LI Webinar: Reducing landscape carbon, unanswered questions answered

Thursday 20 June 2024

Speakers response

- **Claire Thirlwall CML (CT), Director, Thirlwall Associates**
- **Sian Berkley (SB), Sustainability Manager, LDA Design**
- **Stephen Duce (SD), Operations Manager, Hardscape Products Ltd**

	Questions
1	A very specific question, but we struggle to choose between timber or recycled plastic products (ie benches/ boardwalks) the issues are lack of definite data/durability/maintenance/lifespan. Where can we find easy to use data?
Answer	Developing an understanding of both the initial carbon footprint and also the lifetime carbon emissions would be key to making informed decisions (e.g. does recycled plastic last longer than timber). **SD**: As a general rule, if the wood has been specifically manufactured for making the furniture, it will have a positive carbon value attached to it, where plastic will be negative. Even if wood benches need to be replaced more frequently, they will get a positive value each time. There are several data banks of EPDs freely available, including the BECD (Built Environment Carbon Database), the EPD International Portal through envirodec, and the ECO-Portal from ECO platform.
2	Along the same lines as Jane Knight's question, what contact has the LI had with the ICE and RIBA on this subject? Land use change is a massive issue and changing the methods of greenfield land development could have a huge impact on carbon reduction.
Answer	**SB**: Definitely a future action that is written within the report recommendations. Outward education to the wider industry is vital but we want to make sure we've got our process understood and in place prior to.

3	Are there any good examples of good practice for including carbon budgets in landscape contracts and procurement processes. About to be involved in a task and finish procurement group and would like to raise this issue
Answer	Specify parameters (such as embodied carbon) within the material spec. "or equivalent and approved". If alternative materials don't comply you have the option to reject. **SB:** RIBA 2030 Climate Challenge sets target metrics for different building types so would be interesting to look into methodology and identify possibility for landscape to have similar targets https://www.architecture.com/-/media/files/climate-action/riba-2030-climate-challenge.pdf?la=en&hash=5CBE022993F42B59374431E08607D333
4	As a specifier, I simply don't specify materials without environmental information. If a supplier of a potentially good product doesn't provide info, tell them you won't specify until they do.
Answer	**SB:** Also an issue when it comes to reused materials that won't have an EPD - worth talking through the options and using calculators to try and compare the impact. **SD:** This is a great policy. There is a slight moral dilemma potential to be aware of. If you know or suspect that a material is better for the environment (Manual processes, solar panels at the factory, short distance to the scheme etc) but has no EPD, do you choose a material which is from much further away, with little environmental controls, and uses old machinery, but has an EPD? 1 will be a short term win for the environment, 1 is a long term gain for everyone.
5	Can we share some of the content from this webinar on our social media platforms to spread the word? Some of the graphs particularly will be really impactful.
Answer	**CT:** all the graphs, etc were from documents in the public domain so can be shared freely.
6	Can you say again where the ratio of 70% soft to 30% hard came from?
Answer	Climate Positive Design Tool - guidance document **SB:** SB: Climate Positive Design Toolkit https://climatepositivedesign.com/wp-content/uploads/2023/09/Climate-Positive-Design_Design-Toolkit.pdf

7	Do you include transport to site cost of trees of different sizes? For example a 60-70 cm semi mature at one per lorryload clocks up approximately 500kg per tree.
Answer	**SB:** EPDs don't currently exist for vegetation - Stats/Data exists like Treeconomics which can help to give you an assumed carbon sequestration but won't be accurate or specific to the project (and include emissions from things like manufacturing, tree planting, transport). This is an action area to be addressed **SD**: There are transport calculators available from reputable sources, where you can calculate the emissions likely from an exact journey and weigh carriage. I suggest CarbonCare.Org - CO2 Calculator
8	Does the information provided by suppliers generally include transport and installation carbon emissions?
Answer	**SD:** There is a wide range of data between EPDs. All MUST have A1-A3 manufacturing emissions included. About half have A4 (Transport) included, and a quarter A5 (Installation)and beyond. I would say that the calculations of these are not bespoke to the site, as you would expect, so it would be wise to calculate these individually where possible. Hardscape do this as a supplier as part of our responsibility, because we fully understand the routes and modes of delivery.
9	EIA and future Levelling Up Environmental Outcome could include carbon calculations?
Answer	**SB:** Agree - should drive for Environmental Net Gain and the consideration of carbon within natural capita/ecosystem services. If this were included in EOR, the co-benefits would become very clear for planting. Issue is data availability/accuracy right now.
10	From your well-made comments on the value of soil and impact of land disturbance, it seems that building on greenfield land is a huge negative. With all the political parties talking about increasing house building, how can 'we' 'encourage brown field development? Especially in the context of the changes taking place in town centres.
Answer	Agreed - need to consider connectivity, provision of facilities, employment, low carbon transport etc to enable new-communities to live in a low-carbon way. Can GI on greenfield sites capture carbon to be a carbon sink (as well as BNG etc) - might be harder to do this on brownfield sites. **SB:** Mention of soil data research undergoing - the availability of this data hopefully can be plugged into the LULUCF methodology (Land Use, Land-Use Change and Forestry). In RICS Whole Life Carbon Assessment and UKGBC guidance - LULUC is referenced however data refers to only one type of land-use change and so we need to drive this change.

11	Has the government / official departments started to get developers especially large commercial or residential schemes involved in the process? Most of the constraints came from budget from the client side, Is there any framework to ensure and enforce developers to contribute carbon reduction during design process as well as construction process?
Answer	SB: Not government legislation - RIBA 2030 Climate Challenge sets out targets for embodied carbon, operational carbon and water use of different building types including residential. This obviously won't include landscape yet and would be interesting to add our figures within for a typical housebuild to identify target figures. https://www.architecture.com/-/media/files/climate-action/riba-2030-climate-challenge.pdf?la=en&hash=5CBE022993F42B59374431E08607D333
12	How can we support C reduction in ongoing maintenance? Is it feasible in an O&M Manual to specify no leaf blowers, shred arisings, create composting areas, encourage no material taken off site....?
Answer	If you're specifying the maintenance, of course. Monitoring compliance is usually the issue. So training/pressure needed on maintainers too.... **SB:** Lots of recommendations within here - reducing operational carbon emissions and increasing sequestration rates https://climatepositivedesign.com/wp-content/uploads/2023/09/Climate-Positive-Design_Design-Toolkit.pdf At the start of a project, you should include the Whole Life Carbon Cycle stages and determine at each stage where you can make carbon reductions / improvements.
13	How can we support C reduction in ongoing maintenance? Is it feasible in an O&M Manual to specify no leaf blowers, shred arisings, create composting areas, encourage no material taken off site....?
Answer	I'd suggest the client's agent/contract manager, to check the maintenance is being done in compliance with the spec.
14	If there is a=to be acontrasl location dof data we need to have a set of standradsa for data gathering
Answer	**SB**: There is set standards in relation to hard materials that make up the data needed for an EPD. The centralised locations where these EPD can be stored and maintained may be the BECD (Built env carbon database) or EC3 (Embodied carbon in construction calculator). This is likely to be one of the education recommendations report - to help suppliers who are uncertain where to start with a webinar on the EPD/Data collection process.

15	If vegetation is a key part of the solution and data is lacking then surely as a profession we should start leading the way and start measuring
Answer	**SB:** Precisely - we need to map who is already starting to this, what methodologies and determine a standard for others to follow
16	I'm really surprised there's been no mention of BIM. It's really simple to set up custom parameters for materials or design elements which can then total up, schedule or compare carbon footprints. We have the tools, and most larger manufacturers now provide the data.
Answer	There is a digital conference soon which has a few carbon conversations within digital tools. It would be great if it can be incorporated into what we already have - but there is still the issue of data currently. Or the methodologies for soft landscaping to plug in **SB:** BIM has the potential to integrate hard materials. Issue is carbon sequestration from planting which has an exponential change and requires different method currently. Hence why Pathfinder was created - though perhaps potential for integration in the future
17	Is pathfinder accredited by industry or government bodies?
Answer	There has been research documents re. which tools are better and Pathfinder came on top. In the US and Aus, Pathfinder is what their Landscape Architecture Associations are using. Not yet is it accepted by government / policy due to the type of tool it claims to be (assumption / comparison tool not verification tool) **SB:** There has been research documents re. which tools are better and Pathfinder came on top. In the US and Aus, Pathfinder is what their Landscape Architecture Associations are using. Not yet is it accepted by government / policy due to the type of tool it claims to be (assumption / comparison tool not verification tool)
18	Is there any useful data on how the cooling effects of specific habitats can be an additional positive ontop of carbon sequestration?
Answer	**SB:** Will be interesting to look at this as well as other ecosystem services of habitat types in order to add to our decision making - alongside BNG. There will be many factors to consider rather than just carbon. Though like with every case will be situation-dependent
19	Re importance of soil for CO2 sequestration. Is soil- locked carbon lost to atmosphere through disturbance (e.g. via cultivation or earthworks)? Is CO2 only locked into topsoil or also subsoil? Would covering soil with permeable hard surface enable locking in of CO2? through plant growth

Answer	**SB:** Advice on Page 5 of Design Toolkit https://climatepositivedesign.com/wp-content/uploads/2023/09/Climate-Positive-Design_Design-Toolkit.pdf Guess just consider whether you need sub-base to apply permeable hard surface as would require disruption
20	Regarding EPD information. Cross-check between suppliers. If one is WAY lower than all the others, ask the manufacturer why and how. It may be too good to be true.
Answer	Its vital that LCAs and EPDs are third party verified for this reason. Some values can be much lower, for good reasons, and suppliers should be able to justify the specific details of this. Yes. Absolutely. There are many ways of cutting CO2e in sourcing, re-use, energy supply, manufacturing, transport... these must be rewarded - specify the suppliers who do, or suppliers will be forced to revert to "cheapest". Just don't specify those who don't - and let them know. **SD:** Great question that I would have loved to answer live. Yes, verification is vital to ensure you have data you can trust, but as this is such a new area of understanding, there may be loopholes, errors, and differing methods of calculation that may distort or mislead from the truth. The more data we receive, the easier it becomes to see what looks out of place. I received a new EPD last year, and many of our own employees where sceptical, as it was the first of its type and the number were very low. About 2 months ago, we received a new EPD from a different supplier of similar materials, and the numbers were remarkably similar, confirming that the first EPD was more likely to be accurate. Understanding how an EPD can be calculated low/ high really helps, for example, if they use solar panels, wind turbines, efficient machinery, large volume manual operations, have a small factory, or what country the source is located, where energy mix variants play a significant part in the values. The more you know about how the data is captured, helps to verify if the data is plausible or not.
21	Stephen - do you have any push back from planning authorise and adopting bodies when using recycled materials or loe carbon materials?
Answer	**SB:** We have had cases where local authorities or developers would rather use new materials out of fear of cost or quality. However, we can assure this with help of suppliers and manufacturers. The carbon comparison figures are a great additional piece of information to sway decision making - if clients have carbon/net zero targets they should pay attention. **SD:** I have had nothing but support and praise from authorities about low carbon materials. The only concern is whether the material specifications and properties are suitable and sufficient. If you ensure the testing regime is maintained, and the materials conform to the specification, it should be accepted.

22	There is always a lot of talk about trees and carbon, but the huge benefit of grassland is never mentioned. The ability of grass to fix carbon in the plant and in the soil is huge and probable more beneficial than trees, especially when the cost of planting and establishment aftercare of trees is considered.
Answer	**SB:** Would advise having a go within Pathfinder tool to do some basic comparisons - definitely can see the benefit of maintenance and growth. Like every decision, it needs to be adjusted to what's possible onsite in terms of space and environment as to what is the best option.