



SeRaMCo

Introduction of the project

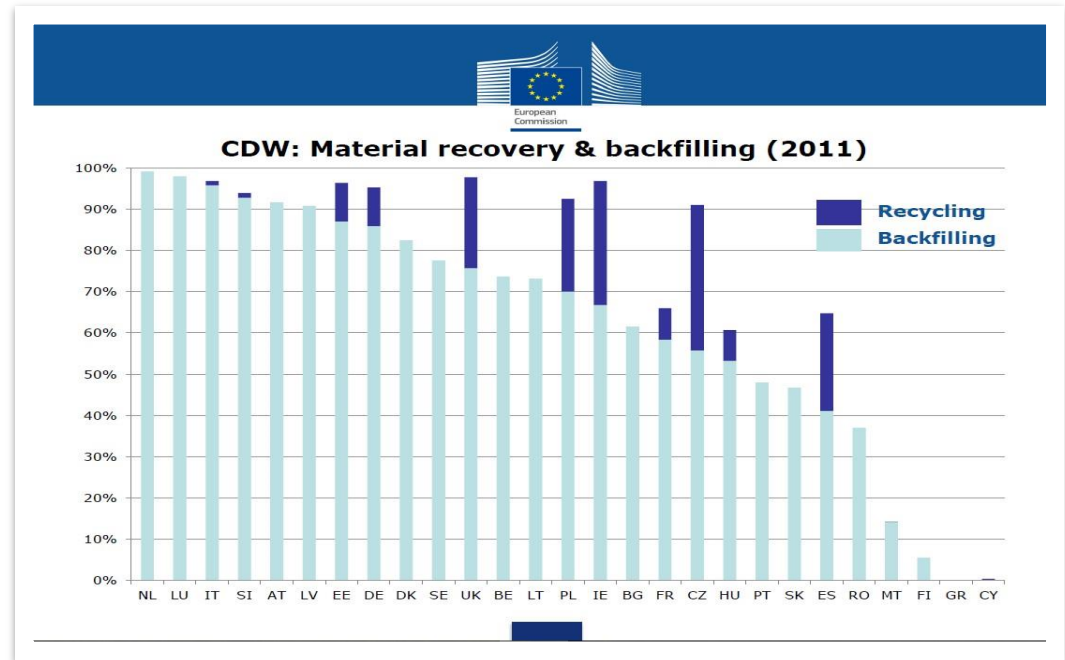
Prof. Dr.-Ing. Christian Glock

Final Conference of SeRaMCo:
„Precast Concrete in
the Circular Economy“

20 January 2021

1 Introduction

- **European construction sector** needs approx. **50% of primary raw materials** and produces **1/3 of all wastes**
- **Construction waste** contains concrete, bricks, tiles and ceramics (**CBTC**) that can be reused as **recycled aggregates**
- CBTC are **mainly used as filling materials** in infrastructure projects
- Although more than 70% CBTC in DE, BE, FR, NL and LU are reused, **only 4% are used in real circular economy**



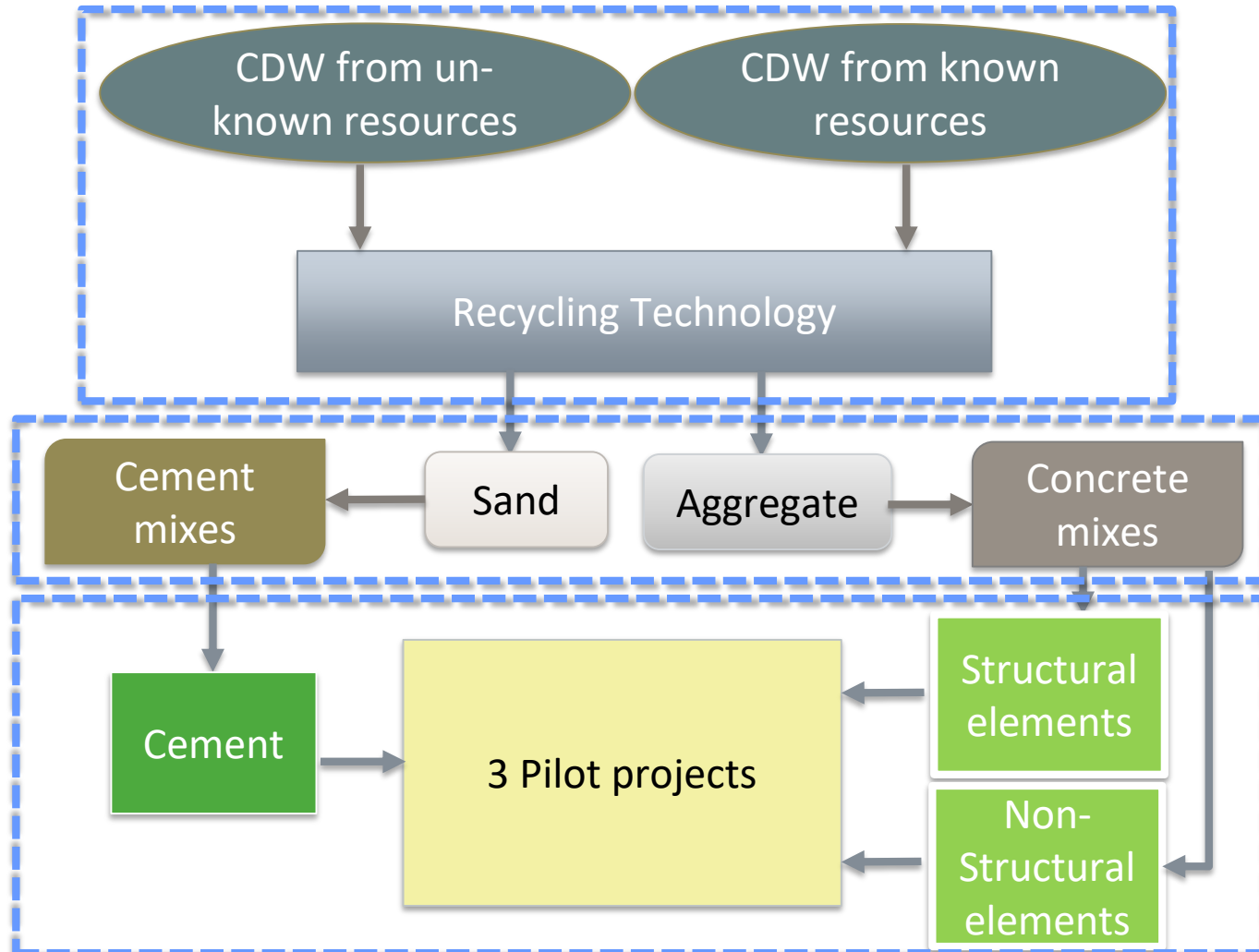
source: http://ec.europa.eu/environment/waste/construction_demolition.htm

2 Project Goals

- **Increase the reuse of construction wastes (mainly CBTC) as secondary raw materials for the production of cement and concrete**
- **Develop new processes for high quality recycling**
- **Develop new mixes for cement and concrete**
- **Production of innovative concrete precast products from recycled materials**
- **Informing the stakeholders about the methods and the products**
- **Implementing 3 pilot projects at the end of the project**



2 Project Goals



TODAY

TODAY IN EUROPE, 70 % TO 95 % OF INERT WASTE FROM DECONSTRUCTION SITES ARE USED AS BACKFILL AND ROAD SUB-LAYERS. A PART IS ALSO VALUED IN THE SUPPLY CHAIN OF READY-MIXED CONCRETE.



TOMORROW CREATION OF A NEW CIRCULAR ECONOMY LOOP

SORTING AT THE SOURCE
CRUSHING AND SCREENING OF INERT WASTE (CONCRETE, BRICKS, CERAMICS...)
• FINES (< 4 MM)
• AGGREGATES



THE OBJECTIVE OF THE SeRaMCo PROJECT IS TO ACHIEVE A 100% REUSE OF INERT WASTE THANKS TO ADDITIONAL RECYCLING OF MATERIALS IN A CLOSED LOOP



SeRaMCo-PROJECT PARTNERS

-  **GERMANY**
TECHNICAL UNIVERSITY OF KAISERSLAUTERN (LEAD PARTNER) AND BETON-BETZ
-  **FRANCE**
VICAT, UNIVERSITY OF LORRAINE AND CEREMA
-  **BELGIUM**
PREFER, TRADOCOWALL, UNIVERSITY OF LIEGE, SCHUTTELAAR & PARTNERS
-  **THE NETHERLANDS**
TECHNICAL UNIVERSITY OF DELFT
-  **LUXEMBOURG**
UNIVERSITY OF LUXEMBOURG

INCLUDING THE AGGREGATES: MANUFACTURING OF PRECAST PRODUCTS

Recycled aggregates replacing natural aggregates incorporated in the manufacture of prefabricated concrete products

INCLUDING THE FINES: PRODUCTION IN THE CEMENT PLANT

Concrete fines incorporated in the manufacturing of cement as a substitute for raw materials from quarries (clay, limestone...)

3 Project Partners

17 Partners from 5 European countries
 (DE, FR, NE, BE, LU):

11 Partners, 3 Sub-Partners,
 3 Associated Partners



Duration

March 2017 - September 2020

New: March 2021

Budget

Total: € 7.28 million

EU funding: € 4.37 million

3 Project Partners



SeRaMCo-Team, Mid-term Conference
University Luxemburg, 28.+29.11.2018

4 Tasks

- **Development and experiments regarding recycling technology and cement mixes**
→ Universities Liège & Lorraine, Industry partners Tradecowall & Vicat
- **Development and experiments regarding concrete mixtures**
→ Universities Luxemburg & Kaiserslautern
- **Design and development of innovative products and implementation in pilot projects**
→ Universities Delft & Kaiserslautern, Industry partners Beton Betz & Prefer
- **Production of 3.000 tons of cement, innovative products and pilot projects**
→ Industry partners Vicat, Beton Betz & Prefer & public sector
- **Communication and Information**
→ Schuttelaar & Partners & University Kaiserslautern

5 Communication objectives

- **Increase the knowledge of target group enterprises (industries) ...**
 - ... treating the recycling materials
 - ... producing cement and concrete mixes
- **Influence the attitude of businesses ...**
 - ... to **create** the necessary **treatment processes** of the recycled material
 - ... to be **open** for **new processes with recycled material**
- **Increase the support of policy-makers towards allowing recycled materials** for concrete and cement products
- **Support the change of enterprises, public authorities and builders** using products from recycled materials (**create the market**)

5 Communication methods

- **Articles** (scientific and non-scientific) **for the supply chain actors**, print and online
- **Information about project results** in regularly appearing **newsletters**, on **Twitter and LinkedIn**
- **Webinars** and **conferences** for sharing project results
- Regular **presentations** at **key conferences**
- **Visible outputs** = **pilot projects** to be “**seen and touched**”
- **Videos**
 - of production sites at Tradecowall and Vicat
 - of pilot projects in Thionville and Pirmasens
- The **project results will be made accessible** on the SeRaMCo project website

6 Pilot Projects



7 Conclusion

- **International co-operation** encourages new **creative ideas**
- **Treatment process** for secondary raw materials on a **high quality level**
- Use of **secondary raw materials for production of cement and concrete** is **very well feasible**
- **Recycled concrete** is very well suitable for **precast products**
- **Barriers** for a wide market penetration are **low priced raw materials** and the **legislative framework of the public sector**
- **Involvement of as many stakeholders as possible**, recycling companies, national and international concrete manufacturers, ministries and education centres in order to **increase the use** of recycled concrete
- **Implementation of the pilot projects** with interesting and innovative products

8 Regiostars Awards Finalist 2020



- **206 applications for five categories and public choice award**
- **SeRaMCo was nominated as one of 25 finalists**





**Thank you for your
attention!**

Any questions?