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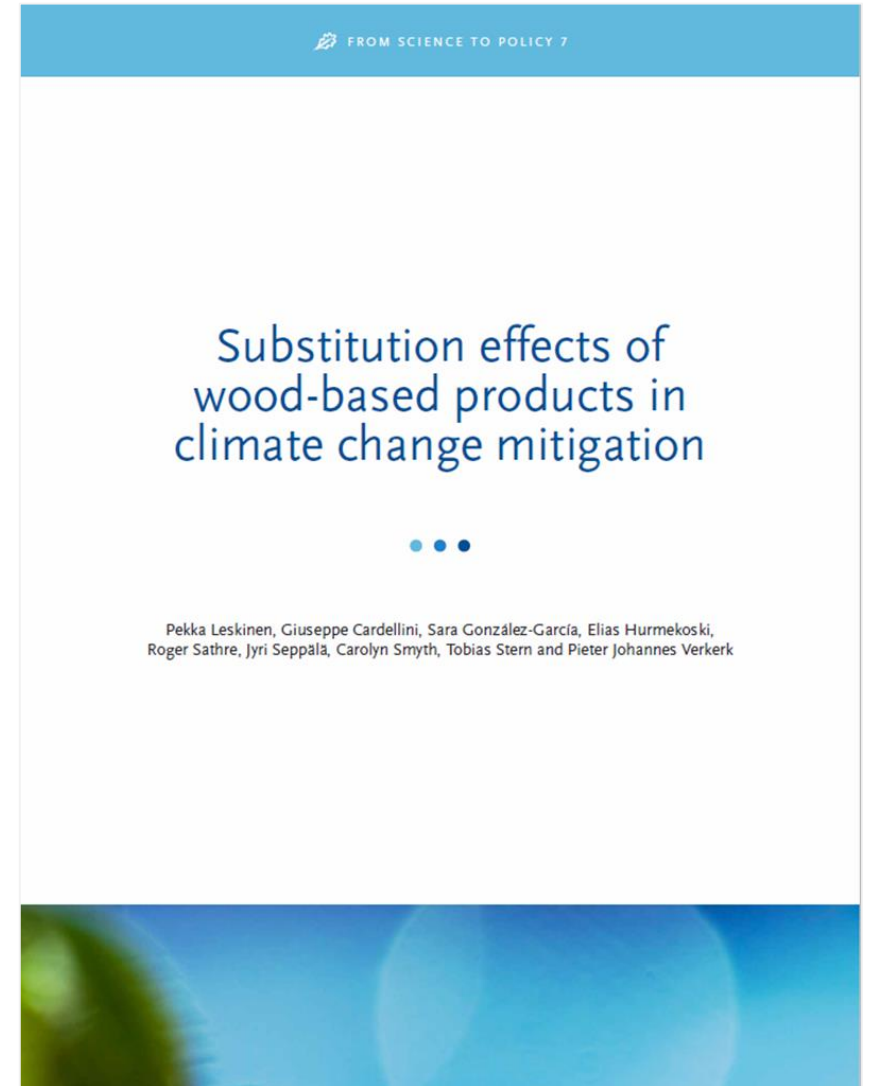
# Climate substitution impacts of wood products

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# Why this study?

- Role of forests in **climate change mitigation** increasingly important
- Many roles: forest carbon sinks, wood products as carbon storage, **substituting greenhouse gas intensive materials**
- Contribution of wood products to mitigation **not well understood**.
- Lack of up-to-date knowledge
- Need to understand impacts to develop **optimal strategies for forests/forest sector to contribute to climate change mitigation**.



# Aims

**Review** current scientific knowledge of GHG substitution effects of wood-based products.

- **Defining and assessing** GHG substitution factors of wood products
- **Magnitudes** of GHG substitution effects of wood-based products
- **Upscaling** substitution factors from product level to market level
- **Scale of overall substitution benefits** at market level
- Applying substitution factors **in decision making and policy planning**



PublicDomainPictures; Pixabay

# Life Cycle Assessment is key

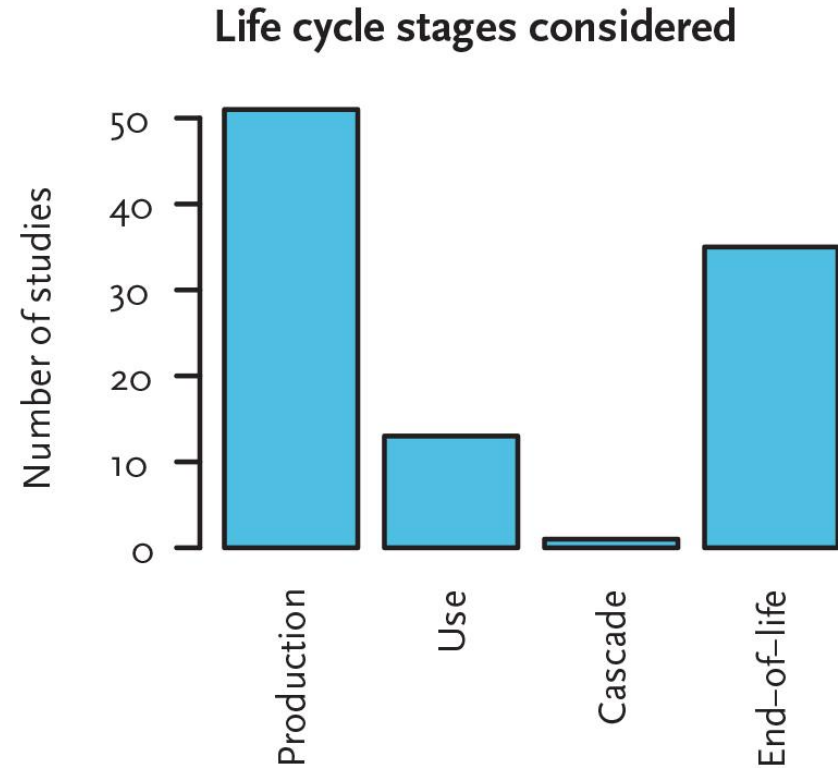
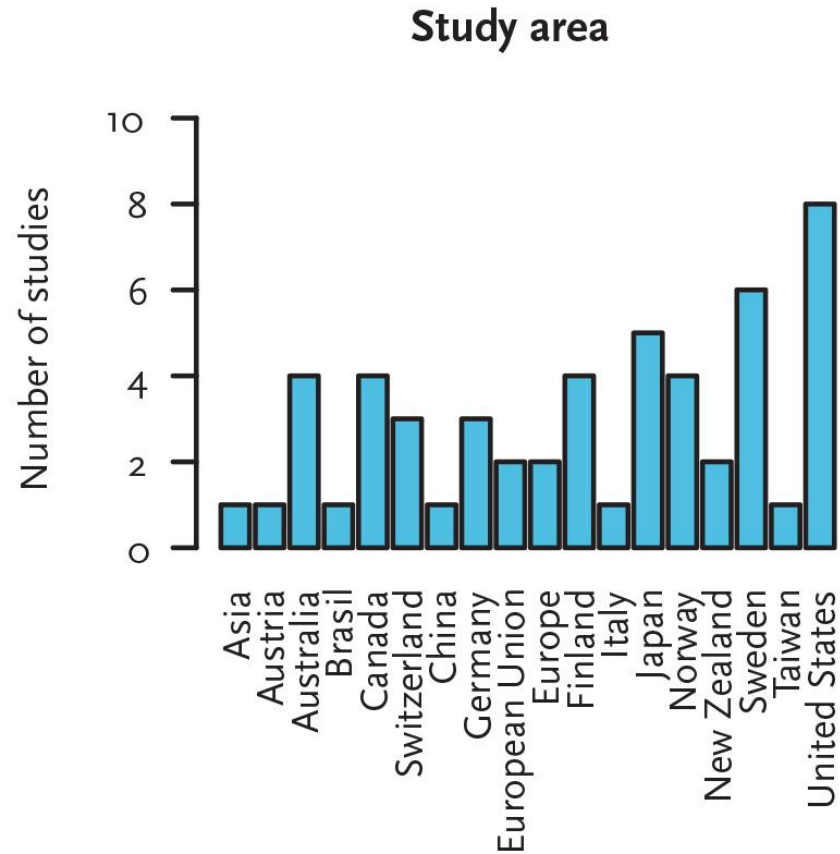
Emissions of a product depend on all life cycle stages:

- **Production**
- **Use and maintenance**
- **Cascading** effects of recovery of materials from end-of-life products
- **End-of-life**

All can be important and should be taken into account!

# Results

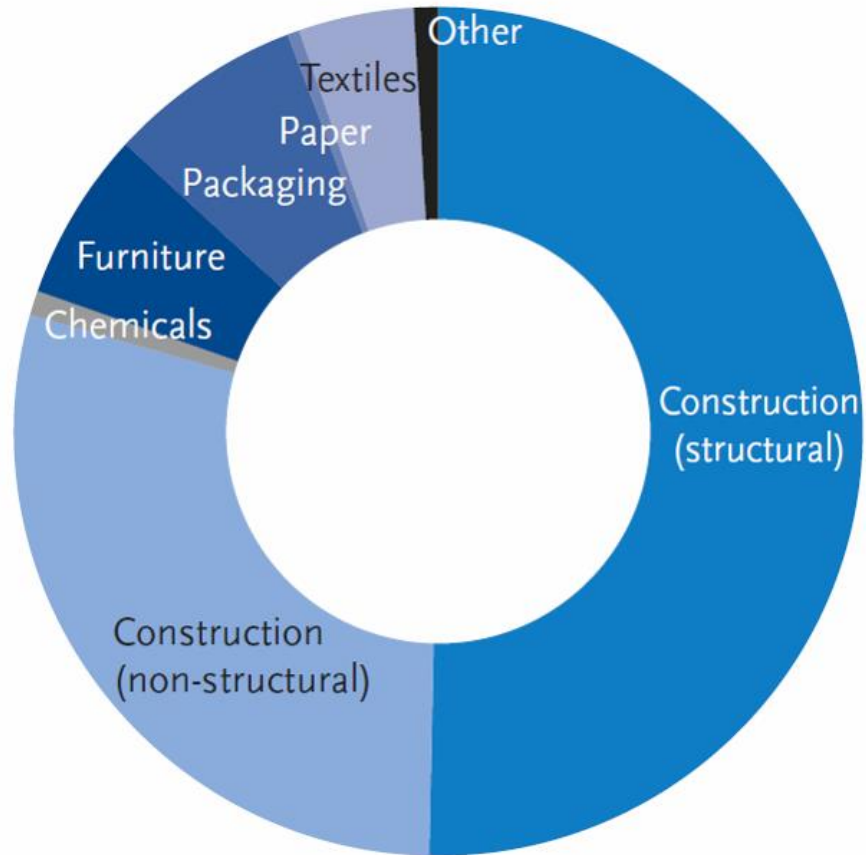
51 studies: 433 separate substitution factors



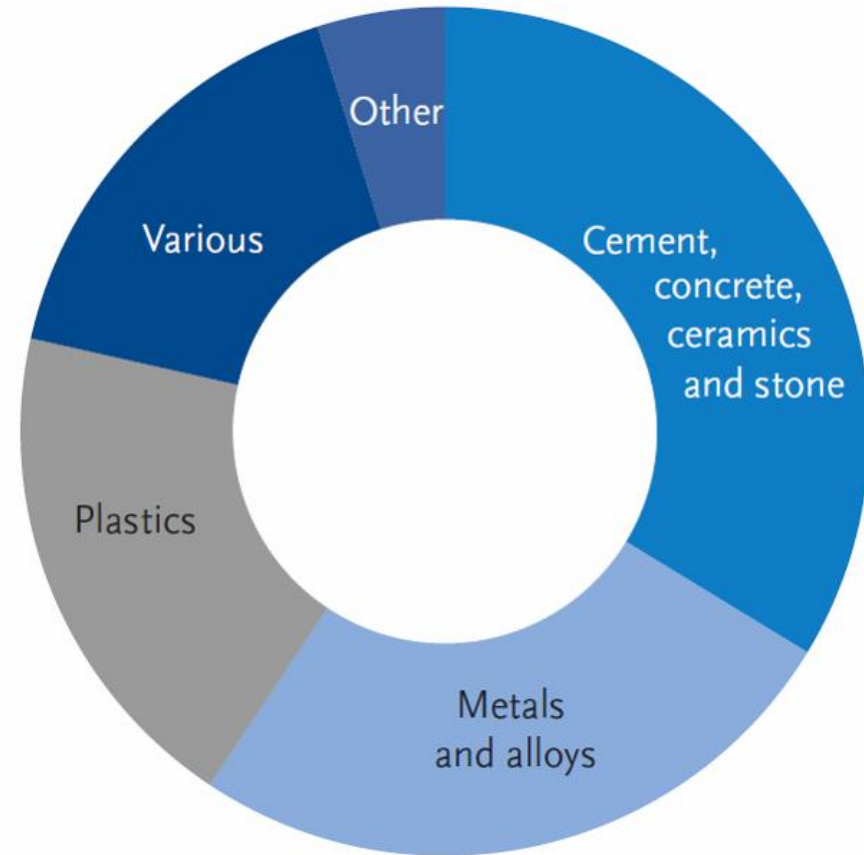


# Sectors and materials

a) Sector



b) Material substituted

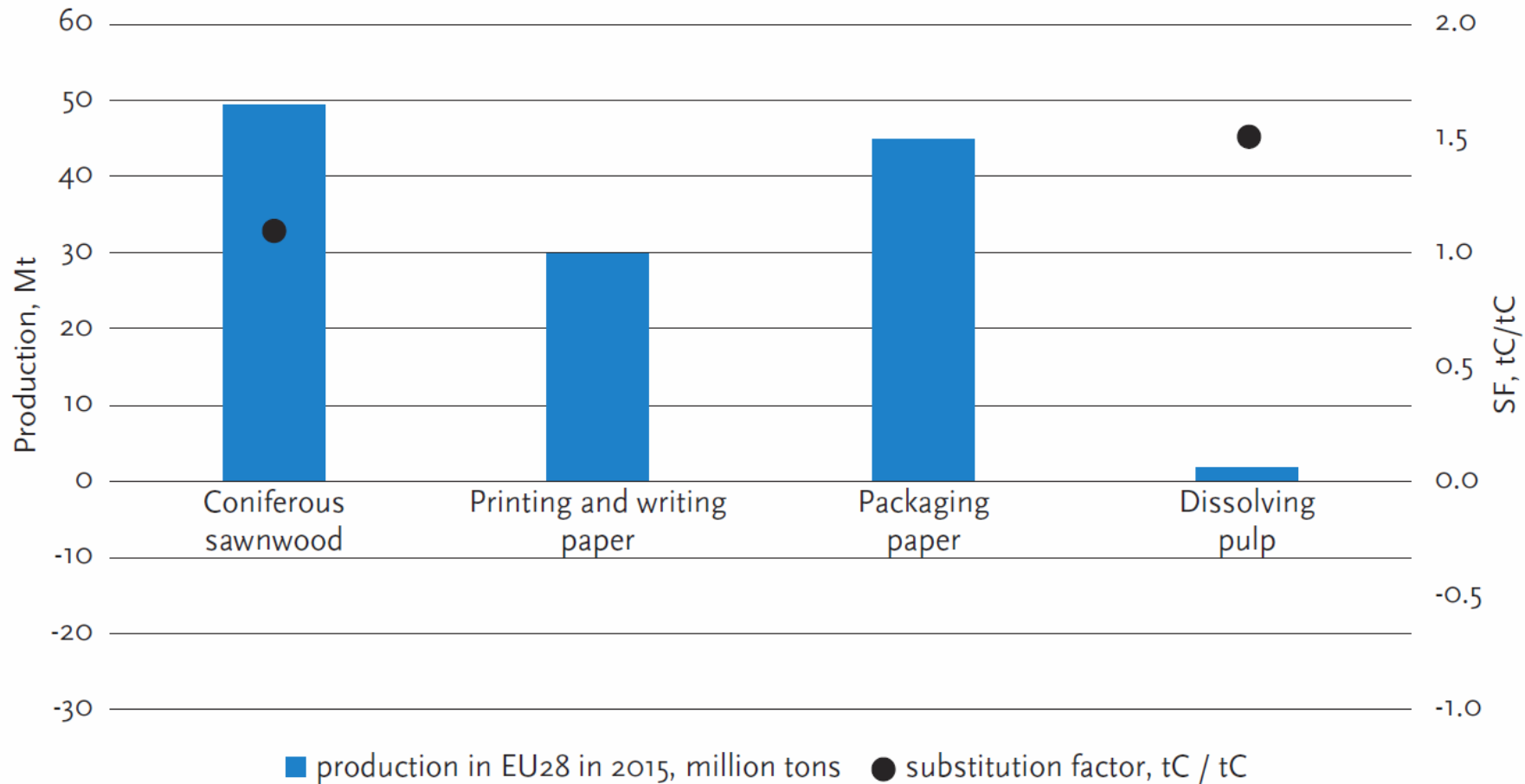


# Average substitution effects

Product categories	Average substitution effect kg C / kg C wood product	Average substitution effect kg CO2 eq. / kg wood product
Structural construction	1.3	2.4
Non-structural construction	1.6	2.9
Textiles	2.8	5.1
Other product categories	1 – 1.5	1.8 – 2.7
<b>Average across all product categories</b>	1.2	<b>2.2*</b>

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

# From products to market level





# Key messages

1. Use of wood and wood-based products is associated with **lower fossil and process-based emissions** when compared to non-wood products
2. Average substitution effect of **1.2 kg C / kg C**
3. Substitution factor is not sufficient to guide policy making – needs a holistic approach



shock - Fotolia

# Key messages

4. **Resource-efficiency and minimizing material waste** should be simultaneous policy target with climate mitigation
5. **Lack of knowledge on climate impacts of emerging forest products** – textiles, packaging, chemicals
6. Important to **consider all sustainable development goals** to find synergies and minimize trade offs





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# Thank you!

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