WE MAKE TOMORROW BEAUTIFUL

OVAM

TOWARDS CIRCULAR CONSTRUCTION

Policy programme 2022 - 2030

CONTENTS

01 | REMIT

This chapter explains why this policy programme was developed and the context at which we find ourselves in at the local, national and European levels. These contexts mainly include third-party efforts and initiatives that directly or indirectly respond to our operation. Please refer to the glossary for the clarification of some terms.

1.1 A NEW POLICY PROGRAMME FOR THE TRANSITION TO A CIRCULAR CONSTRUCTION ECONOMY

The new policy programme '*Towards Circular Construction*' replaces the previous policy programme '*Material-Conscious Construction in Cycles*'.

This new policy programme runs until 2030 and is in line with Flanders' broader goals for the transition to a circular economy by 2050. The new policy vision serves as a guiding framework for the transition in the construction industry with focus on the development of circular construction.
The new policy programme aims to address and to control the environmental impact and material use of the construction industry in the coming years. It also includes connected themes, focus areas and concrete ambitions of the Policy Paper on Environment and Spatial Development 2019-2024.

The content is intended as guidance, with targets and milestones, to serve as the basis **for agreements between the government and construction actors** for cooperation within the transition to circular construction.

The new programme gives the Public Waste Agency of Flanders (OVAM) and construction stakeholders the legitimacy to invest in future research and projects that underpin the policy vision. In addition, the policy programme calls on the construction industry to work together around supported themes so as to pave the way for a circular construction economy.

1.2 DEMARCATION OF THE SCOPE

The transition of the construction industry to the circular economy takes centre stage in the policy programme. The main focus lies on the circular management of materials contained in existing built structures, and on circular choices in the design and (re)construction of new built structures or those to be renovated.

The efforts and organisation of the cooperation under the policy programme fall within OVAM's decree powers. OVAM seeks maximum alignment with other policy plans for specific material streams and integrates construction-related streams into the policy programme.

Certain challenges sometimes require a broader outlook on other (policy) areas, especially when it comes to putting certain issues or solutions on the agenda. This can be done within the policy programme, with respect for the applicable competences.

The implementation of actions towards a more circular construction economy will also take concrete shape from 2022 onwards within the Circular Construction Work Agenda of the Circular Flanders partnership (see below).

1.3 CONTEXT

1.3.1 TIMES AND PRINCIPLES ARE CHANGING

The policy programme 'Material-Conscious Construction in Cycles 2014-2020' focused on developing sustainable materials management. This materials management fitted in with the transition to the so-called 'circular economy'. It focused on the recycling of materials in the construction cycle. For the first time attention was given to the environmental impact throughout a structure's life cycle and the search for opportunities to design and build adaptable structures over time. The key drivers were the need for efficient raw material use and interventions to address climate change. Then, as now, energy renovations presented both an opportunity for and a threat to sustainable materials management.

Today's focus has shifted to the development of the circular (construction) economy. By 2050, our economy should be carbon neutral, with minimal raw material use and material impact. Flanders therefore faces the major challenge of drastically reducing its carbon footprint. This can be achieved within a circular economy.

Construction is a key activity in our society. However, it has great environmental impact and requires huge amounts of raw materials and resources. The construction industry, being a local activity, therefore plays an important role in addressing these major challenges.

For this reason, a substantial contribution must already be made with our partners from the construction industry to significantly reduce greenhouse gas emissions by 2030 (as a key intermediate milestone). On the one hand, the decommissioning and construction phases must display a thoughtful use of materials. On the other hand, energy consumption must be drastically cut during the use phase. The carbon footprint can be reduced by taking the changing needs of future users and the impact of the materials chosen into account during the design phase already.

1.3.2 BACKGROUND AND TRENDS

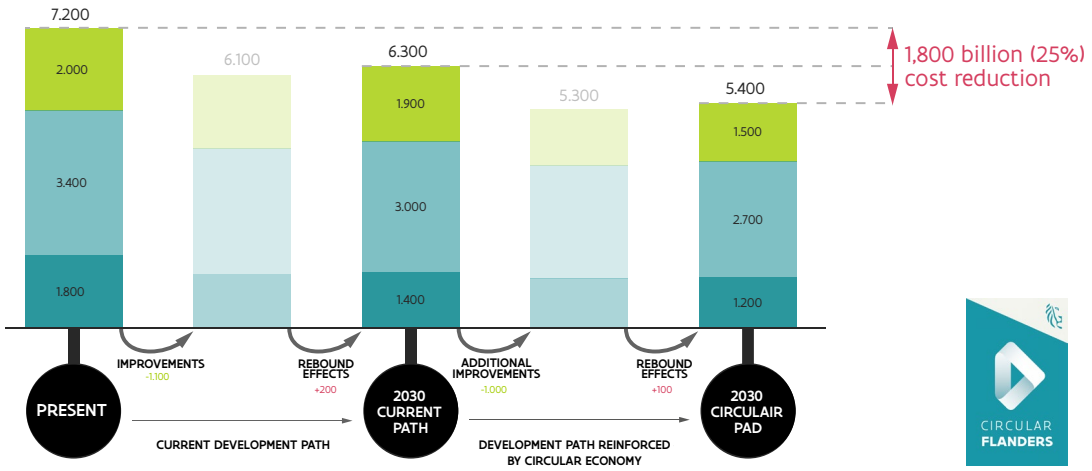
Flanders' population is estimated to increase by one million by 2050 compared to today. Owing to these demographic changes and their sociological impact, the demand for buildings and adapted infrastructure will continue to rise. According to calculations, Flanders will need more than 300,000 new housing units by 2030. There is a need for a differentiated and quality housing offer that is affordable, attractive and accessible, including for more vulnerable citizens. This development is closely linked to the need to manage and counter the fragmentation of (open) space.

The development of circular construction is therefore in line with the tenets and objectives of the Spatial Policy Plan Flanders.

01 | REMIT

The transition to a circular economy could drastically reduce costs for mobility, food and the built environment by 2030.

ANNUAL COST OF PRIMARY RAW MATERIAL PRODUCTION AND USE, EU-27, in billion euros



Source: McKinsey & Company, Europe's circular-economy opportunity, September 2015

Figure 1: macro-economic savings in the event of a circular economy

This transition is an integral part of the challenges related to core qualities. Therefore, we will align the programme with the policy frameworks that are being prepared in implementation of the tenets of this paper.

Our buildings must be affordable. This means that creative solutions should be found to minimise costs for users, society, the planet and future generations in the short, medium and long term.

Large quantities of raw materials will be needed to produce the materials for all these (re)construction projects. The economic recovery following the COVID-19 pandemic will increase demand for buildings and infrastructure. Circular construction is to ensure that this development of the construction industry happens without putting additional pressure on the environment and

In order to prevent further global warming, the energy consumption of our buildings as well as the use of energy in the construction process, starting from extraction up to and including execution at the building site, must be drastically reduced. The challenge for the construction industry is to renovate existing housing units into low-energy houses.

This is in line with Flanders' commitments to contribute to the EU's CO2 reduction targets through the Flemish Climate Policy Plan. In the context of these challenges more attention should be paid to the energy embodied in and the environmental impact of materials of built structures throughout the life cycle in order to actually be able to achieve the 2030 and 2050 targets.

1.3.3 POLICY ENVIRONMENT

1.3.3.1 Europe

A number of ongoing EU policy processes have an impact on policy in Flanders. Conversely, the policy processes outlined by Flanders in the context of the policy programme are also meant to impact on the lines set out in the EU.

Europe wants to broaden and extend its policy on energy efficiency and renewable energy to raw materials efficiency.
The **Roadmap to a Resource Efficient Europe** proposes ways to increase raw material productivity and decouple economic growth from raw material use and its environmental impact by 2050. Because construction is a key industry in this context, several European initiatives have an impact on the content and possibilities of our cooperation around circular construction in the coming years.

The **European Green Deal** provides an action plan to boost the efficient use of resources by moving to a clean, circular economy.
All economic sectors must contribute to this. This can be achieved, among other things, by investing in environmentally friendly technology, increasing the energy efficiency of buildings or working together to improve environmental standards.

In the **Renovation Wave** the renovation rate must at least double by 2030 and deep energy renovations
must be fostered. These renovations should improve the energy performance of buildings,
deliver energy and cost savings and reduce greenhouse gas emissions to the largest possible extent.

The **Circular Economy Action Plan (CEAP)** aims for a cleaner and more competitive Europe, with 'construction and buildings' being one of the key product value chains. The action plan aims to achieve a 'sustainable product policy'. The initiative envisages a digital product or materials passport from 2023 to support sustainable production and
enable the circular economy transition.
It sets minimum requirements for sustainability labels/logos and for information tools in key sectors such as construction.

The action plan '**Critical Raw Materials Resilience: Charting a Path towards greater Security and Sustainability**' includes a list of critical and scarce materials used as resources in construction products. Due diligence for these materials is essential. It should be tried to recover these materials to the largest possible extent and commit to alternatives.

The **Construction Products Regulation (CPR)** is a European regulation that regulates several matters such as market access, technical requirements for the performance of construction products (e.g. safety and environmental aspects) and the provision of relevant information. The CPR promotes open markets for construction materials within the EU. The sustainability aspect is included in the harmonisation of the CE marking criteria. The review of the CPR shows that it does not currently meet all the diverse needs and expectations of the Member States. The planned revision of this Regulation offers opportunities to include circularity requirements in the criteria and to clarify and improve the framework for reuse.

The revised **EU Waste Shipment Regulation** regulates the import of major streams such as soils, as well as other sandy materials used in or as construction materials. A balance should be kept between soil imported from abroad, on the one hand, and soil excavated and cleaned in the Flemish Region for which a proper use needs to be found, on the other.

The new **Waste Framework Directive** imposes a minimum recycling (including reuse) target of 70% for construction and demolition waste of all material-specific fractions generated by construction and demolition activities. The directive places greater demands on extended producer responsibility with wider consideration of responsibilities within the value network. In addition, the Waste Framework Directive includes several measures to reduce the adverse impacts of the generation and management of waste and improve the efficiency of resource use, which are crucial for the transition to a circular economy.

The **EU Sustainable Products Initiative** aims to make products placed on the EU market more sustainable. At the heart of this initiative is a revision of the Ecodesign Directive so that it applies to a broader range of products. Sustainability criteria for energy-related products, other than energy efficiency, should also be addressed. This initiative is also expected to introduce a Digital Product Passport that collects data on a product across value chains. The Belgian level can focus on the minimum requirements regarding sustainability and circularity for construction products within Europe.

01 | REMIT

Flanders will have to tighten its regulations, standards and (digital) information on the energy performance of buildings. This has an impact on the development of circular construction. Europe expects, by 2023, a legislative proposal for a building renovation passport, and the introduction of a digital tool for this purpose, i.e. the Digital Building Logbook. That year, Europe will draw up a roadmap towards 2050 to reduce carbon emissions from buildings throughout their life cycle, with national benchmarking for the Member States.

1.3.3.2 Flanders

Government of Flanders Coalition Agreement 2019-2024

The Government of Flanders is committed to achieving a fully circular economy to better meet raw material and water needs and maximise well-being with a smaller ecological footprint. It is important to carefully consider the entire life cycle of materials and goods so as to make an accurate assessment of the ecological impact.

The Government of Flanders also argues that the circular economy holds special opportunities for prosperity and the economy. To that end, the use of primary raw materials and materials should be reduced and their reuse increased, without compromising on our comfort or prosperity.

The Government of Flanders encourages the construction industry to move towards circular and modular buildings and is developing a roadmap together with them. The Government of Flanders acts as a role model in this respect, which is why it establishes circular priority rules for public procurement, giving the circular economy every opportunity it deserves. Moreover, it reinforces the commitment to circular design and procurement within established agreements, such as the acceptance obligation and Green Deals.

Vision 2050. A long-term strategy for Flanders

In its Vision 2050 the Government of Flanders shows the Flanders it envisions in the long term: a strong, inclusive, open, resilient and internationally connected Flanders that creates prosperity and well-being in a smart, innovative and sustainable manner, and in which each individual counts. The long-term policy responds to new opportunities and challenges and accelerates the transitions society needs. Sustainability is put forward as a guiding principle. Efficient use of materials and energy, robust water use and smart living and housing are some of the themes that should support the transition to a circular economy.

Flemish Climate Action Plan

The Flemish Climate Action Plan 2021-2030 aims to reduce greenhouse gas emissions by 40% compared to 2005 with an additional package of measures. To achieve this, the main focus is on further reducing waste incineration and promoting deep renovation of the existing building stock. The goal is to make the EU climate neutral by 2050, which will also have an impact on the choice of materials and the design of buildings and infrastructure.

Circular Flanders

Governments, entrepreneurs, civil society organisations, researchers and financiers have been collaborating through the public-private partnership 'Circular Flanders' since 2017. The circular economy transition is a overarching theme of this collaboration. Circular Flanders already subsidised several innovative projects in the construction industry in the 2017-2020 period. They gained insight into possible solutions and gathered lessons learnt through real-life experiments.
The Green Deal on Circular Construction kicked off in early 2019, bringing together pioneers in circular construction in Flanders. The Circular Construction Living Lab (see below) provided insights into the systemic bottlenecks faced in the transition to the circular construction economy. During the next stage of the circular economy transition the lessons learnt from these initiatives and the potential solutions on the ground must be anchored in new policies, business models and economic opportunities through the Circular Construction Work Agenda.

Circular Construction Work Agenda

The Government of Flanders reaffirmed its ambition for the circular economy transition in 2020. The construction industry was highlighted as a priority sector. A Work Agenda was drawn up to give shape to the transition to a circular construction industry. A core group annually prepares a rolling action programme for the Work Agenda,

Within this framework government, entrepreneurs, civil society organisations, researchers and financiers take up commitments to further shape the transition to a circular construction economy.

The present policy programme 'Towards Circular Construction' is a key building block within the broader Circular Construction Work Agenda. The policy programme focuses on:

- circular materials management
- circular choices in the design and (re)construction of new buildings or buildings to be renovated.

The broader framework of the Circular Construction Work Agenda serves as an ideal bridge to other policy areas and/or themes that are linked to the circular construction economy and do therefore fall outside OVAM's remit.

Long-term renovation strategy for buildings by 2050

We should accelerate the renovation of the existing building stock in line with our own objectives and Europe's expectations. Societal changes and a changed demand for quality housing units will drive construction activity.
This will also have an impact on material use both on the demand and supply sides. It represents an opportunity to make more circular and adaptable choices in material use and design on the basis of a life-cycle approach.

Asbestos Removal Plan

The Asbestos Removal Plan tackles the unsafe asbestos situation. The requirement to draw up an asbestos inventory is in line with our efforts to better map material streams in demolition and dismantling works through
demolition monitoring. Other important interfaces are the planned central database of asbestos data and a certification system for asbestos experts.

1.3.3.3 Federal level

Besides the Flemish and European levels, the federal level also plays a key role in a number of key policy areas. These include product policy, certification and taxation.

The **Federal Council for Sustainable Development's** transition efforts towards circular construction constitute an important element of collaboration and coordination. Via the federal level we can also take part in joint efforts with the other Regions to develop the transition to a sustainable circular economy in the construction industry.

Belgium's **National Recovery and Resilience Plan** addresses circular economy and buildings. Renovation and circular material use take centre stage in this plan. The actions will be transposed to the regional level through the **'Flemish Resilience' Recovery Plan of the Government of Flanders.**

Initiatives related to the design, execution and certification of construction works in particular are important at the federal level. This concerns professional liability within the value network, for instance. The normative and technical framework (EN- NBN) for practices of reuse and recycling is also a federal competence. The federal level can take steps to develop quality assurance based on reuse and recycling, whereas today this only covers new finished products and systems.

02 | CIRCULAR CONSTRUCTION, A TRANSITION

2.1 WHY IS CIRCULAR CONSTRUCTION IMPORTANT

The amount of materials and raw materials we mine and grow for the construction industry worldwide is finite. Price increases of specific construction materials due to stock shortages, as well as clear signals from our environment (climate change, reduced biodiversity, drought, smog, etc.) indicate that our society has reached the limits of the (living) system. Circular construction is not an end in itself, but a modus operandi that is part of the wider transition to a new economy that is committed to maximising value retention of materials and raw materials in the construction industry. Circular construction is needed to drastically reduce the impact of the huge volume of raw materials and materials used, which is also referred to as the 'material footprint', of our construction industry. The Government of Flanders aims to decouple raw material use from economic growth in the coming decades. Growing prosperity should obviously not place any additional pressure on the environment or require an increased use of raw materials and resources (see Figure 2).

Transversal policy priority of the Government of Flanders

FLANDERS AS A FRONTRUNNER IN CIRCULAR ECONOMY

1. **DECOUPLING (RELATIVE)**
   decoupling material footprint from prosperity
2. **REDUCTION (ABSOLUTE)**
   reducing material footprint by 30% by 2030
3. **A PUBLIC-PRIVATE PROJECT**
   realising this in a partnership

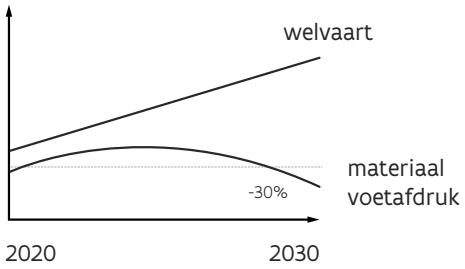


Figure 2: Government of Flanders' ambitions for a circular economy

This chapter explains what circular construction is and how it fits into the overall transition to a circular economy.
It clarifies how the current policy programme relates to the previous one.

2.2 WHAT IS CIRCULAR CONSTRUCTION?

The transition to the circular construction economy requires adjustments during each stage of the construction cycle.
Circular construction is defined as follows:
A construction practice that pursues an efficient and effective use of resources to create or at least retain economic, social and environmental (added) value, taking into account the existing legacy and the future opportunities specific to our construction world. This is done through intensive collaboration within the value network.

This definition is used as tenet within the present policy programme 'Towards Circular Construction'.

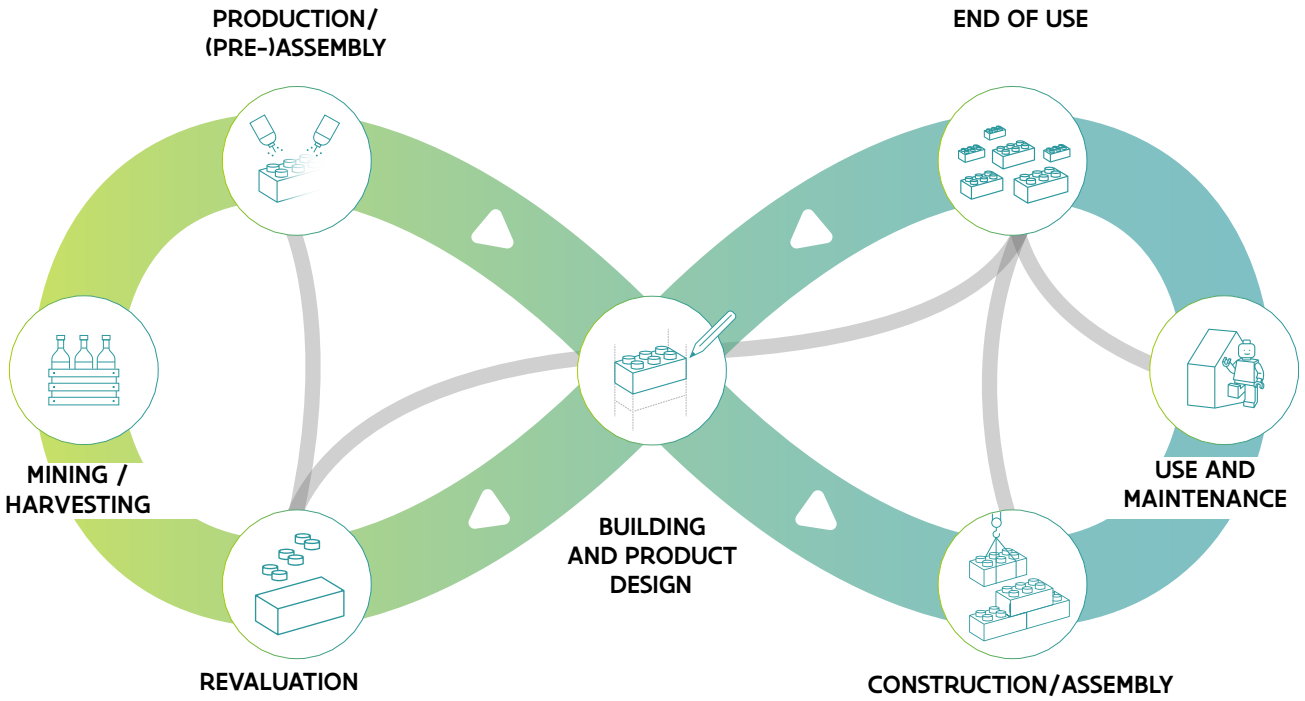


Figure 3: visual approach to Circular Construction within the network of the Green Deal on Circular Construction

Circular construction is an catchall and covers multiple levels ranging from (construction) materials, construction elements and buildings to infrastructure works and area development. Circular construction also refers to all stages of the construction cycle: from avoiding raw material extraction to the design and construction of a structure, to the reuse of (parts of) built structures (see Figure 3).

The **effective and efficient use** of resources implies both the responsible use of raw materials and resources and the avoidance and tapping of new raw materials. In this respect, it is in line with the approach to sustainable material use and widens it.

Circular construction engages the **entire value network, with the collaboration** between all the partners taking centre stage. We are looking for different levers to enable this collaboration.

2.3 CIRCULAR CONSTRUCTION, A TRANSITION

There are two ways of looking at our built heritage on the basis of the definition of circular construction (see Figure 4):

a) From the legacy of existing built structures
We must draw maximum economic and environmental added value from this. This approach focuses mainly on the optimal management of the end-of-life phase through selective demolition, on-site sorting at source or efficient post-sorting of clean material streams suitable for reuse or recycling. This is referred to as 'urban mining', which is aimed at closing value or material chains through circular materials management.

b) From the perspective of newly built or renovated structures
Here, the focus is on circular material and design choices in the design and development of construction materials and structures. Better design choices create more possibilities to close value chains in the future as well as provide more opportunities for developing circular business models for built structures. This means that built structures, components and construction materials remain usable in the future in a similar or changed context. This is summarised below under the heading circular design and (re)construction.

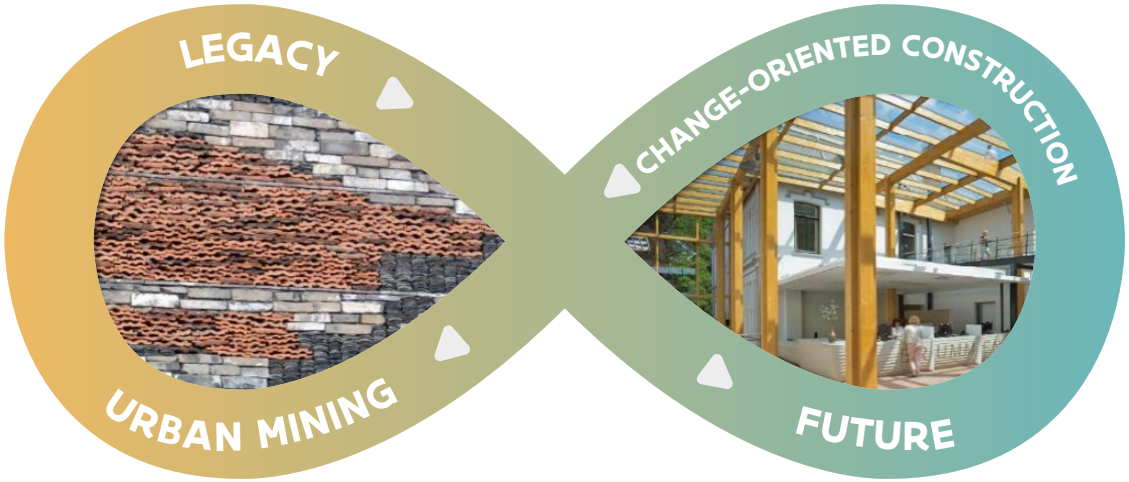


Figure 4: illustration of the past legacy for 'urban mining' and switch to the future through change-oriented design (source: Circular Construction Living Lab)

The structure of the new policy programme is two-fold. On the one hand, it includes the management of the existing stock and, on the other hand, the construction on the basis of a new design for the future. It should be noted that this concerns one continuous movement, with both themes being clearly linked and intertwined.

This two-fold structure builds on the original five key themes of the policy programme 'Material-conscious Construction in Cycles' (see Figure 5). **Circular materials management** has a direct relationship with the three material-oriented themes from the previous policy programme: selective demolition along with the management of stony and non-stony fractions. **Circular design and (re)construction** includes plenty of elements of measuring the material performance of buildings and change-oriented (re) construction.

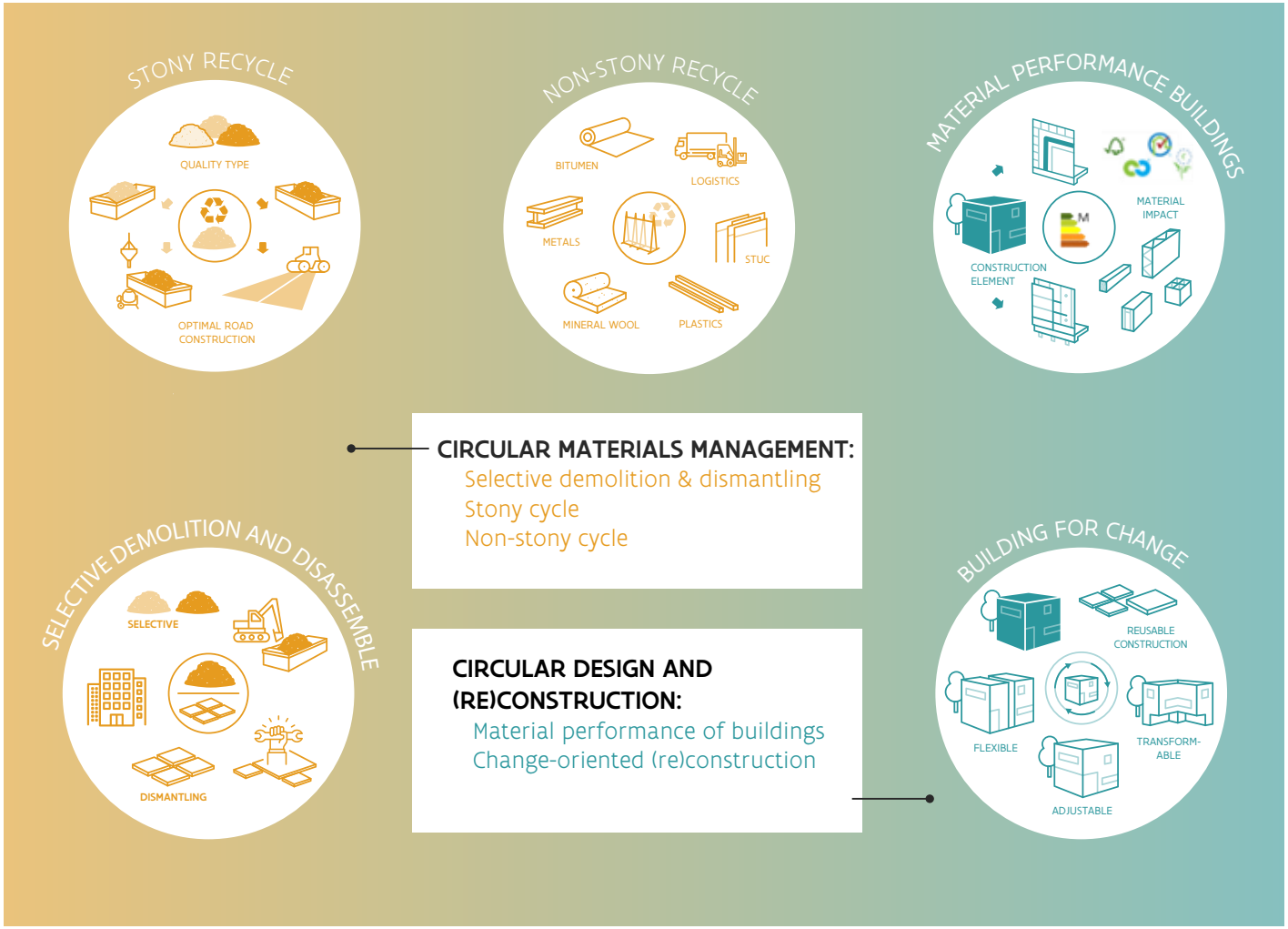


Figure 5: link between the five themes of the previous policy programme and the two-fold structure of the new policy programme

03 | FROM SUSTAINABLE MATERIALS MANAGEMENT TO CIRCULAR MATERIALS MANAGEMENT AND CIRCULAR DESIGN AND (RE)CONSTRUCTION

3.1 APPROACH

The new policy programme builds on the efforts and achievements of the previous one and fits within the transition to circular construction by 2050. In order to reach that target by 2050, we need to overcome some major challenges through targeted efforts. We therefore formulate a policy goal by 2030, which is the expiry date of this new policy programme.

Firstly, the policy goal translates the broader climate, environmental and raw material consumption targets of Flanders and Europe to the construction industry in concrete terms. The 2030 policy goal estimates the contribution required of circular materials management and circular design and (re)construction of buildings and infrastructure. Only then can we achieve the bigger targets. We found the inspiration for fine-tuning the 2030 policy goal and the efforts needed to achieve it in the interaction with our stakeholders and in the recommendations of the research group of the Urban Mining leg of the Circular Construction Living Lab, which ran from 2018.

In this chapter, we link the results and lessons learnt from the previous policy programme 'Material-conscious Construction in Cycles' to the challenges of the new policy programme 'Towards Circular Construction'. We briefly discuss some elements from the internal review of the previous policy programme.
Past efforts are assessed in terms of maturity and the feasibility of the 2030 goal is examined. We then move on to the main challenges.

3.2 RECAP: ACHIEVEMENTS UNTIL 2020

For circular materials management, which we also refer to as 'urban mining', we build on our achievements in terms of the selective demolition and management of stony and other materials.

Selective dismantling or demolition, more specifically at-source separation and the separate disposal of certain material streams or post-sorting, was a big step forward. Today, Flanders has a solid framework in place for monitoring the different material streams from site to treatment. Further efforts are needed to put all of this into practice and to develop markets to increase and improve reuse and recycling. The introduction of a demolition monitoring requirement on large sites should provide an important impetus to improve the implementation of selective demolition works that will increase the quality of waste streams. It will be a challenge to reach the same level on small sites, especially as far as partial demolition during renovation works is concerned.

Over the past years, the management of **stony debris** built on the momentum created by previous implementation plans for the construction sector. The various partners found each other and worked out solutions, such as the monitoring of the quality of granulate (pellets) in the Unitary Regulations. Applying recycled granulate in a high-quality manner continues to be a challenge. On the one hand, we should look for opportunities together with partners to make this economically viable, and on the other, we should consider together with governments and certification bodies whether and how we can make room for this within the standards framework.

Despite the partners' great willingness to cooperate, the catch-up movement in terms of the reuse and recycling of **non-stony materials** has failed to materialise. Economically viable models and data transparency for collection, treatment and sale were lacking. This remains a major obstacle that we must continue to try and solve.

Circular design and (re)construction continues the efforts of the themes **'material performance of buildings' and 'change-oriented construction',** which started in 2014 from the research and policy preparation phase. The big challenge at the time was to put them on the map as fully-fledged themes and make the relevant practice known to the construction industry in Flanders.

03 | FROM SUSTAINABLE MATERIALS MANAGEMENT TO CIRCULAR MATERIALS MANAGEMENT AND CIRCULAR DESIGN AND (RE)CONSTRUCTION

Substantial progress was made in determining the **material performance of buildings.** The launch of the Tool to Optimise the Total Environmental impact of Materials (TOTEM) in 2018, specifically targeting use by architects, was a milestone. In subsequent years, we further elaborated the underlying MMG methodology and linked it to the B-EPD database at the federal level. The good cooperation between the three Regions is partly behind these successful steps, which also showed from the growing number of users of the tool. Owing to advancing insights into circularity, connections with energy policy and other reasons, TOTEM and the underlying methodology are in constant development. To fully embed TOTEM in the Flemish (Belgian) construction industry, the elaboration of a more formal policy framework is required to establish limits on the environmental impact of buildings.

For **change-oriented construction,** we developed a conceptual framework and design guidelines. We also published a catalogue with practical solutions and examples. The transition to a circular economy accelerated awareness of this topic within the construction industry. The theme gained momentum with the 'Green Deal on Circular Construction' in 2019 and the targeted call 'Circular Construction Economy' in 2020. There is, however, still a long way to go to realise the transition to fully circular and change-oriented construction.

The lack of indicators on the process and the outcomes of the efforts complicated the practical monitoring in the previous policy programme. We could only perform a qualitative review of the efforts made on the basis of certain results and milestones set out in the biennial action programmes. Although a complete picture is provided of the achievements, the link with the efforts made is not always clear.

In spring 2020, we organised an online survey among our partners, asking the same questions for each theme:

- How much progress have we made at that point in time in terms of achieving the 2030 policy targets and how has this translated into practice?
- What tools have helped to put certain things into practice?
- What obstacles have prevented us from making actual achievements?
- What elements should we pay particular attention to in the future to move further towards circular construction?

Based on this data, we can, however, form a picture of how mature our partners assess the ambitions of the past policy programme. This measurement serves as a benchmark for the level we start from with the 2030 policy goal.

3.3 CIRCULATION CONSTRUCTION LIVING LAB

Within the Urban Mining leg of the Circular Construction Living Lab, a research group of experts conducted a thorough system analysis of the transition to a circular construction economy. The study was completed in late 2020 and ran partly in parallel with the consultation process for the new policy programme. We will consider a number of elements from this study for the new policy programme.

Despite major efforts to organise materials management in cycles, the transition to circular construction will be difficult due to the prevailing linear approach in the construction industry. It will take time to scale up and broaden circular practices, while pushing the established approach into the background.

This transition is particularly complex and requires a systems approach. Systems thinking emphasises mutual relationships and tries to contrast and connect the perspectives of all parties involved in the cycles.

03 | FROM SUSTAINABLE MATERIALS MANAGEMENT TO CIRCULAR MATERIALS MANAGEMENT AND CIRCULAR DESIGN AND (RE)CONSTRUCTION

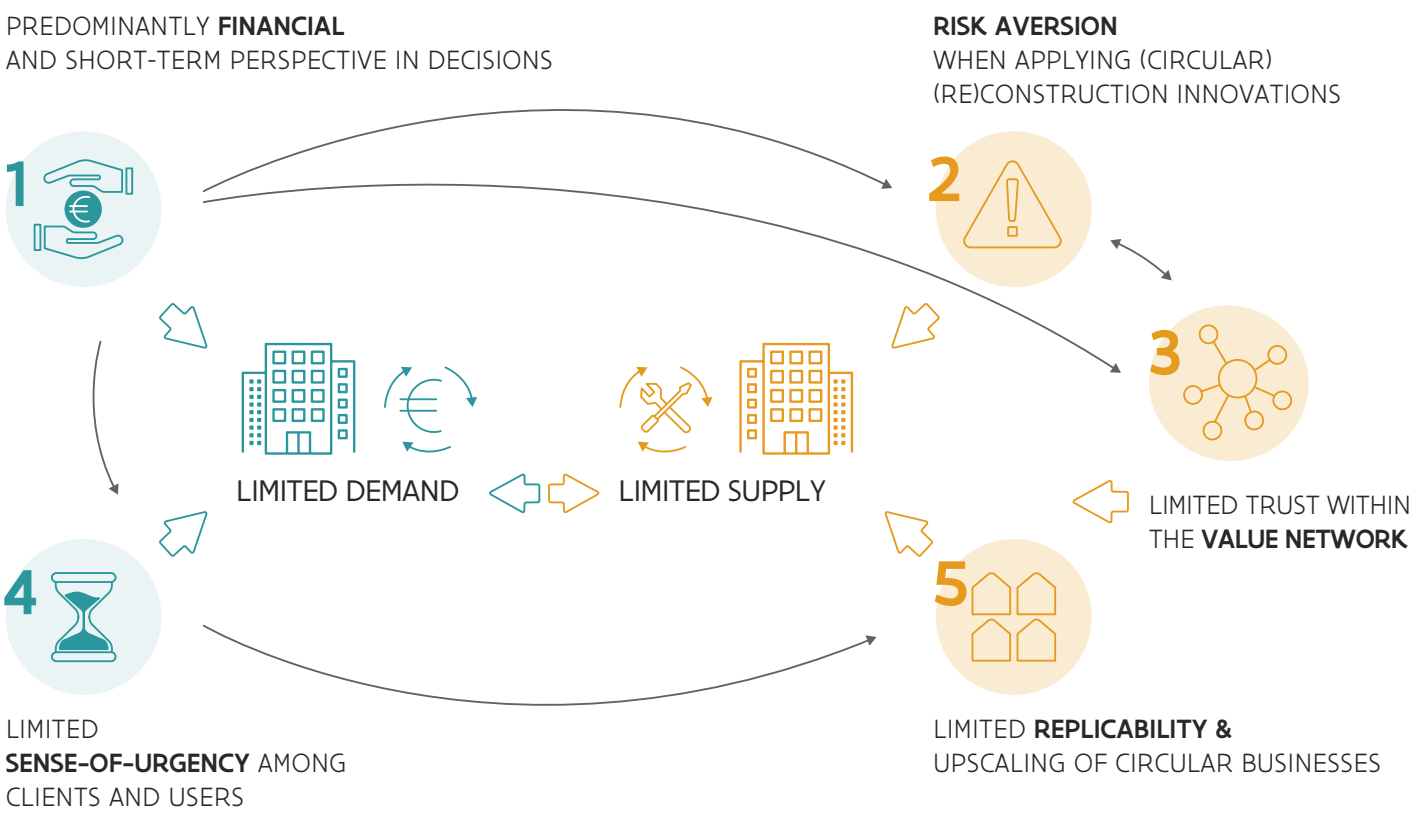


Figure 6: the five systemic bottlenecks to the transition to a circular construction economy (source: Circular Construction Living Lab)

The systems analysis also points to five different bottlenecks that hinder the transition to circular construction (see Figure 6).
The mismatch between the supply of and the demand for circular construction solutions takes centre stage. This involves the use of materials, or the design of built structures according to certain circular principles. On the demand side, there is a need for information and awareness-raising to convince potential clients. On the supply side, there is a clear aversion to certain risks.

There is a lack of clarity on the quality and other aspects of the materials or the solutions offered.

03 | FROM SUSTAINABLE MATERIALS MANAGEMENT TO CIRCULAR MATERIALS MANAGEMENT AND CIRCULAR DESIGN AND (RE)CONSTRUCTION

The lack of trust between partners within a value chain or a partnership that requires cooperation is another key element that prevents the provision of certain services in the construction economy. The combination of uncertainty about supply and especially about demand makes it difficult to develop long-term business models. This prevents new concepts from breaking through and being scaled up in a wider market.

We should therefore remove bottlenecks to circular materials management through value creation. We are committed within the policy programme to addressing these system bottlenecks in order to further the transition to a circular construction economy.

In the second part of the Circular Construction Living Lab the focus is on change-oriented (re)construction. The study continued into 2022. The resulting outcomes and recommendations have been incorporated in the roll-out of the policy programme. Key challenges to the transition towards circular design and concepts of reuse proved very similar to those faced by circular materials management.

3.4 OUTLOOK: 2030 POLICY GOAL

For the construction sector to make the full transition to the circular construction economy by 2050, we must have reached a certain level for the 2030 policy goal. Ambitions were formulated for both 2030 and 2050. The 2030 policy goal serves as guidance for the new policy programme and cooperation with our partners between 2022 and 2030.

In 2050

we only build with materials with the lowest possible environmental impact, and extract materials from the existing building stock whenever possible.

all new or renovated built structures will be change-oriented depending on changing needs and will have minimal environmental impact. We have a complete digital overview of the material stock in our built stock.

Which is why by 2030 we aim, to

reuse or recycle 95% of stony and 70% of non-stony materials from construction works. We will reuse at least half of them in a high-quality manner.

design and (re)construct 25% of structures (new-build or renovation) in accordance with the principles of circular construction.

This means that, by 2030, we will

- monitor the material cycles from site to treatment for all substantial demolition and dismantling works;
- be able to safely use all recycled materials in a second or third life, with quality assurance;
- reuse at least half of the materials or use them as raw materials for new construction materials or other high-quality applications through chain cooperation.

- build and rebuild in accordance with the principles of change-oriented construction;
- strive to have material data available at the time of final acceptance when carrying out works requiring an integrated environment permit;
- aim to score below a maximum material level for each structure, preferably integrated into a global environmental impact score (energy, materials, water).

We monitor the progress and the extent to which we achieve the targets through specific indicators. We use data on the use of primary raw materials and data on recycled material production and use (for both stony and other streams) to determine key performance indicators (KPIs). We focus on the collection of data on reuse.

To monitor progress, we require data from outside the OVAM on structures with an integrated environment permit and the quality of the building plans.

3.5 CHALLENGES FOR THE 2030 POLICY GOAL

Besides the feasibility of the 2030 policy goal, we examine what the main challenges are for the future of circular construction in Flanders. We derive these challenges from the bottlenecks that our stakeholders believe stand in the way of achieving the policy goal for circular construction by 2030.
We identify four key challenges:

01 **Increasing market confidence**

02 **Cooperating within the value network**

03 **Measuring and inventorying information**

04 **Raising awareness and providing training**

Below, we briefly describe each of these four challenges (see Figure 7). Next, we elaborate on how we address these challenges in the new policy programme.

RAISING AWARENESS AND PROVIDING TRAINING:

- INCREASING AWARENESS AND KNOWLEDGE AMONG CLIENTS, IMPLEMENTERS AND DESIGNERS

MEASURING AND INVENTORYING INFORMATION:

- COLLECTING MISSING DATA
- PROVIDING TRANSPARENT DATA

COOPERATING WITHIN THE VALUE NETWORK:

- INCREASING ALIGNMENT AND COORDINATION BETWEEN ALL THE STAKEHOLDERS IN THE VALUE NETWORK

INCREASING MARKET CONFIDENCE:

- GUARANTEEING ENVIRONMENTAL HEALTH PURITY AND CONSTRUCTION TECHNICAL QUALITY
- CLARIFYING LIABILITY
- FACILITATING A LIVEABLE AND RESILIENT MARKET

Figure 7: the four challenges for the 2030 policy goal

INCREASING MARKET CONFIDENCE

There is uncertainty about the environmental health quality, construction technical suitability and other aspects related to quality and usability of reused or recycled materials. This uncertainty creates a reluctance to use these materials. Questions regarding liability, (division of) responsibility, origin, further treatment, etc. are other obstacles to using reusable or recycled materials. Potential providers of materials have questions about quality, availability and responsibilities, resulting in certain materials not being offered for reuse or being used as construction materials. In addition, the lack of trust also prevents the uptake of certain decision-making tools and the application of change-oriented construction concepts. We can therefore conclude that demand and supply are insufficiently known and do not find each other. Ensuring a viable market may help in this respect. In parallel, we are looking for opportunities to eliminate inequalities in the market between primary and recovered or reused materials either directly or indirectly and mainly through stimulating interventions.

COOPERATING WITHIN THE VALUE NETWORK

Cooperation is not running smoothly enough between the various partners who are the links in the value network. Moreover, cooperation is often still very linear and focused on the closest links in the chain. This creates uncertainty and a lack of openness. We should therefore look for solutions and means to strengthen cooperation. By agreeing on new forms of cooperation and responsibilities, and a better distribution of costs and benefits for all partners in society, new forms of cooperation will have a chance. The government also ensures compliance with the agreements through direct enforcement or an appropriate framework.

MEASURING AND INVENTORYING INFORMATION

The complex construction process generates a particularly large amount of data, even if circularity is not yet an issue. It is often difficult to find the right data because it is too scattered. Moreover, the data cannot be coupled. In view of the further digitalisation of the construction industry and the transition to circular construction, it is necessary to commit to opening up data on built structures and making circularity measurable.

RAISING AWARENESS AND PROVIDING TRAINING

Finding the right information is crucial to making circular construction more widely adopted in practice. Many clients lack sufficient knowledge and information about circular construction, leading to misconceptions about the organisational and financial implications for a construction project. It is therefore important to convince clients of the added value of circular construction.

Current and future construction professionals also need to be provided with sufficient knowledge and skills regarding circular construction, so that they get on board the transition to circular construction in an informed manner. Commitment to broad awareness-raising and training of the target audience is therefore crucial.

We have organised efforts to address the four challenges into so-called 'action areas'. These are further broken down into sub-action areas with specific underlying (sub-)objectives. We have included digital information exchange in an overarching action area. This is an important lever for tackling the various transition challenges.

The coherence of the action areas and their relation to the response to the challenges are described in the next chapter.

04 | CHALLENGES AND ACTION AREAS FOR THE CIRCULAR CONSTRUCTION ECONOMY

In this chapter, we consider the coherence and description of efforts needed to achieve the targets of the 2030 policy goal together with our stakeholders. We also take a closer look at the structure of the action areas.

We face a total of four challenges. We have identified one or more so-called 'action areas' for each challenge, which include efforts to overcome these challenges.

This is visually represented in Figure 8. The challenges for the 2030 policy goal are listed one below the other on the left. The coloured boxes in the figure represent the action areas. They are each linked to one of the challenges, but can in practice also contribute to the elimination of other challenges. If several action areas are needed to tackle a challenge, they are listed side by side.

It concerns the following action areas:

- Origin and destination of materials
- Quality assurance for the reuse of material in built structures
- A stimulating market for circular construction
- Value creation and costs/benefits in circular construction
- Roles and liability throughout the circular construction chain
- Mapping the material potential of built structures
- Measuring the circularity of built structures
- Support and knowledge about circular construction
- Digital information exchange in construction

The action areas have been positioned on the figure in such a way that it is clear whether the efforts of the action area respond to the theme of circular materials management or the theme of circular design and (re)construction. If the action area responds to both, it is placed in the centre.

4.1 ACTION AREAS AND SUB-ACTION AREAS

The action areas and sub-action areas are categorised under the various challenges. We indicate how each action area contributes to the policy goal.

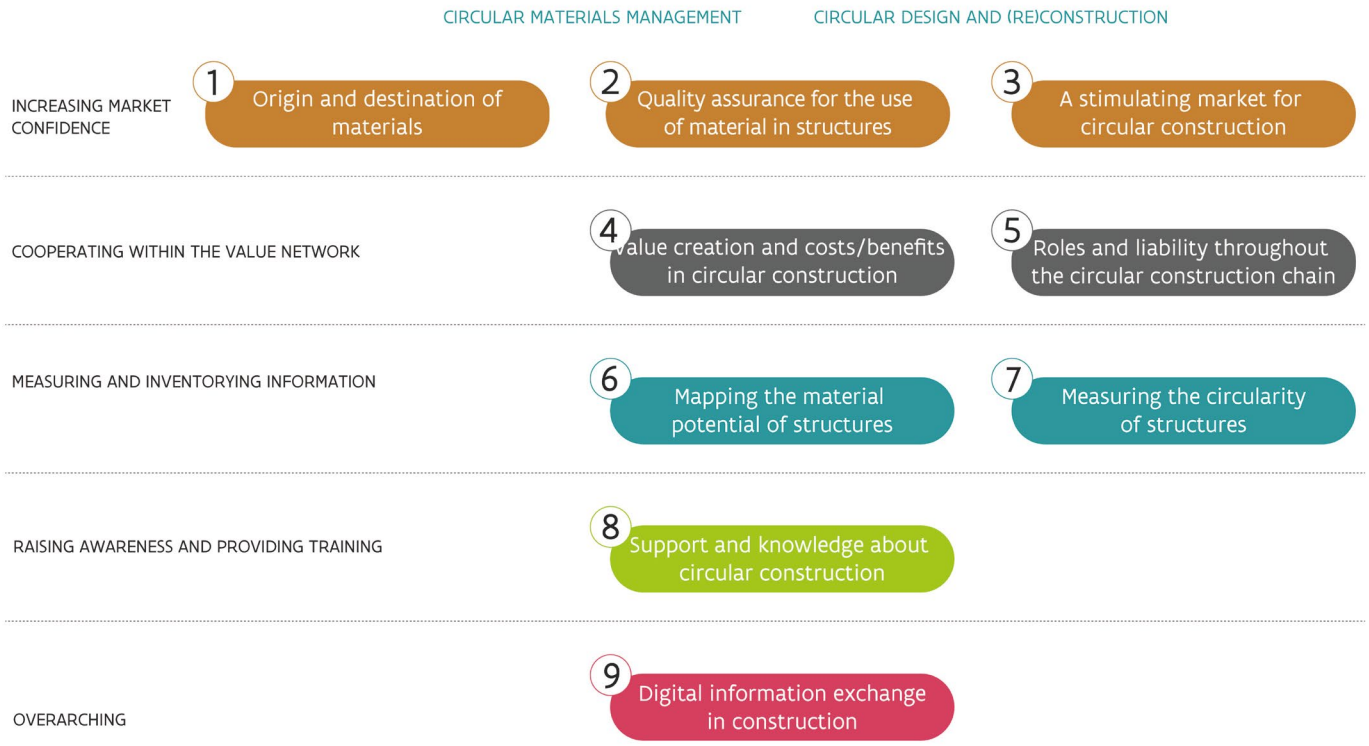


Figure 8: overview of the nine action areas to be tackled within the policy programme, linked to the four challenges and broken down by theme.

Efforts have been reassigned for each action area to one or more sub-action areas. We define the goal, scope and results of the efforts for the coming years. They are described on the following pages.

CHALLENGE TO INCREASE MARKET CONFIDENCE

ACTION AREA 1

ORIGIN AND DESTINATION OF MATERIALS

Purpose and scope

Reliable information on the origin and history of material streams is important for their new users. For this reason, we need to monitor materials we want to reuse or recover from creation to treatment, which is why we are committed to further developing demolition monitoring from the demolition and dismantling sites, and to fine-tuning the quality assurance and tracing of sorted construction and demolition materials. This quality improvement is necessary both at debris sorting facilities and at non-hazardous waste sorting facilities. We make sure that we can eliminate and/or monitor the application of hazardous and disruptive elements to the maximum extent. We also ensure adequate monitoring of materials with end-of-life status, regardless of whether they came about within or outside the construction industry.

Link to policy goal

- 95% of stony and 70% of non-stony materials from built structures are reused or recycled. At least 50% of this is done in a high-quality manner.
- The material cycles are monitored from site through treatment for all demolition and dismantling works.
- Thanks to this quality assurance, all recycled materials can be safely used in a second or third life.

CHALLENGE TO INCREASE MARKET CONFIDENCE

SUB-ACTION AREA 1.1 ASSISTING THE ROLL-OUT OF DEMOLITION MONITORING

Purpose and scope

We remain committed to efficient demolition monitoring by recognised demolition management organisations. To this end, we optimise the legislation (with adjustments in VLAREMA and the standard procedure). We are considering mandatory demolition monitoring for all construction sites, with consideration of specific circumstances. This consideration takes into account the evaluation of the demolition monitoring of large sites with focus on environmental added value, as well as the practical and economic feasibility. Specifically, this means that we take sufficient account of the ratio between cost, ease of use, plan burden and recycling added value. We consider large professional sites first before exploring this possibility for smaller sites. We are monitoring as many sites as possible. To this end, we improve and digitalise the demolition monitoring procedure. We use demolition monitoring to follow streams during on-site sorting at source. To monitor post-sorting, we are working out a separate mechanism that links up with the demolition monitoring on site. We not only focus on the debris fraction, but also examine this for other material streams. Recording and monitoring hazardous waste, such as asbestos and tar, continue to be of priority importance, along with monitoring contaminants that prevent the use of recovered materials. We are pushing for the exchange of data from the databases of demolition management organisations, as this data is important for policy and for matching material supply and demand.

Results

- The proportion of demolition works with demolition monitoring for different typologies is increasing.
- The number of monitored demolition sites with demolition certificate is growing.
- Demolition certificates are extended to materials other than rubble.

CHALLENGE TO INCREASE MARKET CONFIDENCE

SUB-ACTION AREA 1.2 MANAGING SORTED CONSTRUCTION AND DEMOLITION MATERIAL

Purpose and scope

At certain demolition sites, especially small ones, it is often not possible to separate materials at source and have them collected and disposed of separately. We are working on a sound solution by developing a specific framework at these sites for the separate collection of fractions of construction and demolition material at source,. This framework takes the required quality assurance of post-sorting into account. Whereupon, companies draw up a (logistics) waste management plan, explaining how they organise sorting at source and the disposal of streams, whether separated or not.

Streams which were not separated at source end up in sorting plants as mixed streams of construction and demolition material. Those plants must be able to guarantee the quality of the sorted fractions. Post-sorting also provides guarantees as to purity, origin, history and destination. We are working to maximise the integration of data from sorting facilities into demolition monitoring via a demolition management organisation.

Results

- Sorting at source during demolition works is on the increase.
- The number of sites for which a waste management plan has been drawn up is growing.
- The proportion of construction and demolition material for incineration and landfill is falling.
- An increasing proportion of materials is being reused or recycled.

CHALLENGE TO INCREASE MARKET CONFIDENCE

SUB-ACTION AREA 1.3 MONITORING CONSTRUCTION MATERIALS FROM OUTSIDE THE CHAIN

Purpose and scope

Mineral material streams and materials with end-of-life status from other economic sectors qualify for use in or as construction materials. In order to boost market confidence potential users need a reliable picture of the composition, quality, origin and history of these material streams. For this reason, we are committed to rolling out a quality assurance system to monitor the environmental health quality of these materials. We look at new methods to monitor these streams. We also support and facilitate the use of end-of-life raw materials in standardisation and in specifications.

Results

- The proportion of recycled materials from other sectors that are optimally used as construction materials is rising.
- Quality assurance for raw material declarations with second- and third-life criteria simplifies enforcement.
- A growing number of certified construction materials are available.

CHALLENGE TO INCREASE MARKET CONFIDENCE

SUB-WORKING AREA 1.4 ENSURING THE CORRECT APPLICATION OF CONSTRUCTION MATERIALS

Purpose and scope

It is important for raw materials placed on the market as construction materials with a raw material declaration that the conditions of use imposed in it are respected.

Raw materials/construction materials shall only be used in functional applications and must not increase the use of materials. These are optimally used as raw materials for new materials. The environmental impact is taken into account when raw materials/construction materials are used. We are working on methods to unambiguously determine the proportion of reused or recycled materials in construction materials or construction elements. We support and facilitate the use of materials with end-of-life status in standardisation and specifications.

Results

- Greater use of raw materials with end-of-life status.
- Raw materials with end-of-life status have no negative effects on humans and the environment when used.
- The proportion of virgin materials can be determined accurately for most raw materials with end-of-life status.

CHALLENGE TO INCREASE MARKET CONFIDENCE

ACTION AREA 2

QUALITY ASSURANCE FOR REUSE OF MATERIALS IN CONSTRUCTION WORKS

Purpose and scope

We provide a safe and validated framework for the reuse and recycling of materials in built structures. By monitoring materials, we guarantee construction technical and environmental quality. We remove hazardous construction (waste) materials from the chain. We aim for an increased use in high-quality applications for recycled stony materials. We are examining for other material streams how an optimised dismantling of built structures increases opportunities for reuse and recycling. We promote research among product developers and designers to maximise value retention of materials and built structures at end of life.

CHALLENGE TO INCREASE MARKET CONFIDENCE

SUB-ACTION AREA 2.1 DEVELOPING A FRAMEWORK FOR REUSE

Purpose and scope

Whether a building material from demolition or dismantling can be reused depends on several criteria such as environmental impact, construction technical properties, safety, etc.
In terms of certification and responsibilities, there are doubts on the ground that cause reluctance to consider opportunities for reuse.
We are developing a framework in which the status of materials for reuse is clear and responsibility requirements are unambiguous. This framework is primarily legal, but also includes agreements and practices of parties involved in certification and the assignment and monitoring of responsibilities.
Besides general guidelines around the reuse of materials, we are drawing up concrete guidelines for each material stream.

Results

- The status of materials for reuse is clear.
- Adapted legislation is in place for the reuse of construction materials.
- We have specific criteria in place for the reuse of certain material streams.

CHALLENGE TO INCREASE MARKET CONFIDENCE

SUB-ACTION AREA 2.2 FINE-TUNING THE FRAMEWORK FOR RECYCLING DEBRIS STREAMS

Purpose and scope

We are refining the regulatory framework for the acceptance and separate processing of debris based on the environmental risk profile (low or high). We encourage the provision of debris with a low environmental risk profile (LERP) that is advantageous to the provider (producer of the debris waste, the demolisher). We are looking for ways to minimise the production of debris with a high environmental risk profile (HERP). In recycling we are committed to high-quality applications and increasing the proportion of recycled stony granulate in new construction materials or building structure elements. To this end, we use a clear definition of high-quality and low-quality applications. Rules and regulations are adapted accordingly, whenever necessary. Technical standards and standard specifications should allow and promote the use of recycled materials in high-quality applications. We pay attention to the possible contamination of the debris fraction with hazardous wastes and interfering substances and make every effort to permanently remove them from the chain through cleaning or landfilling.

Results

- There is a clear definition of high-quality or circular use.
- More raw materials are being used in more high-quality, circular applications.
- Crushing plants receive proportionally less HERP debris.
- Granulate recycled from HERP debris is better monitored.
- The proportion of recycled granulate with excessive concentrations of hazardous or interfering waste is decreasing.

CHALLENGE TO INCREASE MARKET CONFIDENCE

SUB-ACTION AREA 2.3 STRENGTHENING THE FRAMEWORK FOR RECYCLING NON-STONY MATERIAL STREAMS

Purpose and scope

We strengthen communication and cooperation between various actors in the value network for various material streams (other than stony) to increase the proportion of recycled materials in new construction materials and elements. We encourage interaction between dismantlers, sorting centres and material producers around acceptance criteria, among other things. We support the research and introduction of innovative separation techniques that enable high-quality recycling of the various waste fractions. Where possible, we set up initiatives around developing and testing co-creative solutions to technical, economic and logistical bottlenecks in the value network. Technical standards and standard specifications should allow the use of suitable recycled non-stony materials.

We are exploring whether we can introduce a further obligation for sorting at source or post-sorting of specific streams through legal means, with the aim of improving valorisation.

We encourage the inclusion of non-stony materials from demolition and dismantling works in the high-quality valorisation of material streams released from the production process (production waste and cutting waste). We can deploy these materials within or outside the construction value network.

Results

- More non-stony material streams are separated at source.
- The demolition and recycling chains work together to improve the valorisation of materials by agreeing on acceptance criteria and dismantling conditions for specific streams.
- Co-creative collaboration for specific material streams is increasing.

CHALLENGE TO INCREASE MARKET CONFIDENCE

SUB-ACTION AREA 2.4 STRENGTHENING FOCUS ON THE CIRCULAR CONSTRUCTION ECONOMY WITHIN PRODUCT DEVELOPMENT

Purpose and scope

The lessons learnt about difficulties in reusing and recycling materials at the end-of-life stage should be considered when developing (new) products. Materials that hinder reuse or recycling are excluded from new construction materials to the maximum extent possible. The same applies to certain techniques that are still being used in construction today.

Proactive collaboration between different actors/producers of construction materials that often occur together in an element or application creates more opportunities for recovering materials or elements. To that end, further research is conducted and legislation is adapted, whenever necessary.

Results

- The production of materials takes future reuse or recycling into account.
- Construction techniques take closed material loops, high-quality recycling and reuse into account.

CHALLENGE TO INCREASE MARKET CONFIDENCE

SUB-ACTION AREA 2.5 MAKING BETTER USE OF SOIL MATERIALS AS CONSTRUCTION MATERIALS

Purpose and scope

Excavation works release significant amounts of excavated soil. We have a clear environmental health framework for the use of soil materials. Besides structural soil use, excavated soil is also used in designed applications (e.g. foundations) or as a raw material in concrete. As such, we reduce the use of primary sands, loam or clay from domestic or foreign extractions. Other soil-like streams, whether cleaned or not, originating in Flanders or other Regions and countries, can only replace mineral resources if they meet all the conditions regarding environmental and construction engineering. We are exploring opportunities for the reuse or use of additions as construction materials of soils after construction technical

treatment. We are also examining the best possible conditions for utilising excavated soil in the highest-quality applications.

Results

- More excavated soil and cleaned soils are being used as soil or for structural soil use.
- A higher proportion of excavated soil is being used in designed applications.

CHALLENGE TO INCREASE MARKET CONFIDENCE

ACTION AREA 3

A STIMULATING MARKET FOR CIRCULAR CONSTRUCTION

Purpose and scope

We create opportunities for the circular construction market to develop. We allow room for experiments with new applications and work methods within a delineated framework. We make sure that the circular supply and demand markets find each other. In addition, we clarify and share concepts and procedures to promote and improve cooperation, and integrate them into projects of the Flemish public sector.

CHALLENGE TO INCREASE MARKET CONFIDENCE

SUB-ACTION AREA 3.1 ALLOWING ROOM FOR EXPERIMENTS

Purpose and scope

The shift from a linear to a circular economy requires initiatives and experiments that enable innovative concepts and business models. Construction technical requirements, regulations and their certification, as well as other regulations elaborated within a linear approach, can be hampering factors. We are therefore working on a defined (legal) framework within which experiments can take place. We are also looking at how such experiments can be supported (financially), together with companies and public authorities.

Results

- A clear framework is in place within which experimental projects take place.
- The number of innovative circular construction projects is increasing.
- Circularity is embedded in the (financial) support for innovative construction projects.

CHALLENGE TO INCREASE MARKET CONFIDENCE

SUB-ACTION AREA 3.2 DIGITALLY MATCHING SUPPLY AND DEMAND

Purpose and scope

It is important in a circular construction economy to match the supply and demand sides of circular construction solutions. This requires customised channels that encourage providers to enter the market, but also give confidence about available construction solutions on the demand side. We try to find the missing link
from the large amount of data from different platforms and specific tools. The nature and origin of the material data can be very different but must be localised, characterised and defined in terms of availability and time.

Results

- A user-friendly platform is in place for circular construction solutions.
- Transparency about material streams encourages reuse and recycling.

CHALLENGE TO INCREASE MARKET CONFIDENCE

SUB-ACTION AREA 3.3 CLARIFYING CONCEPTS AND ESTABLISHING GUIDANCE FOR A CIRCULAR CONSTRUCTION MARKET

Purpose and scope

Many public and private clients of built structures are still insufficiently acquainted with circular construction concepts such as change-oriented construction and construction using circular materials and techniques. This limits the demand for circular solutions. To strengthen the circular construction market and accelerate the transition towards it, we are committed to developing clear concepts, additional regulations, guidance, sample specifications, etc.

The Flemish public sector is setting an example by applying these concepts and practices in its projects. It is also pushing for a phased integration into the private construction market. Private initiators act as source of inspiration for other sections of society to make circular construction known and acceptable.

Results

- Circular construction principles are embedded within various construction procedures.
- Circular construction principles are applied in major construction and other projects of the Flemish public sector.
- Private construction initiatives applying circular principles are known by the construction industry.

CHALLENGE TO INCREASE COLLABORATION

ACTION AREA 4
VALUE CREATION AND COSTS-BENEFITS IN CIRCULAR CONSTRUCTION

Purpose and scope

Uncertainty about the economic and financial viability of circular construction inhibits the transition to a circular construction economy. We make sure that the costs and benefits of circular construction are transparent. In doing so, we consider all the steps in the chain and how they contribute to the value creation of materials. We examine how environmental costs can be charged and how this can be introduced into the construction economy. In addition, we examine how the demolition and dismantling of buildings can be integrated into the construction cycle as a fully-fledged step.

Link to the policy goal

Through cooperation in the value network, at least half of the materials are reused or used as resources for new construction materials or other high-quality applications.

CHALLENGE TO INCREASE COLLABORATION

SUB-ACTION AREA 4.1 INTEGRATING DEMOLITION AND DISMANTLING AS A FULLY-FLEDGED STEP INTO THE CONSTRUCTION PROCESS

Purpose and scope

Demolition and dismantling are essential links in a circular economy as starting points for value creation. In the linear economy, these works are too often seen as an end point or an obstacle, with pricing being a decisive element.

We are committed to thorough, careful demolition works that produce recoverable materials and are a source of value creation. We explore how this economic value creation can be combined with environmental criteria and be valorised in contracts and specifications. We support companies that carry out demolition works carefully through recognition and the enforcement of a level playing field. We provide an adapted approach to selective demolition at small sites and to the demolition or dismantling of private dwellings. We examine how demolition and dismantling works are integrated into and aligned with the design, construction and production of construction materials.

Results

- The circular procurement of demolition and dismantling works is common practice.
- Demolition monitoring and the link with the integrated environment permit are enforced in an effective manner.
- Demolition and dismantling companies that adopt circular methods will receive recognition for this.

CHALLENGE TO INCREASE COLLABORATION

SUB-ACTION AREA 4.2 REVENUE MODELS FOR THE CIRCULAR CONSTRUCTION ECONOMY

Purpose and scope

The roles and cooperation between the different actors in the construction industry are fleshed out differently in a circular construction economy. This also has a financial impact. The shift in costs and benefits requires a new calculation that integrates value creation, for instance. This is essential to establish viable business models.

We analyse costs and benefits throughout the value network and examine how this can lead to new business models within chain responsibility.

Results

- A guide has been put in place for cooperation and inclusion of financial management agreements within a value chain.
- A (mathematical) model allows for the costs and benefits to be visualised across the entire value network.

CHALLENGE TO INCREASE COLLABORATION

SUB-ACTION AREA 4.3 INTERNALISING ENVIRONMENTAL COSTS

Purpose and scope

To make investments in circular construction more interesting, it is important to consider other costs, benefits and environmental impact throughout the life cycle and not just actual financial costs (investment, maintenance, etc.). After all, a circular construction solution may be more expensive over the entire life cycle in financial terms, but be much more beneficial for society in environmental terms. In addition, price differences between recycled materials and primary minerals or raw materials hinder the development of circular materials management. We are therefore examining how environmental
impact can be taken into account in pricing and can be used as a criterion in public procurement in a legally underpinned manner. This allows us to encourage investment in circular construction solutions.

Results

- We have a methodology in place for internalising environmental costs.
- There is support for internalising environmental costs in pricing.

CHALLENGE TO INCREASE COLLABORATION

ACTION AREA 5

ROLES AND LIABILITY THROUGHOUT THE CIRCULAR CONSTRUCTION CHAIN

Purpose and scope

Building in a circular construction economy fundamentally changes the way in which partners in the construction cycle work together. We therefore review the roles and responsibilities in the transition to circular construction and adjust them accordingly. A clear legal framework creates confidence in these new work methods.

Concepts for possible cooperation, such as extended chain responsibility that includes agreements on contracts and responsibilities as well as costs and benefits across the entire chain, create opportunities to start working with new business models. To ensure a level playing field for all parties involved, the authorities provide either direct enforcement or a framework for (self-)control based on clear regulations.

CHALLENGE TO INCREASE COLLABORATION

SUB-ACTION AREA 5.1 STRENGTHENING CONSTRUCTION TEAMS IN CIRCULAR CONSTRUCTION

Purpose and scope

Construction teams are an excellent (temporary) work method to shape cooperation across the value network. These are multidisciplinary teams (architects, producers, consultants, authorities, contractors, clients, etc.) working together throughout the construction process to achieve the best possible design and use of materials across the full life cycle of built structures. A further elaboration and regulation of construction teams in the context of circular construction is necessary in this regard. The Flemish administration encourages working in construction teams by including this work method as a standard in its tenders.

Results

- A framework is in place that defines the liabilities, rights and obligations of the actors in a construction team in circular construction projects.
- Model contracts facilitate working in construction teams.
- The Flemish administration uses the construction team formula as a standard in its public tenders.

CHALLENGE TO INCREASE COLLABORATION

SUB-ACTION AREA 5.2 DELINEATING ROLES AND RESPONSIBILITIES WITHIN EXTENDED CHAIN RESPONSIBILITY

Purpose and scope

Value creation and value retention are essential to close material cycles in a high-quality manner and promote reuse. This requires cooperation and a different interpretation of the roles of the partners in the chain. New agreements have to be made as a result of the changing roles and mutual coordination. We bring the partners in the network together and seek workable models to arrange mutual cooperation and sharing of tasks. We include the division of liabilities in a framework of agreements. These agreements constitute the basis for determining the chain responsibility. Costs and benefits are also entered in this model. To address the complex material logistics at small sites in particular, we explore possibilities to set up recycling or material hubs.

Results

- New chain cooperation models stimulate value retention and value creation.
- A framework of agreements for chain cooperation avoids liability and responsibility issues.
- A framework and agreements are in place for the organisation of logistics and treatment in the chain cooperation.

CHALLENGE TO INCREASE COLLABORATION

SUB-ACTION AREA 5.3 LEGAL FRAMEWORK FOR NEW WORK METHODS IN THE CIRCULAR CONSTRUCTION ECONOMY

Purpose and scope

New work methods within the circular economy require a specific and adapted legal framework. Roles and responsibilities are shifting; liabilities and ownership are fleshed out differently; costs and benefits are calculated differently. To give partners confidence in these circular work methods, a new framework of agreements is needed that is legally underpinned and verified against existing laws and regulations.

Results

- The legal/regulatory framework supports collaboration in the circular construction economy.
- The framework of agreements for chain cooperation is aligned with/integrated into existing laws and regulations.

CHALLENGE TO INCREASE COLLABORATION

SUB-ACTION AREA 5.4 LEVEL PLAYING FIELD THROUGH TARGETED SUPPORT AND ENFORCEMENT

Purpose and scope

A new way of collaborating within a value network according to mutual agreements will create additional costs for the companies involved, especially in the initial stage. The disadvantageous cost structure may temporarily put participating companies in a difficult position vis-à-vis a linear market. We are therefore committed to establishing a clear framework for the agreements, with regulations where necessary. We ensure proper monitoring and enforcement, as a possible complement to (self-) control.

Results

- A workable framework of agreements with the relevant supervisors is in place for the enforcement of relevant regulations.

CHALLENGE TO INCREASE MEASURING & INVENTORYING

ACTION AREA 6

MAPPING THE MATERIAL POTENTIAL OF BUILT STRUCTURES

Purpose and scope

To pursue a policy of maximising material stream valorisation, we gather the quantities, environmental impact and other necessary characteristics of materials at construction level. We establish a link to the existing stock to make a realistic estimate of the potential of materials available for reuse or recycling. Built Structures refer to both buildings and infrastructure such as roads, bridges, installations, ...

Link to policy goal

Each built structure for which an integrated environment permit has been obtained has a passport with material data upon final acceptance. Each built structure scores below a maximum global environmental impact level.

CHALLENGE TO INCREASE MEASURING & INVENTORYING

SUB-ACTION AREA 6.1 DEVELOPING AND OPENING UP MATERIAL DATA AT CONSTRUCTION LEVEL

Purpose and scope

Clients, property developers, building and demolition contractors, etc. benefit from complete, reliable and up-to-date data of the structure. We aim for digitally accessible data that we update in case of adaptations or renovations. Information about the design, maintenance, renovation and demolition of buildings and infrastructure is recorded in a passport. We aim to link material data to a building Information Model (BIM) and other existing applications, such as EPB software and TOTEM. We also examine whether we can integrate the data into the Digital Building Logbook). The building passport developed generates, in addition to the asbestos inventory, a demolition monitoring plan with information on the materials (quantity, composition, history, etc.) that are released during dismantling and demolition.

Results

- The format for the passport(s) for construction is accepted and is used by the industry.
- The exchange between various existing applications and passport(s) is operational.

CHALLENGE TO INCREASE MEASURING & INVENTORYING

SUB-ACTION AREA 6.2 MATERIAL STREAMS OF THE BUILT STOCK

Purpose and scope

Bringing together the data of various specific built structures (material passports, demolition inventories, reuse inventories, etc.) at the macro level (district, city or region) gives insight into the potential of material streams for reuse or recycling when released during renovation or dismantling. This allows for the (logistical and technical) needs for optimal reuse or high-quality recycling to be anticipated over time for specific material streams.

To this end, we are developing a dynamic data model of the existing stock. We define a strategy to enable material potential trade-offs at different levels. We link the developed data model to decision tools and other data collections and applications.

Results

- A dynamic data model for the material composition of built structures is finalised.
- The data model is linked to decision tools and other data collections and applications.
- The material potential data model is used in (local) policy decisions.

CHALLENGE TO INCREASE MEASURING & INVENTORYING

ACTION AREA 7
MEASURING THE CIRCULARITY OF BUILT STRUCTURES

Purpose and scope

We want to minimise the environmental impact of our built structures and maximise the value of the materials in our stock. We are therefore focussing on tools that map the footprint and potential of materials. We assess the circular potential of a structure based on that material impact and the extent to which a structure is change-oriented.

CHALLENGE TO INCREASE MEASURING & INVENTORYING

SUB-ACTION AREA 7.1 DEVELOPING A VALUE SCALE FOR THE CHANGE ORIENTATION OF BUILT STRUCTURES

Purpose and scope

We can reduce the environmental impact of a new structure or renovation by taking into account its different current and future potential uses. We are therefore committed to change-oriented design and (re)construction. As such, a structure is used as efficiently as possible and we can avoid the need for additional construction work or deep renovations in the future.

We develop a value scale to make the extent to which a structure is change-oriented visible and measurable. We evaluate the typologies for which the value scale is relevant. With this value scale, we encourage clients, architects, etc. to design and (re)construct in a change-oriented manner.

We explore the legal framework in which change-oriented design and (re)construction can be applied.

Promoting change-oriented construction takes into account the different core qualities (robust and adaptable) included within the strategic vision of the Spatial Policy Plan Flanders.

Results

- A value scale/guidance supports clients and architects to realise change-oriented structures.
- A minimum value of change orientation is used for various typologies.

CHALLENGE TO INCREASE MEASURING & INVENTORYING

SUB-ACTION AREA 7.2 DEVELOPING AND IMPLEMENTING AN M-LEVEL FOR BUILT STRUCTURES

Purpose and scope

To minimise the environmental impact of a structure, we need to be able to measure and quantify that impact. TOTEM allows us to determine material choices with the lowest possible environmental impact, which is why we are committed to further developing and expanding TOTEM. We are developing limit values (benchmarking) as a first step towards an M-level. We also pursue maximum integration and alignment with other policy goals, e.g. for energy and water, to reduce the overall environmental impact of structures.

Results

- Based on the calculation in TOTEM, more designers, clients, etc. choose materials with low environmental impact.
- Built structures score below a maximum M-level, preferably as part of a global environmental impact score (energy, materials, water).

CHALLENGE TO INCREASE AWARENESS-RAISING

ACTION AREA 8

SUPPORT FOR AND KNOWLEDGE ABOUT CIRCULAR CONSTRUCTION

Purpose and scope

Both the construction industry and the developers of built structures play a crucial role in the development of a circular construction economy. To accelerate the transition, we are committed to strengthening support. In that respect, it should be clear why we choose to move towards a circular construction economy, why we want to act now and what the added value of circular construction is. We offer information tailored to a broad target group on the basis of a coherent policy vision.

We are committed to providing accessible information for today's construction professionals and ensure that tomorrow's professionals have the necessary circular (construction) competencies. We support developers of built structures by explaining how information is processed and relevant decision-making tools are used.

Link to policy goal

25% of buildings (new construction/ renovation) are designed/ constructed in accordance with the principles of circular construction.

CHALLENGE TO INCREASE AWARENESS-RAISING

SUB-ACTION AREA 8.1 ENHANCING SUPPORT AND SETTING THE AGENDA

Purpose and scope

The construction industry is pre-eminently characterised by a value chain with a long lead time. It is therefore necessary to act today to reap the individual and societal benefits of a circular economy by 2050. To demonstrate this urgency, we outline a pathway that is aimed at raising broad awareness among clients (private, local authorities) and actors within the construction industry. This pathway provides insight into the ambitions of the Flemish public sector within a broader (European) framework and concrete targets linked to themes such as CO2 reduction, raw materials scarcity, spatial use and global warming.

Results

- A communication strategy is in place for cooperation towards the 2030 policy goal.
- There is broad support for circular construction.

CHALLENGE TO INCREASE AWARENESS-RAISING

SUB-ACTION AREA 8.2 OPENING UP BESPOKE INFORMATION

Purpose and scope

Sharing knowledge, information and good (practice) examples is essential to making circular construction standard practice. The challenge is to bring together the existing information in a clear and accessible manner tailored to users' needs: building professionals looking for new circular solutions, clients seeking to incorporate a circular approach into their projects or training centres aiming to integrate circular construction into their training.

This knowledge sharing aims to provide concrete examples and solutions to underlying questions around circular construction. Knowledge sharing starts from a clear conceptual framework, includes an overview of good practices and zooms in on cooperation models and technical knowledge.

We explain trends and information on circular construction among several potential clients.

Results

- There is a clear, up-to-date and aligned provision of information on circular construction.
- Various (construction) actors easily find their way to transparently available information on circular construction.

CHALLENGE TO INCREASE AWARENESS-RAISING

SUB-ACTION AREA 8.3 INTEGRATING CIRCULAR CONSTRUCTION INTO TRAINING AND EDUCATION

Purpose and scope

Circular construction has an impact on the profiles and competencies needed in the construction industry. Europe is identifying future needs and how the labour market should and can respond to them. This requires a translation to the Flemish context and further elaboration.

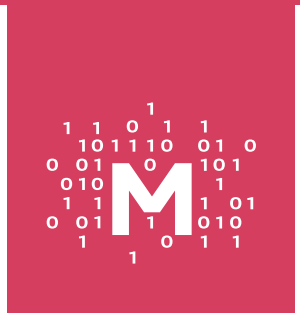
On this basis, a pathway will be outlined to gradually introduce the competencies and profiles into the construction industry's training offer. Together with the education and construction sectors, we are developing a suitable approach and the necessary materials to provide training in education and in companies.

To encourage the use of tools that measure and underpin circularity, we are drawing up a pathway to embed this in the training offer.

Results

- Competencies required for a circular economy are integrated into construction training programmes.
- Construction professionals know how to use tools to calculate and underpin circularity.

CHALLENGE TO INCREASE DIGITALISATION



ACTION AREA 9

DIGITAL INFORMATON EXCHANGE IN CONSTRUCTION

Purpose and scope

Transparent information on the origin, history, use and destination of materials increases their economic value and usability in a circular construction economy. The trend towards digitalisation in the construction industry offers opportunities to link data and share it transparently within the value network. We pursue an optimal and transparent use of data made available through various channels. We are committed to coordination, user-friendly tools and a secure environment for data management and use.

CHALLENGE TO INCREASE DIGITALISATION

SUB-ACTION AREA 9.1 COMMITTING TO HIGH-QUALITY DIGITAL DATA COLLECTION

Purpose and scope

The construction industry is focusing increasingly on digitalisation and the use of digital tools in project planning, management, design and monitoring. This requires input of data, but also generates new data. Using this data smartly creates opportunities for developing and monitoring policy decisions and for matching market supply and demand faster. It also opens up opportunities for automation and the use of artificial intelligence. We examine which data is crucial for the transition to a circular construction economy. To that end, we use existing data and data that is yet to be collected. We aim for high-quality data to be used transparently to support the circular construction economy.

Results

- The use of high-quality, available data is maximised to support the circular construction economy.
- There is an extensive digitalisation and availability of information on materials andmaterial streams.

CHALLENGE TO INCREASE DIGITALISATION

SUB-ACTION AREA 9.2 LINKING DATA PLATFORMS AND TOOLS

Purpose and scope

Digital data is acquired for various reasons and through different channels and platforms. We examine opportunities for aligning and exchanging relevant information through consultations between administrators of different databases regarding various policy areas. We ensure maximum digital access to make data available for further use.

Results

- Publicly available digital data is shared across different policy areas.
- Data platforms are compatible and enable exchange.

CHALLENGE TO INCREASE DIGITALISATION

SUB-ACTION AREA 9.3 DEVELOPING A LEGAL FRAMEWORK FOR DATA COLLECTION, EXCHANGE, OWNERSHIP AND USE

Purpose and scope

Data is released during different activities within a value network and a circular construction cycle that can be used for a variety of purposes. Mutual exchange and use are often difficult because of data protection but also because of the often divergent interests of partners. The general trend towards digitalisation combined with closer collaboration within the value network and interdependence necessitate the development of a legal framework that gives confidence to all partners. Although this transcends beyond sectors, we focus on the specific interests of the construction industry.

We examine issues such as use of data, obligation to provide data, storage within a secure environment, free availability of data, privacy and IP rights.

Results

- Legal protection is guaranteed in data exchange.
- Data is securely exchanged and duly accessed.

4.2 TOWARDS A CIRCULAR VALUE NETWORK FOR BUILT STRUCTURES

Materials management and the design and implementation thereof are inextricably linked in a circular construction economy. Most action areas therefore also focus on both themes. In addition, the action areas are always linked to several steps in or even the entire construction chain. To minimise environmental impact, use raw materials efficiently.

And reuse materials, the production, assembly, design, construction and dismantling should take this into account. Collaboration with and across the entire construction industry is central to creating a circular value network for built structures (see Figure 9). In this circular value network, specific focus should be placed on adaptations to built structures because of new needs and deep renovations of built structures. In addition, reusing components and recycling materials should become more common practice. Material data is kept at various levels throughout the circular value network by means of passports.

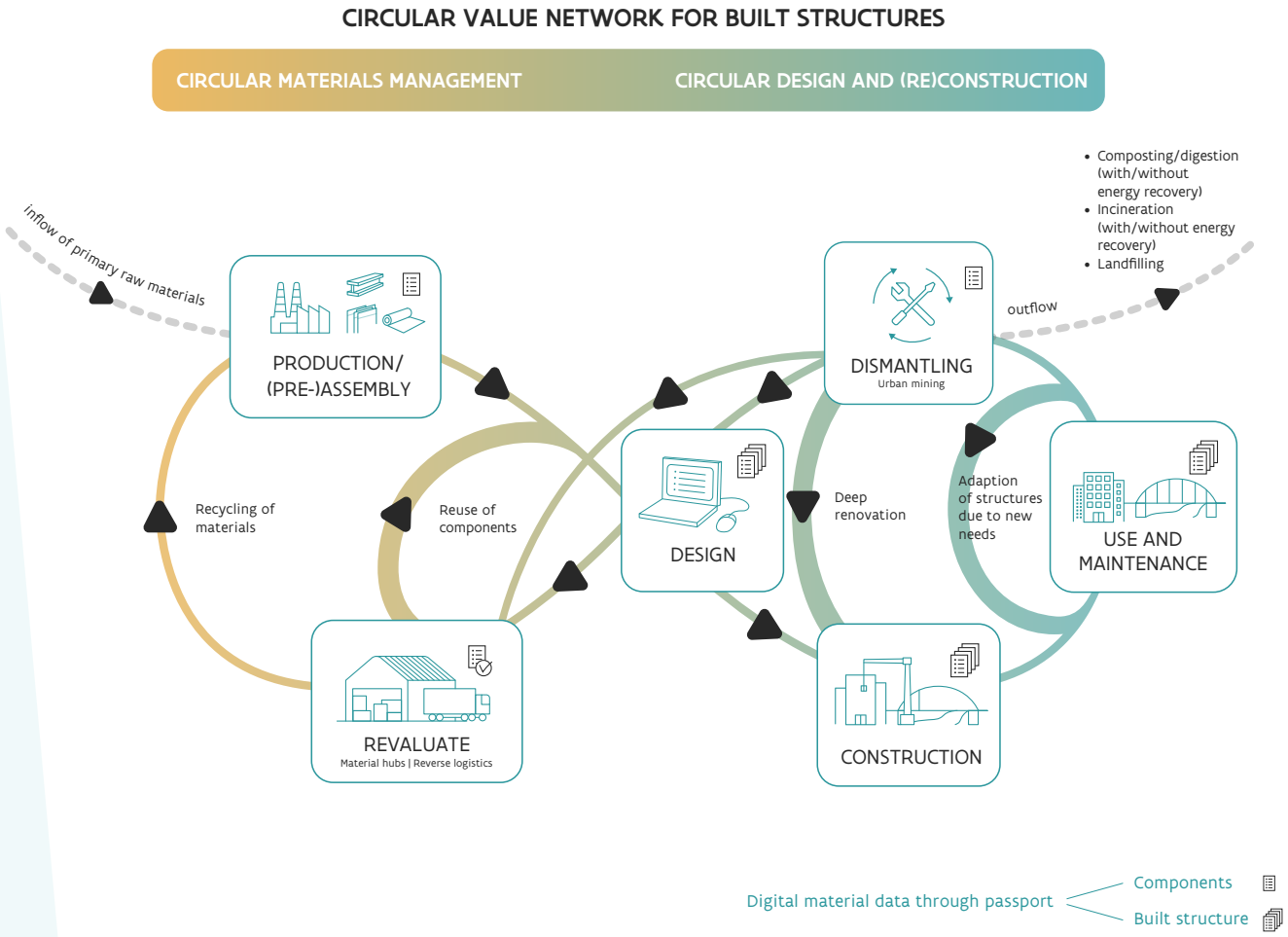


Figure 9: Circular value network for built structures

05 | COLLABORATION

This chapter offers insight into the organisation and monitoring of collaboration between OVAM and its partners to achieve the objectives of this policy programme. We discuss the role taken on by OVAM and the input and efforts provided by the different partners.

5.1 A BROAD PARTNERSHIP WITH DIFERENT ROLES

The policy programme offers a framework for all parties involved to jointly realise the transition to a circular construction economy. It builds on the participation and collaboration initiated during the previous policy programme. It also reinforces the dynamics and the co-creative process, which are inherent within the Circular Construction Living Lab and the Green Deal on Circular Construction.

The transition to a circular construction economy requires a broad partnership, with participation from construction industry stakeholders and various policy areas and levels. Points of focus in this respect include ease of use, the financing of additional tasks (e.g. assessment of applications by local authorities), etc. The roles of the partners are determined by the stage in the process but also by the extent to which formal and informal partnerships between public and private partners are shaped. At the start of the policy programme, the roles are fleshed out for each action area and sub-action area and are laid down in a framework of agreements.

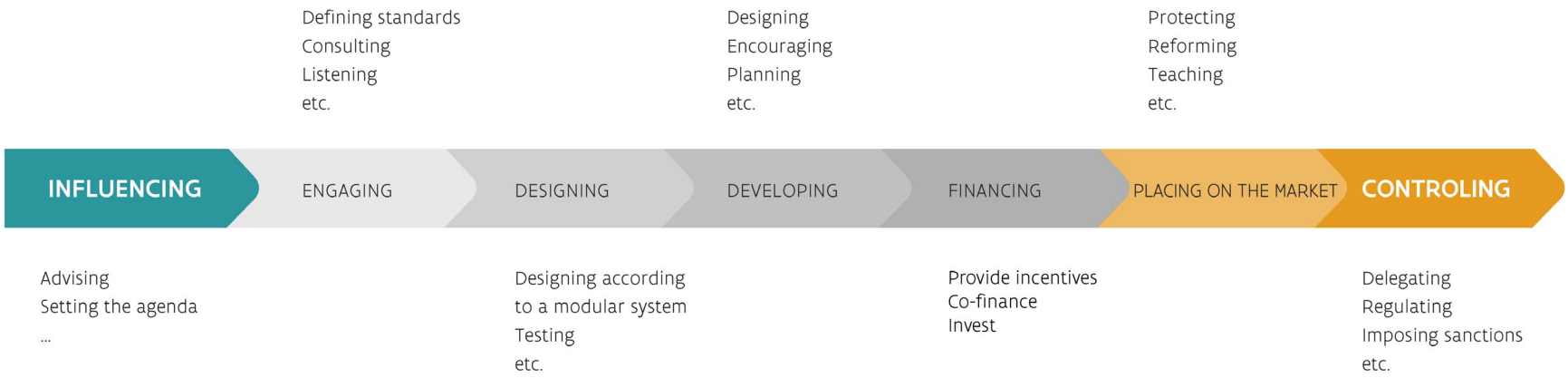


Figure 10: illustration of the roles that the different partners can take on within the action areas of the policy programme

OVAM assumes a **coordinating role** to give direction to, drive forward and monitor the policy programme together with its partners. With the policy programme, OVAM gives an initial impetus regarding the priorities, the timing and the course of the collaboration. In the run-up to the roll-out of the policy programme, OVAM is fine-tuning the structure of the collaboration with its partners. To this end, it organises an initial consultation and regular consultation moments with the promoters of the different action areas and sub-action areas. This is how we jointly discuss progress and prepare concrete next steps.

Halfway through and at the end of the programme's term, OVAM will conduct a thorough evaluation together with its partners and, if necessary, adapt the planning, priorities and funds in order to achieve the ambitions by 2030 or draw up a new policy programme.

Within its remit, OVAM takes the lead in adjusting and adapting the **regulatory framework.** It engages in dialogue with other public authorities involved (Flanders Innovation & Entrepreneurship/VLAIO, the Department of Economy, Science and Innovation/EWI, the Department of Mobility and Public Works/MOW, local authorities, etc.) to achieve a coherent, broadly anchored and supported policy. With regard to challenges falling outside its remit, OVAM **advocates** introducing circular construction in other policy areas and at other policy levels and co-facilitating the transition.

For action areas where this proves necessary, OVAM actively deploys its expertise in circular materials management and circular design and (re) construction.

It can supplement its own **expertise** with input from experts it involves, through public contracts, in a project within the collaboration.

OVAM takes on a **facilitating role** towards the realisation of a clear and coordinated story around circular construction. Communication on the efforts and results of the policy programme is taken care of by the stakeholders jointly and in consultation with OVAM.

A framework of agreements defines the roles and responsibilities of the different stakeholders in each of the action areas and sub-action areas. When establishing partnerships for the (sub-) action areas, we always aim for a multidisciplinary and broadly composed representation. The roles assumed by the various stakeholders may change during the term within and between the (sub)action areas.

The policy programme 'Towards Circular Construction' promotes a dynamic of coordination and collaboration across different policy areas and levels. Digitalisation in the construction industry offers opportunities for streamlining processes, administrative simplification and transparent data use. The multidisciplinary approach and broad partnership guarantee a holistic approach that duly considers social aspects and affordability.

5.2 MONITORING THE POLICY GOAL FOR CIRCULAR CONSTRUCTION AND THE PROGRESS ON THE POLICY PROGRAMME AND (SUB-)ACTION AREAS

To monitor the progress on the policy goal, a limited number of key performance indicators (KPIs) have been developed at the level of the policy goal for circular materials management and circular design and (re)construction, and consequently also at the level of the challenges and action areas. These indicators help assess whether the ultimate purpose of the policy goal is being met and help explain why certain targets are either realised or not. In addition, we work with a set of underlying indicators that help monitor knowledge, attitude and behaviour as explanatory factors. The KPIs serve as guidance and result from an initial analysis prepared by OVAM (see Figure 11). In the run-up to the start-up and roll-out of the programme, these indicators will be further defined together with the main partners. How, through what data and when we will be monitoring and measuring the KPIs in practice will also be elaborated later on in the process. Given the importance of the KPIs in the programme monitoring, we are looking to create broad support for this.

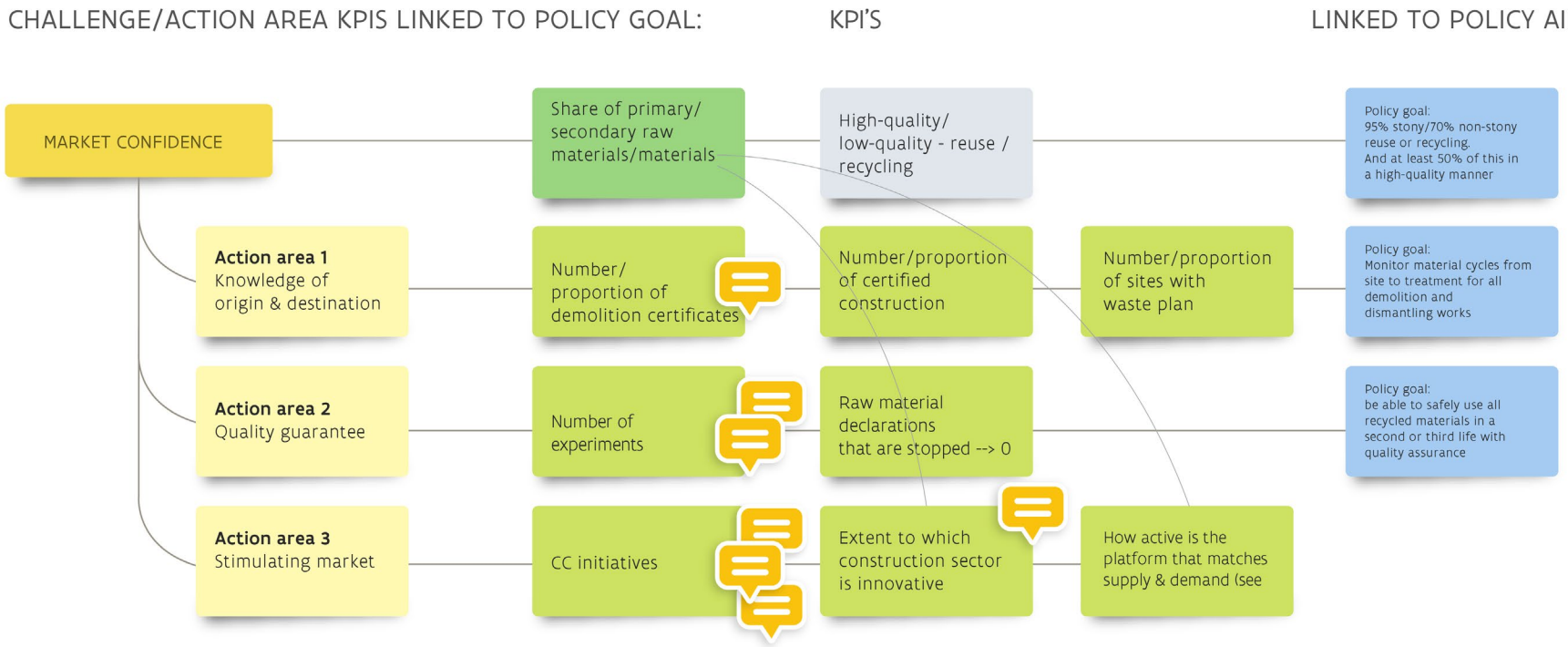


Figure 11: fragment of initial idea for KPIs for policy programme monitoring

In addition, at the start of the programme, a concrete and time-phased plan with action paths, deliverables (milestones), process and result indicators, and human and financial resources is outlined for each action area and sub-action area. These plans constitute the framework for the various partners to collaborate and contribute to the programme. They also form the basis for monitoring progress on the various action areas and sub-action areas. Twice a year, OVAM invites all the promoters of the action areas concerned to give an update on the progress and actions realised. These meetings provide a platform where the parties involved engage in dialogue on the joint efforts and the further programme planning. In the meantime the promoters of the action areas monitor their efforts and progress towards meeting the targets and milestones. This work method is laid down in a framework of agreements and allows us to quickly get a picture of the success factors and shortcomings at the different levels of the collaboration. By monitoring coupled indicators we can detect where more efforts are required, or when a policy goal target proves unachievable.

5.3 MONITORING KPIs FOR A CIRCULAR CONSTRUCTION ECONOMY

The lack of precise and readily available data makes it difficult to assess the circularity of our current building stock. For this reason, digitalisation and data processing are also included as spearheads in the policy programme.

To develop this policy programme, we conducted a survey into the extent to which circular construction is present in the market today. This made it possible to indicate where we stand in the transition to a circular economy. In doing so, we rely on the perception that prevails among construction professionals. The results of the survey will also be taken into consideration for the further monitoring of the programme. Together with the 'direct' KPIs, they provide a picture of how support for a circular economy, as well as the actual implementation thereof, are evolving in practice.

Unambiguous and easily available information is sought for monitoring the KPIs. For a number of action areas, this is closely linked to the development of tools that also focus strongly on digitalisation and data collection. It is less straightforward to carry out a baseline measurement for these action areas at this stage already. We are looking for a fully-fledged alternative for this.

5.4 RESOURCES

The policy programme 'Towards Circular Construction' is broadly conceived and touches on several policy areas. To maximise budget spending, we are looking to collaborate with the private sector and across the different policy areas.

OVAM provides staff for the guidance and coordination of the policy programme. The efforts to develop a regulatory framework within OVAM's policy area fall within its operating budget. In addition, the policy programme is committed to the research and development of (new) support tools to monitor the transition to a circular construction economy and to embed it in the future. Maximum focus is placed on coordination and compatibility with the partners, in terms of both content and the deployment of people and resources. To this end, we are jointly looking for funding at regional, national and European level.

The resources made available in the 2022-2030 period will determine the pace of the transition to a circular construction economy.

06 | GLOSSARY

A lot of the terms that feature in the policy programme are used in a specific context. Some terms are defined by law. This glossary guides the reader through the text.

Adaptable	A structure is adaptable if it can be modified and efficiently brought in line with new needs and requirements.
Acceptance criteria	Requirements that waste must meet at the start before treatment for reuse or recycling. Demolition
Demolition Demolition works	Any works in which (part or parts of) a structure are dismantled.
Waste	Substance or object which the holder disposes of, or is required to dispose of.
Alternative raw material	Material originating from previous use or from residual streams from another product system that replaces primary materials.
Management costs	Costs arising from the ownership or use of a structure. This includes, for instance, insurance costs, energy costs, emphyteusis, maintenance and management costs, depreciation and rent.
BIM	The Building Information Model is a digital model that gives a virtual representation of the structure, linking geometry and other information about the elements in the structure.
Construction and demolition waste	Waste produced as a result of construction work and originating from the construction materials used, or waste produced by demolition, renovation or dismantling works.
Construction cycle	The different stages of the development of a structure, ranging from raw material extraction, material production, design, execution, use and maintenance to end of life and waste treatment.
Construction chain	All the actors involved in the different stages of the construction cycle.
Construction cost	Costs arising from requirements for the physical execution (construction) of built structures.
Construction materials	Materials used to build built structures.
Construction professionals	People engaged in a profession that contributes to the execution and management of a structure.
Construction substance	Raw material or material for use in the production of construction materials.
Construction team	A partnership between a client and one or more experts working together in a coordinated context, ranging from the design to the realisation of a structure.
Construction technical	The technical requirements that a (part of a) structure or the condition of a material must meet in order to be safe and suitable for use.
Structure element	Part of a structure. This can be a single material (e.g. a brick) or a composite element composed of different materials (e.g. a façade composed of masonry bricks) or different layers (e.g. a cavity wall composed of quick-build masonry, insulation, a cavity and façade panels).
Structure	A structure can be both a building and infrastructure.
Sorting at source	The separation of materials for disposal from the site or another place of origin.
Certification	Determines whether a material or (part of) a structure meets the imposed specification and requirements regarding composition, performance, safety,
Circular (re)construction	A construction practice that strives for efficient and effective use of resources to create or at least retain economic, social and ecological (added) value,
	taking into account the existing legacy and future opportunities inherent in our construction industry. We do this through close collaboration within the value network.

Circular procurement	Procurement that takes into account the principles of the circular economy.
Circular structure	Structure designed and executed in accordance with circular design principles and/or realised with circular products, elements and materials.
Circular materials management	Maximum organisation of material value retention at the end of use in construction projects (with a view to application in a new life cycle).
Circular design	The creation of a structure that uses circular construction solutions and takes into account the lowest possible environmental impact over the entire life time of the structure.
Circular business model	The way in which a company creates or retains (added) value in the circular economy. Circular construction economy The economy in which construction practice meets the principles of circular (re)construction.
Circular construction solution	Material or design choice in structures that allows for maximum recovery through reuse or recycling.
Circular economy	Economic system in which the use and value of raw material streams are optimised without impeding the functioning of the biosphere and the integrity of society. This means that it is aimed to protect biological and technical material stocks, minimise environmental impact and retain or enhance the existing value.
Circular design principles	Principles under which we design and (re)construct in a change-oriented manner with as many reused materials as possible that can be used again to create the lowest possible environmental impact.
Sub-action area	Efforts to eliminate a specific part of a challenge that impedes the transition and the achievement of the policy goal.
Ecodesign	Approach in which environment-oriented product development takes centre stage, the full life cycle of a product or process is considered and the greatest environmental burden is addressed first.
Ecodesign Directive	European directive that imposes environmental requirements on product design and development, with the aim of reducing the environmental pressure of a product throughout its life cycle.
End-of-life raw materials/materials	Raw materials/materials mined with end-of-waste status during the demolition or dismantling of a structure.
End-of-life stage	End of the use phase of a structure that will be completely or partially demolished.
Environmental Product Declaration	A written declaration with quantified information on a given set of environmental impact indicators (e.g. climate change, acidification, eutrophication, etc.) based on a life cycle analysis.
EPB	Energy Performance and Indoor Climate (Energieprestatie en Binnenklimaat). Energy performance regulations impose requirements in terms of insulation, installations, ventilation and overheating.
Recycled granulate	Crushed rubble that is produced by type and calibre in a crushing plant and meets the requirements of the unitary regulations.
Raw material declaration	Attestation for the use of a material with end-of-life status.
Reuse	Using construction products or construction elements again in a similar or different function, with limited treatment such as cleaning. This does not include recycling.
High-quality (reuse)	The process of converting secondary raw materials (from reuse or recycling) to new materials, components or products with a better quality, improved functionality and/or higher value.
Resources	Raw materials, water, energy and space.
Chain collaboration	Activities required for the circular management of material streams in a value chain.

Chain responsibility	Framework of agreements for the collaboration of all the partners involved in a value network. Small sites Sites that each time release a limited amount of different material streams.
Climate neutral	Avoiding or offsetting greenhouse gases already emitted so that the net effect does not contribute to climate change.
Quality assurance	System of (self-)control that offers guarantees regarding the origin and quality of materials and construction substances.
Low-quality	The conversion of secondary materials, components or products (from reuse or recycling) to new materials, components or products with a lower quality, reduced functionality or lower value than the original application.
Life cycle	Successive stages of a product or service, such as design, material extraction, production, distribution, use and end of life.
Lifetime (functional)	Lifespan of a (partial) object during which it remains suitable for its current function in its current location.
Material cycle	Stages that materials go through from extraction to end of life or restart through recovery.
Material performance	The environmental impact of the materials in a structure.
Materials or recycling hub	Physical place where material streams, originating from different sites, are collected in limited quantities and offered for reuse or recycling.
Materials management	Management of material streams aimed at maximum valorisation with minimal production of waste streams that cannot be recovered.
Environmental impact	(Calculated) impact that the use of a material, element or structure exerts on the environment during the life cycle.
Environmental costs	Financial translation of the negative impact on the environment that occurs as a result of the design, execution and use of a structure. The costs are determined using monetisation methods, which charge the costs of repairing and/or preventing environmental damage.
Environmental risk profile	Degree of reliability of origin (traceability) and quality of the rubble supplied at a crushing plant for the production of recycled granulate.
Modular building	A building, for the construction of which elements are used that were assembled prior to installation. These elements often consist of several modules. The modules contain various industrially manufactured components.
M-level	Score indicating the total environmental impact of materials in a structure.
Post-sorting	Operation aimed at separating materials from mixed material streams for purposes of recovery.
Recovery	The use of waste materials to replace other materials in a construction application. E.g. using sand from excavated soil in concrete instead of sand mined as a primary raw material.
Dismantling	The non-destructive, and preferably simple, disassembly of a composite construction product or element.
Client	Legal person who commissions construction, demolition or renovation works.
Construction passport	Digital document that documents properties of a structure in terms of both quality and quantity and is kept up-to-date throughout the lifetime of the structure.
Stock	Collection of all the existing built structures.
Primary raw material	Raw material produced by the Earth and used by humans to produce materials and products.
Product as a service	Revenue model in which the ability to use a product is offered as a service. The service provider retains ownership of the product.
Recycled content	Mass percentage of the material in a (partial) object that has been reused or recycled.
Renovate	Restore and/or improve the technical and/or functional quality of a structure that is still functioning properly in itself, by refurbishing it on a large scale. This restores or improves the functionality and technical quality.
Selective demolition	Demolition or dismantling works during which the resulting waste or materials are sorted at source to the maximum extent possible or treated in a way that still allows post-sorting.

Demolition (works)	Collective term for the complete or partial removal of a structure through dismantling or demolition.
Demolition waste plan	Efforts to manage, store and dispose of waste generated during the demolition or dismantling of structures.
Demolition management organisation	Organisation that monitors material streams from demolition site to treatment
Demolition monitoring	Monitoring of material streams from demolition sites.
Demolition monitoring plan	Includes the identification of the construction site, list of all wastes that will be released during demolition and advice on possibilities for reuse or processing.
Sorting facility	Installation used for the separation of materials from mixed incoming streams.
Standard specifications	Requirements and provisions for built structures laid down in advance.
Total Cost of Ownership (TCO)	The costs and benefits throughout the life cycle or use phase of a (partial) object (purchase, maintenance, use, etc.).
Technical standard	Standard for the performance that (construction) materials must meet.
TOTEM	Tool to Optimise the Total Environmental impact of Materials: measurement tool to calculate and optimise the material-related environmental impact of buildings and construction elements.
Second (third) life	The application of materials recovered from (construction) materials incorporating secondary raw materials.
Change-oriented (re)construction	A design and construction strategy based on the ever-changing needs and wishes of users and society, with the aim of creating buildings that efficiently support these changes.
Sample specifications	Inspiration source for tendering a contract (with circular specification provisions).
Shaped application	A shaped application is one that is very sturdy and does not change its shape much when put under pressure (9 Nm), e.g. concrete. Value retention Retention of the technical qualities to fulfil a specific function and the associated economic value.
Value creation	The effective and efficient use of resources to create economic, social and environmental (added) value.
Value chain	A sequence of activities during which a value-adding activity takes place in each link of the process.
Action areas	Efforts to address the challenges towards the 2030 policy goal. See chapter 4.
Digital Building Logbook	The home passport is a free digital passport that brings together all the information, data and certificates about a dwelling into one practical overview.

07 | REFERENCE WORKS

Beleidsprogramma 'Materiaalbewust bouwen in kringlopen' (2014 tot 2020) / Policy programme 'Material-Conscious Construction in Cycles' (2014 to 2020)
https://ovam.be/sites/default/files/atoms/files/Milieuverantwoord-milieugebruik-bouw.pdf

Beleidsnota Omgeving 2019-2024 / Policy Paper on Environment and Spatial Development 2019-2024
https://www.vlaanderen.be/publicaties/beleidsnota-2019-2024-omgeving

The Roadmap to a Resource Efficient Europe
https://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm

European Green Deal
https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_nl

A Renovation Wave
https://ec.europa.eu/energy/sites/ener/files/eu_renovation_wave_strategy.pdf

Circular economy action plan (CEAP)
https://ec.europa.eu/environment/strategy/circular-economy-action-plan_nl

Construction Products Regulation
https://ec.europa.eu/growth/sectors/construction/product-regulation_en

Waste Framework Directive
https://eur-lex.europa.eu/legal-content/nl/TXT/PDF/?uri=CELEX:32018L0851&from=EN

Verordening voor grensoverschrijdend transport van afvalstoffen (EVOA) / Regulation on shipments of waste
https://www.ovam.be/evoa

EU Sustainable Products Initiative
https://www.duurzaam-ondernemen.nl/eu-consultatie-over-initiatief-voor-duurzame-producten/#:~:text=Het%20initiatief%20voor%20duurzame%20producten,naar%20niet%20energie%2Dgerelateerde%20producten

Critical Raw Materials Resilience: Charting a Path towards greater Security and Sustainability
https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0474

Digital building logbook
https://op.europa.eu/en/publication-detail/-/publication/cacf9ee6-06ba-11eb-a511-01aa75ed71a1/language-en

Regeerakkoord van de Vlaamse regering 2019-2024 / Government of Flanders Coalition Agreement 2019-2024
https://www.vlaanderen.be/publicaties/regeerakkoord-van-de-vlaamse-regering-2019-2024

07 | REFERENCE WORKS

Visie 2050. Een lange termijnstrategie voor Vlaanderen / Vision 2050. A Long-term Strategy for Flanders
https://www.vlaanderen.be/publicaties/visie-2050-een-langetermijnstrategie-voor-vlaanderen

Vlaams energie- en klimaatactieplan / Flemish Energy and Climate Action Plan
https://www.vlaanderen.be/publicaties/vlaams-energie-en-klimaatplan-2021-2030-algemeen-kader-voor-de-geintegreerde-nationale-energie-en-klimaatplannen

Vlaanderen Circulair / Circular Flanders
https://vlaanderen-circulair.be/nl

Proeftuin circulair bouwen - Urban Mining / Circular Construction Living Lab - Urban Mining,
https://vlaanderen-circulair.be/nl/onze-projecten/detail/green-deal-circulair-bouwen/proeftuin-circulair-bouwen

Werkagenda Circulair Bouwen / Circular Construction Work Agenda
https://www.ewi-vlaanderen.be/sites/default/files/een_transversale_werking_voor_de_circulaire_economie_van_vlaanderen.pdf

Langetermijn renovatie strategie voor gebouwen 2050 / Long-term renovation strategy for buildings 2050
https://www.energiesparen.be/vlaamse-langetermijnrenovatiestrategie-voor-gebouwen-2050

Actieplan Asbestafbouw / Asbestos Removal Plan
https://www.ovam.be/naar-een-asbestveilig-vlaanderen

Federaal plan voor Duurzame Ontwikkeling / Federal Plan for Sustainable Development
https://www.duurzameontwikkeling.be/nl/beleid/federale-strategie/instrumenten/federaal-plan-voor-duurzame-ontwikkeling-fpdo

Relanceplan Vlaamse Regering - Vlaamse Veerkracht / Government of Flanders Recovery Plan - Flemish Resilience
https://www.vlaanderen.be/publicaties/relanceplan-vlaamse-regering-vlaamse-veerkracht

For more information:
OVAM, Stationsstraat 110, 2800 Mechelen
beleidsplanbouw@ovam.be