Building materials workshop

Tuesday, 8 March

Morning session: 10:35 - 11:45 CET
Afternoon session: 15:30 - 16:40 CET
Nice (France) & online

Background

An area the size of Paris is built every week, and that of Japan every year, as the world is going through a phase of massive construction. Given the considerable carbon footprint of the buildings and construction sector, which is responsible for **37% of energy-related CO2 emissions and 36% of global final energy consumption** (GlobalABC, 2021), halving emissions by 2030 cannot be achieved by the world or by any country without reducing emissions from the built environment. And it cannot be achieved without a commitment to reducing emissions along the building lifecycle, including materials. Timely action is therefore needed to address the environmental impacts of the production of building materials, which was **responsible for a quarter of emissions from the sector, causing 10% of global energy related greenhouse gas emissions in 2020** (2021 Buildings-GSR). Additionally, the production of building materials makes up the largest share of embodied carbon emissions, having caused 3.4 Gt of CO2 emissions in 2019 due to energy use alone (PEEB, 2021).

Global material use is expected to **more than double by 2060**, and the materials used in the building and construction sector will comprise a third of this rise. GHG emissions will also increase as a result of material use (2020 Buildings-GSR). Carbon emissions released before the built asset is used will be responsible for half of the entire carbon footprint of new construction between now and 2050, threatening to consume a large part of our remaining carbon budget (WorldGBC, 2019).

However, embodied carbon emissions are still under-addressed in strategies to reduce building emissions. These strategies, ranging from building less, to circular approaches and improved designs that have a longer lifetime, require less material or use low-carbon materials. For building materials, **a double strategy is needed**: (i) Reduce the emissions of conventional building materials, such as steel-reinforced concrete, aluminum, plastic and glass, and (ii) increase the market share of alternative building materials, such as location-appropriate and bio-based materials (PEEB, 2021).

Beyond protecting our environment and ecosystems, addressing building materials also means activating local value chains and stimulating local employment and economy, protecting the people's health and wellbeing, improving building design to maximize energy and resource efficiency, improving waste management, and generating significant savings.

In view of the increased overall attention and interest in addressing embodied carbon in the buildings and construction sector, many of GlobalABC's projects in 2022 will focus on this topic. The objective is to support governments and the architecture, engineering, and construction industries in taking action to achieve UNFCCC's MPGCA Human Settlements Pathway embodied carbon targets: **(i) by 2030, embodied carbon reduced by at least 40% and (ii) by 2050, at the latest, all new and existing assets must be net zero across the whole life cycle, including operational and embodied emissions**.

Expected outcomes

- Gain first insights on key leverage points for tacking embodied carbon emissions.
- Get feedback from the GlobalABC community and engage members in the projects under development.
- Identify key points to feed into GlobalABC's study "Building materials and embodied carbon: status and solutions".
- Gather contributions on ongoing activities related to building materials within the GlobalABC community.

Moderation

- Jonathan Duwyn, UNEP/GlobalABC
- Anna Dyson, Naomi Keena, Mae-Ling Yokko, Yale Center for Ecosystems in Architecture

Background information - GlobalABC's work on building materials in 2022 and beyond

➔ **Study "Building materials & embodied carbon: Status and Solutions"**

This study, supported by the German Ministry of Environment, Nature Protection, Nuclear Safety and Consumer Protection (BMUV), will be conducted by the Yale Center for Ecosystems in Architecture (Yale CEA). The study will focus on two main questions, namely "what is the **status** of embodied carbon in buildings?", and "what are the **solutions** to address embodied carbon and foster local markets for low carbon building materials?". The study will be action-oriented and focus on policies, and will build on the scientific research undertaken, and target policy-makers and key actors in the value chain to galvanize rapid action on embodied carbon. In addition to a global overview of the situation, the study will also provide some case studies, linked with UNEP's project "Transforming the Built Environment through sustainable materials", to further investigate the situation and the strategies adopted in some countries to accelerate the transition to sustainable building materials.

➔ **UNEP project "Transforming the Built Environment through sustainable materials"**

This project, supported by the German Ministry for Economic Cooperation & Development, supports and builds on the work of the GlobalABC and the One Planet SBC. This project will last 4 years, and will focus on 4 countries (January 2022 - December 2025), namely **Senegal, Ghana, Bangladesh, and India**. The objective of this project is to promote circularity in buildings through the creation of an enabling framework for the responsible acquisition of building materials while developing a sustainable materials market for the buildings and construction sector in the four countries. The project includes three work packages:

- Policy - includes the development of national and/or sub-national roadmaps
- Pilots - includes the development of building passports
- Learning and dissemination - feed into Global material study (country studies - coordinated effort) & project experience to feed into GlobalABC flagship products, regional roundtables, global policy hub/platform on materials and materials working group

➔ **GlobalABC Information Hub on Buildings Materials and Products**

The consultations for this project, which is part of the above UNEP project, started at the end of 2021 in collaboration with the UNEP Chemicals team and with the support from Bioregional. This Information hub, will take the form of a **digital platform targeted at policymakers**, with links to relevant existing platforms and databases. Its objective will be to speed the transition towards a highly sustainable building materials and products sector, by assisting the development of an increased number, and more ambitious, policies in all regions and which are compatible with longer term targets, such as the UNFCCC's MPGCA Human Settlements Pathway embodied carbon targets. The hub would provide tools and resources such as carbon calculators, tools for chemical, waste and circularity assessment, case studies, technical reports and educational materials.

➔ **2022 Global Status Report for Buildings and Construction**

This year's Buildings-GSR will include a regional focus on Africa and a topical deep dive on building materials. The topical deep dive will be derived from the "Building materials & Embodied carbon: status and Solutions" study.

➔ **Building materials working group**

Connected with all the above activities, the Building Materials Working Group will feed-in, build on and link with the five work areas. It will:

- Define a common vision and approach for building and construction materials and addressing embodied carbon and develop a paper on embodied carbon and building materials to feed into high level processes (G7, G20, COPs).
- Support in shaping the GlobalABC study on embodied carbon status and solutions and advising on relevant data and information sources.
- Support the development of the GlobalABC Information Hub on Buildings Materials and Products including by sharing/reviewing potential case studies and resources to feature in the hub.
- Review sections on Materials in national and sub-regional roadmaps being developed on the GlobalABC roadmap model.
- Support the organization of workshops on building materials (including the Materials workshop for the GlobalABC Assembly) and participate in the promotion of this key area during high-level events.

The building materials working group will be led by two or three co-leads and one technical organization. Sub-working groups will be established for the implementation of selected activities, e.g. the Global Materials Study Task Force which will review the GlobalABC study on building materials embodied carbon and review the building materials focus chapter of the 2022 Buildings-GSR.

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Agenda

Morning session - 10:35-11:45 CET		
10:35 - 10:40	Welcome & introduction	Jonathan Duwyn, UNEP/GlobalABC
10:40 - 10:45	Live poll *WORD CLOUD: Imagine you are an architect for a day: what sustainable materials would you use to design a house in your country?* *OPEN QUESTION: What sustainable building materials activities are you planning to undertake in 2022?*	Jonathan Duwyn, UNEP/GlobalABC
10:45 - 10:55	GlobalABC study "Building materials & embodied carbon: Status & Solutions"	Anna Dyson, Naomi Keena, Mae-Ling Lokko, Yale Center for Ecosystems in Architecture
10:55 - 11:05	Deep dive - Transforming the built environment through sustainable materials in Senegal	Ernest Dione, Ministry of Environment and Sustainable development, Senegal
11:05 - 11:30	Breakout groups (1 in-person, 4 or 5 online) *In your opinion, what are the key levers/solutions to accelerate the uptake of sustainable building materials?* *You are an expert group and have been commissioned by a government to design a strategy to tackle embodied emissions from buildings: what would you recommend?* *Are you aware of any innovative initiatives to promote the use of sustainable building materials?*	NA
11:30 - 11:40	Reporting back	One representative per breakout room
11:40 - 11:45	Close	Jonathan Duwyn, UNEP/GlobalABC

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Afternoon session - 15:30-16:40 CET		
15:30 - 15:35	Welcome & introduction	Jonathan Duwyn, UNEP/GlobalABC
15:35 - 15:40	Live poll *WORD CLOUD: Imagine you are an architect for a day: what sustainable materials would you use to design a house in your country?* *OPEN QUESTION: What sustainable building materials activities are you planning to undertake in 2022?*	Jonathan Duwyn, UNEP/GlobalABC
15:40 - 15:50	GlobalABC study "Building materials & embodied carbon: Status & Solutions"	Anna Dyson, Naomi Keena, Mae-Ling Lokko, Yale Center for Ecosystems in Architecture
15:50 - 16:00	Deep dive - Transforming the built environment through sustainable materials in Senegal	Ernest Dione, Ministry of Environment and Sustainable development, Senegal
16:00 - 16:25	Breakout groups (1 in-person, 4 or 5 online) *In your opinion, what are the key levers/solutions to accelerate the uptake of sustainable building materials?* *You are an expert group and have been commissioned by a government to design a strategy to tackle embodied emissions from buildings: what would you recommend?* *Are you aware of any innovative initiatives to promote the use of sustainable building materials?*	NA
16:25 - 16:35	Reporting back	One representative per breakout room
16:35 - 16:40	Close	Jonathan Duwyn, UNEP/GlobalABC