



SAOLWood: Sustainable construction and Assessment Of the full Lifecycle impact of Irish harvested Wood products

BIOECONOMY IRELAND WEEK
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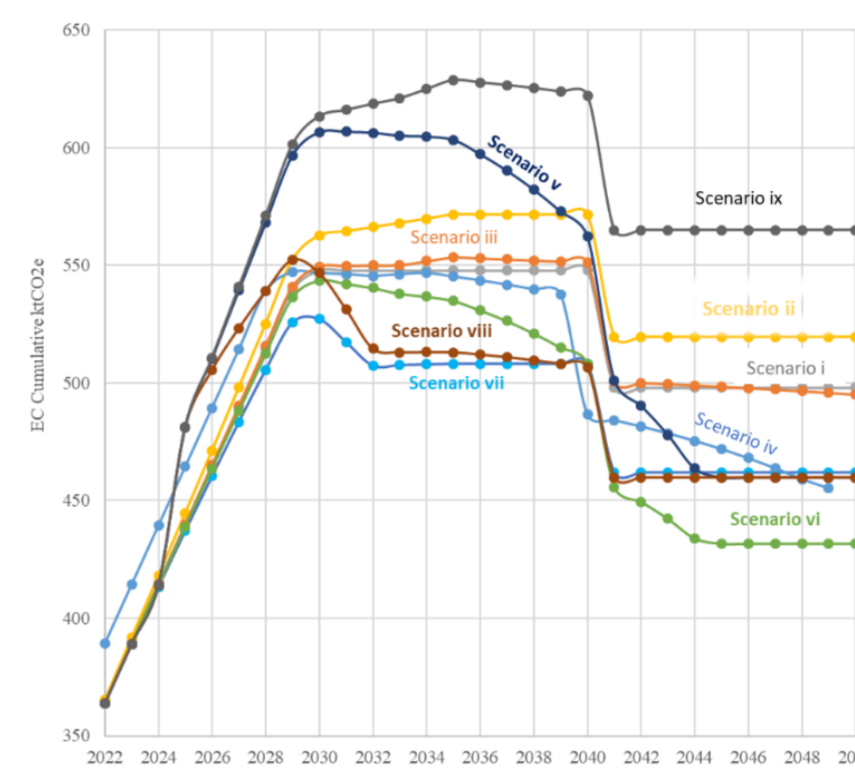
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Introduction: This project aims to minimise the carbon footprint of construction projects by promoting greater use of sustainable timber solutions in place of high embodied carbon materials and delivering a comprehensive database for improved whole lifecycle assessment (LCA) of the impacts of utilising locally sourced Irish wood products in the built environment. This supports growth of the circular bioeconomy and creation of sustainable employment. For the first time, construction demand and land-use for forestry will be linked in the LCA of harvested wood products in order to optimise returns to forest owners and identify novel cascading uses of wood.

Review Gaps and Barriers



Review Irish construction practices and policy on monitoring and tracking the environmental performance of materials used in construction (e.g. Fig. 1). Identify current gaps and barriers based on the overview and provide corresponding solutions.



Scenario	Average % Timber Builds	Timber apartments (% of total no. apartments)	Mt CO ₂ e		
			EC	CS (-)	Net
i	24	4,178 (2.9%)	14.6	5.8	8.8
ii	20	6,820 (2.9%)	15.1	5.6	9.6
iii	36	16,930 (7.1%)	14.7	6.1	8.6
iv	42	41,471 (17%)	14.3	6.4	7.8
v	50	82,883 (35%)	15.0	7.6	7.5
vi	50	82,883 (35%)	13.8	6.9	6.9
vii	45	99,971 (42%)	13.8	6.9	6.9
viii	57	141,117 (59%)	14.0	8.6	5.5
ix	42	11,790 (4.9%)	16.4	6.4	10

Figure 1. Embodied Carbon (EC) emissions and carbon storage (CS) for different housing scenarios between 2022 and 2050 in Ireland. Cumulative totals shown in table; potential savings of up to ~40% in CO₂e. (Gil-Moreno et al 2022, CERl Conference).

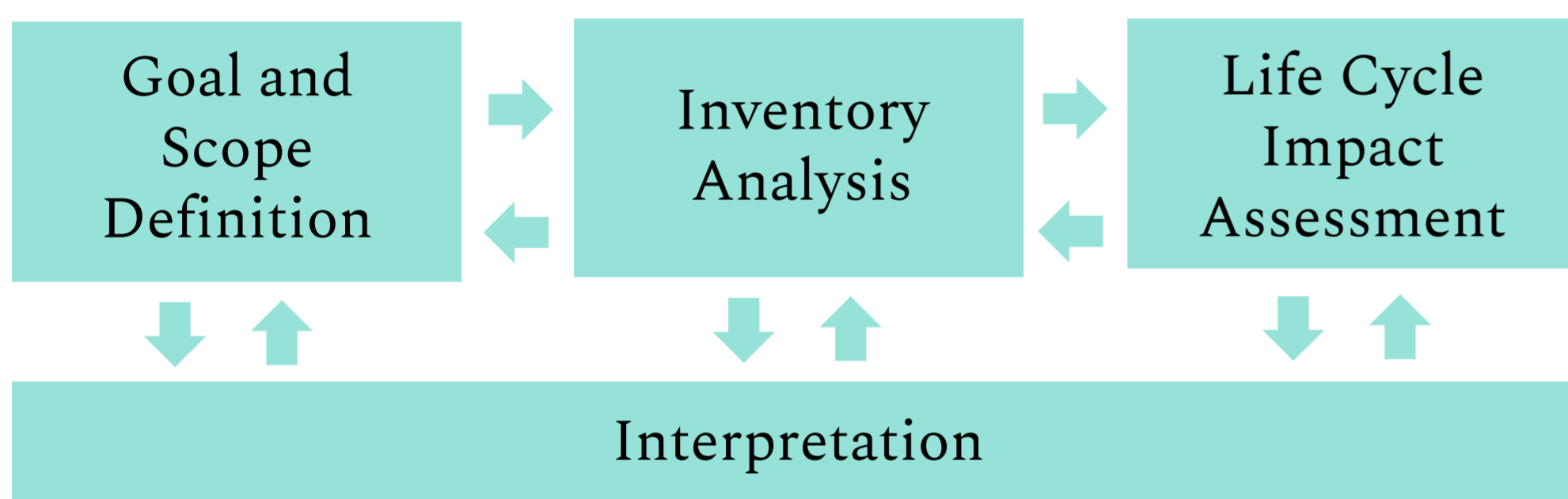


Figure 2. LCA framework based on ISO 14040

New National Database



Create a new national database of lifecycle data for Irish harvested wood products promoting the circular bioeconomy, material passport creation and sustainable building certification.

Lifecycle Assessment



Rigorous holistic life cycle assessment to quantify the environmental sustainability of harvested wood product use in buildings and try to reduce the impacts during construction and deconstruction.

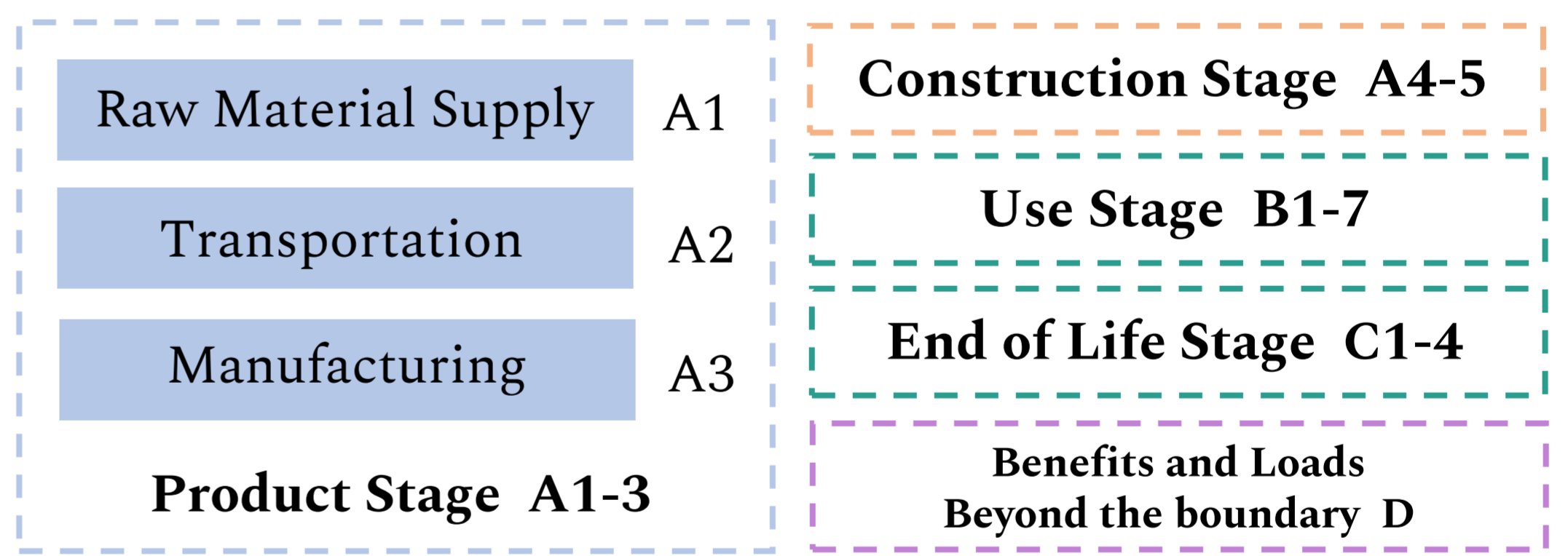


Figure 3. The system boundary of buildings' lifecycle assessment (defined in EN 15978)

Bioeconomic modelling and Impact Assessment



Assess the economic, social, spatial and environmental impacts of locally-sourced Irish timber products and associated value chains to support informed decisions by building designers, contractors, planners, developers and policy-makers

Building modelling and performance validation



Modelling, detailing and structural testing of Irish timber building solutions and components for which test data is limited or non-existent. Investigation of an integrated BIM-based LCA approach, and design for deconstruction and reuse to minimise waste.