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EXTENDED PRODUCER RESPONSIBILITY IN THE CONSTRUCTION SECTOR

EXPLORING THE POTENTIAL

WHAT IS EPR? HOW CAN IT BE APPLIED?
WHAT IS THE ROLE OF THE EU?



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About this paper

This paper introduces the principle of Extended Producer Responsibility (EPR) to initiate a discussion about its potential application within the construction sector. EPR is rooted in the concept of internalising environmental costs and adhering to the 'polluter pays' principle, which holds that manufacturers are best positioned to manage the end-of-life stage of their products. EPR has been successfully implemented for other product streams, such as packaging, batteries, End-of-Life vehicles, waste electrical and electronic goods, and textiles, however, its application in the construction sector remains largely untapped. This paper aims to fill that gap by providing an introduction of the concept and its alignment within the existing EU policy landscape. It analyses two case studies that offer practical insights and lessons learned from different implementation approaches which underscore the feasibility and benefits of adopting EPR in construction. While details of existing schemes are still evolving and various design options are under consideration, it is evident that EPR systems hold significant potential to promote circular business models and raise awareness of sustainable design and use of construction materials.

The discussion of an EPR system in the construction sector, along with the roles of policymakers and value chain actors is both timely and relevant. For successful implementation, several critical issues need further consideration. These include, defining the appropriate scope of the scheme, evaluating the benefits of open-loop versus closed-loop recycling, aligning sustainability criteria in product design across various policy initiatives (e.g. GPP), and addressing warranties and product safety to encourage the reuse of components through EPR.

Given recent policy developments, such as the whole life carbon (WLC) disclosure requirements of the recast Energy Performance of Buildings Directive (EPBD) and the Environmental Taxonomy's recycled content thresholds, the EU will have to play a key role in aligning various environmental objectives and bridging the gap between different stakeholder communities, including those involved in the circular economy, energy efficiency improvements, and lifecycle carbon optimisation and reporting. Collaborative efforts and dialogue with industry will drive meaningful actions towards achieving climate targets and advancing circular economy goals.

The paper has been drafted based on desk research and interviews with EPR operator organisations and construction sector representatives. These insights were further discussed during a workshop with policymakers, value chain actors and civil society organisations.

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GLOSSARY

EXTENDED PRODUCER RESPONSIBILITY

- **CEAP** Circular Economy Action Plan
- **CDW** Construction and Demolition Waste
- **Closed loop recycling** A recycling process where materials are recycled back into the same product without significant alteration or loss of quality, creating a closed loop of material use
- **CPR** Construction Product Regulation
- **EoL** End of Life
- **EPBD** Energy Performance of Buildings Directive
- **EPR** Extended Producer Responsibility
- **ETS** Emission Trading Scheme
- **GBA** General Binding Agreement (in the Netherlands EPR system)
- **Open loop recycling** The process of recycling materials into different products or materials, rather than returning them to the same product without significant alteration
- **PRO** Producer Responsibility Organisation
- **VRN** Vlakglas Recycling Nederland (PRO in the Netherlands)
- **Waste Hierarchy** A framework ranking waste management strategies based on their environmental impact, with prevention as the most preferred option followed by preparation for reuse, recycling, other recovery (such as energy recovery), and disposal as a last resort
- **WFD** Waste Framework Directive
- **WLC** Whole Life Carbon

Why look at Extended Producer Responsibility in the construction sector?

The growing focus on recycling, re-use, and circular products in policy discussions reflects the need to promote sustainable practices across various industries. The construction sector holds significant potential to improve circular material flows. Exploring how Extended Producer Responsibility (EPR) for construction products can contribute to the sector's transition towards a more circular economy is both timely and essential.

The EU's construction industry consumes nearly 50% of all extracted materials¹ and generates almost 40% of the EU's waste². The recovery rate of Construction and Demolition Waste (CDW) is set at 70% according to the Waste Framework Directive (WFD)³. This target aims to manage CDW in an environmentally responsible manner and support the shift towards a circular economy. However, this high recovery rate does not necessarily equate to the recovery of high-value materials. Instead, many Member States opt for "backfilling," which involves using waste as a substitute for non-waste materials in activities such as reclaiming excavated areas or landscaping⁴. Although nearly 95% of building materials are recyclable, less than 5% of their actual resource value is currently being preserved⁵. The potential for recycling and re-use, even with existing technology, remains largely untapped⁶.

Circular material flows offer significant advantages. Given the scarcity and high prices of many primary resources, circularity helps avoid supply chain insecurities and preserve resource value. They also alleviate pressure on ecosystems and reduce the environmental impacts associated with mining and processing primary resources. Additionally, circular economy approaches can significantly contribute to achieving climate goals. The EU Commission estimates that the right circular economy measures could reduce emissions from building materials by up to 80% compared to current practices⁷. Prevention strategies, which involve reducing or minimising waste generation at its source, have a particularly high potential for reducing greenhouse gas emissions. Moreover, substantial emissions can be saved through the re-use of elements or products, as this conserves the energy that would otherwise be required for recycling processes and the production of primary resources⁸.

Against this backdrop, policymakers are increasingly putting the spotlight on circularity requirements of construction products⁹. Objectives include promoting adaptive reuse, designing for longevity, reducing whole-life carbon, and encouraging the recycling and repurposing of

¹ EU Commission, DG internal market, industry, entrepreneurship and SMEs website: Buildings and constructions ([here](#))

² EU Commission website, construction and demolition waste ([here](#))

³ WFD 2008/98/EC Article 11(2)(b)

⁴ COLLECTORS website ([here](#))

⁵ Arup. Time to act: how the EU's circular economy is reshaping buildings ([here](#)); Circular Buildings Toolkit ([here](#))

⁶ Cristóbal G. et al (2024): Techno-economic and environmental assessment of construction and demolition waste management in the European Union, Publications Office of the European Union, Luxembourg ([here](#))

⁷ EU Commission, DG internal market, industry, entrepreneurship and SMEs website: Buildings and constructions ([here](#))

⁸ The recent JRC report on status quo and prospective potential of CDW (Cristóbal G. et al 2024) calculates a total reduction of ca. 48 Mt CO₂e when preparing for reuse and recycling practices are upscaled to a maximum.

⁹ EU Commission, DG internal market, industry, entrepreneurship and SMEs website: Buildings and constructions ([here](#))

construction materials to minimise waste and environmental impacts (see section on the legislative framework below).

Extended Producer Responsibility (EPR) is a policy approach primarily used to finance proper waste management. However, it is increasingly seen as a means to support the transition to a circular economy. The principles driving EPR implementation in Member States are outlined in the Waste Framework Directive (WFD). This policy approach has been incorporated into legislations for specific waste streams, such as batteries and accumulators, End-of-Life Vehicles, packaging, waste electrical and electronic goods, and textiles, which Member States must implement. While there is ongoing debate among policymakers about expanding EPR to other products, such as those in the construction sector¹⁰, France is the first EU Member State to introduce a comprehensive EPR scheme for CDW.

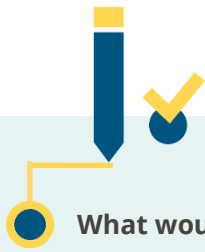
This paper aims to provide an overview of the principles of Extended Producer Responsibility (EPR), discuss its applicability in the construction sector, and examine the role of the EU in this context. It builds on an analysis of existing EPR systems in two EU Member States, desk-based research, and insights from a discussion with industry and civil society representatives during a dedicated workshop held in April 2024 in Brussels.

What is Extended Producer Responsibility – the concept explained.

EPR is an environmental policy approach aimed at implementing the Polluter Pays Principle by internalising the environmental costs associated with a product throughout its entire lifecycle. This entails transferring the responsibility of waste management from the public to producers (see OECD definition¹¹). EPR originated as an End-of-Life (EoL) management instrument primarily used to finance proper waste management across various waste streams. However, it also holds significant potential to create a secondary market for materials and drive business models that promote a circular economy. Furthermore, EPR can incentivise upstream design choices for more environmentally friendly products by reflecting these considerations in the fees producers are required to pay for their products.

¹⁰ CPA (Construction Products Association) 2022: Applying Extended Producer Responsibility in the Construction Sector. A discussion paper. ([here](#))

¹¹ See OECD definition 2001: “EPR shifts the costs for waste management from public actors to producers. This shift induces an internalisation of costs that previously were external for producers and consumers of waste generating products. By internalising the costs of waste management, producers receive incentives to prevent waste. One of the key channels to prevent waste is eco-design of products.” ([here](#))



What would be the main goal(s) and scope of the EPR for construction products?

Existing schemes primarily concentrate on managing EoL products, such as France's scheme for CDW and the Netherlands' scheme for flat glass. Nonetheless, the French initiative has taken initial measures to incentivise environmentally friendly product design by reducing fees for products containing recycled content, and will integrate more circularity criteria, e.g. recyclability, in the future.

In all EPR schemes, there are general principles and roles, which function in a similar way, regardless of the specific waste stream or product to which it is applied.

One general principle of Extended Producer Responsibility (EPR) is the **role and responsibility of producers**. Producers are responsible for appropriately managing their products at the end of their life. In EPR schemes, the term "producer" includes importers and distributors—essentially, any actors bringing the specific product onto the national market.¹² Article 8 of the WFD specifies the minimum requirements for EPR and defines the producer as: "any natural or legal person who professionally develops, manufactures, processes, treats, sells or imports products (producer of the product) has extended producer responsibility".

To improve transparency, facilitate data collection, and avoid free-riding, a **register** is usually established that includes all obligated producers¹³. The responsibility of the producer encompasses various aspects:

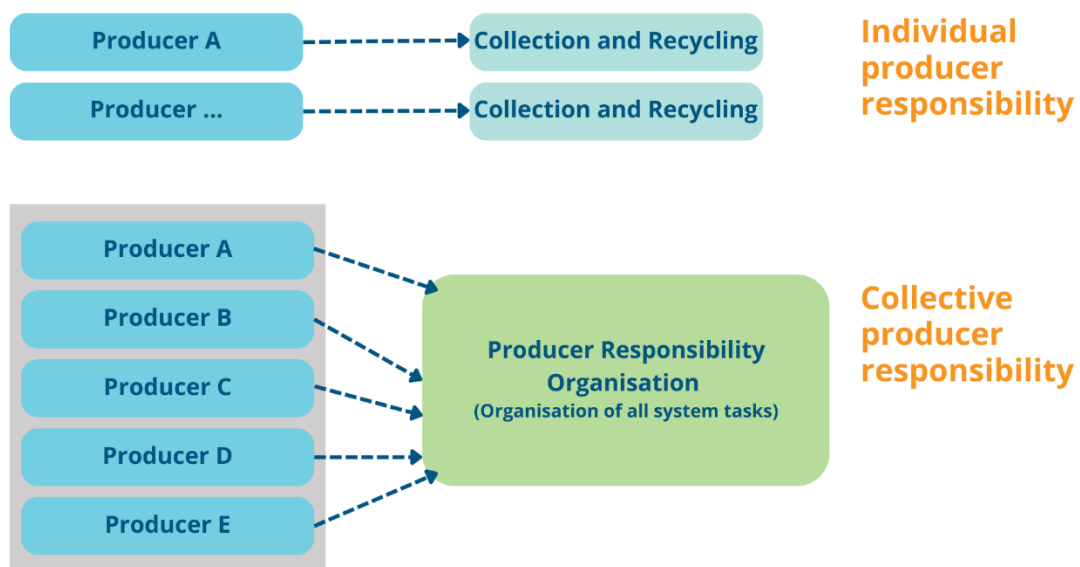
- paying a fee for the collection and treatment of products, usually based on the quantities or the weight of the product (e.g. number of mobile phones; kg of packaging),
- committing to specific targets and goals, such as those related to collection and processing, along with reporting obligations,
- informing the consumers about proper disposal methods, and
- making efforts to improve the design for easier separation and recycling.

¹² Cambell-Johnston et al 2021: Future perspectives on the role of extended producer responsibility within a circular economy: A Delphi study using the case of the Netherlands. *Business Strategy and the Environment*, 30; 4054-4067.

¹³ EPR Toolbox. Factsheet 04. How can a register of obliged companies be established? Prevent Waste Alliance ([here](#)).

Various **approaches co-exist for organising and implementing EPR**. On one hand, there are **individual EPR schemes**, where individual producers or brand owners set up and finance their own system for collecting, recycling, or disposing of their products at the end of their useful life. On the other hand, there are **collective schemes**, where producers of a certain product or waste stream (e.g. plastics, e-waste) collaborate. Within collective schemes, producers typically delegate the organisational and administrative responsibilities to a third-party entity known as the **Producer Responsibility Organisation (PROs)**.

Figure 1: Approaches to organising and implementing EPR



Source: own illustration

Furthermore, EPR schemes can be either financial or operational. In financial schemes, producers and PROs contribute to financing aspects of the municipal system, while in operational schemes, producers, often through a PRO, oversee the actual waste management processes. PROs are usually tasked with establishing a network of collection points and ensuring that predefined targets are achieved. Additionally, they may use portions of the fees paid by producers to fund activities like awareness-raising campaigns.

In some EPR systems, only one Producer Responsibility Organization (PRO) is responsible for waste management, resulting in a monopolistic setup. However, in most cases, there are multiple PROs. The rationale behind having multiple PROs is that competition will drive more cost-efficient waste management, ultimately resulting in lower prices for producers. In a monopolistic system with

only one PRO, costs are theoretically higher, but the system is easier to be standardised and monitored.¹⁴

PROs often operate as not-for-profit organisations. In some cases, as in France, this is even required by law.

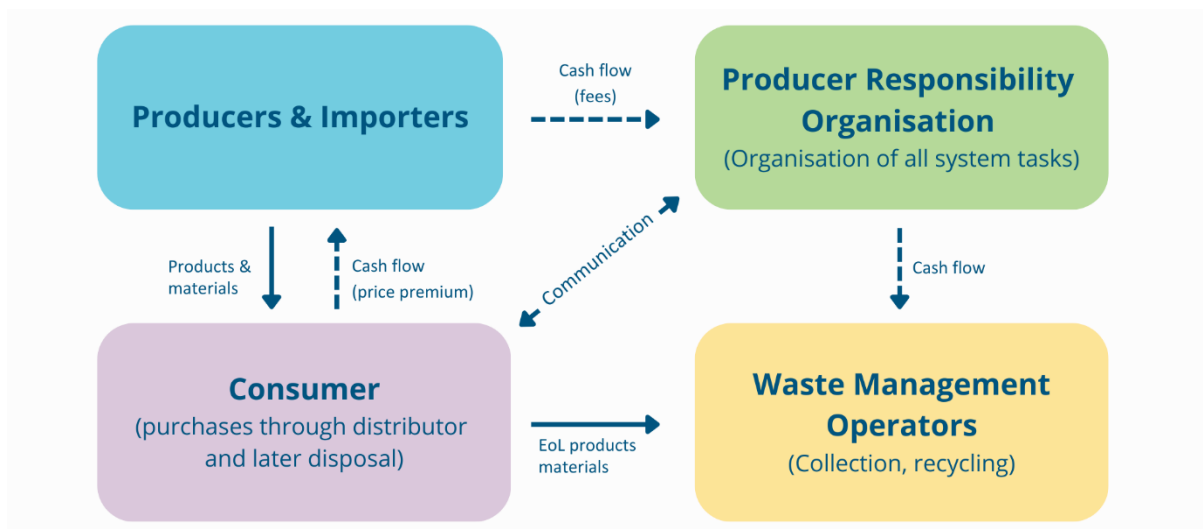


Which is more suitable for the construction sector: collective or individual EPR schemes?

Existing regulatory EPR schemes in the construction sector are all collective schemes (France and the Netherlands). Nevertheless, some producers have voluntarily introduced individual schemes for various product groups.

Could the obligation for producers to provide information about the proper product disposal at the end of life be utilised to raise awareness about practices like selective demolition? The PRO Valobat in France incorporates information on selective demolition into its activities.

Figure 2: Simplified visualisation of the general principles (collective system):



Source: own illustration, based on GIZ

¹⁴ Pruess, J. (2023): Unraveling the complexity of extended producer responsibility policy mix design, implementation, and transfer dynamics in the European Union. Journal of Industrial Ecology. ([here](#))

Producers can adjust the fees for their products to promote environmentally conscious designs, a practice known as eco-modulation of EPR fees. Essentially, this entails offering lower fees for products designed with environmental factors in mind, such as weight, recyclability, durability, reparability, recycled content, or the absence of hazardous components, compared to products that are less environmentally friendly.

There is strong evidence supporting the effectiveness of EPR schemes in boosting collection and recycling rates¹⁵. However, their impact on upstream circular product design remains less certain¹⁶, as this aspect has only recently been integrated into various EPR schemes. Recent research underscores that while modulated fees have not yet reached sufficient levels, they do present potential for enhancing upstream circular economy practices¹⁷. Moreover, stakeholders have recently emphasised the role of eco-modulation of fees within EPR for advancing the circular economy,¹⁸ a concept prominently featured in the Commission's proposal for circular textiles¹⁹.

What is the current legislative framework?

The **Circular Economy Action Plan (CEAP)**²⁰, adopted in 2020, is a comprehensive strategy aimed at reducing waste generation and promoting a more circular use of materials and products. It identifies the construction sector as a key area for transitioning towards a circular and sustainable economy.

The **EU Waste Framework Directive (WFD)** serves as the primary legal framework for waste management, introducing key concepts such as the 'waste hierarchy,' the 'polluter pays' principle, and the attainment of 'end-of-waste' status. It also mandates binding targets for Member States across various waste streams.²¹ For CDW, the target is set at 70 % for activities such as reusing, recycling and other forms of recovery. However, the actual outcome can vary depending on each Member State's specific legal definitions of waste and recovery, potentially affecting the preservation of resource value. Currently the WFD is undergoing revision²², with Commission expected to propose new targets for CDW by the end of 2024, aligning with the objectives of the European Green Deal. Additionally, Article 8 of the WFD outlines minimum requirements for EPR²³.

In March 2022, as part of the Circular Economy Action Plan (CEAP), the Commission introduced the first package of measures, which included the revision of the **Construction Product Regulation (CPR)**. The new CPR requires the integration of environmental sustainability considerations

¹⁵ OECD 2023: New Aspects of EPR: Extending producer responsibility to additional product groups and challenges throughout the product lifecycle ([here](#)); cpa (Construction Product Association) 2022: Applying Extended Producer Responsibility in the Construction Sector. A discussion paper. ([here](#))

¹⁶ European Commission. (2014). Development of Guidance on Extended Producer Responsibility (EPR) FINAL REPORT European Commission-DG Environment 2014; Campbell-Johnston et al 2021: Future perspectives on the role of extended producer responsibility within a circular economy., p. 4056 ([here](#)).

¹⁷ OECD. (2021). Modulated fees for extended producer responsibility (EPR) schemes ([here](#)); Sachdeva et al (2021): Extended Producer Responsibility and Ecomodulation of Fees. Opportunity: Ecomodulation of Fees as a Way Forward for Waste Prevention. Ecologic Institute. ([here](#))

¹⁸ Circular Economy Stakeholder Conference in March 2022 ([here](#))

¹⁹ European Commission. Press Release. Circular economy for textiles: taking responsibility to reduce, reuse and recycle textile waste and boosting markets for used textiles, July 2023 ([here](#))

²⁰ European Commission. A new Circular Economy Action Plan. For a cleaner and more competitive Europe. 2020 ([here](#))

²¹ EUR-Lex. Waste Framework Directive (article 8) ([here](#))

²² European Commission. Proposal for a targeted revision of the WFD, May 2023 ([here](#))

²³ The WFD also requires the CDW targets to be revised by the end of 2024. CDW will therefore be on the agenda also for the new Commission. The potential of EPR in the construction sector to contribute to the increasing circularity for construction materials should be further explored. The high potential of CDW for emission savings was once again shown in the JRC report ([here](#))

throughout a product's lifecycle, in line with European standards. Manufacturers are also mandated to provide product information via a digital product passport. Furthermore, the Commission has the authority to establish mandatory minimum environmental sustainability requirements for construction products through Delegated Acts. Additionally, the verification process for LCA data in construction products will require liability and third party verification as per the Product Declaration conducted by designated notified bodies.

Another revision within the context of the CEAP and Green Deal was the **Packaging and Packaging Waste Directive**, agreed upon in November 2022. The Directive hints at the possibility for the EU Commission to use EPR for increasing recycled content in products. It emphasises fee modulation as the most suitable method for increasing the recycled content in the plastic component of packaging, along with the necessity to standardise these criteria based on the recyclability performance grade obtained through recyclability assessment. The Commission will be empowered to adopt such standardised criteria concurrently with establishing detailed design-for-recycling criteria for each packaging category.

In July 2023, the EU Commission proposed a targeted amendment of the WFD, including the introduction of **mandatory and harmonised EPR schemes for textiles** (including eco-modulation) in all Member States. While the EU Parliament supported the proposal in principle, it suggested enhancing the implementation timeline in Member States. Instead of the initially suggested 30 months, this would necessitate Member States to implement EPR for textiles within 18 months of the package's adoption. The implementation of this initiative will be monitored by the incoming Parliament following the European Elections in June 2024.

While regulations, such as the **Energy Performance of Buildings Directive (EPBD)**, the **EU Sustainable Finance Taxonomy** and the **EU Emission Trading Scheme (ETS)** are not directly linked to EPR, they do contribute to an increased demand for low carbon and more circular construction products. They impact the design of construction products and provide upstream incentives to improve reuse, circularity and lower embodied carbon content. For example, the second **Delegated Act of the EU Taxonomy on Circular Economy** (Taxo4) calls for assets to contain at least 30% of recycled, re-used or remanufactured content²⁴. These policy developments should be seen within the broader context of integrating principles of sustainable design, construction, and materials use. As a result, these regulatory developments may heighten the importance of EPR as a highly effective tool to enhance durability, reparability, and end-of-life considerations as part of product design.

Equally relevant for EPR schemes is the Renovation Wave's announcement of the future development of **Digital Product Passports (DPPs)** and **Digital Building Logbooks (DBLs)** as the common information repository that will enable the accurate tracking of products, components and materials in a reliable and secure way. The Ecodesign for Sustainable Products Regulation (ESPR) provides the outlines for DPPs, while the exact scope of information to be included in them will be determined by product-specific and secondary legislation. Regarding DBLs, significant progress has been made in developing technical implementation guidance. However, there is currently no clear mandate to Member States regarding the actual roll out of DBLs.

²⁴ The maximum of primary raw materials varies per material category. The three heaviest material categories used to construct the building, measured by mass in kg, must comply with maximum total amounts of primary raw material used, e.g. concrete, bricks, and glass: 70% max, for biobased products 80%; for non-biobased plastics: 50%; for metals: 30%, for gypsum: 65%. To respect the waste hierarchy and thereby favour re-use over recycling, re-used construction products are to be counted as containing zero primary raw material.

Existing EPR schemes in the construction sector

The uniqueness of the construction sector – such as the extensive range of products used, the length of the value chain and the fragmented decision-making process – render the implementation of EPR particularly challenging. Nevertheless, existing examples demonstrate that applying EPR in the sector is not only feasible, but it also contributes to finding circular solutions. This underscores the importance of further exploring its potential.

While there is considerable experience with EPR schemes, having been applied to various waste streams for almost two decades, the main argument brought up as an impediment in the construction sector is its complexity. Indeed, construction products differ in several ways from those covered by existing EPR regulations, such as packaging, batteries, end-of-life vehicles, and Waste from Electrical and Electronic Equipment (WEEE), and soon textiles.

Construction products often have significantly longer lifespans and the decision-making regarding design and end-of-life are much more dispersed among various actors in the value chain. The link from producers to consumers, who then dispose of their products, is fragmented and less direct. This makes the analysis of existing examples—though still limited in number—particularly valuable. These cases provide insights into how EPR can be applied in the construction sector despite these challenges. For example, the Netherlands has implemented an EPR system for flat glass, and France launched an EPR scheme for Construction and Demolition Waste (CDW) in 2023²⁵.

The Netherlands: EPR for flat glass

The Netherlands has an EPR scheme that focuses on a single product category: flat insulation glass. Flat glass, used in construction, is generally more polluting and harder to recycle into other glass types, which prompted a group of producers to establish a voluntary system in 2002. Despite this effort, approximately 20,000 tons of unseparated flat glass collected annually still 'disappear' into other streams of construction and demolition waste.²⁶

Thus, the goal of the Dutch EPR is:

- 1) to increase the separate collection of flat glass waste
- 2) to ensure a level-playing field in the market by requiring equal financial contributions from all producers for the operation and maintenance of the waste collection system.

To establish an EPR scheme, producers submit a request to the Ministry of Infrastructure and Water Management for a Generally Binding Agreement (GBA).²⁷ The GBA on flat glass was initiated by the Dutch Flat Glass Recycling Foundation (Stichting Vlakglasrecycling Nederland – VRN, acting as the PRO) and the Dutch Construction Sector Association (Bouwend Nederland, representing producers and importers). Initially a voluntary scheme, the approval of the GBA by the Ministry has made it mandatory for all flat glass producers to contribute financially to the waste collection

²⁵ Dubois et al 2016: Exploration of the Role of Extended Producer Responsibility for the circular economy in the Netherlands. Ernst and Young. ([here](#))

²⁶ Dimitropoulos et al 2021: Extended Producer Responsibility. Design, Functioning and Effects. PBL (Netherlands Environmental Assessment Agency) Publishers ([here](#))

²⁷ Government Gazette of the Kingdom of the Netherlands (in Dutch) ([here](#))

system. The GBA is effective for a period of five years, from 1 January 2023 to 31 December 2027, and can be renewed upon expiration.

Broad support from the market is a prerequisite for a GBA to be adopted by the Ministry. The application for the GBA must include proof of broad support from market actors, covering at least 75% of the total number of firms and/or 75% of the market share, with the average of these two percentages equalling at least 65%.²⁸ If producers fail to meet their obligations, fines can be issued by a subordinate body of the Ministry.

Producers pay a waste treatment contribution of €0.30 per square meter of flat glass sold in the Netherlands, without differentiation between types of flat glass. These funds are used for managing and maintaining the financial stability of the waste treatment structure operated by the association Flat Glass Recycling NL (VRN), which serves as the Producer Responsibility Organization (PRO). This includes coordinating partners involved in collecting and recycling flat glass waste, collecting waste treatment contributions from market actors, and establishing and maintaining the collection network.²⁹ The waste treatment contribution is expected to increase incrementally reflecting rising costs³⁰.

The VRN manages a nationwide network of over 2,000 collection points for flat glass waste, ensuring that disposal locations are within a 15 km radius from any given location. Once the glass meets the quality requirements specified by the VRN, which are outlined in contracts with the waste collection sites, it is transported from the collection points to recycling factories. At these facilities, the responsibility for the material is transferred from the VRN to the operators of the recycling facilities.

Currently, 90% of the flat glass is collected by either the VRN (70%³¹) or other parties (20%). Communicating and promoting the collection of the remaining 10% unseparated flat glass, which still ends up in general CDW, is another task of the PROs.

Although the value of reuse is recognised by the VRN through participation in research projects related to this topic, fostering reuse is not its main responsibility. Several market players do offer services for flat glass reuse, but they do not cooperate with the VRN.³²

The French case: EPR for construction and demolition waste

France is the first country to implement the extended producer responsibility on Construction and Demolition Waste (CDW) in 2023³³ – thus a much wider scope than the Dutch example. One of the main reasons to implement an EPR for CDW in France were the need to reduce littering and illegal dumping. Nearly 25% of the CDW is dumped illegally, including asbestos-containing waste³⁴. Removal and clean-up of illegal dumps of CDW is estimated to cost between EUR 340 and 420

²⁸ Dimitropoulos et al 2021: Extended Producer Responsibility. Design, Functioning and Effects. PBL (Netherlands Environmental Assessment Agency) Publishers ([here](#))

²⁹ Official announcement of the General Binding Agreement (in Dutch) ([here](#))

³⁰ With a price ceiling of €0.40. The VRN can change the height of the waste-treatment-contribution based on the costs of operating the system.

³¹ From the flat glass collected by the VRN, 98% of the glass is recycled; Official announcement of the General Binding Agreement (in Dutch) ([here](#))

³² *ibid*

³³ The principle of Producer Responsibility is anchored in the French environmental code (Code de l'environnement). The EPR for CDW was specified in a decree published on the 1st of January 2022, defining the scope and roles of the actors affected by the regulation; Légifrance (2021), Décret n° 2021-1941 du 31 décembre 2021 ([here](#)).

³⁴ Fédération française du bâtiment (2022), REP Bâtiment: vers une massification du recyclage des déchets ([here](#)).

million each year³⁵. Furthermore, the EPR initiative responds to the drastic reduction in landfill capacity by promoting material recycling and re-use³⁶.

The EPR regulation stipulates that all producers, including manufacturers, importers, and distributors, of the specified products and materials (as outlined below) are accountable for managing the end-of-life of their products. They are required to pay a fee (called *eco-contribution*) per unit of product placed on the market to a non-profit Producer Responsibility Organization (referred to as an *eco-organisation*). The PRO – so far there are four³⁷ – in turn handles the waste management activities, like collection, recycling, and treatment.³⁸

The French EPR covers two categories of waste:

- (1) Inert waste³⁹
- (2) Other products/materials: metal, wood, chemicals, joinery, plaster, plastics, bituminous membranes, glass wool, rock wool, bio-sourced plastic, bituminous membranes, glass wool, rock wool.

The fees are determined based on the nature and weight of the products (whether by unit, linear meter, or weight) and will be annually revised upwards until 2027 to align with the annual budget for waste management costs. For business-to-business, invoices must clearly indicate the amount of the fees separately. Each PRO publishes its own price list detailing the fees to be paid by producers.

Example of the French PRO Valobat: Collaborative process with producers to set product fees

The development of the price list for fees per product type is a collaborative effort involving several working groups. This joint effort includes producers who are shareholders or adherents of the PRO Valobat, along with the PRO itself. Initially, the French government intended to fully recover the costs of waste management. However, it was persuaded to adopt a phased approach, gradually increasing cost coverage over time.

The system aims to achieve self-sustainability by selling secondary materials with time. As a result, the fees collected will be allocated toward further research and development (R&D) initiatives focused on recycling and enhancing secondary solutions.

³⁵ Ministère de la Transition Écologique (2020), The Anti Waste Law in the Daily Lives of the French People: What does that mean in practice? ([here](#)).

³⁶ Ministère de la Transition Écologique (2024) ([here](#))

³⁷ One PRO covers only inert waste (Ecominéro), two cover all other products (Ecomaison, Valdélia) and another PRO covers both (Valobat).

³⁸ Producers who set up an individual collection and treatment system can derogate from this obligation.

³⁹ Inert waste is defined as waste which is neither chemically nor biologically reactive and will not decompose or only very slowly. It makes up for 75 % of total CDW.

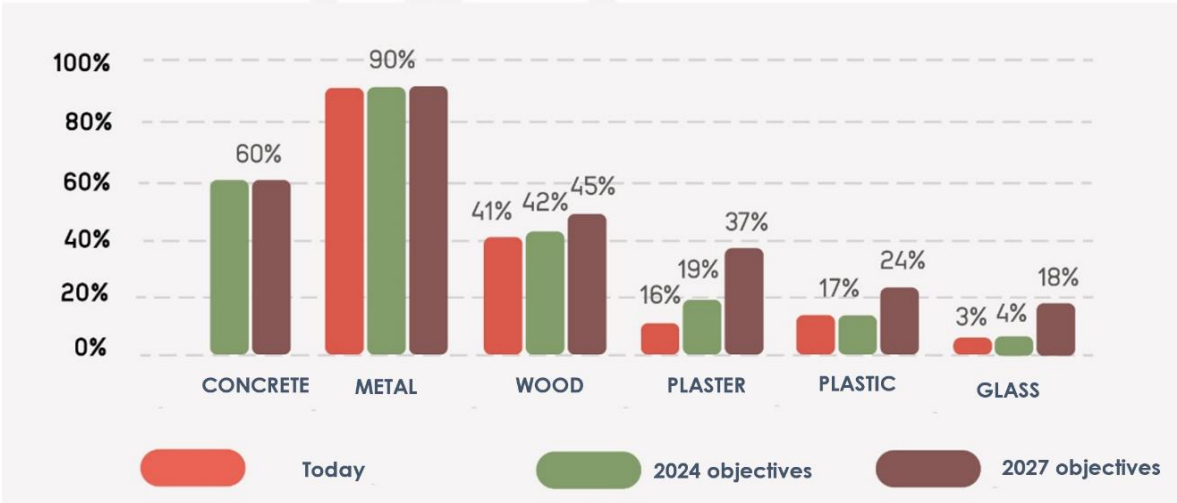
The PROs have both collection and recycling targets, which are set out in the EPR regulation for the different waste categories (see Figure 3 and Figure 4).

Figure 3: Collection, recycling and other targets for the two waste categories in the French EPR scheme



Source: Valobat⁴⁰

Figure 4: Recycling targets for specific waste categories in the French EPR scheme.



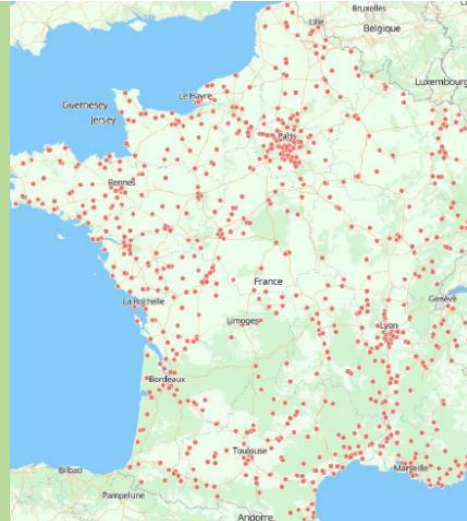
Source: Valobat

Operating through a Producer Responsibility Organization (PRO) offers the advantage of pooling recycling sector funding. By centralising the eco-contributions of all its members, the PRO can leverage economies of scale to streamline operating costs for waste treatment. This approach enables members to achieve compliance at the lowest possible cost.

⁴⁰ Presentation PRO Valobat during stakeholder workshop in Brussels, April 2024; see also: Fédération Française du Bâtiment (2023), Déchets de chantier: c’est quoi la REP Bâtiment ([here](#)).

Example of the French PRO Valobat: Expansion of collection sites

There are three channels for collection of CDW: public collection sites, retailers and private collection sites. As of April 2024, the PRO Valobat has expanded its network of collection sites to 1.435. Within Valobats current network 1.135 are associated with retailers, and 300 are private collection sites. The goal is to reach the number of 1.600 by the end of the year 2024. Valobat has also secured contracts with public authorities, ensuring that by the end of the year most, most of the 709 public waste sites will be served



Regarding the recycling infrastructure for Construction and Demolition Waste (CDW), the plan was to establish 2,419 collection points by the end of 2023⁴¹. The maximum distance between the waste production site and the collection point is capped at 10 km in urban areas and 20 km in rural areas.

To incentivise waste sorting, a free take-back service is provided, allowing companies holding CDW to save on landfill tax and transportation costs, provided that the waste has been sorted. This service is gradually implemented, and the cost reductions vary depending on the type of waste. For separately sorted wood, plastic, and metal, the full benefits of the free take-back policy are available from 2023 onwards. In contrast, for inert waste, the reduction in costs progresses gradually, starting with a 50% reduction in treatment costs in 2023, increasing to an 80% reduction in 2024, and achieving full free take-back from 2025 onwards⁴².

France's EPR programme includes the introduction of a bonus/malus system based on the

Example of the French PRO Valobat: First steps into eco-modulation of the fees

The French EPR regulation sets out eight criteria for eco-modulation of fees, such as recycled material content, the use of renewable resources, sustainably managed, sustainability, repairability, possibilities of reuse, recyclability, and the presence of hazardous substances. Valobat has implemented eco-modulation of fees for the first time in 2024, focusing solely on the criterion of recycled content. However, determining how to assess other criteria is a complex task, and discussions on this matter are ongoing.

environmental performance of products placed on the market. PROs have commenced developing criteria in 2024 to introduce eco-modulation of fees, aiming to incentivise eco-design of products.⁴³

⁴¹ Légifrance (2023), Arrêté du 28 février 2023 modifiant le cahier des charges des éco-organismes de la filière à responsabilité élargie du producteur des produits et matériaux de construction du secteur du bâtiment annexé à l'arrêté ministériel du 10 juin 2022 ([here](#)).

⁴² Fédération Française du Bâtiment (2023), Déchets de chantier: c'est quoi la REP Bâtiment ([here](#)).

⁴³ Valobat 2022: Guide to displaying and passing on the eco-tax (FR) ([here](#)).

Moreover, the PROs are required to inform and raise awareness on the correct sorting and handling of CDW. Lastly, the PROs need to fund R&D projects⁴⁴. Up to 2% of the eco-contributions must be allocated for this purpose.⁴⁵

Individual EPR systems for construction products

To maintain control over resources and comply with companies' sustainability strategies, some producers of construction materials have implemented individual EPR schemes.

Examples include take-back schemes for:

- timber construction products (DERIX Group⁴⁶),
- bricks (Wieneberger⁴⁷),
- bitumen roofing (Derbigum⁴⁸), or
- interior fittings, such as floor panels, wooden doors, or partition walls (Lindner⁴⁹).

Manufacturers reprocess their products for secondary use. Take-back systems typically only apply to products currently being sold and not to those that were placed on the market years ago. An exception to this rule is the roofing example, where every delivered roof exceeding a certain size (a minimum of 1,500 m²) is accepted back in the Netherlands and Belgium.

Another example is the Resulation programme by Knauf, which aims to collect and recycle mineral wool, closing the loop in Belgium. This initiative was developed in partnership with Belgian companies within the Association of Glass Manufacturers, the Association of waste Collectors, the Association of Construction Companies and the Flemish Demolition Management Organisation and the research institute Buildwise in Flanders. Knauf's ' Visé Glass Mineral Wool recycling facility in Belgium intends to become a recycling hub for Glass Mineral Wool as part of France's EPR program on CDW.⁵⁰

Some manufacturers, like DERIX, collaborate with digital platform providers such as Madaster to establish the foundation for the return and reuse of used components. This involves registering all timber components at the request of the building owner, a responsibility that was previously handled by design and construction service providers.⁵¹

⁴⁴ E.g. Valobat's Call for Innovative Recycling and Recovery Solutions in 2024 ([here](#)).

⁴⁵ French Building Federation 2023. FAQ (FR) ([here](#)).

⁴⁶ Newspaper article on Derix EPR commitment, June 2021. In: Holz-Zentralblatt (DE) ([here](#)).

⁴⁷ Wieneberger website ([here](#)).

⁴⁸ Derbigum website ([here](#)).

⁴⁹ Lindner website ([here](#)).

⁵⁰ Knauf website ([here](#)).

⁵¹ Derix website ([here](#)).



Reflections on lessons learned, discussion points, further research needs

Market insights and lessons learned

The two national EPR schemes reviewed differ both in scope and regulatory set-up, tailored to best fit the national context and address country specific needs.

The case studies highlight the potential for introducing various types of EPR systems. France has implemented a broad-scope EPR system focusing on Construction and Demolition Waste (CDW), whereas the Netherlands has a more specific scheme targeting one product category (flat glass). These differences in scope can be attributed to the distinct national contexts and challenges each country aims to tackle with their EPR scheme.

In the Netherlands, where a landfill ban has been in effect since 2002 and recycling practices are well established, the focus was on addressing specific issues related to flat glass. Conversely, in France, the main driver for implementing a broad EPR scheme for CDW was the prevalence of illegal dumping and the associated costs for municipalities.

Both schemes are set up as collective schemes, requiring producers to organise themselves. However, the regulatory setup differs. France has included the mandatory EPR scheme in its anti-waste law and specified the roles and responsibilities in an ordinance. In contrast, the Netherlands rely on market actors, introducing a mandatory agreement only after securing broad support from the industry.



EPR schemes contribute to achieving higher recycling rates and hold the potential to scale up circular business models in the construction sector



Within an EPR scheme, producers are tasked with expanding recycling infrastructure and establishing a network of collection points. The contribution of EPR to increasing separate collection and recycling rates across various product streams is well documented. The French EPR scheme has incentivised material sorting by offering free take-back at collection sites for sorted materials, allowing companies holding CDW to save on landfill tax and transportation costs. This not only facilitates higher-value recycling but also stimulates the creation of a market for secondary solutions.

As EPR schemes progress up the waste hierarchy, they can also support the reuse of building products and components. PROs can establish local networks, including collection and storage points, as well as marketplaces such as digital platforms or catalogues for building components suitable for reuse. Furthermore, PROs can communicate these opportunities and engage with planners and designers to raise awareness of the need for new design approaches in construction and renovation projects, embracing the "design by availability" principle.

EPR schemes are effective communication and capacity building channels about selective demolition practices and improving understanding of secondary material flows.

A significant responsibility of producers, which is transferred to the PRO in collective schemes, is the communication and information provision to consumers. Effective communication can better inform producers about demolition practices that aid in the collection of different CDW materials, thereby increasing recycling and reuse rates. PRO activities may include campaigns and awareness-raising initiatives aimed at reaching building owners and deconstruction firms.

The integration of digital tools in contemporary construction sites and demolition projects holds promise for significantly enhancing transparency regarding secondary raw materials and opportunities for reuse. For instance, pre-demolition audits can enable the inspection and digital inventorying of building components, making them accessible for further use. Future requirements for product information and building data, such as product passports, Environmental Product Declarations (EPDs), LCA data in the future Product Declarations and material passports within digital logbooks, will further facilitate the flow of information.

Moreover, digital re-use platforms managed by the PRO could inform stakeholders about available products suitable for use in new construction and renovation sites nearby. This enhances collaboration and promotes the reuse of materials, contributing to more sustainable construction practices.

Collective EPR systems seem to be better suited to manage the costs associated with collecting and recycling of material that was manufactured and installed long time ago ('legacy waste').

Rising resource prices and increasing sustainability reporting requirements demand that companies investigate closing the loop and reclaiming their materials. This trend is reflected in the growing number of construction product companies establishing individual EPR systems. However, these systems typically focus on materials currently being sold, rather than addressing products and materials installed long ago. If the primary objective is to manage CDW generated in the present, collective EPR schemes are better suited. They provide the benefit of economies of scale resulting from collectively handling the costs for end-of-life treatment.

As an environmental policy approach, EPR aims to internalise the costs associated with the management of end-of-life products. Strict adherence to this principle would require covering the costs for CDW incurred today, even if today's producers did not originally bring these materials onto the market. However, it is also understandable that producers, who have no responsibility for materials and toxins installed decades ago, are not willing to bear the full costs of their management. In practice, compromise solutions are often found to share the costs between producers (who do not bear full responsibility for the legacy waste) and the public.

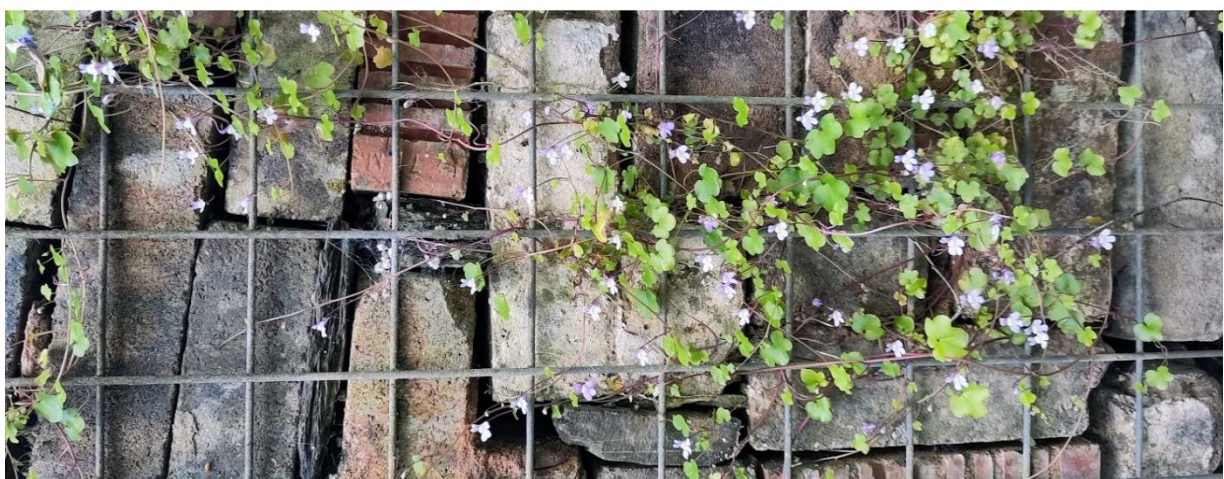
The French EPR scheme reached a compromise regarding asbestos to prevent excessive cost burdens on producers. Producers are only accountable for a small portion of contaminated materials (those from public collection sites), with public authorities and/or building owners covering the remainder. This concept of *shared product responsibility*, where the burden is divided between public waste management authorities and producers, has also been implemented in Germany under the EPR for electronic and electrical devices.

The potential to encourage upstream innovation in construction products through modulated fees is gaining traction.

While modulated fees introduce complexity, they offer the opportunity to create upstream incentives. For example, fees could be reduced for products that are easy to separate or contain recycled content. Such incentives can be incorporated into EPR regulations. For instance, any PRO seeking registration in the market may be required to include modulated fees in their submission, as outlined in the EU's textile regulation. Alternatively, PROs may voluntarily adopt modulated fees to meet targets, such as prevention targets. In France's national EPR for CDW, fee modulation was introduced from 2024 onwards. Products with a certain recycled content are eligible for reduced fees, although additional criteria are still to be defined.

To improve circularity in the sector, EPR schemes need to be combined with other policies, such as GPP and End-of-Life regulation.

To ensure the economic viability of EPR, Member States should consider implementing landfill bans or landfill taxes. Additionally, it's crucial to integrate EPR with policies that stimulate the demand for secondary resources. While individual building owners are starting to show interest in reusable building elements or recycled materials, it remains far from mainstream. Commitments in public procurement can play a vital role in creating this demand. By prioritising the purchase of products made from reused or recycled materials, public procurement policies can incentivise the use of secondary resources in construction projects, thereby driving market demand and promoting circularity.



Recommendations & and points for further discussion:

The EU should prioritise the integration of the building and construction sector into the circular economy agenda and initiate a comprehensive examination of EPR's role within the sector.

The "Polluter Pays" principle, enshrined in the EU's Waste Framework Directive (WFD), underscores the importance of mechanisms like EPR in upholding environmental responsibility. Its recent expansion beyond packaging, electronics, end-of-life vehicles, and batteries to include textiles underscores its growing relevance. As the WFD undergoes revision, new targets for CDW are expected by the end of 2024. Concurrently, regulations like the revised Energy Performance of Buildings Directive (EPBD), the EU Taxonomy, and the revised Construction Product Regulation (CPR) are set to drive demand for low-carbon and sustainable construction materials. Therefore, a deeper exploration of EPR's potential role within the construction sector is vital to effectively address these evolving regulatory and environmental imperatives.

Issues to be addressed are:

The appropriate scope of EPR in the construction sector

Given the wide range of construction products and the disparity in recycling rates among them, a one-size-fits-all solution is unlikely to be effective. Therefore, there is merit in adopting a product-specific approach within EPR schemes. This approach could target materials that require enhanced recycling efforts, addressing the specific needs of each material category. However, even within a broad EPR framework, such as the French scheme, there are opportunities to tailor solutions to the diverse requirements of different material categories, such as varying recycling rates. The advantage of a broader EPR scheme lies in its flexibility and responsiveness to market dynamics, allowing market actors to identify the most suitable and cost-efficient solutions for each material category. A broad system allows the market to find a 'business case' to identify the highest value for secondary materials.

The definition of recycling within an EPR for construction (closed loop vs. open loop)

Many existing EPR schemes for various product categories promote closed-loop recycling practices, which improves environmental sustainability by recycling materials back into the same product without significant alteration or loss of quality. However, it is important to recognise the complexities inherent in this approach. While returning materials as high up as possible in the waste hierarchy is desirable, factors such as logistics, storage, transport and energy usage in recycling processes become crucial. The sustainability threshold for transporting secondary raw materials between locations varies by product group. For instance, flat glass benefits from closed-loop recycling due to significant energy savings achieved through the incorporation of glass pellets, making alternative uses less viable from a climate perspective. However, for other products and materials, open-loop recycling—allowing use in different sectors—may be preferable to mitigate the negative impacts of long transportation distances. Any future definition of recycling within EPR schemes must carefully consider these nuances.

The links to other existing EPR schemes

Considering the scope of potential future EPR schemes for construction products, it is important to examine the connections to existing EPR schemes, such as the ones related to the Waste Electrical and Electronic Equipment (WEEE) Directive. The cross-referencing would help determine if technical appliances used in buildings should fall under the WEEE scheme. Additionally, attention should be given to other national-level schemes, such as the EPR for furniture in France, to identify potential overlaps. By understanding these connections and overlaps, policymakers can ensure coherence and efficiency in implementing EPR schemes for construction products while avoiding duplication of efforts.

The framework to facilitate re-use approaches

To effectively encourage the reuse of components through EPR, it is vital to tackle concerns regarding warranties and product safety. This necessitates the establishment of clear guidelines and standards for the recertification and testing of products. Lessons from other sectors, where strategies like reuse quotas and strengthened adherence to waste hierarchy principles have succeeded, offer valuable insights that can inform these efforts.

The links with other 'building sustainability' communities, such as green public procurement, whole life carbon, energy efficiency and circular construction

Amidst various recent policy developments such as whole life carbon (WLC) disclosure requirements of EPBD and the Taxonomy's recycled content standards, the EU plays a crucial role in aligning different environmental objectives and bridging the gap between different stakeholder communities, such as those involved in the circular economy, energy efficiency improvements or lifecycle carbon optimisation and reporting. By fostering collaboration, these communities can better understand the impact of improved durability, repairability, and reuse on environmental performance metrics such as WLC emissions. For instance, following the recast EPBD, Member States are mandated to develop roadmaps for reducing WLC emissions and setting thresholds. This prompts inquiries into the contributions of more durable product use, better repairability, or higher proportions of secondary materials in achieving these targets. Simultaneously, understanding how WLC requirements influence the demand for circular products is crucial. Addressing these questions collectively through collaboration and knowledge exchange will pave the way for meaningful actions towards achieving climate targets and advancing circular economy goals.



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