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Traceability system and quality management for construction and demolition waste

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Dakofa – 27/08/2019

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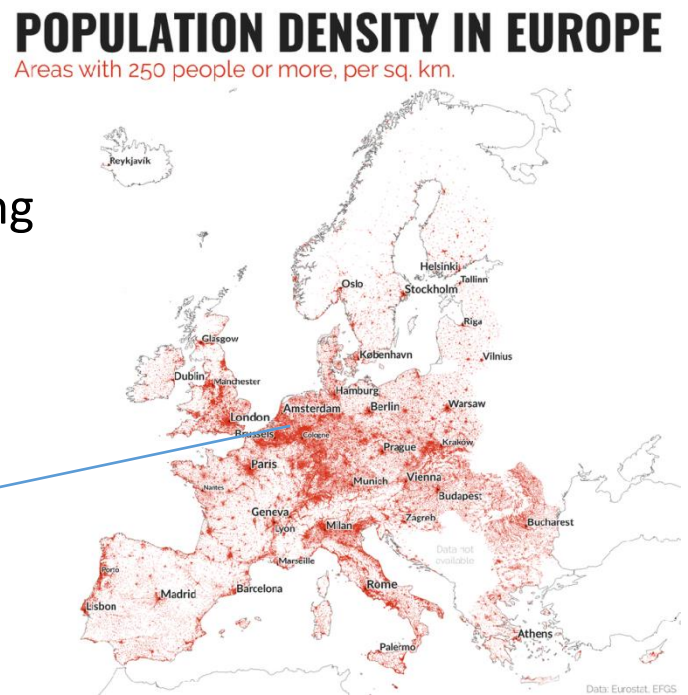
The Flemish model is shaped by local factors

- **Flanders + Brussels**
  - approx. 13,900 km²
  - 7,341,000 inhabitants
  - High population density
  - Scarcity of building plots
  - Lack of primary granulates
  - Limited number of landfill sites remaining
  - High landfill taxes



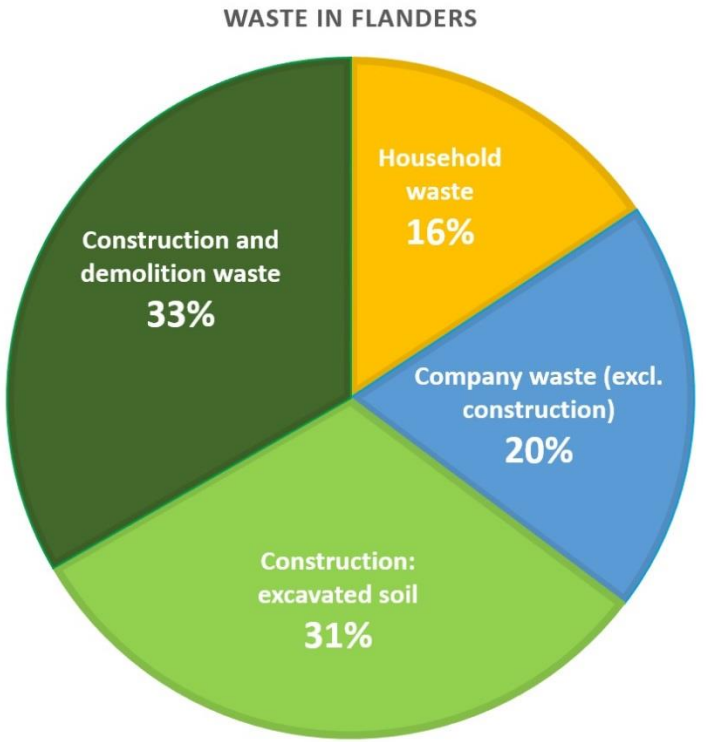
In Flanders: construction as a frontrunner in waste reuse

C&DW

> 16 million tonnes of CDW / year

Mainly stony fraction (which is 90% of all CDW)

95% recycled

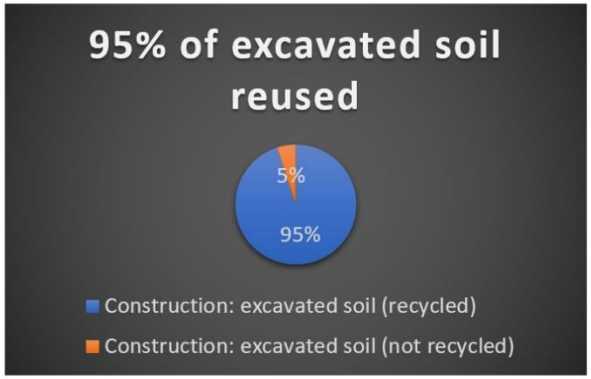


Excavated soil

> 16 million tonnes / year

36% reuse on site

70% reuse off site



Circular economy – quality management

CREATE MARKET ⇄ ESTABLISH CONFIDENCE

GOOD QUALITY OF RECYCLED MATERIAL

↓

End of waste criteria – reuse standards

Traceability

Independent control organisation

Network of recycling facilities

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Regulations for crushers (2011)

- OVAM (Public Waste Agency of Flanders)
  - *Works out and implements policy on soil remediation and waste*
- End of waste criteria for recycled aggregates (Vlarema art. 2.3.2.1 en 2.3.2.2)
- Regulations for crushers
  - *Improve the environmental quality of recycled granulates, there are inspections of external certification organisation.*
- Study 2012
  - *12,8% non conformities (mostly in mixed aggregates)*
    - 12,8% physical contamination (wood, glass, gypsum, …)
    - 6,6% asbestos contamination
    - 3,6% chemical contamination (Cu, B(a)pyrene, PCB, mineral oil)

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ACTION @ SITE OF ORIGIN: Selective demolition

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Regulations for crushers (2016)

Modification of regulations → <u>acceptance policy LMRP vs HMRP</u>

LMRP = low environmental risk profile. Risk of environmental contamination is low (physical, chemical, asbestos). This CDW can be processed in a continues process, the required control samples and rules are more limited (analysis is limited to critical parameters).

HMRP = high environmental risk profile. Risk of environmental contamination is present (physical, chemical, asbestos). This CDW must be processed separately in flows of max 500m³ and all parameters need to be analysed.

Cost for processing HMRP >>> Cost for processing LMRP

Modification of regulations → <u>which streams can be accepted as LMRP?</u>

⇨ C&D waste from selective demolition traced and followed up by an <u>external demolition waste management organization</u>

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Foundation of Tracimat – 1st Flemish C&D waste management organization

- Founded in August 2014
- Recognized by the Flemish Government in August 2017
- Members: Construction Confederation, CASO, FPRG en ORI

Flemish Construction Confederation
Construction, Energy & Environment

ORI

FPRG

Construction Confederation
Belgian Demolition Association - CASO

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Tracimat - certification of selective demolition

Certificate of selective demolition

tells the crusher whether the demolition waste can be accepted as

“low environmental risk profile” (LMRP):

- Waste comes from selective demolition
- Based on a destructive predemolition inventory
- Control of correct removal of hazardous waste
- Following a traceability system

guarantee its origin (source)
guarantee its quality (free of contaminants)

can be processed at a lower cost

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Prior to demolition

- First step = **inventory prior to demolition**
  - inventory of hazardous and non-hazardous waste materials that will be released during demolition
  - information about: type of materials, quantity and location
  - 'surprises' during demolition works ↓↓
- Inventory as a **part of the tender** for demolition works
  - building owner is informed about hazardous waste in the building that is to be demolished → cost of (correct) removal must be taken into account
  - demolition contractor has a basis for price-setting: less speculation, less risk

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Predemolition inventory

- Drafted by an expert (independent of the contractor)
  → Trained and certified by Tracimat
- Specific procedures have to be followed according to the volume of building / infrastructure
- Recommendations for selective demolition
- Code xyz for asbestos containing material
  - X: condition of the material (friable (1), semi-friable(2), loose (3))
  - Y: Removal technique (hermetic zone, glovebag, simple act)
  - Z: Contractor type (licensed, special training, ..)

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Selective demolition:

- Second step = decontamination, deconstruction/dismantling, demolition
- **Follow-up of the removal** of different waste streams – tracing materials
  - follow-up and tracking of removal of hazardous wastes as a priority
  - follow-up and tracking of other non-hazardous (non-stony) fractions
  - follow-up and tracking of stony fraction

  ✓**less hazardous waste materials end up in the environment**

  ✓**more pure stony fraction is left**

  ✓**quality can be assured**

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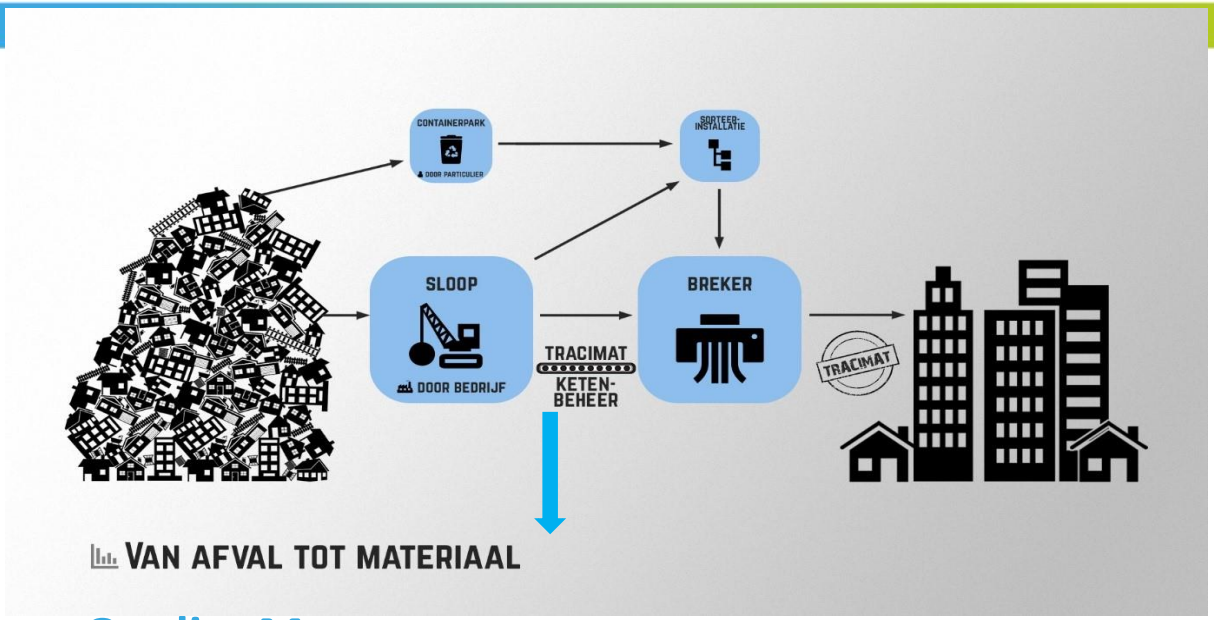
Tracimat – role?



Quality Management

- Quality check of pre-demolition inventory (waste audit)
- Follow up of correct removal of hazardous waste
- Traceability of waste set free during the demolition work

improve quality of recycled materials - enhance trust and establish confidence – promote recycling & upcycling

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Flowdiagram - tracing CDW

expert | *tracimat* | contractor | crusher

PRIOR TO DEMOLITION

Pre-demolition inventory and waste management plan

Attestation of conformitiy

tender / offer

START OF DEMOLITION

notification

Inspection visit & report

demand

Admission to LMRP

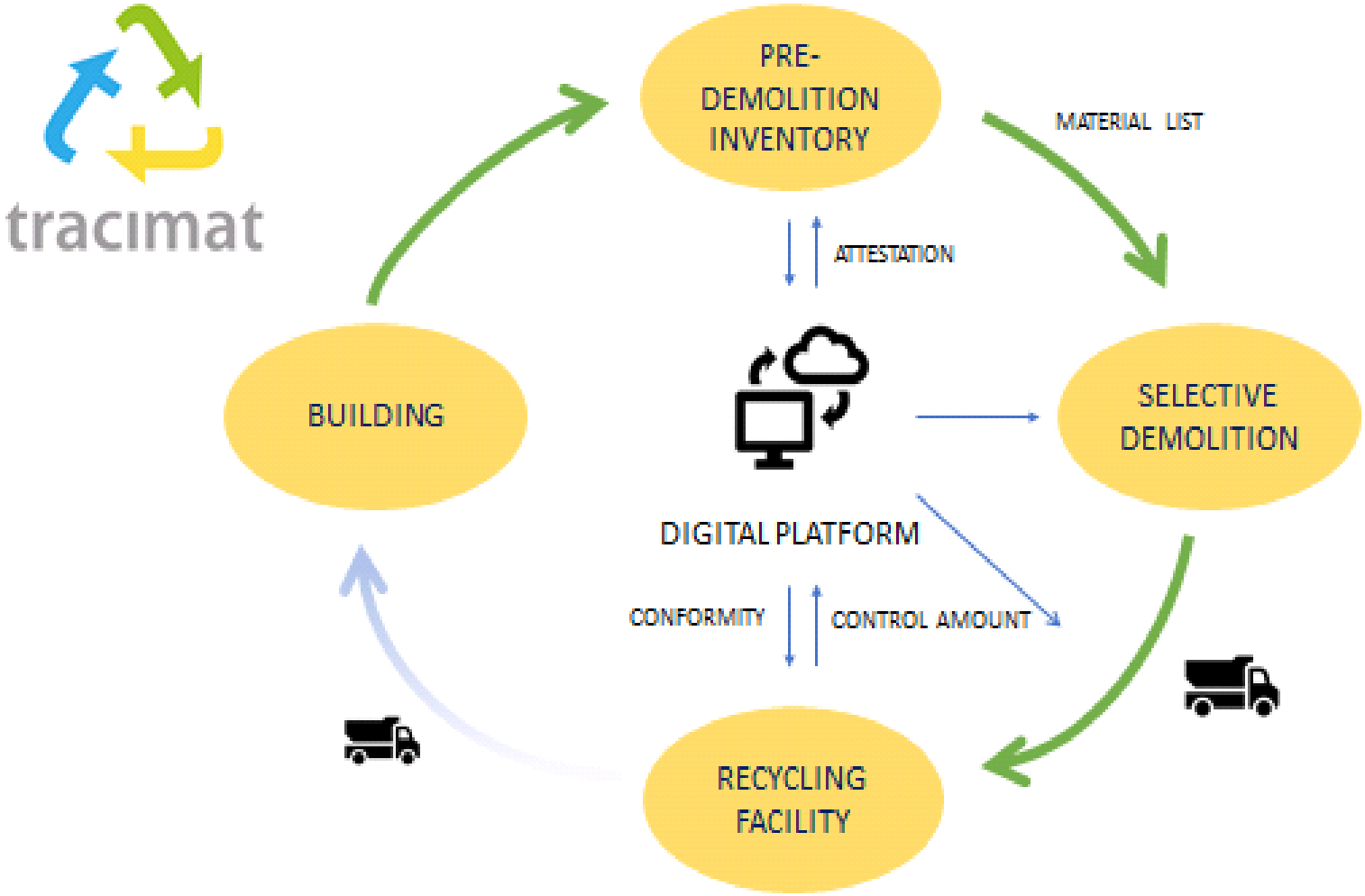
Acceptance LMRP

Confirmation of acceptance

demand

Certificate of selective demolition

Supply chain management – Traceability system



Tracimat - further developments

Cooperation with Recupel : responsible for collection Electronical waste

- Link with our databank
- Provide containers on site and take care of logistics and treatment (free of charge)

Cooperation with recycling companies / production plants

- Deceuninck (PVC)
- Unilin (Wood)
- Gypsum (Gyproc)

Develop hubs

Urban Mining

- Data about materials in our cities, in our buildings -material that will be available at short-term
- Important information to set up recycling plants and enhance recycling
- facilitates the provision of recycled raw materials for other processing industries

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Estimation of the potential of total amount of some non-hazardous fractions

Overview of some non-hazardous materials	Amount in ton
Gipshoudende materialen: gipsblokken 17 08 02	4740
Gipshoudende materialen: gipskarton 17 08 02	8100
Gipshoudende materialen: pleisterwerk 17 08 02	21530
Glas 17 02 02	8180
Hout: onbehandeld hout (A-hout) 17 02 01	10620
Isolatiemateriaal: mineraal 17 06 04	4550
Isolatiemateriaal: overige 17 06 04	1920
Isolatiemateriaal: synthetisch 17 06 04	6360
Kunststoffen: EPDM 17 02 03	190
Kunststoffen: gemengde kunststoffen 17 02 03	8770
Kunststoffen: PE 17 02 03	90
Kunststoffen: PVC 17 02 03	2735

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Thank you

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