CARBON NEUTRALITY”

11 November 2019

Koen Coppenholle – Chief Executive CEMBUREAU



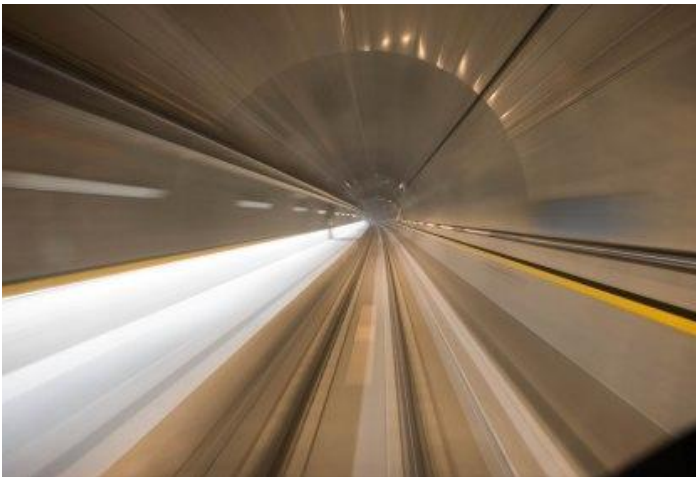
- **EU cement production 2017: 175 million tonnes**
- **Gradual recovery after 40% drop in 2007-2013 period**
- **Cement consumption EU: 309 kg/inhab. (China: 1705 kg/inhab.)**
- **EUR 15 bn turnover; EUR 4.8 bn added value; 47,000 employees; 350 enterprises in EU**

CEMENT & CONCRETE KEY ENABLERS FOR THE LOW CARBON ECONOMY



Quarries → **Clinker** → **Cement**
limestone grinding

Cement (10%-15%) → **Water** (15%-20%) → **Aggregates** (65%-75%) → **Concrete**



SUSTAINABLE TRANSPORT



RENEWABLE ENERGY



THERMAL MASS

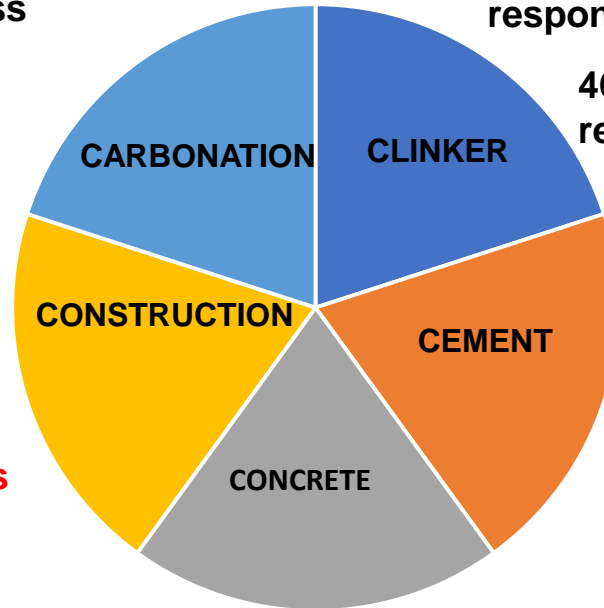
INNOVATION ALONG THE VALUE CHAIN

“5 C APPROACH”

Up to 25% of process emissions can be reabsorbed through **(re)carbonation**

Thermal mass of concrete saves CO₂

Life-cycle analysis of the built environment



Recyclability of concrete

Admixtures to **optimise mix constituents**

Biodiversity / responsible quarrying

46% **alternative fuel** use replacing fossil fuels

Reducing **clinker to cement ratio**

Novel cements & low CO₂ binders

Carbon capture & storage / use



CLINKER
CEMENT
CONCRETE
CONSTRUCTION
CARBONATION

WE NEED A FACILITATING REGULATORY FRAMEWORK:

- Maintain global competitiveness
- Access to affordable energy
- Access to alternative raw materials
- Access to waste / ban on landfill
- Public funding for breakthrough technologies
- Higher recycling rates of construction and demolition waste
- Recognition of thermal mass and life cycle of built structures
- Acceptance of recarbonation as counting towards CO₂ reduction