COST FP1303
Performance of bio-based building materials

FP1407
ModWoodLife

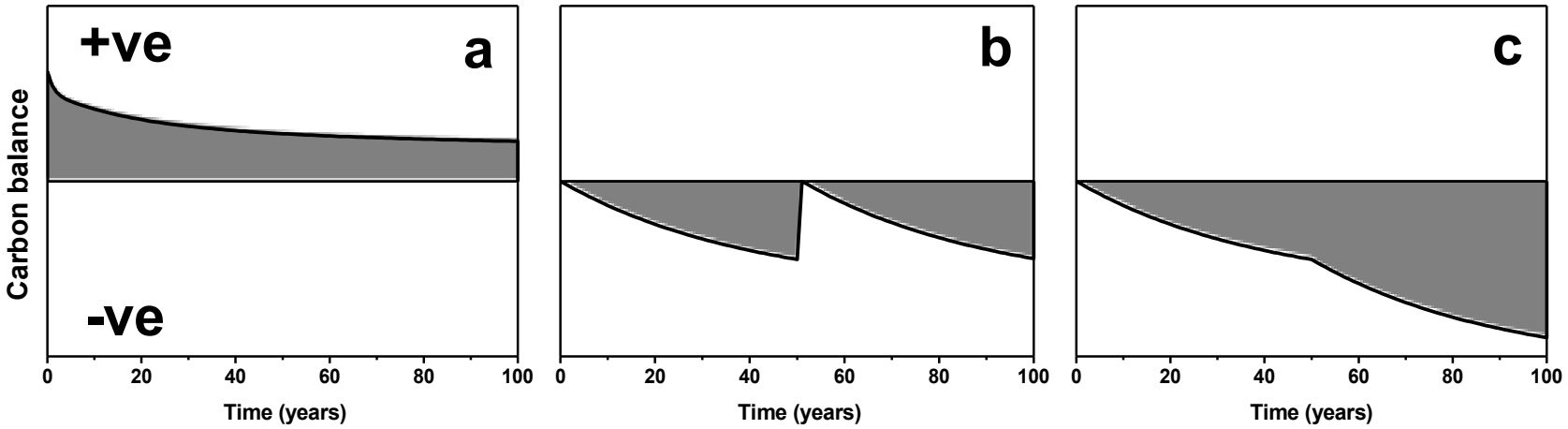
OPEN PLENUM DISCUSSION: SEQUESTERED CARBON: HOW FAR IS THE REPORTING? SHOULD TEMPORARY ASPECTS BE CONSIDERED?

http://www.forestbusinessnetwork.com/54183/video-no-other-material-has-a-smaller-carbon-footprint-than-wood/

http://costfp1407.iam.upr.si/en/

The total amount of **carbon stored** in timber-based construction products in the UK housing sector is about **19 million tonnes**, which is equivalent to 70 million tonnes of carbon dioxide (Read et al., 2009).

Carbon storage



(Kutnar and Hill 2014)

A – old growth forest is burnt and the land cleared for alternative use

B – trees are allowed to grow for 50 years before harvesting and restocking

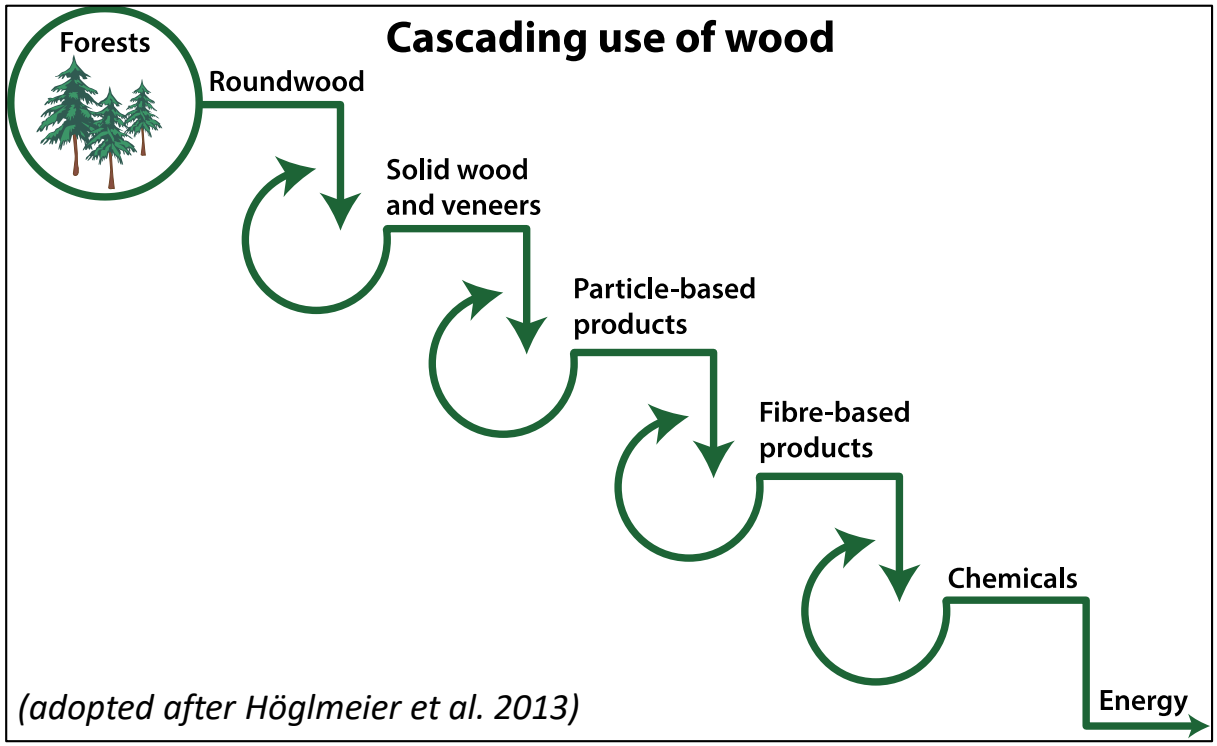
C – biogenic carbon embedded in the plantation forest is stored in timber products for 50 years, before it is used to generate energy.

Tracking the embeded carbon

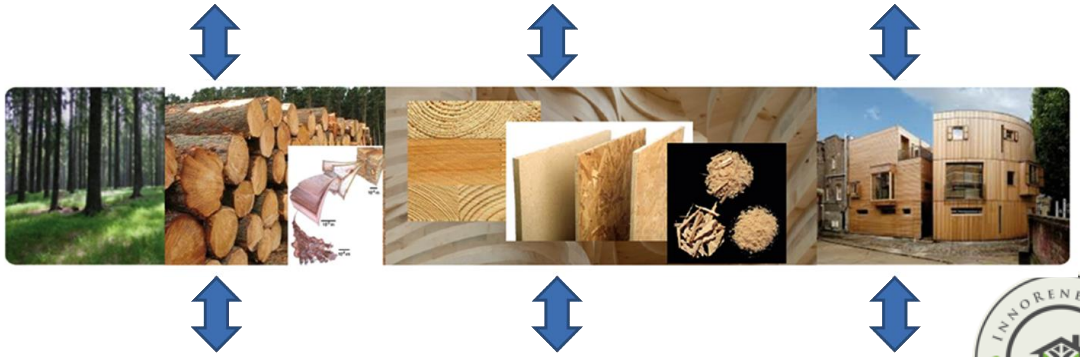
The accounting methods used for **chain of custody monitoring** are closely similar to those required for performing life cycle assessment.

- combine the environmental impact and chain of custody information in one process?
- convenient way of **tracking the embedded carbon** from the point of sequestration to that of return to the atmosphere at the end of product lifetime.
- Tracking **through subsequent life phases** through to final incineration with energy recovery will be an essential component in a future materials strategy.

Cascade use of wood



The decision as to whether to cascade the wood material down the product value chain or to incinerate with energy recovery requires a careful analytical approach, since the answers are not always obvious. (Hill et al., 2015)



Midpoint environmental impact categories required in the CEN standard EN 15804

Module	Life cycle stage	Description
A1	Production	Raw material supply
A2	Production	Transport
A3	Production	Manufacturing
A4	Construction	Transport
A5	Construction	Construction/installation
B1	Use	Use
B2	Use	Maintenance
B3	Use	Repair
B4	Use	Replacement
B5	Use	Refurbishment
B6	Use	Operational energy use
B7	Use	Operational water use
C1	End of life	De-construction/demolition
C2	End of life	Transport
C3	End of life	Waste processing
C4	End of life	Disposal
D	Beyond building life cycle	Reuse/recovery/recycling

And modified wood?

Producer		Method/Product	Ecolabels, certificates
Accoya http://www.accoya.com/	FI	Method: Chemical modification - acetylation: Accoya	Cradle to Cradle gold (C2C) **Green Label** of the Singapore Environment Council (SEC) **Green labels** in the Netherlands Dubokeur
LUNAWOOD http://www.lunawood.fi	FI	Method: Thermal modification	**Scandinavian eco label, the Nordic Sawn**
Timura Holzmanufaktur GmbH http://www.timura.de	DE	Method: Thermal modification – thermoholz	**Eco-Institut Zertifikat**
PROTAC OUEST - GROUPE ROSE www.protacouest.com	F	Bardage, platelage en Epicéa du Nord THT	**LCB Environmental Charter**
Kebony http://kebony.com/en	NL	Method: Impregnation with furfuryl alcohol – an agricultural bi-product	All goods delivered by Kebony are Swan **Eco-labelled** **Nordic ecolabel**
NobelWood http://www.foreco.nl	NL	Method: Modification technique by biopolymerisation	**Eco-Innovation** DUBOkeur - DUBO indicates that products are among the most environmental friendly for particular applications
Heatwood AB http://www.heatwood.se	SE	Method: ThermoWood® is a patented heat treatment process.	**Nordic ecolabel**
Meditre Tricoya http://www.meditetricoya.com	UK	Method: Chemical modification – acetylation	Nordic Ecolabel Licence

Environmental-friendly processes of wood modification

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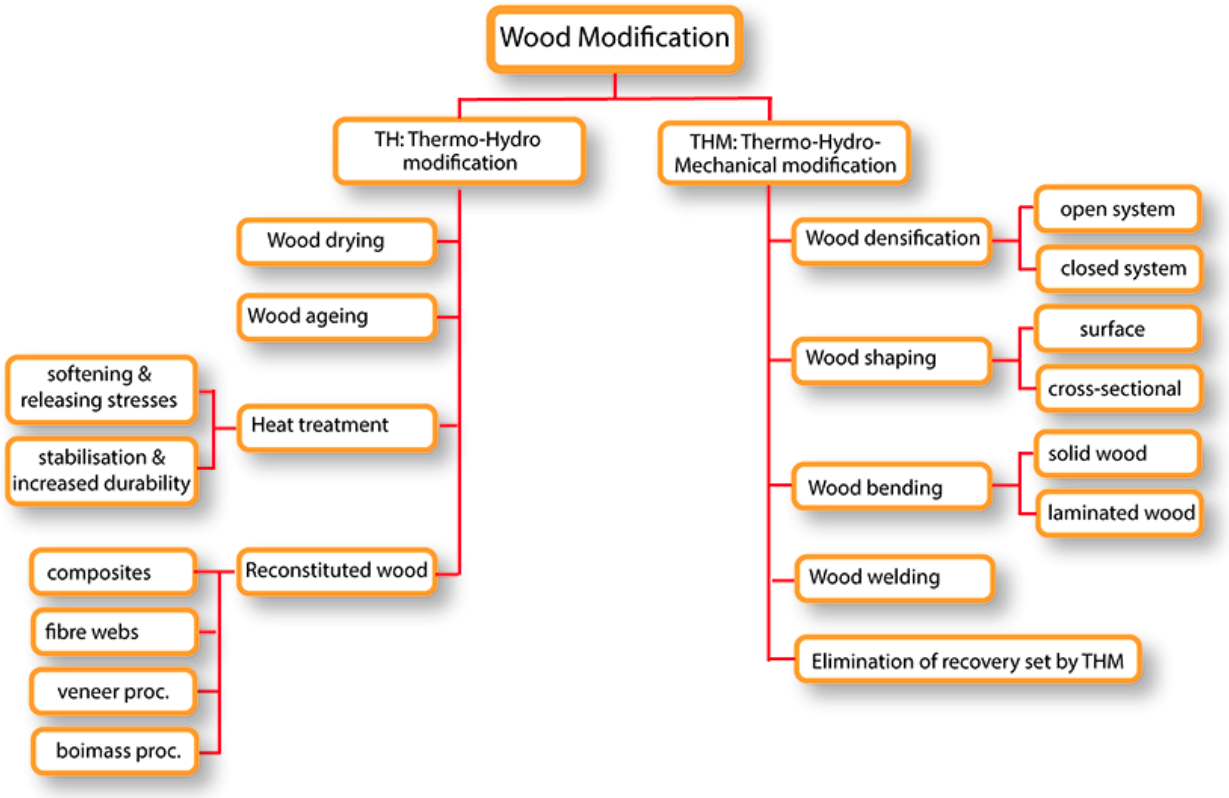
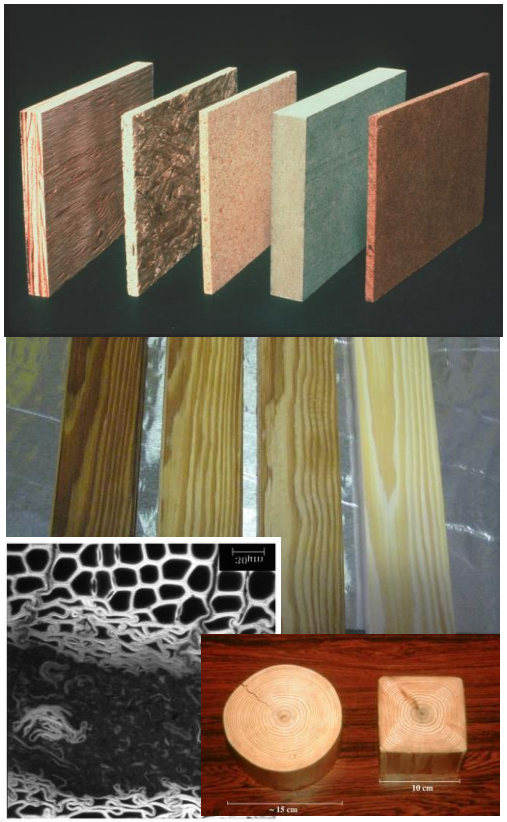
chemical, thermal and impregnation/polymerization





Dick Sandberg, 2014

Can we? How?

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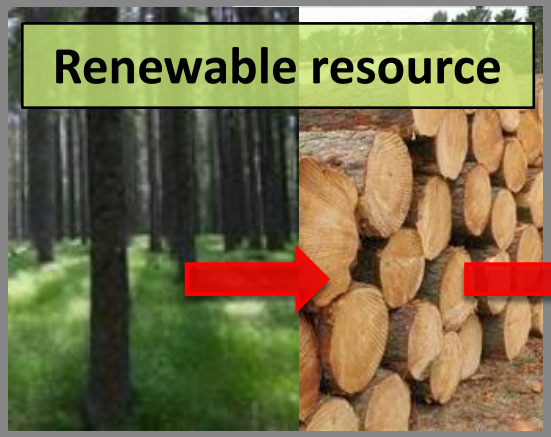

www.poweredbymothernature.com

www.kason.com

Cascading, carbon storage, LCA, Environmental Products Declarations

Next conference

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Innovative production technologies and increased wood products recycling and reuse

Brno, Czech Republic

September 29-30, 2015





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THANK YOU!

Acknowledgement to FP1407!