



European Construction Sector Observatory

Policy fact sheet

Belgium

Sustainable Materials Construction Programme
2014-2020

Thematic objectives 3 & 4

October 2021

In a nutshell

Implementing body	The Public Waste Agency of Flanders – OVAM
Key features & objectives	To establish an economy of closed materials loops in Flanders through socio-technical innovations in the build environment ¹ .
Implementation date	2014 – 2020
Targeted beneficiaries	Construction sector
Targeted sub-sectors	All sub-sectors
Budget (EUR)	Not published
Good practice	★ ★ ★ ★ ★
Transferability	★ ★ ★ ★ ★

The Flemish built environment accounts for about 40% of total energy use in the region and about 30% of energy-related greenhouse gas emissions. It is also a sizeable consumer of natural resources and waste producer². The Flemish construction sector is one of the region's largest and most important industries. Due to the nature of the industry, its environmental impact is also greater than other regional sectors. That impact is caused by, for example, the extraction and transportation of raw materials, the production of building materials, or the energy consumption of building and demolition³.

Constant demographic growth and sociological changes are increasing the demand for housing. In addition, the need for more social and adapted housing, and related infrastructure (e.g. schools) is also expected to rise sharply. According to some estimates, Flanders will need at least more than 300,000 new housing units by 2030⁴. That implies the use of more materials and a greater impact on the environment.

In addition to the housing challenge, Flanders is also tasked with achieving European and Flemish CO₂ reduction targets. A key solution to this challenge is to make residential buildings more energy efficient and the construction sector more resource efficient. Existing residential buildings therefore need to be transformed into low-energy buildings and the construction sector needs to renovate and build low energy buildings using fewer raw materials.

To respond to the housing and climate challenges, the Flemish Public Waste Agency (OVAM) launched the Sustainable Construction Materials Programme 2014-2020 (Materiaal bewust bouwen in kringlopen: Preventieprogramma duurzaam materialenbeheer in de bouwsector 2014-2020).

The purpose of the Sustainable Construction Materials Programme (SCMP) 2014-2020 was to shape the management of sustainable materials, based on the circular concept⁵.

The SCMP aimed to bring government and construction sector stakeholders together to develop a shared vision and long-term solutions to inspire the sector to work with and manage materials more sustainably.

The SCMP is a successful measure that has been recognised internationally as a best practice.

Key outputs include: a framework and standard procedures for demolition management and the traceability of demolition materials; regulatory amendments; a tool to assess the environmental impact of building materials; a conceptual framework and design guidelines for change-oriented (dynamic) construction; and a catalogue of practical solutions and examples.

According to the Public Waste Agency of Flanders (OVAM), the SCMP has enabled the region to achieve a recycling rate of over 96% for construction and demolition waste⁶.

1.

General description

The Sustainable Construction Materials Programme (SCMP) 2014-2020 aimed to provide a framework to inspire and enable the construction sector to work with and manage materials more sustainably, based on the circular construction concept⁷.

The first Flemish Construction and Demolition Waste Action Plan was launched in 1995. Since then, measures have been introduced to help make the management of materials more sustainable. A 50% recycling rate for rubble is an example of an early achievement. Policies and initiatives have also sought to create a more systematic approach to the management of materials by building a collaborative partnership between public authorities and construction sector stakeholders⁸.

The SCMP 2014-2020 superseded the Environmentally Responsible Use of Materials and Waste Management in Construction Action Plan 2007-2013.

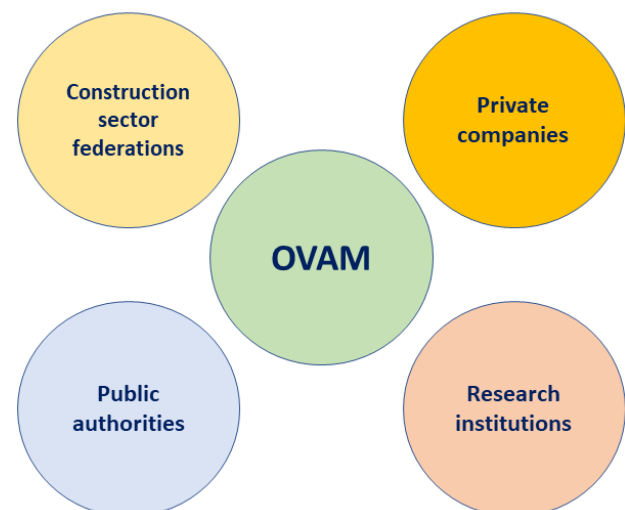
The 2007-2013 programme focused on improving the management of construction and demolition waste. However, the performance of building materials was not sufficiently addressed. To respond to new developments in waste management and demolition, a broader policy approach was necessary. The SCMP 2014-2020 therefore aimed to solve the problem of increasingly scarce raw materials by promoting the reuse and recycling of materials and by encouraging the development to smart products⁹.

The SCMP was intended to provide a starting point for government and construction sector dialogue and collaboration on circular construction concepts and action. It also aimed to define specific initiatives, actions and projects to improve the

management and sustainability of materials in construction.

To be effective, the SCMP required the involvement of a full spectrum of stakeholders, as illustrated in Figure 1. A broad consultation process was held to develop a shared vision and a set of activities¹⁰.

Figure 1: SCMP stakeholders by type



Source: OVAM¹¹

The SCMP focuses on five priority themes related to the management of sustainable materials in the construction/building lifecycle:

1. Selective demolition and disassembly;
2. Closing the stone waste loop;
3. Closing the non-stone waste loop;
4. Environmental performance of building materials;
5. Design for change.

Selective demolition and disassembly. This is an essential requirement for the sustainable management of materials, enabling better waste management and higher amounts of recycled materials.

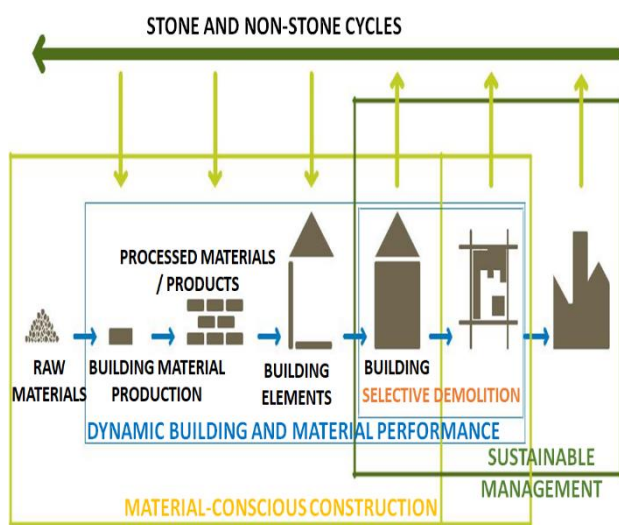
Closing the stone and non-stone waste loops. These themes focused on optimising the cycle for each material flow, with the aim of closing those cycles as completely as possible.

Environmental performance of building materials. The main objective of this theme was to create a tool for architects, developers and manufacturers to enable them to choose the most appropriate materials to use, based on an assessment of their environmental impact throughout the construction/building lifecycle.

Design for change¹². This concept requires new building products that are designed to be disassembled and reassembled. That requires the commitment of architects and planners, developers and material producers. This theme therefore focused on bringing those stakeholders together to collaboratively decide the way forward.

Figure 2 illustrates the sustainable construction materials approach adopted by the SCMP and based on its five priority themes.

Figure 2: Material conscious building approach



Source: OVAM¹³

Table 1 lists the action lines defined by the SCMP for each priority theme.

Table 1. SCMP action lines by priority theme

Selective demolition and disassembly	
1	Further develop selective demolition in the Flemish policy framework;

2	Make selective demolition the standard;
3	Eliminate hazardous materials and contaminants from the chain;
4	Raise awareness about building materials;

Closing the stone waste loop

1	Produce high-quality recycled granulated materials with the right environmental hygiene and construction/technical properties;
2	Increase market confidence in recycled aggregates;
3	Develop optimal applications for recycled aggregates;
4	Encourage the sale of specific types of recycled granulated materials;

Closing the non-stone waste loop

1	Optimise or close the loop for important materials during the demolition of buildings;
2	Process and maximise the use of recycled materials from non-stony construction and demolition waste;
3	Design materials differently to encourage circular coordination within the chain;

Environmental performance of building materials

1	Develop and integrate an M-level (provisions for materials) into existing sustainability instruments;
2	Further refine the existing methodology and embed it internationally;
3	Develop and promote workable tools;

Design for change

1	Re-think the policy framework;
2	Technological and organisational system innovation;
3	Deploy dynamic buildings;
4	Redevelop black and brownfields.

Source: OVAM¹⁴

2.

Achieved or expected results

The SCMP 2014-2020 has achieved considerable success. A wide range of activities have been implemented with broad stakeholder involvement.

SCMP activities have aimed to develop long-term solutions for the management of sustainable materials in the construction sector, in line with five priority themes: selective demolition; the reuse and recycling of both stone and non-stone materials; the environmental performance of building materials; and change-oriented (re)construction.

The SCMP received the Circular Award¹⁵ from the World Economic Forum in 2016 and, according to the Public Waste Agency of Flanders (OVAM), the 2014 – 2020 programme has helped the region to achieve a construction and demolition waste recycling rate of over 96%¹⁶.

Every two years since the launch of the SCMP in 2014, the Public Waste Agency of Flanders (OVAM) has published an action plan for the following two-year period. These plans also assess the progress made in the previous two-year period.

Theme 1: Selective demolition¹⁷

A comprehensive demolition management framework and system has been developed.

Led by the Flemish Construction Confederation and OVAM, framework development activities included the development of: standard procedures for the traceability of demolition materials by a demolition management organization; demolition management standard procedures; and a code of good practice. The new procedures were approved by Ministerial Decree and they were integrated into

the Flemish regulation on the sustainable management of material cycles and waste (VLAREMA¹⁸).

Today, Flanders has a solid framework to monitor the various material flows from the site through to processing. However, further effort is needed to put everything into practice and to develop markets to reuse and recycle more materials and do it better.

For activities that are subject to a permit, a demolition follow-up plan is now a requirement (since 5 June 2018) for several types of buildings and for infrastructure works. The announced introduction of an obligation to follow-up on demolition at large sites will help to further improve the practice and quality of waste streams. However, it will be a challenge to achieve the same level on small sites, especially for partial demolition activities during renovation works.

Theme 2: Stone materials¹⁹

Adaptations have been made to the regulatory framework for the treatment of stone materials, based on their environmental risk profile.

A study was also conducted to assess the use of recycled aggregates in high-value applications and find ways to encourage that use. The list of raw materials that are suitable for use as building material was updated in the Vlarema regulation.

A quality assurance system to help guarantee and improve the environmental hygiene quality of secondary granulated materials was developed.

Environmental hygiene is also now a condition in raw material declarations, which is intended to allay concerns about the second and third life of materials in cycles.

In recent years, the management of the stony rubble has continued to build on the momentum generated by previous implementation plans for the

construction sector. Partners have come together and worked out solutions. However, the use of recycled granulated materials in a high-quality manner remains a challenge. Partners need to work together to find solutions that are economically feasible, and governments and certification bodies need to work together to assess whether and how the standards framework can assist those solutions.

Theme 3: Non-stone materials²⁰

Despite the great willingness of the partners to cooperate, they were unable to develop a workable collaborative approach for the reuse and recycling of non-stone materials, due to the variety of non-stone material flows.

There were no economically feasible models or data transparency for collection, processing and marketing. This remains a major stumbling block. The partners will therefore need to continue to look for solutions.

Theme 4: Environmental performance of building materials²¹

Major steps have been taken to determine the performance of building materials.

The launch of the Tool to Optimise the Total Environmental impact of Materials (TOTEM) in 2018 was a milestone. It is designed to be used by architects.

Since 2018, the underlying environmental performance of building materials (Milieugerelateerde Materiaalprestatie van

Gebouwelementen – MMG) methodology has been further developed and the tool has been linked with the federal Environmental Performance Declaration (EPD) database.

The progress made is the result of effective cooperation between the three regions of Flanders. Success is also reflected in a growing number of users of the tool.

TOTEM and the underlying methodology will remain in continuous evolution, to keep pace with developments in, for example, circular construction and energy policy. To fully anchor TOTEM in the Flemish (Belgian) construction sector, there remains a need to develop a more formal policy framework that establishes parameters for the measurement of a building's environmental impact.

Theme 5: Design for change²²

A conceptual framework and design guidelines for change-oriented (dynamic) construction has been developed, and a catalogue of practical solutions and examples has been published.

The transition to a circular economy accelerated the awareness process for this theme within the construction sector. The theme was given more scope with the Green Deal for Circular Building in 2019 and the targeted call for Circular Building Economy in 2020. However, there is still a long way to go to realize the transition to fully circular and change-oriented building.

3.

Perspectives and lessons learned

The Flemish construction industry is the largest consumer of materials in the region. The management of sustainable materials in this sector is needed and will make a big difference.

Flanders has made considerable advances in recent years. Today, it recycles more than 96% of its construction and demolition waste. According to OVAM, “that is the result of ambitious waste and materials policy that we have been working on since 1995 together with the sector”²³.

Thanks to the 2014 – 2020 programme, Flanders has achieved the European target of preparing 70% (based on mass) of its non-hazardous construction and demolition waste for reuse, recycling, or other useful applications. However, in practice, relatively few building products are able to be reused effectively, and most recycled waste ends up in low value applications. For example, most of Flemish demolition waste consists of stone materials (about 80%) and is largely used as material for road and building foundations.

The management of sustainable materials in construction will become the new standard.

The direction of travel for the construction sector and the built environment is towards the creation of sustainable buildings and infrastructure that require less materials and energy, and that prioritise the re-use of materials.

According to OVAM, “if we want to ensure that our buildings create added value for current and future generations, we must take actions today that build further on past efforts”²⁴.

The building process is a value chain that connects a wide range of elements and stakeholders. To achieve the ambitious goal of sustainability, collaboration is needed at all stages of the construction value chain, with the participation and

commitment of the broadest possible coalition of stakeholders.

Increasing the reuse and recycling of construction materials is a win-win solution.

According to the Secretary General of the Department of Economy, Science and Innovation of Flanders, the “Sustainable (re)use of materials will be one of the pillars in greening the economy, one of the core elements of a sustainable economy in Flanders”²⁵.

The move towards more circular construction will provide numerous benefits for stakeholders and society. For example, the greater re-use of construction materials will not just deliver resource efficiencies and environmental benefits, it will also lead to cost benefits, added value solutions and new business opportunities.

The reuse and recycling of non-stone materials is an important challenge that needs a solution.

SCMP partners were not able to define a circular solution for non-stone materials, in spite of their enthusiasm. The wide array of non-stone material flows made it difficult to identify a feasible solution.

An efficient regulatory framework to support the transition to a circular economy is essential.

The transition to the circular economy requires more than technological innovations and pilot demonstration projects. Standards and regulations are also vital components, as they provide the framework that enables solutions to work effectively and consistently. Advances have been made by the SCMP and its partners in this direction, yet more remains to be done. The need to develop a more formal policy framework to establish parameters for the measurement of a building’s environmental impact is just one example.

4.

Conclusion and recommendations

The SCMP is a successful measure. It has brought together a broad coalition of construction sector stakeholders to develop long-term solutions for the management of sustainable materials in the construction sector.

The SCMP won the Circular Award²⁶ from the World Economic Forum in 2016 and the Public Waste Agency of Flanders (OVAM) has reported that the programme has enabled the region to recycle over 96% of construction and demolition waste²⁷.

Key results achieved include:

- A comprehensive demolition management framework and system that includes standard procedures for management and the traceability of demolition materials;
- Regulatory amendments that include the introduction of environmental risk profiling for stone materials and the introduction of environmental hygiene as a condition in raw material declarations;
- The launch of the Tool to Optimise the Total Environmental impact of Materials (TOTEM), which is based on an underlying methodology and is linked to the federal Environmental Performance Declaration (EPD) database;
- A conceptual framework and design guidelines for change-oriented (dynamic) construction and a catalogue of practical solutions and examples.

Looking forward, two main recommendations are suggested to help the Flemish construction sector to achieve its circular economy ambitions:

- Collaborative partnerships should continue to look for and work on potential solutions to

enable the reuse and recycling of non-stone materials;

- The new “Towards Circular Construction 2021” policy measure should continue and build on the broad, inclusive and collaborative approach to stakeholder involvement and solution development adopted by the SCMP 2014-2020.

Overall, the SCMP is rated a ‘5-star good practice measure’ on a scale of 1 (low) to 5 (high).

This score is based on the quality of the overall approach adopted by the SCMP, its focus on broad stakeholder involvement, its collaborative approach to solution development, and the development of strategic results, including frameworks, tools and regulatory support. The SCMP has helped to ensure that over 96% of construction and demolition waste is now recycled. It has also won the Circular award from the World Economic Forum, which recognised the programme as a best practice example.

The SCMP is rated a ‘5-star transferable measure’ on a scale of 1 (low) to 5 (high).

This score is based on a similar rationale to that given for good practice. The demand for circular solutions in the construction sector is growing and will only continue. The SCMP is an important early example of a large-scale initiative to develop a holistic approach and solution to the management of sustainable construction materials. It has also been recognised as an international best practice. At the very least, it will serve as a reference for other countries, all of whom will require solutions to overcome similar challenges.

Endnotes

- 1 W. Galle, W. Debacker, Y. De Weerd, The Flemish living lab on circular construction, from transition thinking to policy design, June 2019:
https://www.researchgate.net/publication/340620485_The_Flemish_living_lab_on_circular_construction_from_transition_thinking_to_policy_design
- 2 UNEP, Sustainable buildings:
<https://www.unep.org/explore-topics/resource-efficiency/what-we-do/cities/sustainable-buildings>
- 3 OVAM, Materiaalbewust bouwen in kringlopen. Preventieprogramma duurzaam materialenbeheer in de bouwsector 2014 – 2020:
<https://www.ovam.be/afval-materialen/specifieke-afvalstromen-materiaalkringlopen/materiaalbewust-bouwen-in-kringlopen>
- 4 Ibid
- 5 OVAM, Materiaalbewust bouwen in kringlopen:
<https://ovam.be/materiaalbewust-bouwen-kringlopen>
- 6 OVAM, The Flanders' Materials Programme:
<https://eco.nomia.pt/contents/ficheirosinternos/vmp-eng-brochure-150ppi.pdf>
- 7 OVAM, Materiaalbewust bouwen in kringlopen. Preventieprogramma duurzaam materialenbeheer in de bouwsector 2014 – 2020:
<https://www.ovam.be/afval-materialen/specifieke-afvalstromen-materiaalkringlopen/materiaalbewust-bouwen-in-kringlopen>
- 8 Ibid
- 9 Ibid
- 10 W. Galle, W. Debacker, Y. De Weerd, The Flemish living lab on circular construction, from transition thinking to policy design, June 2019:
https://www.researchgate.net/publication/340620485_The_Flemish_living_lab_on_circular_construction_from_transition_thinking_to_policy_design
- 11 OVAM, Vlanderen Circulair, Urban Mining van gebouwen:
<https://www.meulebeke.be/file/download/2a48db8b-9de7-4b8f-ae6a-2f37d449b8d1/B115C3DF7C811D870A13ECF7352B90E9>
- 12 OVAM, 2015, Design for change: Development of a policy and transitional framework:
<https://www.ovam.be/sites/default/files/atoms/files/TWOL-Design-for-change.pdf>
- 13 OVAM, Materiaalbewust bouwen in kringlopen. Preventieprogramma duurzaam materialenbeheer in de bouwsector 2014 – 2020:
<https://www.ovam.be/afval-materialen/specifieke-afvalstromen-materiaalkringlopen/materiaalbewust-bouwen-in-kringlopen>
- 14 Ibid
- 15 OVAM, The Public Waste Agency of Flanders and the Flanders' Materials Programme Win the Circular Economy Award at the World Economic Forum Annual Meeting in Davos, 2016:
https://www.ovam.be/sites/default/files/atoms/files/PressRelease_TheCirculars_FlandersMaterialsProgramma_20012016.pdf
- 16 OVAM, The Flanders' Materials Programme:
<https://eco.nomia.pt/contents/ficheirosinternos/vmp-eng-brochure-150ppi.pdf>
- 17 Actieprogramma materiaalbewust bouwen voor 2017-2018:
<https://www.ovam.be/sites/default/files/atoms/files/Actieprogramma%202017%20tot%202018%20beleidsprogramma%20bouw.pdf? x tr sl=auto& x tr tl=en& x tr hl=en-GB& x tr pto=nui>
Actieprogramma materiaalbewust bouwen voor 2016-2018:
<https://www.ovam.be/sites/default/files/atoms/files/Actieprogramma%20materiaalbewust%20bouwen%20voor%202019-2020.pdf? x tr sl=auto& x tr tl=en& x tr hl=en-GB& x tr pto=nui>
Op Weg Naar Circulair Bouwen, Beleidsplan 2021:
https://www.ovam.be/sites/default/files/atoms/files/2021-Circulair%20bouwen-beleidsplan_vFIN.pdf
- 18 Vlaams Reglement voor het duurzaam beheer van materiaalkringlopen en afvalstoffen:
<https://www.ovam.be/vlaamse-wetgeving-0>
- 19 Actieprogramma materiaalbewust bouwen voor 2017-2018:
<https://www.ovam.be/sites/default/files/atoms/files/Actieprogramma%202017%20tot%202018%20beleidsprogramma%20bouw.pdf? x tr sl=auto& x tr tl=en& x tr hl=en-GB& x tr pto=nui>
Actieprogramma materiaalbewust bouwen voor 2016-2018:

https://www.ovam.be/sites/default/files/atoms/files/Actieprogramma%20materiaalbewust%20bouwen%20voor%202019-2020.pdf? x_tr_sl=auto& x_tr_tl=en& x_tr_hl=en-GB& x_tr_pto=nui

Op Weg Naar Circulair Bouwen, Beleidsplan 2021:

https://www.ovam.be/sites/default/files/atoms/files/2021-Circulair%20bouwen-beleidsplan_vFIN.pdf

20 Ibid

21 Ibid

22 Ibid

23 OVAM, Materiaalbewust bouwen in kringlopen. Preventieprogramma duurzaam materialenbeheer in de bouwsector 2014 – 2020:

<https://www.ovam.be/afval-materialen/specifieke-afvalstromen-materiaalkringlopen/materiaalbewust-bouwen-in-kringlopen>

24 Ibid

25 OVAM, The Flanders' Materials Programme:

<https://eco.nomia.pt/contents/ficheirosinternos/vmp-eng-brochure-150ppi.pdf>

26 OVAM, The Public Waste Agency of Flanders and the Flanders' Materials Programme Win the Circular Economy Award at the World Economic Forum Annual Meeting in Davos, 2016:

https://www.ovam.be/sites/default/files/atoms/files/PressRelease_TheCirculars_FlandersMaterialsProgramma_20012016.pdf

27 OVAM, The Flanders' Materials Programme:

<https://eco.nomia.pt/contents/ficheirosinternos/vmp-eng-brochure-150ppi.pdf>