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VISUM

DESCRIBING PATHWAYS FOR RECYCLING NON-STONY CONSTRUCTION MATERIALS AND DETERMINING OPPORTUNITIES FOR OPTIMISATION

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Summary for the stakeholders involved **15/06/2024**

VISUM – Describing pathways for recycling non-stony construction materials and determining opportunities for optimisation

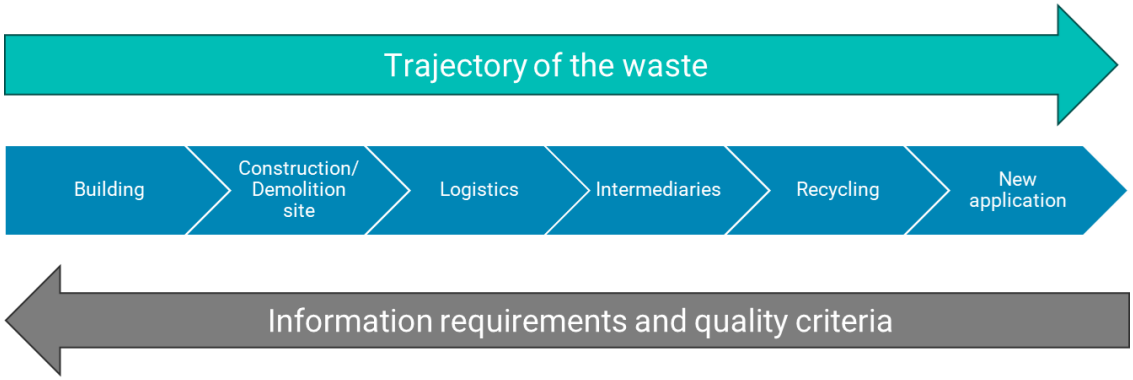
A visa grants a person admission to a country and allows the government to control who enters the country.

The policy of the Public Waste Agency of Flanders (OVAM) is aimed at further closing the loops of the so-called 'non-stony' waste materials in the construction sector: 70% of the waste must be reused or recycled by 2030. To achieve this and take additional steps, an overview was made of the current situation: what recycling options exist today for which types of waste, how can waste from a construction or demolition site end up there and what conditions (acceptance criteria) must be met? What bottlenecks and opportunities exist in the Flemish landscape today, and what recommendations are there today for policy and practical players to take steps forward? Finally, a proposal for communication is also made to achieve more collection and recycling of these non-stony streams.

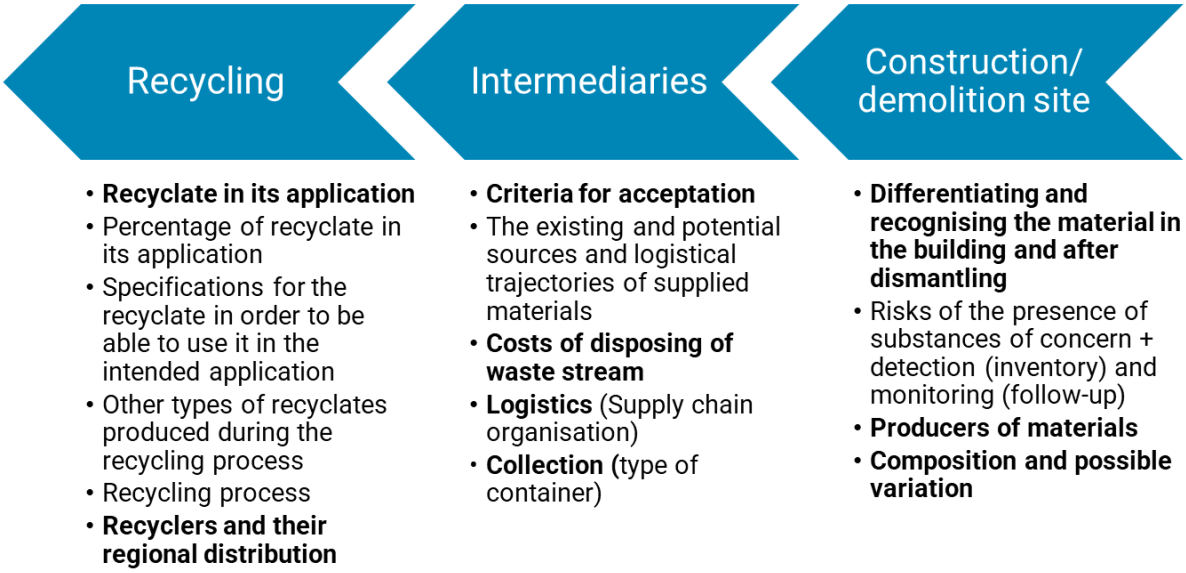
Approach

For each waste stream, information is gathered to help the relevant actors in the chain in getting it to its destination: recognising it in the building, logistics, intermediate storage, recycling, new application, etc.. Buildwise, in collaboration with Tracimat and VITO, has chosen to be able to dynamically offer this data on multiple platforms, as well as to keep it up to date over time. A database was developed. This involved working from a 'broad' to fine perspective: initially, basic information was collected for all waste streams, followed by a more in-depth look at the relevant information for demolishers, processors, etc., for **16 waste types**:

1. Bituminous roofing
2. Aerated autoclaved concrete
3. Plaster and plasterboard
4. Flat glass
5. Wood
6. Rock wool
7. Glass wool
8. EPDM
9. Hard PVC
10. Flexible floor covering
11. Fibre cement
12. Aluminium
13. PU insulation
14. EPS
15. PE/PP
16. Calcium silicate blocks



The following information was collected in a structured manner for these materials, via literature research, contacts in the study and previous experiences and insights:

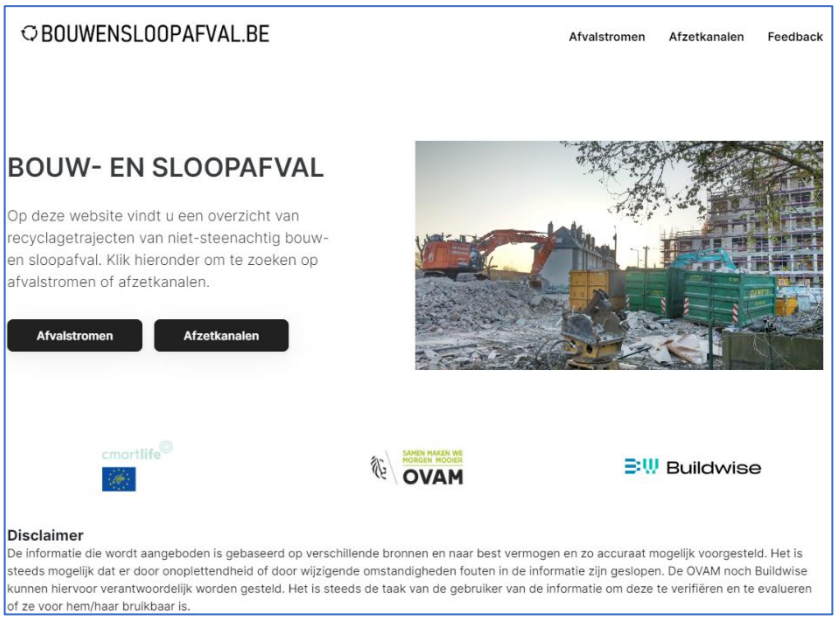


A detailed analysis of bottlenecks, points of attention, opportunities and challenges was then made for **7 waste streams**, in particular 4 plastic flows from construction – Hard PVC, PE/PP, PU insulation & EPS – and 3 fractions that must be separated at source as of 2027 according to VLAREMA 9: bituminous roofing, glass wool & rock wool.

Outcome 1 - an accessible database

The information is made available by Buildwise on www.bouwensloopafval.be. Through this website, clients, contractors, designers, recycling companies etc., can find answers to the question 'Where can my specific waste material be recycled into a new (construction) product?', and what steps can be taken for this, as well as what quality requirements there are to make this possible.

There are different approaches (per material, per recycling solution), and the information is always organised in the same way, where the link is made between presence in the building and waste stream, acceptance criteria for recycler, logistics options to get the waste to its final destination, etc.



Outcome 2 - From bottlenecks to policy recommendations

Individual waste types

A detailed analysis was made for the 7 waste fractions, each addressing 4 components of the trajectory:

- Demolition phase
- Logistics
- Recycling solution
- New application

Bottlenecks are listed for each of these four phases, and a number of recommendations and routes for improvement are given.

A number of common elements emerge from the analysis:

- These waste streams are often relatively small and light: as mono-streams they are too small to be profitably sorted separately at the site, and which also entail high logistics costs.
- There are often already recycling solutions, but they do not yet perform optimally today: they still require a lot of energy or budget in the process, they have limited capacity, there are insufficient applications for the recyclate, etc.
- An important point to consider here is that for the recycling, often a sufficiently pure inflow is needed. This is an important argument for separation and sorting at the source.
- The current opportunities and specific solutions are not known yet in the construction and demolition industry. Today, the customer does not focus on extensive sorting or specific collection of waste streams in demolition specifications.

All these aspects have both a technical/practical side and an economic side. Today, waste and the way it is processed is driven by the (direct) cost attached to it.

Policy instruments to strengthen current recycling channels

Looking back at OVAM's policy and action plans and programmes and at the developments in practice, it can be concluded that a lot has changed and improved in the field of recycling non-stony waste materials over the past 15 years. Policy has been both facilitative *and* agenda-setting in this regard, e.g. in the areas of plasterboard and aerated concrete. The recycling rate today is also a consequence of an (expected) pressure on society and companies regarding environmental impact and circularity, availability and dependence on primary raw materials, ... and an entrepreneurial mindset of companies anticipating, or creating a solution to certain waste problems.

To take further steps, a number of concrete actions are possible:

- Demolition phase
    - Importance of a good inventory beforehand, and the role of the Demolition Waste Management Plan (Sloopopvolgingsplan, SOP) to also identify non-stony materials properly and possibly direct them towards specific solutions.
    - Obligation to separate waste fractions at the source and offer them separately for collection. In this sense, VLAREMA 9 will be able to provide an important boost to some streams.

    - Clarity regarding quality requirements at the recycler can enable information to flow through to the demolition contractor, who can act accordingly with regards to purity and material recognition.
- Logistics and recycling
    - When the cost to dispose of or collect materials separately is too high compared to the standard scenario, direct intervention could be made through e.g. a subsidy or incentives, or by e.g. systematically choosing the best (and slightly more expensive) solution within government projects (showing the example).
    - Transport contributes to the cost. Intermediate storage, an expanded range of specific solutions, reverse logistics, etc., are all possibilities, but are not sufficiently developed today.
    - Additional commitment to research and development in order to have more and better technical and practical recycling solutions in the future (e.g., chemical recycling). The government has already put this on the R&D agenda and may do this even more specifically in the future.
- Application – Expanding the market
    - Recycling can also enjoy a 'pull' effect, by increasing demand for products with recyclates. Regulations such as EU Taxonomy or an 'M-peil' [proposed policy, analogous to the E-peil relating to the Energy Performance of Buildings, where an 'M-level' ('M-peil' or 'Materialenpeil') relates to the Environmental Performance of materials used in a building] could provide a boost.
    - The Flemish government can also indirectly play a supporting role in the further development of the technical framework (standards, certification, specifications) that allows and facilitates more and better recycling in construction products, by supporting active parties, as well as by acting as a major market player itself as a first user of these recycled products.

<u>A systemic view</u>

When we zoom out from the problems of the seven streams under investigation, more global recommendations and approaches can also be listed to improve the current system.

- Learning from other initiatives
    - For wastes such as aerated concrete, plasterboard and plastic packaging waste, solutions were successfully developed over the past decade. It may be interesting to better incorporate the lessons learned from these initiatives and pass them on to new players who want to find solutions for other streams.
- Non-stony waste platform
    - Bringing producers, collectors, processors, etc. of non-stony materials together more regularly can allow more collective solutions and systems to emerge. We see a first example today in the bitumen sector.
    - Secondly, a collective approach from recyclers would also allow them to jointly approach, for example, the logistics sector to ask for more specific solutions for small and light waste streams. Today, mixed containers are indeed a very efficient solution for the contractor.
- Adding money to the system
    - Given that the economic balance seems to be the biggest obstacle to more specific recycling, it is important to address this. This can be done on the one hand by increasing the 'willingness to pay' on the demand side: through a positive image, by focusing on the importance of sustainability, but also through systems such as GRO [a Belgian tool for measuring and increasing the sustainability of construction projects],

Level(s), EU Taxonomy, etc., a willingness to pay can/will arise among contracting authorities, building specifiers, customers, ... to also take care of the waste processing and recycling of material streams in the best possible way.
    - From the other end of the chain, particularly the producers who use recyclate (or want to), a certain willingness is also necessary. This is of course related to the cost price of primary materials, but there is an argument for anticipating today on regulations that are coming and will control the environmental impact of construction products and buildings.
    - If there is no intrinsic willingness to contribute, extended producer responsibility can also be used. This may not be easy to organise in the construction sector, but neither impossible, as recent developments in France show.
- Other driving forces
    - The separate collection and specific recycling of non-stony wastes can also be made easier, e.g., through a good Demolition Waste Management Plan (SOP), prescribing specific recycling channels in specifications, giving sufficient time and incentive to the demolition contractor to prepare their site and find solutions, and even a different perspective on the matter (with more focus on sustainability or circularity). Organising waste management, or solutions for specific streams, could also be taken up by third parties.
- Obligations and guidance from the government.
    - The government can (strongly) guide in this matter, providing a framework. The following routes are worth exploring: defining preferred scenarios and bans on undesirable disposal scenarios, putting efforts into obligations around *recycled content*, although this is primarily a federal matter, and steering on the environmental impact of buildings.
- Efficiency
    - Finally, the sector and the chain itself can also be better organised, and make gains through e.g. digitalisation, both in the preparation of demolition works and in their (administrative) processing.
    - The joint or collective organisation of the return stream of small waste also still contains a number of unexplored paths, such as container parks or hubs for professionals, other ways of collection such as milk rounds or reverse logistics and multimodal solutions.

Communication

Unknown is unloved. Sectors dominated by traditional practices and long-term commitments may not quickly embrace new solutions and strategies. Moreover, 'waste' and demolition is often not the first or greatest concern of a client, architect, contractor, ... and they are not always aware of the (positive) role they can play in it. The study therefore concludes with a number of suggestions to initiate more and better communication around the recycling of specific non-stony waste streams:

- A global image campaign around construction and demolition waste, aimed at the general public: putting up a positive image, and the appeal that we can further strengthen our top position in the world.
- A centralised resource for comprehensive knowledge on construction and demolition waste, recycling, selective demolition, and reuse, accessible to all parties and promoting uniform understanding.
- Offering information tailored to the user, e.g. by targeting the information on recycling roofing bitumen to roof sealers through the channels they use (e.g. the material supplier or manufacturer), but also campaigns aimed at demolishers, or linked to specific material streams such as PVC and mineral insulation.