

ENHANCING BIODIVERSITY THROUGH WOOD SUPPLY CHAINS



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Main messages

- Biodiversity impacts from global wood supply chains are highly location-dependent, making spatially differentiated assessment methods, like those of BAMBOO, essential for identifying biodiversity hotspots and prioritizing effective mitigation actions. Retailer's case study showed that land use from forestry activities for wooden semi-finished products is the main driver of biodiversity impacts and revealed that biodiversity impacts may occur in different regions with different intensities from where raw materials are sourced.
- Reducing biodiversity impacts requires action across the value chain, including increasing recycled material content, promoting sustainable sourcing practices, and improving supply chain transparency.
- Industry stakeholders, retailers included, highlighted the need for standardized assessment methods, reliable supplier data, and meaningful biodiversity metrics to support credible decision-making and conservation efforts.

Context

The global decline in biodiversity is an urgent challenge linked to industrial activity and supply chains. It endangers ecosystem services and therefore human well-being, economies and industrial operations. As biodiversity loss interacts

with other planetary boundaries (e.g. climate change, land-system change, freshwater use), cascade effects and additional pressures on ecosystems are revealed that mean fierce risks for industries. Moreover, biodiversity loss and interlinked environmental, social and economic challenges pose a crisis to which governments are responding to through **regulations, directives and frameworks**, some directly implicating industry.

A few examples are the [Kunming-Montreal Global Biodiversity Framework \(GBF\)](#) and the two transformative EU directives: the [Corporate Sustainability Reporting Directive \(CSRD\)](#) and the [Corporate Sustainability Due Diligence Directive \(CSDD\)](#). Another impactful EU's regulation on [deforestation-free products \(EUDR\)](#).

Besides regulatory and legal compliance, industries, notably **wood-dependent industries**, face other compelling drivers towards sustainable practices. **Long-term business resilience; reputation; consumers' increasing demands regarding sustainability;** and in many cases, **biodiversity high dependency**, for example, in terms of raw materials. For many industries, sustainability, including biodiversity, is priority to abide by one's core values and because ultimately, industries wish to do no harm and to have positive impact.

It is therefore paramount to understand the interlinkages between industrial activity and

biodiversity to unlock solutions that support mitigation of biodiversity loss while addressing broader sustainability demands, including economic and social ones. To address this challenge, the industry, researchers and policymakers identify as priority to comprehend the effects of industry, supply chains and global trade on biodiversity and ecosystem services, which in turn, requires **reliable methods** for their assessment and measurement.

Recognizing this need, BAMBOO provides knowledge of the effects of non-food biomass trade, such as **wood**, on biodiversity and ecosystem services and delivers tools that allow to quantify the impact of global trade on biodiversity.

BAMBOO's tools could therefore pose as a solution for industries, as they allow to: 1) quantify the impacts of non-food biomass trade flows on species diversity, functional diversity, and ecosystem services, specifically from impacts from greenhouse gas emissions, nutrient pollution and land and water use - by quantifying such impacts, one can identify which pose higher risk to biodiversity and ecosystems, and based on this information, implement adequate mitigation efforts; 2) identify and assess the leverage points for biodiversity conservation in non-food biomass economy that can inform mitigation efforts by industry, in order to steer actions leading to concrete mitigation of impacts on ecosystems.

Industry value chain, including suppliers, retailers, producers, and consumers, dealing with and using non-food biomass raw materials and products, such as the case of **wood**, will be able to use the knowledge on the impact of the **trade of wood on biodiversity to inform decisions**.

Key results

A “real-world” case study was conducted using BAMBOO's methods to assess the main causes of biodiversity loss along the global supply chain of wooden semi-finished products, and to identify key leverage points for biodiversity conservation, ultimately also testing the methods. This case study was performed in close collaboration with a

Retail Partner to take into consideration **large and complex supply chains**. The analysis shows that land use, within the impact categories considered, is the most relevant one, being mainly linked with forestry activity. In the case study it was observed that despite most of virgin wood come from Northern Europe, most of the impacts are associated to forestry activity in China. This result underlines the importance of spatially differentiated impact assessment methods, such as those of BAMBOO, as biodiversity distribution and conservation status may vary significantly in different regions.

Moreover, “reduce waste and consumption” was identified as a key leverage point for biodiversity conservation. It was observed that increasing recycled wood content in production of particleboards may significantly reduce the land use impacts up to 64% compared to traditional particleboard production based on virgin wood consumption.

Due to growing investment of the Retail Industry in sustainable forest management certification, the alignment between BAMBOO impact assessment methods and the criteria of the FSC (Forest Stewardship Council) certification was explored. FSC requires that a supplier meets several criteria, from social to environmental aspects, from indigenous communities to work conditions. All criteria linked to environmental impact assessment were deemed to be covered by impacts assessed by the BAMBOO methods. For instance, FSC requires to avoid fragmentation of forests, such impact has been recently added in the GLOBIO method (which is one of the BAMBOO methods).

Lastly, feedback was collected throughout the case-study development from the Retail Partner. One of the main inputs collected is that biodiversity is a priority in sustainability strategy, including actions towards its conservation and that works best towards this is intervening at the source. Moreover, critical needs were identified:

1. Standardized biodiversity assessment methods

2. **Reliable primary data, namely from suppliers**
3. **Metrics *translatable* into meaningful real-world impacts.**

The Retail Partner stressed that high-quality, location-specific data are essential for credible biodiversity assessments and informed decision-making.

Recommendations

- **Use spatially differentiated impact assessment methods, such as BAMBOO methods which have a Country level detail.**

Biodiversity has high geographical variability, thus only methods that accounts for this variability may effectively capture drivers of biodiversity loss and location hotspots.

- Consider circular economy approaches to reduce impacts related to forestry activities.
- Strengthen supply chain transparency by: prioritizing suppliers with verified sustainability data, i.e., that already provide reliable, auditable sustainability data and increasing disclosure requirements across the supplier base, using purchasing power to encourage greater.



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