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FORESIGHT

Forest renewables replacing fossil-based and GHG-intensive products

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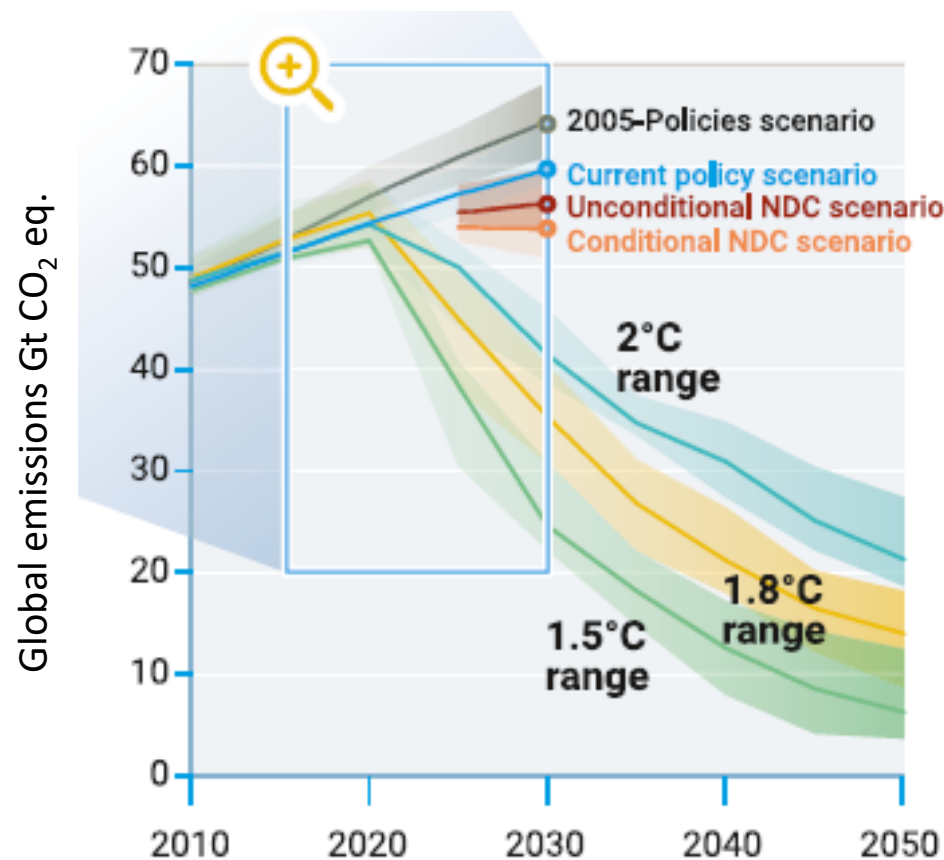


Urgent need to reduce GHG emissions and increase C storage



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Source: UNEP 2019

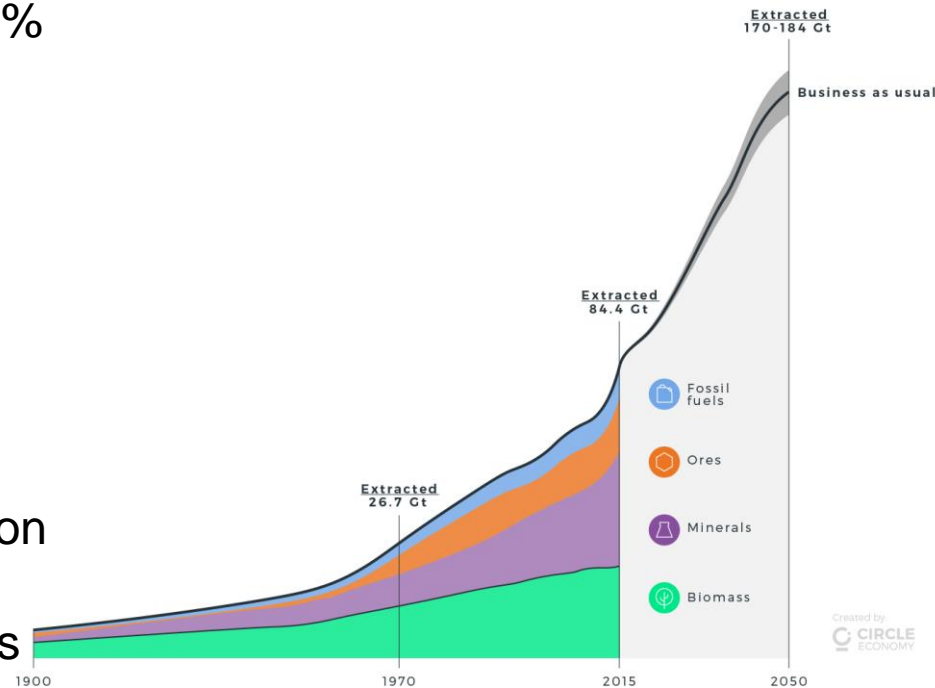
Future wood use



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- Future raw material extraction under business as usual associated with +41% in GHG emissions
- Demand for wood and forest products expected to increase due to a growing and increasingly rich global population
- Use of wood can contribute to climate mitigation by storing sequestered carbon in products and through substitution of fossil-based or GHG-intensive products



Source: Hatfield-Dodds et al. 2017

Sustainable Development Goals



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Project objectives



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- Understand the environmental, social and economic benefits (and/or gaps in knowledge) of the substitution effects provided by forest products;
- Describe the role that forest products may play in the emerging bioeconomy;
- Provide high level insight into the supply / demand dynamics of the forest product sector and the considerations that need to occur to ensure forest products can be sustainably supplied.

Project activities and outputs



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Activity	Output
1 Hold inception meeting and provide a project overview	Project kick-off and presentation at ACSFI Annual Meeting
2 Assessment of forest-based substitutes for their environmental contributions	Interim report 1: Review of environmental impacts by substitution with forest-based products
3 Forest products and the bioeconomy	Interim report 2: Forest products and the bioeconomy
4 Identify and describe a range of forest-based substitutes and provide a detailed update on emerging and potential forest-based products	Interim report 3: Analysis of the possibilities to use forest-based products to provide substitution benefits
5 Development of final report	Final report
6 Organize awareness raising event	Awareness raising event (incl. panel discussion and product exhibition)

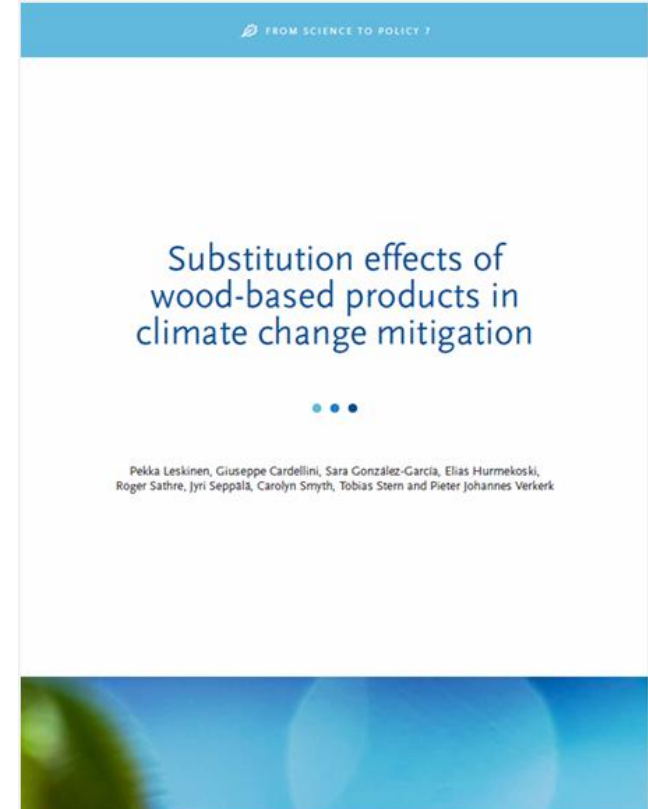
Assessment of forest-based substitutes



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- **Task:** conduct a review of the quantitative and qualitative understanding of the environmental impacts and benefits of substituting fossil fuel-based products with forest-based products
- Existing literature review of carbon substitution effects by Leskinen et al. (2018)

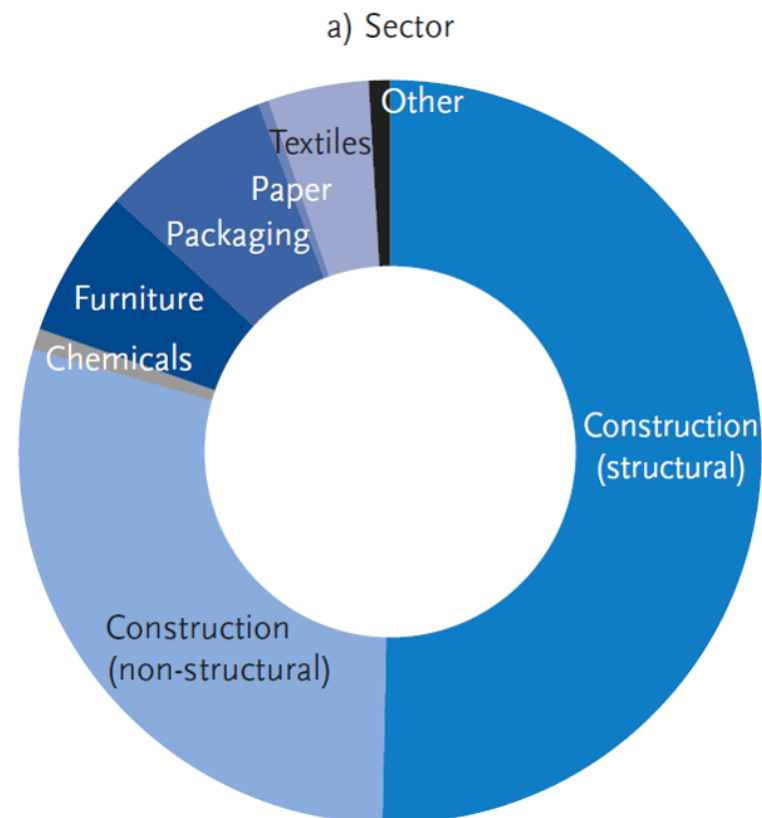
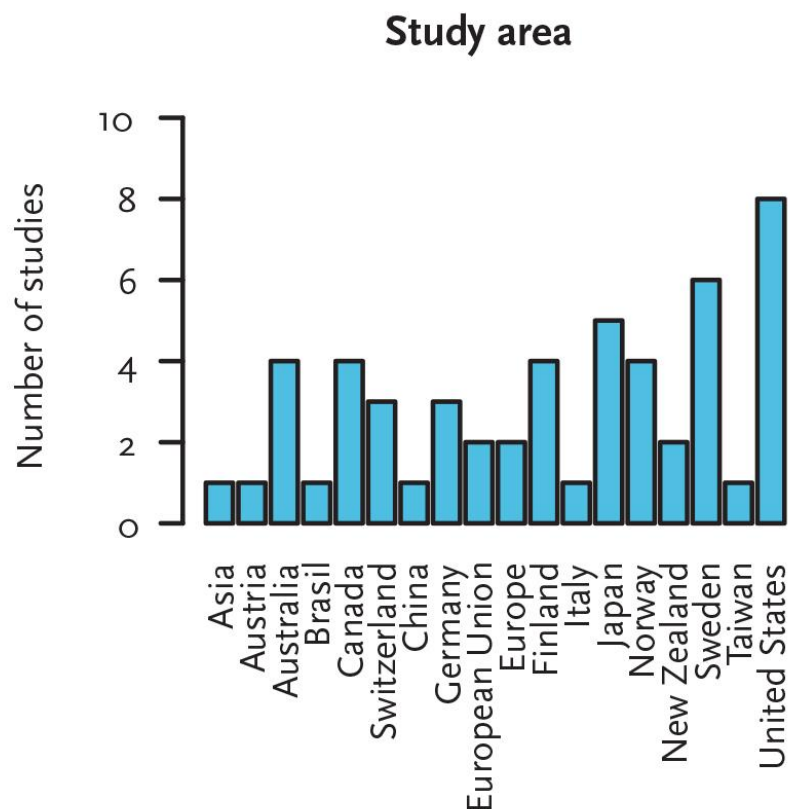


Assessment of forest-based substitutes



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Assessment of forest-based substitutes



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- Majority of studies show wood products provide substitution benefits
- Large variability between studies

Product categories	Average substitution effect kg CO ₂ eq. / kg wood product
Structural construction	2.4
Non-structural construction	2.9
Textiles	5.1
Other product categories	1.8 – 2.7
Average across all product categories	2.2*

* 95% of the substitution factors between [-1.3, 9.3]

Forest products and the bioeconomy



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- **Task:** review the role and opportunity for the forest sector in the global bioeconomy
- Global focus / geographical spread
- Focus on products that are already on the market:
 - Graphical paper and newsprint
 - Traditional packaging (cardboard)
 - New packaging materials
 - Engineered construction materials
 - Novel products (e.g. man-made fibres)
 - Non-wood forest products (e.g. cork)
- Potential risk factors:
 - Carbon footprint (incl. forest carbon balances)
 - Not solving current problems related to circularity, toxicity, biodiversity
 - Implications for SFM
- *Discussion question: what are potential risk factors associated with the use of forest products in a bioeconomy that can provide reasons for caution or new insights?*



Forest-based substitutes and emerging and potential forest-based products



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- **Task:** produce factsheets and an overview on emerging forest-based products that could displace fossil-based and GHG-intensive products in the future
- Content of factsheets
 - Current global demand and production
 - Feedstock required
 - Fossil-based or GHG-intensive products that can be substituted
 - Knowledge and gaps on products' environmental impact
 - Policy and other incentives that enabled the forest-based product's development
 - Relevant research and innovation related to the product
- *Discussion question: What would be novel forest-products providing substitution benefits that could be explored in the project?*



Project outcomes



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- Comprehensive report by end of 2020
 - Synthesis of all tasks
 - Recommendations on how best to account and demonstrate substituting forest products' contribution to SDGs 15,12 and 13 and Global Forest Goal 2
 - Recommendations for enabling conditions for sustainable substitution in a range of jurisdictions
- Awareness raising event at FAO Headquarters on innovative and commercially viable wood-based products that could provide substitution benefits



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THANK YOU!

We welcome your feedback!

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- What are the forest industries' strategies to warrant forest product sustainability and ensure circularity of novel forest products?
- What are potential risk factors associated with the use of forest products in a bioeconomy that can provide reasons for caution or new insights?
- What would be novel forest products providing substitution benefits that could be explored in the project?