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LCM of construction waste towards circular economy of buildings: VALDEM project

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- Context
- VALDEM project
- Life Cycle Management

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Context:

- Building and construction sector:
  - more than 1/3 of global resource consumption
  - generation of solid waste: 40% of the total waste volume
  - EU: CDW = largest waste stream (1/3 of all EU waste)

- CDW (Construction & Demolition Waste): mostly not recycled
- Causes:
  - heterogeneity
  - dispersion
  - economic viability

VALDEM project: objectives

VALDEM aims to improve demolition waste treatment to reach a circular economy in North of France and Wallonia (BE):

Identify waste flow and create new recycling sector

- optimize building EoL management: new deconstruction, sorting and recycling processes
- increase recycling
- generate high quality secondary materials (up-cycling)

Validate the approach by using Life Cycle Assessment

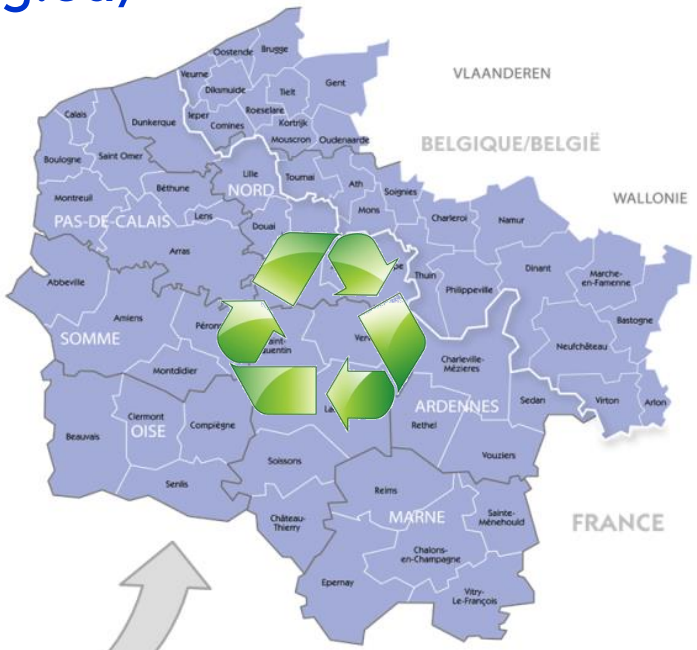
Demonstrate the transferability of the results to industries

Conduct a monitoring of regulations and highlight opportunities

VALDEM project: scope

General information:

http://www.valdem-interreg.eu/



Co-founders:

Région Hauts-de-France

ADEME
Agence de l'Environnement et de la Maîtrise de l'Energie

FEDER
LE FONDS EUROPÉEN DE DÉVELOPPEMENT RÉGIONAL ET LA WALLONIE INVESTISSENT DANS VOTRE AVENIR

Wallonie

www.enmieux.be

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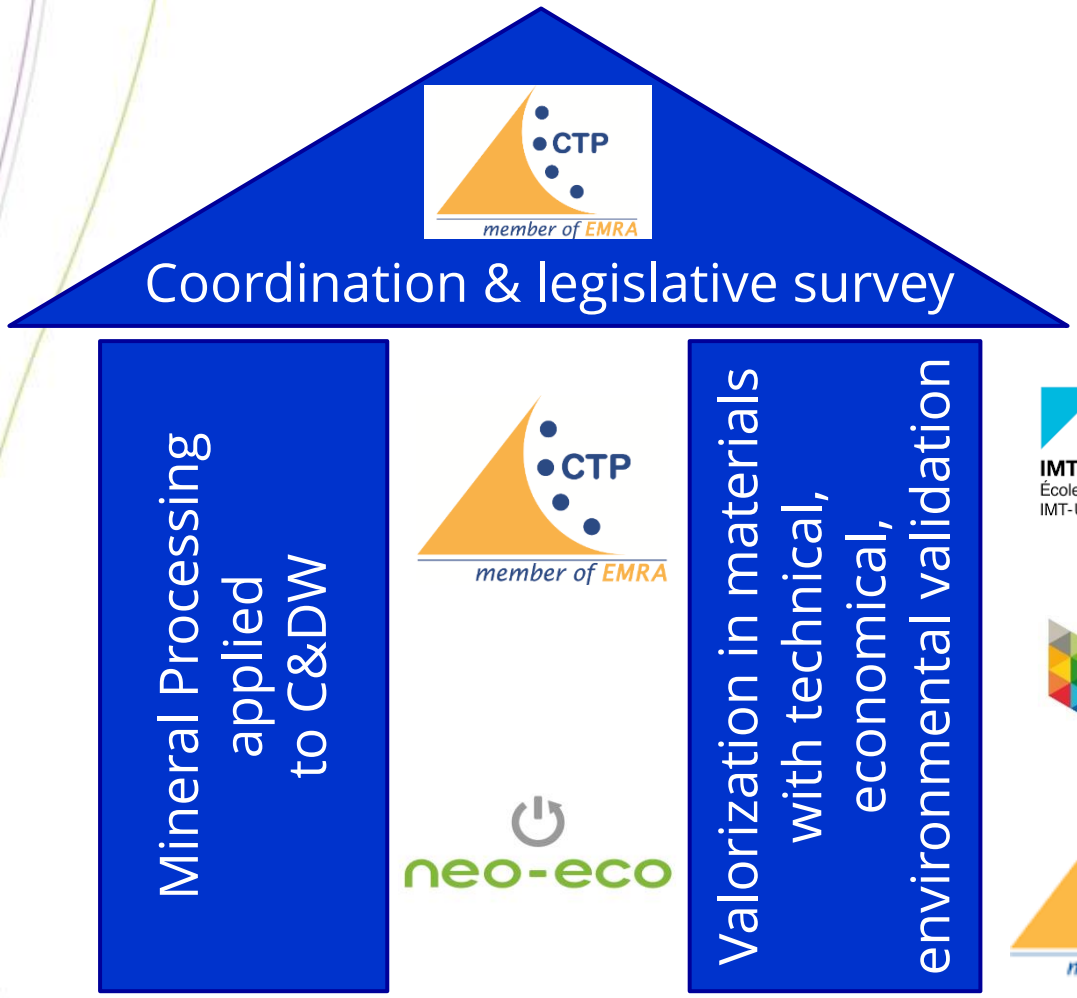

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Coordination

Charlotte COLEMAN:
Gypsum residues in recycled materials: chemistry and effects on microstructural and mechanical properties of cementitious mortars

Mineral Processing applied to C&DW

CTP member of EMRA

on in materials technical, nomical, ental validation

IMT Lille Douai
École Mines-Télécom
IMT-Université de Lille

ARMINES

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Mohamed El Karim BOUARROUDJ:
Étude de la formulation et des propriétés de bétons autocompactants à base de fines de recyclage

Life Cycle Assessment (MT3 – A4)

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Life Cycle Management: general scope

Life Cycle Management: activities

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Upstream

Assess environmental burdens link to collection, sorting and treatment of construction and demolition waste

Challenges

Lack of consistent, specific, detailed and reliable data

Approach

Data collection at different scale (micro with sorting facilities, recyclers … and macro: regional and national statistics …)

Downstream

Assess environmental burdens link to product manufacture from CDW

Lack of a consensual methodology for allocation in recycling

State of the art of current research regarding allocation in recycling (PEF …)

Connecting with related initiatives and projects (Recybeton, Studies from SNED, FEDEREC, KU Leuven …).

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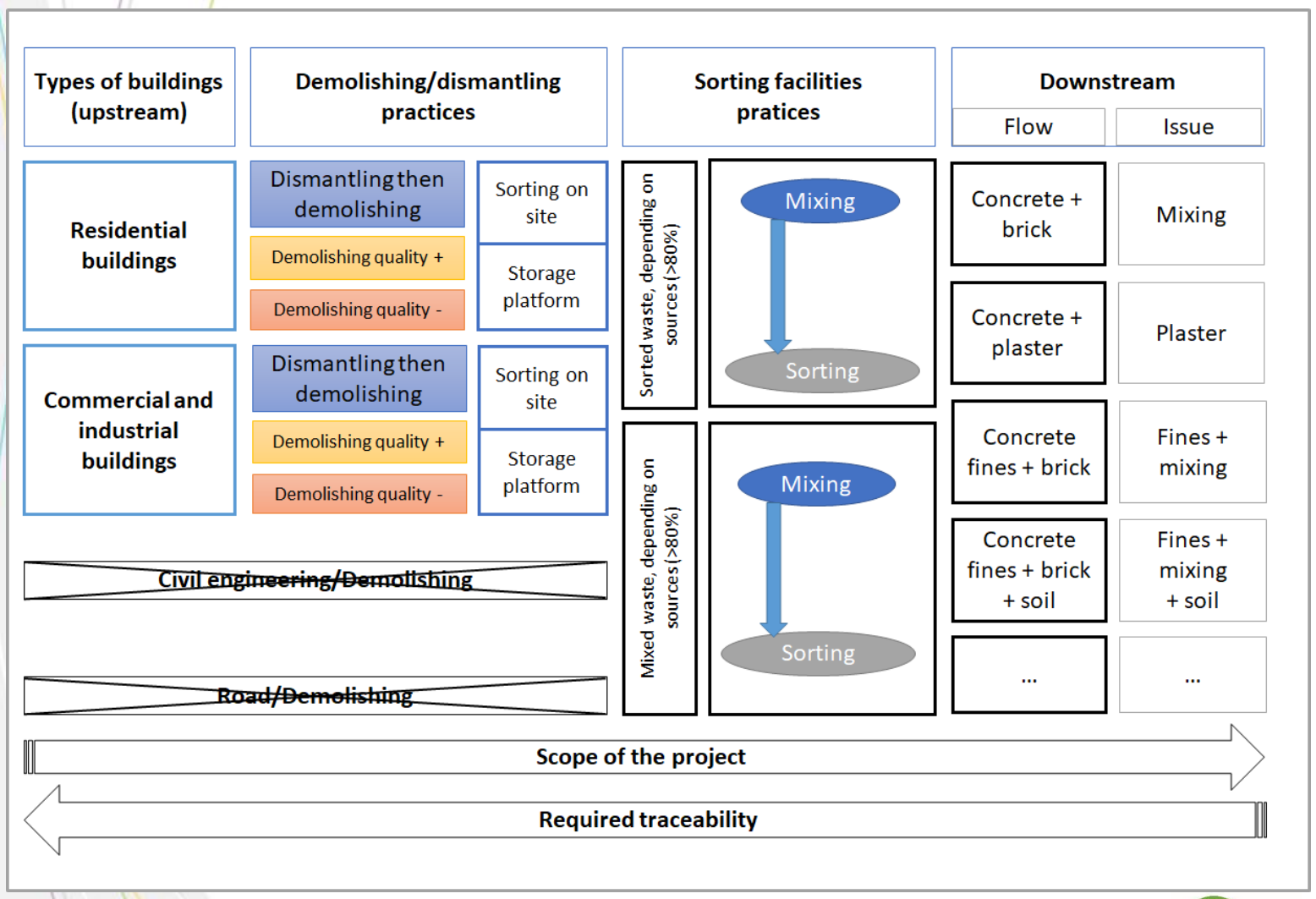
Life Cycle Management: detailed scope



Life Cycle Management: concrete actions

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Identify hot spots and key aspects → meta-analysis

- waste inventory (recycling parks)
- potential waste flows (regional data)

Comparative LCA:

- technical informations from consortium partners
- evaluation of benefits and impacts of proposed solutions
- limit impact transfer to generate the maximum value for the stakeholders

Transfer of results to the main actors (recycling operators, building contractors, product manufacturers,...) in the 3 regions

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Life Cycle Management: outputs

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Bring scientific and concrete elements (based on data from the ground and at macro-level)

on how recycling of CDW can improve environenmental impact of buildings along their life (current and futur)

and move forward to a circular economy in construction sector

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VALDEM's Team

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