



European
Commission

HIGH LEVEL CONSTRUCTION FORUM

Meeting report

Reporting from the 1st meeting of the Green
Cluster Group

Technical Secretariat of the HLCF / 22.10.2021

Table of contents

- General overview 3**
- The first Green Cluster Group meeting – A summary 3**
 - Opening of the meeting 3
 - Discussion on priority topics 5
 - Topic one: Reducing whole-life-carbon emissions..... 5
 - Topic two: Enhancing facilities for circularity and secondary raw material markets 8
 - Topic three: Increasing the service life of built assets 11
 - Topic four: Enabling carbon storage and nature-based solutions 13
 - Concluding the first Green Cluster Group meeting 15
- Annex – List of participating organisations 16**

General overview

On 28 September 2021, the European Commission's Directorate-General for Internal Market, Industry, Entrepreneurship, and SMEs (DG GROW) organised the first meeting of the High Level Construction Forum (HLCF). The HLCF is an initiative that has evolved from the previous Construction 2020 Strategy and its purpose is to **co-create the green, digital, and resilient transition pathway for the EU construction industry ecosystem**. At this meeting industry, public authorities, social partners, and other relevant stakeholders came together initiating a dialogue for defining a transition pathway for the construction industry ecosystem.

Following the meeting of the HLCF, separate discussions were organised under the digital (19.10), resilient (20.10), and green (22.10) themes. The meeting of the first Green Cluster Group was attended by 121 individuals (including stakeholders, the Commission, and the HLCF Secretariat) who came together to exchange on challenges, ambitions, and actions in the following four areas:

1. Reducing whole-life-carbon emissions
2. Enhancing facilities for circularity and secondary raw material markets
3. Increasing the service life of built assets
4. Enabling carbon storage and nature-based solutions

Attendees were asked to confirm the priority order of the four topics, which then determined the order in which they were discussed in the meeting. The overall purpose of the first Green Cluster meeting in the context of the transition pathway was **to share information on any relevant industry-led initiatives, or initiatives at national/regional levels**.

The first Green Cluster Group meeting – A summary

Opening of the meeting

Ms Fulvia RAFFAELLI, Head of Unit for Construction, DG GROW H.1, opened the meeting. She explained that construction is one of the 14 industrial ecosystems identified in the EU Industrial Strategy adopted in May 2021. For all of these ecosystems, the commission will co-create a transition pathway with industry and stakeholders. **The transition pathway will identify the actions needed to achieve the twin transitions, giving a better understanding of the scale, benefits and conditions required**. For construction, the process of co-creating a transition pathway via the HLCF has already begun. Now is the time to go deeper into the topics identified in the opening HLCF meeting.

Ms RAFAELLI elaborated on the many EU initiatives relating to sustainability in construction. These include the legislation including the Construction Products Regulation, the Waste Framework Directive, and recently the Fit for 55 package. These also include strategies like the Renovation Wave, and the Circular Economy Action Plan as well as initiatives such as Level(s), the Affordable Housing Initiative, and the New European Bauhaus. **A new document will be developed by the Commission setting out scenarios for the transition pathway for the construction ecosystem**. It will explain the variety of EU policies addressing sustainability in construction, and how these work together. Given that the targets at EU level are well known, the focus of the meeting was to hear from actors in the construction ecosystem about the actions being taken as industry, as Member States or as other stakeholders.

Mr Philippe MOSELEY, Policy Officer, DG GROW Unit H.1, explained how the four priority topics for the green cluster were established. A variety of subjects were raised in the session on the green transition at the HLCF meeting which took place last month. These included setting ambitions for buildings going beyond energy performance, setting Life Cycle Assessment (LCA) based targets and enabling circularity. However, the availability of secondary materials and products was also mentioned, along with the need for alignment along the value chain, certification mechanisms, the creation of infrastructure for

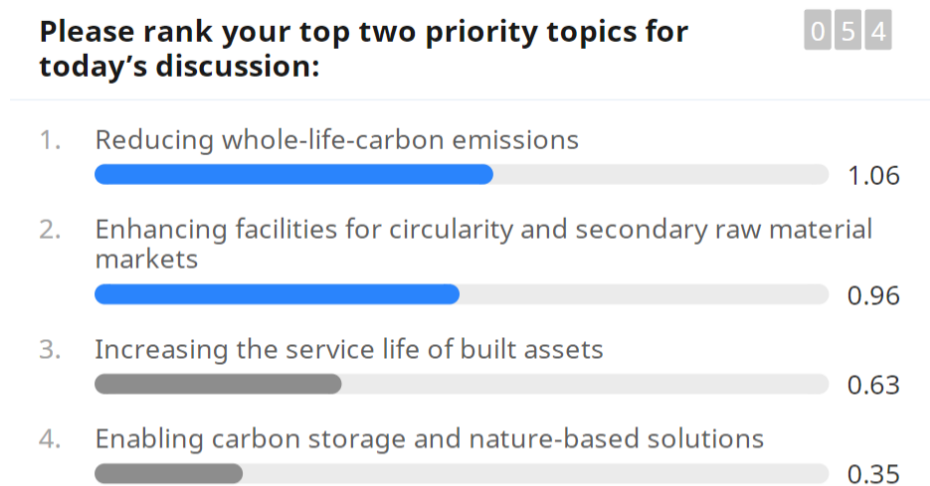
circularity, and the right conditions. These suggestions were used to set out the top four priorities for discussion which were:

- **Reducing whole-life-carbon emissions:** which means addressing the greenhouse gas emissions emitted during the full life cycle, including both construction and end-of-life activities.
- **Enhancing facilities for circularity and secondary raw material markets:** which means improving things like the infrastructure, the data, and the possibilities to reuse products, for a circular economy in construction
- **Increasing the service life of built assets:** which means ensuring that construction works, both buildings and infrastructure, remain in use for as long as possible.
- **Enabling carbon storage and nature-based solutions:** which means using construction works as a carbon sink, but also looking at a variety of uses for nature-based solutions such as green roofs and walls, and the use of bio-based materials where appropriate.

The topics purposefully **excluded discussions on energy performance and the operation of buildings**. This is partly because the Long-Term Renovation Strategies and National Recovery and Resilience Plans that have been submitted to the Commission already indicate what is happening at national level and these subjects have also been extensively covered in other recent public events.

Attendees were asked to rank their top two priority topics and this was used to determine the order in which they were discussed in the meeting, as presented below.

Figure 1: Results of poll on the priority topics for discussion



Discussions were then held on the actions, or initiatives, or targets for each topic, as summarised below.

Discussion on priority topics

Topic 1: Reducing whole-life-carbon emissions

Ms Josefina LINDBLÖM, Policy Officer, DG ENV Unit B.1, introduced the first discussion topic by asking attendees to respond to the following questions:

- Several Member States are developing policies in this area. Are there any new developments?
- Have industry bodies signed up to any targets? Are industry bodies involved in preparing roadmaps, or do they envisage doing so?
- How ready is the industry for mandatory measures, like mandatory LCA requirements and carbon limit values? What might need to be done to prepare for these?
- What is the likely extra workload to carry out a whole-life carbon (WLC) assessment – for designers, builders and administrators?

Mr Dirk FINCKE, European Aggregates Association (UEPG), explained that the **UEPG has just launched a roadmap¹ which promotes the use and production of renewable energy on extraction sites.** The UEPG has identified that quarries and gravel and sand lakes² can have floating solar panels or photovoltaic panels which produce renewable energy much more efficiently because they are cooled by the water they are floating on. Additionally, there are some activities taking place which fix solar panels or wind turbines on quarries wherever the wind is optimal. Other innovative ideas involve heavy machines which are going downhill – their momentum downhill allows them to recharge their batteries. **There are many additional pilot projects currently ongoing, including for example the electrification of machinery,** which is the precondition to use the energy we produce on site. These are some of the actions being promoted by the UEPG as an industry association. As a final point, aggregates sand, gravel and crushed rock have a very low carbon footprint. Therefore, together with the promotion of renewable energy, the UEPG hopes to **announce the first climate-neutral aggregates extraction site in the next couple of years.**

Mr Michael NEAVES, Environmental Coalition on Standards (ECOS), stated that **a range of targets and requirements have been laid out by Denmark for 2029,** at which point they will have CO₂ limits per square meter per year on a WLC basis. Furthermore, Denmark has introduced a higher voluntary target.³ **France is also currently proposing a square meter related decree.** In Denmark, the industry is mobilising around circularity and reuse and high-quality recycling to meet these targets and is trying to be a front runner in this area. In response to the question ‘*How ready is the industry for mandatory measures, like mandatory LCA requirements and carbon limit values? What might need to be done to prepare for these?*’, at the design conceptual phase and at the producer phase, LCA is already fairly commonly used by larger players. However, it is **lacking in the use of LCA in the use phase,** which the revision of the Energy Performance of Buildings Directive (EPBD) will potentially encourage. In regard to carbon limit values, it is important to check what is placed on the market, both in terms of the products and the buildings. Given the potential requirements of information coming forward, this is important for a smooth transition and is something that must be in the transition pathway in the near term. *Mr NEAVES* finished his remark by emphasising that, as stated in the report published by the Intergovernmental Panel on Climate Change (IPCC) a few weeks ago, the near term is the only way to avoid 1.5 plus climate change.

Mr Juan MORILLAS, Founder of Share your Green Design,⁴ provided the perspective of an architect and stressed that some of the **green credentials or claims of buildings he has come across do not take**

¹ UEPG-Roadmap2030_Web.pdf

² Lakes are often created when the extraction of sand or gravel takes place in an area where the water table is high or when a river close by is connected to the extraction site. In some cases, an extraction site can be used as a flood retention area to reduce critical flood levels and help to avoid damages to neighbouring cities and villages.

³ <https://passivehouseplus.co.uk/news/general/denmark-sets-out-phased-embodied-carbon-targets-for-buildings>

⁴ <https://www.shareyourgreendesign.com/>

into account embodied carbon. There is platform 'shareyourdesign.com' which requests that all published projects provide the necessary data – both embodied and operational carbon. **Transparency is key in this regard and we need more data.** When we have that data and it's available for everybody, then we can move forward because at the moment we are finding it difficult. For example, **some developers do not want to share that data because it portrays a negative picture.** Another thing we are doing in parallel is collaborating with universities on research projects. For example, research with TU Dublin on the embodied carbon of buildings built in the last four to five years. We understand where we are and that will help to set up the benchmark because there are a lot of benchmarks being set at the moment, but I do not think there is enough research into what has been done before.

Mr Vagner MARINGOLO, CEMBUREAU, was **pleased with the term that has been created for the construction ecosystem** because the approach was taken in their roadmap which was published last year.⁵ **The roadmap looks at the whole value chain of cement and a pathway to carbon neutrality by 2050.** It is well known that cement and concrete have a large footprint. We can also produce cement in a **more efficient way – for instance, in lean design.** There is a lot of responsibility for designers as well when they are working on a project. We are therefore looking into **recarbonation, which is a process whereby the cement that was produced can absorb CO2 from the atmosphere all over the building.** This process has recently been recognised in a report published by the IPCC.

Mr Paul CARTUYVELS, BOUYGUES Europe, insisted on the importance of the role of digital solutions to save materials. Through the digital design of buildings, the quantity of materials needed can be reduced and it is possible to speed up the work process and save a lot of carbon emissions. There are clear synergies between the green and digital pathways.

Mr Karl THIES, European Construction Industry Federation (FIEC), explained that while the FIEC does not have a roadmap, there are **many initiatives taking place at the level of our member federations.** For example, Fédération Nationale des Travaux Publics (FNTP) in France published a manifesto with specific targets recently. Furthermore, Associazione Nazionale Costruttori Edili (ANCE) in Italy has a similar study in the pipeline. In the Netherlands there is an industry alliance on zero emission infrastructure works and in Finland there is a similar study – which can be shared over the upcoming days. Separately, several large construction companies have committed to sustainability targets.

Ms Alice HAUGH, Laudes Foundation, explained how they are funding a number of initiatives, roadmaps and frameworks on embodied carbon.⁶ For example:

- The Building Performance Institute Europe (BPIE) is developing industry standards on embodied carbon⁷;
- The World Green Building Council is developing a roadmap for the entire EU;⁸
- The Carbon Neutral Cities alliance which brings together 22 cities;⁹
- The European Environmental Bureau (EEB) circularity and sufficiency targets;¹⁰
- European Climate Foundation advocacy work.

In addition, the Laudes Foundation is launching a **new industry transformation network and accelerator fund¹¹ to increase the uptake of structural timber,** given this is one of the most impactful shifts we can make for WLC. There is a shift from concrete and steel towards structural timber which can be one of the most impactful things for whole life carbon.

⁵ http://www.cembureau.eu/media/kuxd32gi/cembureau-2050-roadmap_final-version_web.pdf

⁶ A full initiatives map can be found at <https://kumu.io/LFBuilt/built-environment-partners#be-partners-initiatives-map>

⁷ https://www.bpie.eu/wp-content/uploads/2021/05/BPIE_WLC_Policy-brief_final.pdf

⁸ <https://www.worldgbc.org/news-media/worldgbc-launches-consultation-eu-policy-whole-life-carbon-roadmap>

⁹ <https://carbonneutralcities.org/cities/>

¹⁰ <https://eeb.org/library/sufficiency-and-circularity-the-two-overlooked-decarbonisation-strategies-in-the-fit-for-55-package/>

¹¹ <https://builtbn.org/>

Mr Johan BREUKELAAR, European Federation of Construction Chemicals (EFCC), shared the industry's sustainability charter '**Constructing a Sustainable Europe**'¹² which includes the strategic priorities of the construction chemical industry – including the ambition to reduce WLC emissions. **The construction chemicals industry is facing a triple challenge** as it faced with the requirements for the Chemical Strategy for Sustainability, the Strategy for a Sustainable Built Environment as well as the EU Industrial Strategy, which are not always fully aligned. To identify priorities for the construction chemicals industry in this regulatory landscape, proposals are being made to create many partners in, for example, a horizon project, to bring together value chains which are evolving.

Ms Kirsi MARTINKAUPPI, Finnish Ministry of the Environment, pointed out that Finland is **revising the Land Use and Building Act and will require climate declarations for construction works that require building permission**. This will calculate the carbon footprint and handprint for the whole life cycle. For construction materials, there is a growing perception that buildings represent material banks and we are aiming for the circularity of construction material and for the reuse of construction products through digital twins that we are making as well. Furthermore, there is a lot of cooperation between the Nordic countries in the development building codes and climate declarations.

Mr Nicholas AVERY, EUROFER, introduced the 'European steel industry low-carbon roadmap including circularity'¹³ and explained that the **roadmap includes the ambition of a 55% reduction in emissions by 2030 based on 1990 levels** – which is a 30% reduction compared to 2018. This embodies a significant step change in steel production technology. The average rate of today's steel production is 55%, and we hope for an increase as more scrap becomes available. Furthermore, for construction, **reuse represents a big opportunity**, and it has been demonstrated that steel products can be easily reused at end of life. Overall, several research projects have also been conducted on how to overcome some of the barriers to increase reuse.

Responding to this intervention, Mr MOSELEY (DG GROW) pointed out that the steel industry is also part of a different industrial ecosystem – the energy intensive industry ecosystem, which has a separate transition pathway. There is clearly a crossover between the two ecosystems because steel is used not only in construction but also in other sectors. By working across DG GROW, a similar transition pathway for the energy intensive industry is currently being drafted in parallel.¹⁴

Mr Dieter DE LATHAUWER, Federal Public Service Health (FPS Health) in Brussels, stated that the Flemish region in Belgium is planning to go towards an M-level based on the TOTEM tool¹⁵. This approach will lay down requirements for the whole life cycle of the products used in buildings (including the impact on energy use). **Belgium believes it is important to not just look at carbon, but to include all indicators to prevent burden shifting. It would take little additional effort to do this for additional indicators rather than just WLC (the additional ones could be non-binding but rather guidance values)**. Finally, with regards to the question '*how ready is the industry?*', Mr DE LATHAUWER emphasised that industry has been very active the past decade in CEN TC 350¹⁶ and in developing standards for LCA at product and building level. This was not limited to Belgium, but also involved France, the Netherlands, the UK, Germany and several other countries.

Ms Benedetta NUCCI, European Aluminium, flagged the existence of the '**Vision 2050 – European Aluminium's Contribution to the EU Mid-Century Low Carbon Roadmap**'¹⁷ which summarised the contributions that aluminium is expected to give for decarbonation. It is not a document which is

¹² <http://efcc.eu/media/4917/constructing-a-sustainable-europe-by-efcc.pdf>

¹³ <https://www.eurofer.eu/publications/reports-or-studies/low-carbon-roadmap-pathways-to-a-co2-neutral-european-steel-industry/>

¹⁴ Document on the transition pathway of the energy intensive industries ecosystem which is currently open for consultation:

https://ec.europa.eu/growth/content/stakeholder-consultation-transition-pathway-energy-intensive-industries-ecosystem_en

¹⁵ In the opinion of Mr Dieter DE LATHAUWER, M-level details are to be developed, but should be comparable to an E-level in the context of Energy Performance of Buildings. If 'E' stands for Energy, the 'M' would stand for Material (Impact). More information can be found at

<https://www.ovam.be/nieuw-ontwerp-beleidsprogramma-op-weg-naar-circulair-bouwen> and at <https://www.ovam.be/materiaalprestatie-gebouwen-0>

¹⁶ <https://standards.iteh.ai/catalog/tc/cen/415e8b38-9bf9-455f-b531-96d83acf019d/cen-tc-350>

¹⁷ <https://www.european-aluminium.eu/vision-2050/>

specific for the built environment, it is much more horizontal, however it is also relevant for the building sector. The aluminium sector expects a reduction of direct and indirect emissions by 2050 of around 60%-70%. Furthermore, in the coming years, the importance of recycling will grow and the two topics will go hand in hand.

Mr Fernando SIGCHOS JIMÉNEZ, European Builders Confederation (EBC), considers that **more time is needed for an open debate on WLC to create an acceptable framework for all construction stakeholders.** The EBC recently published a position paper on the matter.¹⁸ More time is needed to ensure that we have sufficient knowledge to make WLC the main driver of the revision of the EPBD.

Mr Matthew COLLINS, Royal Institution of Chartered Surveyors (RICS), noted that there is **not a lot of data available on embodied carbon, and that this needs to be made available at the individual project level.** He gave the example of a new UK database which will provide data at product level as well as project level.¹⁹

Ms Emmanuelle CAUSSE, International Union of Property Owners, stated that **Swedish construction, civil engineers, and property industries have set a voluntary roadmap establishing goals to achieve a carbon-neutral value chain in the construction and civil engineering sector by 2035.** A Swedish member Fastightsägarna (Swedish Property Federation) is part of it. As a first step, **toolkits, and guidelines to map emissions have been developed.**²⁰ Interestingly, **this is not done at building level, but at company level.**

Mr Gonzalo SANCHEZ, European Environmental Bureau (EEB), announced that the EEB has conducted an analysis of the emissions emitted due to inefficient resource use and lack of circularity. It has recently published a **report which focuses on circularity and sufficiency as essential strategies to guarantee and decarbonise the built environment.**²¹ Complementing efforts in energy efficiency, both circularity and sufficiency allow a broad perspective on the life of buildings to be incorporated into the discussion, tackling the embodied emissions in the value chain.

Ms Audrey NUGENT, World Green Building Council, highlighted that as part of the BuildingLife project, **a consultation has been concluded on an EU Policy Roadmap for WLC.**²² This project is taking place at European level and the World Green Building Council is working to understand how WLC can be integrated into the EU policy framework. This process has been replicated in 10 countries across Europe who are working with industry and government to develop national WLC roadmaps. On the topic of 'readiness', the preliminary results of the consultation show that there is readiness for the integration of WLC into the EU policy framework and over 80% of respondents believe that the appropriate tool is the ERBD – to expand the scope of the directive. **A key finding within the preliminary results is that there is limited available data.** One response to this is that **requirements should first be made to start reporting on WLC. This will allow for benchmark and limit values to be put in place that are needed to recognise the impact of buildings on the built environment.**

¹⁸ <https://t.co/bGkPCmPPRb?amp=1>

¹⁹ www.becd.co.uk

²⁰ <https://byggforetagen.se/2021/02/ny-vagledning-for-kartlaggning-av-utslapp-i-bygg-och-anlaggningssektorn/>

²¹ <https://eeb.org/library/sufficiency-and-circularity-the-two-overlooked-decarbonisation-strategies-in-the-fit-for-55-package/>

²² <https://www.worldgbc.org/sites/default/files/WorldGBC%20EU%20Whole%20Life%20Carbon%20Roadmap%20-%20Consultation%20Doc.pdf>

Topic 2: Enhancing facilities for circularity and secondary raw material markets

Mr MOSELEY (DG GROW) moderated the session on the second topic, and asked attendees to respond to the following questions:

- Coordination at local/regional levels is an important enabler for the effective establishment and use of construction and demolition waste (CDW) infrastructure – are there commitments to improve collaboration?
- Who is making use of the possibilities for resource-efficient operations (e.g., industrial lines for reuse, prefabrication)?
- With regards to the need for material data, how many construction products have produced environmental product declarations (EPDs)? Are there targets for more EPDs? What commitments are there to set up or expand databases?

Mr *Brexio GOMEZ*, *European Asphalt Pavement Association (EAPA)*, mentioned that the EAPA have recently published a manifesto²³ on how the sector can meet the objectives of the EU Green Deal. Additionally, a decarbonisation roadmap is being developed. Technologies such as low-temperature asphalt, alternative binders, electrification, etc. are high priority at the moment for us. Furthermore, the reduction of the fuel consumption of vehicles through the use of certain road surface materials and road maintenance should not be forgotten. Separately, EAPA are preparing different publications on the circular economy of asphalt. Additional benefits arise through the use of materials such as asphalt, which is easy to repair and maintain as well as being 100% reusable and recyclable for several life cycles. On the topic of EPDs, the EAPA is involved in the development of the product category rules (PCRs). It is important to aim for more a more simplified document because what is being experienced in the sector at the moment is that different countries have different PCRs.

Mr *FINCKE* (UEPG) pointed out that it is important to consider the waste hierarchy when talking about circular economy. The discussion is focusing on recycling however, we should talk more about waste prevention altogether – which means increasing the lifespan of buildings and infrastructure. Then when we do consider recycling, we must focus on transport. For aggregates, which is a heavy and bulky material, 3 billion tonnes must be transported every year in Europe. It is not feasible to store the material for several years, so it would be useful to have a European database of where demolition takes place to map the points of demand to make connections as close as possible. On the topic of the waste hierarchy, Mr *Arnaud DUVIELGUERBIGNY*, PU Europe, added that a change in the legal status of secondary construction products would help to make them more readily available to new customers.

Ms *Federica POZZI*, *Environmental Coalition on Standards (ECOS)*, shared that the ECOS is conducting in-depth work on understanding opportunities and barriers to enhancing circularity of construction products, by enhancing the value of CDW. There is a growing interest from local and regional authorities in establishing ecosystems at national and regional level (e.g. Austria, Belgium). Yet, we do not see this happening enough in segments that are higher up the waste hierarchy, such as close loop recycling and reuse. For what concerns the third question on material data, **there is a growing number of product categories now working under EPD-based systems**. From the perspective of the ECOS, **this should not imply that this is the best instrument to ensure proper communication, reliability and comparability of information. EPDs are not always built on reliable data and do not allow for the appropriate comparisons to inform building-level decision-making**. Other approaches that are currently being developed, for example under the EU Sustainable Product's Initiative, should be brought forward in the construction sector in order to bridge the gaps created by the current system and allow for comparison across 'sectorial footprints'.

²³ <https://eapa.org/wp-content/uploads/2019/12/EAPA-manifesto>.

On the topic of EPDs, *Mr DE LATHAUWER* (FPS Health) remarked that an EPD is a useful tool to tackle the whole environmental impacts at building level, but that there are some issues which need to be considered. **For example, information on the reversibility of the fixing, simplicity of disassembly, speed of disassembly, ease of handling and the robustness of the material of the installed components and products.** Belgium currently imposes additional requirements due to the fact that an EPD should contain information on the reversibility potential of the different applications. This information will soon be integrated in TOTEM²⁴, the building calculator, as information for the designers. Separately, a guide has been published on the ways to use TOTEM in green public procurement²⁵.

Mr BREUKELAAR (EFCC) emphasised that in order to ensure circularity and the reuse of construction products, there is a need for **clear legal rules for liability transfer**. If a product is placed on the (secondary) market, the producer should be held responsible.

Mr MARINGOLO (CEMBUREAU) elaborated on the importance of EPDs and expressed that CEMBUREAU would like to see EPDs being reinforced for environmental communication – especially with business-to-business communication. He shared that EPDs were fundamental for the environmental input to the Level(s) pilot projects overseen by CEMBUREAU.

Ms HAUGH (Laudes Foundation) supported a previous comment that extending the lifespan of buildings is absolutely key. The Laudes Foundation is eager to fund initiatives that use circular business models to extend the lifecycle of materials from paper to reality and some interesting approaches can be seen in the recent Arup report.²⁶ However, these approaches are not yet realised and **insufficient action is being taken to reuse materials or to implement new business models (e.g., on leasing, buy-back)**. She shared that, based on the best data available, the average lifespan of a building in the EU is 42 years, which is shockingly short. In Denmark, the average lifespan is even less at 40 years. An attendee in the audience remarked that a building made out of concrete is durable with at least 100 years of practical life. *Ms HAUGH* agreed and pointed out the **problem of a gap – whereby certain materials have a much greater potential but, in reality, the existing business model of reusing a plot means that it is valuable to tear down a building too soon**.

Ms NUCCI (European Aluminium) shared the **Circular Aluminium Action Plan,²⁷ the sector's strategy for achieving aluminium's full potential for a circular economy by 2030**. The document was published last year, and it builds on the aluminium industry's Vision 2050, with a focus on recycling and provides policy recommendations for EU policymakers for the new Circular Economy Action Plan and the EU's objectives to reduce its CO₂ emissions. **The idea of the plan is not to improve the amount of aluminium being recycled (as this is already high), but rather to focus on the quality of the fraction that is recovered from end of life**. Separately, on the topic of EPDs, *Ms NUCCI* pointed out that the EcoPlatform²⁸ regularly publishes statistics and offers classification of terms of the type of products as well as the type of programmes the operator is using to publish them.

Mr NEAVES (ECOS) said that ECOS is also working on standards for circularity in CEN/TC 350/SC 1, which is a horizontal standard. Work is being done to analyse the priorities of the sector and indeed a legal basis is important as well, with reused products requiring integration into standardisation requests. *Mr NEAVES* agreed with the previous comments being made on the **importance of guaranteeing the functionality of all products, not just secondary products**. This highlights the need for some level of minimum functionality so that products can safely be placed on the market. **The collective producer responsibility (CPR) legal framework is coming forward in this sense, however building codes across Europe also need to better align at European level** to support the reuse of building elements directly or from other locations. One challenge faced in this context is that **minimum performance**

²⁴ <https://www.ovam.be/materiaalprestatie-gebouwen-0>

²⁵ <https://www.ovam.be/sites/default/files/atoms/files/TOTEM%20voorschrijven%20in%20overheidsopdrachten%20%20Een%20praktische%20gids%20voor%20aanbestedende%20overheden.pdf>

²⁶ <https://www.arup.com/perspectives/publications/research/section/realising-the-value-of-circular-economy-in-real-estate>

²⁷ <https://www.european-aluminium.eu/policy-areas/recycling-circular-economy/>

²⁸ <https://www.eco-platform.org/eco-epd-40.html>

requirements cannot be given for construction products, so a common basis would be helpful for the market – for products being newly placed on the market as well as when they are being reused. Another point, and as seen in the Great London Plan, is that some products can even be reused directly on site, which can avoid the need for transportation. Overall, **the right product standards and test methods are needed to really characterise and validate the different products**. It will take a few years to get there, but a starting point would be to start laying the legal basis for this. Separately, **the use of building codes currently varies a lot across the EU. The use of, for example, Eurocodes to integrate the reuse of components into a reusable product represents a positive kind of market creation** and a legal-basis mechanism.

Ms MARTINKAUPPI (Finnish Ministry of the Environment) stated that EPDs are commonly used in Finland, and that there is strong support for the EPDs to form a basis for European legislation. Furthermore, she expressed **high hopes for the CPR Acquis work if they can be redrafted for used materials, not only for new products**.

Ms Jane GARDNER, *European Resilient Flooring Manufacturers' Institute (ERFMI)*, confirmed that EPDs are widely used in the flooring sector. They are an important tool that demonstrate the credibility of their industry.

Mr Gonzalo SANCHEZ (EEB) raised the **need to see clear targets on circularity both in materials and building on the EU policy framework**. Some of the key points which the EEB found important would be to: include minimum requirements on circularity in Green Public Procurement (GPP), and EU legislation; update and harmonise the EPDs under the Product Environmental Footprint (PEF) umbrella; incentivise the availability of (open and comparable) data and define targets for both reused and recycled materials; avoid landfilling; and promote financial instruments and economic incentives to promote a circular market.

The EEB is now working on a report on financial instruments and economic incentives to promote a decarbonised building stock, including circularity. Separately, there are many experiences on circularity at the local level that could guide the discussion.²⁹

Mr MORILLAS (Share your Green Design) stated that it is important to encourage developers, both public and private to reuse existing buildings. The most sustainable building is the one that already exists as the carbon is already embodied. Circularity should be encouraged at policy level as it is currently not economically feasible to use reclaimed bricks or other materials, therefore clients, designers and contractors ignore that option. One example is the reuse of bricks. Brick as a material is all around us, the reuse of which makes sense from a sustainability point of view, but it is too expensive and so does not make sense from an economic point of view.

Topic 3: Increasing the service life of built assets

The following questions were presented by *Mr MOSELEY* (DG GROW):

- Durability and maintenance – are there targets set by industry or Member States?
- Adaptability and flexible reuse of built space – is this something that can be committed to by industry or policymakers?
- Design for future deconstruction and end-of-life – can targets be set for this? Does industry need to invest?

Mr Ulrich PAETZOLD, *Ulrich Paetzold EU-Consulting*, raised the issue that certain existing buildings are of such poor quality that it is simply not adaptable to today's requirements. Consequently, also from technical points of view, demolition and reconstruction is more reasonable. There shouldn't be a general priority for one or the other, but an **analysis must be made on a case-by-case basis as to whether the building can be saved or whether it is better to replace it**.

²⁹ <https://cityloops.eu/>

Mr CARTUYVELS (BOUYGUES Europe) suggested that stone is an alternative material which can be considered when talking about durability. While it is not a bio-based material, it is a natural material.

Mr NEAVES (ECOS) provided an example of the London Plan 2021,³⁰ which involved mapping of different forms of space in the entire city in its development and encouraged boroughs within the city to assess the availability of space to inform the permitting of constructions and the needs of the community and citizens. This **represents a good basis for local decision-making** where boroughs could look at proposals of new constructions on greenfield sites, and potentially brownfield sites, to **consider whether there is really an essential need for office spaces, for example**. On a separate note, when speaking about embodied carbon at building level, sustainability assessments at the waste phase typically only include the processing of the waste. An important **consideration which is typically missing is carbon penalties relating to the embodied CO2 value of turning a building and product into waste**, so that new constructions and projects account for this CO2 in the construction stage as they effectively wasted the resources available. This will not result in additional CO2 because it has become a waste rather than an input material. This is just an idea of **how to valorise waste better, which will in turn support sufficiency of the resources not only of the of the building**. Mr NEAVES offered some examples of local grassroots reuse and repair projects involving the partners of PREUSE.^{31,32}

Mr THIES (FIEC) responded to the first question 'Durability and maintenance – are their targets set by industry or Member States?'. He stated that industry **cannot set targets for durability and maintenance as it depends on contracts** – this makes it difficult to make specific targets such as 'we will maintain *this* many roads by 2040'. However, there are some relevant initiatives for maintenance of infrastructure. For example, the budgetary programme in France for bridge maintenance where they first assess the state of bridges and then propose the corrective measures to properly maintain the bridges. A second example is the G20 declaration on maintenance of infrastructure. A third example is the TEN-T, where Member States in the network need to maintain a certain level of quality for roads and bridges. Mr Thies concluded his intervention by saying that he was glad that the issue of maintenance was raised in the Green Cluster meeting, as the maintenance of infrastructure is associated with environmental benefits, not just economic and safety benefits.

Mr GOMEZ (EAPA) continued to outline the importance of maintaining infrastructure and emphasised that an adequate maintenance of the road infrastructure can extend its service life and contribute to reducing impacts. In addition, it can significantly reduce the fuel consumption and emissions of the vehicles circulating along. Some studies reported reductions of 5%–10% by simply restoring the surface characteristics of deteriorated pavements. This is why road maintenance is so important however, from a political point of view, this is not normally prioritised as it is more attractive to build new roads.

Mr MARINGOLO (CEMBUREAU) raised the question of the status of the European Commission's Circular Economy Principles for Buildings Design³³ and questioned whether these could be translated into possible targets for projects. Mr MOSELEY (DG GROW) responded by saying that the Commission had recently published a follow-up report³⁴ with some policy recommendations.

Mr Christophe SYKES, *Construction Products Europe (CPE)*, raised the question of **how to feasibly accommodate the three questions**: extended service life, adaptability, and deconstruction. Furthermore, energy is not mentioned but obviously crucial. Mr Adrian HEYER, representing the German construction industry, recognised capacity issues in addressing multiple targets. Prolonging the life cycle of buildings needs refurbishment and renovation to adapt the buildings to today's standards, for instance, with regards to energy efficiency but also soft factors such as comfort. This requires a large

³⁰ <https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/london-plan-2021>

³¹ The <https://www.baukarussell.at/about-us/> project is also a positive example of urban mining with a positive social dimension.

³² RREUSE is an international network representing social enterprises active in reuse, repair and recycling and their members RepaNet and Pulsewerk are both positive examples.

³³ <https://ec.europa.eu/docsroom/documents/39984>

³⁴ <https://op.europa.eu/en/publication-detail/-/publication/86c67cd0-0f83-11ec-9151-01aa75ed71a1/language-en/format-PDF/source-230073893>

scale up of renovations, but it will be hard to achieve the targets laid out in the Renovation Wave Strategy without applying and pushing for more serial approaches to renovation. **Renovation needs to be made more time and cost efficient – also by using industrial means, such as prefabrication of modules for the renovation of buildings that fit the approach.** In short, there is a need to scale up serial renovation.

Ms MARTINKAUPPI (Finnish Ministry of the Environment) announced that Finland will revise legislation to require the design of a long service life for buildings. Inspections of buildings that are used by a large group of people will also be required every 10 years.

Ms Angeles ASENJO, *Confederación Nacional de la Construcción (CNC)*, emphasised that investments in the maintenance of infrastructures is essential to increase the service life of the assets. Public administrations in Spain have reduced investment levels. For example, investment estimates made by the Spanish Road Association show a maintenance deficit that has increased emissions by a minimum of 25 million tonnes of CO₂.

Ms Milena FEUSTEL, from the *German Institute for Federal Real Estate*, made the point that **prefabrication (e.g., for new buildings, parts of buildings, existing buildings) can help with energy efficiency and recycling** as well as other complex problems currently faced with existing buildings. Different actors should collaborate and be more open to prefabrication as a solution. Overall, it is important to remember the benefits of better planning through building information modelling (BIM) other digital tools.

Mr AVERY (EUROFER) responded to the last question and stated that design for deconstruction and end of life can be very effective to increase circularity and service life, but **there is currently no policy or economic incentive to design this way or to disassemble rather than demolish.** Separately, **a circular building is not necessarily the same as a low-carbon building – so both aspects need to be incentivised.** Targets therefore play a role coupled with economics. There is also the question of who will pay for this deconstruction – because it is indeed expensive.

Topic 4: Enabling carbon storage and nature-based solutions

Ms LINDBLOM (DG ENV) moderated the final session on the fourth topic, which effectively combines two separate subjects. She stressed that **carbon storage involves different kinds of materials – bio-based and others.** Furthermore, this topic involves **different kinds of solutions, not only the consideration of buildings as carbon sinks, but also infrastructure.** *Ms LINDBLOM* then went over the following questions:

- Are Member States taking action on this?
- Are building designers addressing this? Should they?
- Do any certification schemes or standards address this?

Mr Andrew NORTON, *CEI-Bois*, commented on the problem that **when the stored carbon is quantified, the benefit over time is typically not established.** There are a number of methods that can be used but these unfortunately are not necessarily standardised. One method was mentioned, which is a British standard for carbon foot printing. It looks at a very simple weighted average (e.g., 1% of stored carbon per year is accounted for) and this is important for the timber industry in particular because the use of wood is also very diverse. If we want to build our carbon pools at national level, we should aim to improve circularity and the building life for wood and other bio-derived products and we need to account for the benefit of stored carbon at a product level and in whole building assessments. This **means including the benefits over time as per dynamic LCAs, not just the quantity stored which is assumed to disappear at end of life in EPDs.** A large potential feedstock ends up as biomass energy

rather than other potentially long-life products. A recent study³⁵ goes into detail about different methods and how they can be incentivised in a monetary way. These considerations will incentivise circularity as well as a longer life of buildings.

Mr NEAVES (ECOS) agreed with the view that **carbon accounting should include a temporal aspect**. For example, if a building assessment is being conducted on the use of concrete, the **assessment typically includes the amount of potential recarbonation based on the predicted life cycle and not the realistic life cycle**. In such cases, it is possible to discount a huge lump sum of CO₂ of the WLC of the building. The International Organisation for Standardisation (ISO) is currently developing an overarching standard on carbon neutrality that will apply to buildings in the future. **It is important to ensure that this kind of temporal aspect is taken into account and that any kind of offsetting activities that are associated with the project are not counted both at the building and the project where the offsetting is taking place. This will help to avoid any overestimation, double counting, and overly optimistic discounting.**

Ms Magdalena HERBIK, *Bureau International du Béton Manufacturé (BIBM)*, announced that the BIBM has launched its Little Green Book of Concrete³⁶ this year which outlines not only the sustainable advantages of precast concrete, but also the engagement of the industry to provide more sustainable, circular and decarbonised solutions for the built environment.

Mr DE LATHAUWER (FPS Health) questioned the need to revive the LCA to take into account the carbon being stored in wood. There are a lot of conditions to be taken into account before applying this at the European level or European scale. For example, as a basic principle, **it is not desirable to demolish our natural environments and a natural carbon storage in order to move it to transform it into building stock for periods which are not eternal carbon storage systems** – like the traditional carbon capture. These situations can only occur if the total amount of forest increases, otherwise the emissions are simply released. We should carefully consider this when thinking about the benefits of carbon storage.

Mr THIES (FIEC) gave the example of France which has a certification scheme in place for biodiversity and some cities oblige a certain percentage of buildings to be dedicated to a greenspace. Separately *Mr THIES* highlighted the importance of land use, which is the competence of local and regional authorities. He has received feedback that land use is more and more restrictive when it comes to green field construction, especially in Germany. *Mr HEYER* (German construction industry), added to this point by stating that in Germany, larger offsetting projects are regulated by law – in terms of area, but also in terms of quality for a new build project on green field. This had been done, for example, for infrastructure projects such as highways.

Mr MARINGOLO (CEMBUREAU) examined that in terms of accounting, there is a lot of work going on in the cement and concrete sector. For example, the Swedish Environmental Research Institute IVL, which has developed methods to calculate the CO₂ uptake in cement containing products³⁷ and the Swedish National Inventory Report (NIR), submission 2020, included in its annex a report of CO₂ uptake in concrete. **Designers can address the potential of recarbonation in their projects. Recarbonation occurs naturally in all concrete structures, permanently trapping the CO₂, which effectively transforms European cities into carbon sinks.** The EN 16757 PCRs for concrete and concrete elements include guidance on the calculation of CO₂ uptake. The Global Cement and Concrete Association (GCCA) EPD tool adds accounting for recarbonation at storage, use and end of life stages. This breakthrough of recarbonation has been recognised in the Full Sixth Assessment Report of the Intergovernmental Panel on Climate Change.³⁸

³⁶ <https://bibt.eu/document-centre/the-little-green-book-of-concrete-2021/>

³⁷ www.ivl.se/co2-uptake-concrete

³⁸ https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf

*Ms Rama BARD, from AIA Continental Europe, responded to the second and third questions by stating that **building designers are getting better in developing nature-based solutions in cities, however they are less focused on carbon storage.** The issue of carbon storage cannot be addressed by one single building but needs to be addressed at a bigger scale at the district or city level. Both components should be included in certification schemes.*

*Mr Martin Brown, Living Future Europe Initiative, stressed the need for a holistic perspective which prioritises nature. **By building with nature from the beginning, there is less carbon storage to consider later in the project.** The Living Building Challenge certification programme³⁹ provides an example of an approach which is based on a building's relationship with nature.*

*Mr FINCKE (UEPG) agreed with the view that climate and biodiversity are linked. He elaborated that sustainably sourced raw construction materials are key and stated that in the **UEPG Roadmap to 2030, a commitment was made for a net gain of biodiversity on aggregates extraction sites making active quarries compatible with nature.** There are many examples of projects which consider biodiversity, such as 'Life in Quarries' of the Belgian Association FEDIX and 'Quarries and Nature'⁴⁰ of the Mineral Products Association. There is also an online community which is aiming to harmonise accounting rules to include the natural capital and ecosystem services. Additionally, there are different initiatives ongoing which also consider the raw material source for construction.*

Mr Gregory RICHARDS, Stora Enso, added that the forest volume is growing in some countries with stable forestry, which is an important consideration for carbon storage as well. Additionally, several Member States are taking action. For example, France has been mentioned with their RE2020⁴¹ and their use of dynamic LCA calculation. Starting this January, Sweden is requiring declarations, but carbon storage is not specifically part of this. Furthermore, various Swedish cities promote nature-based solutions.

Mr Patrice GODONOU, Svenskt Trä, did not support the concern about the depletion of the forest, at least not in most European countries with effective sustainable forestry industry, such as Sweden and Finland. In such countries, the total forest stock is constantly renewed and this is well documented. In Sweden, for instance, the forest volume has doubled during the past 100 years, thanks to timber and wood industry. Without such an active forestry industry, the forest stock volume will stagnate.

Concluding the first Green Cluster Group meeting

Mr MOSELEY (DG GROW) then thanked the attendees for their valuable inputs. Mr MOSELEY reminded participants that further input on initiatives and targets could still be shared via email until 29/10 by the latest. He then gave an overview of the next steps.

Figure 2: Next steps in the development of the transition pathway



The Commission will draft and finalise a document that sets out scenarios for the transition pathway of the construction ecosystem. This document will make use of all of the feedback that the Commission has received from the green, digital and resilience meetings. The intention is to then launch a short survey for further feedback on that document. Next year will then involve further events of the HLCF to turn these scenarios into an agreed transition pathway for the ecosystem.

³⁹ <https://living-future.org/lbc/>

⁴⁰ <https://www.mineralproducts.org/>

⁴¹ <https://www.ecologie.gouv.fr/re2020-nouvelle-etape-vers-future-reglementation-environnementale-des-batiments-neufs-plus>

Some final remarks were also shared by *Ms LINDBLOM* (DG ENV) who emphasised the importance of such collaborative processes. *Ms LINDBLOM* shared that **a specific roadmap for the reduction of WLC for buildings for 2050 will soon be developed.** It is an action stemming from the Renovation Wave Strategy and should be ready by 2023. A study will soon start which will substantially improve the Commission's understanding of where we are today in terms of baseline, but also a scenario for business as usual. The study will go on for 15 months and it will have a full EU scope. The Commission will be setting up expert groups for the development of the roadmap and the construction industry representatives will be consulted.

Mr MOSELEY closed the first meeting of the Green Cluster Group by thanking all participants.

Annex – List of participating organisations

#SustainablePublicAffairs	EFBWW
AIA Europe	EMO
Italian Contractors' Association (ANCE)	EPEE
Architects' Council of Europe	ESWA
Architecture and Building Foundation (ABF)	EUEW - European Union of Electrical Wholesalers
Austrian Institute of Construction Engineering (OIB)	EUK Consulting
BIBM - Federation of the European Precast Concrete Industry	EURIMA
BImA (Institute for Federal Real Estate)	EuroACE
BOUYGUES Europe	EUROLUX
Build Europe	European Aluminium
Building Information Foundation Ltd	European Asphalt Pavement Association (EAPA)
Bundesarchitektenkammer BAK	European Builders Confederation (EBC)
Bundesverband Baustoffe - Steine und Erden e.V.	European Cellulose Insulation Association
Bureau International du Béton Manufacturé (BIBM)	European Council of Civil Engineers
CASAIS Engenharia e Construção (PT)	European Environmental Bureau
CEI-Bois	European Federation for Construction Chemicals
CEMBUREAU	European Floorcoverings Association (Eufca)
Centro tecnológico de la Construcción de la Región de Murcia (ES)	European Panel federation
CINEA	European Resilient Flooring Manufacturers' Institute (ERFMI)
Circle Bank (DK)	Eurovent
COBATY International	Federal Ministry of the Interior, Building and Community (DE)
Cobuilder	Federal Office for Buildings and Logistics (CH)
Concular (DE)	FEICA
Confartigianato Imprese (IT)	FEP
Confederación Nacional de la Construcción (CNC)	FFB
Confédération Construction (BE)	FIEC
Construction Products Europe AISBL	Fire Safe Europe
Czech Office for Standards, Metrology and Testing	FPS Health
Danish Housing and Planning Authority	Fraunhofer ISI (DE)
Danish Technological Institute	Government Offices of Sweden
DBC (DE)	Graanul Biotech (EE)
DG GROW	Hauptverband der deutschen Bauindustrie (DE)
Digital Findet Stadt GmbH (AT)	HeidelbergCement (DE)
EAE - European Association for External Thermal Insulation Composite Systems (ETICS)	Holcim
European Consortium of Anchors Producers (ECAP)	IBM
Environmental Coalition on Standards (ECOS)	ILNAS-Market Surveillance Authority (LU)
European Calcium Silicate Producers Association (ECSPA)	Instytut Techniki Budowlanej (PL)
	International Union of Property Owners
	ITB
	JRC

Karuk"Asher Ltd InoV-A-SioN
Kingspan Group
Laudes Foundation
Living Future Europe
Ministry for Climate Action (AT)
Ministry for Innovation and Technology (HU)
Ministry for the ecological transition and demographic challenge (ES)
Ministry of Business and Trade (CZ)
Ministry of Ecological Transition (FR)
Ministry of Economic Affairs and Communications (EE)
Ministry of Economic Development and Technology (PL)
Ministry of Economy, Entrepreneurship and Tourism (RO)
Ministry of Environment (CZ)
Ministry of Environment (LT)
Ministry of Industry and Trade (CZ)
Ministry of Regional Development and Public Works (BG)
Ministry of the Environment (FI)
Ministry of the Interior and Kingdom Relations (NL)
Ministry of Transport and Construction (SK)
NBN Owens Corning
One Click LCA Ltd
Permanent Representation of Croatia to the EU
Permanent Representation of Denmark To The EU
PlasticsEurope
PU Europe

PwC
RAECOM Oy
Research & Planning Unit, Public Works Dept., Ministry for Infrastructure (MT)
RICS
RINA Consulting Spa
Shareyourgreendesign
Slovak Craft Industry Federation
SMEunited
Stora Enso
Sunthalpy (ES)
Svenskt Trä (SE)
Swedish National Board of Housing, Building and Planning
Tata Steel
Teicos UE Srl
The Building Information Foundation RTS
The European Steel Association (EUROFER)
UEPG - European Aggregates Association
Ulrich Paetzold EU-Consulting
UNI
Università degli Studi di Brescia
Viessmann Climate Solutions
VOEB
World Green Building Council
World Green Building Council
ZDB - Zentralverband des deutschen Baugewerbes
ZDH

HIGH LEVEL

CONSTRUCTION

FORUM