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## Case Study

# The Impact of Corporate Activities on Biodiversity



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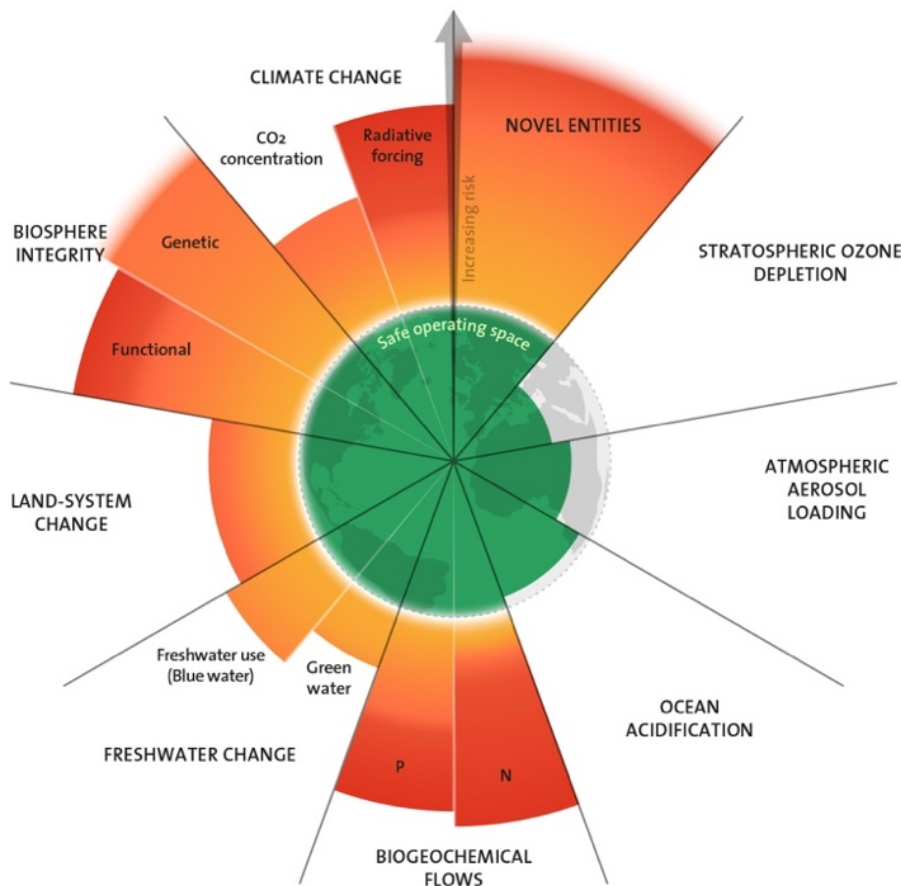
## Biodiversity vs. Climate Change

Biodiversity, the variety of life on Earth, is facing unprecedented threats due to human activities, including those of corporations. As businesses expand globally and pursue economic growth, as the Brundtland report focused on ending poverty, their operations have significant consequences for ecosystems and climate change. According to Richardson et al. (2023), climate change and biodiversity are two areas which are beyond the planetary boundaries. The relationship between biodiversity loss and climate change is complex and intertwined, with both issues posing significant threats to the environment and human well-being (McElwee, 2021).

While the prominence of climate change has grown in recent years, it is important to recognize the ongoing decline in biodiversity (approximately one million species at risk of extinction in the coming decades) and the need for proactive conservation efforts (Veríssimo et al., 2014). The concept of biodiversity has gained significant recognition, particularly through the United Nations Convention on Biological Diversity, and is seen as a critical global environmental issue (Boersema et al., 2009).

The importance of biodiversity extends beyond environmental concerns, as it plays a crucial role in supporting human well-being, providing ecosystem services, and maintaining ecological balance. This case study aims to explore and analyze the impact of corporate activities on biodiversity, shedding light on the challenges and opportunities for companies to contribute positively to biodiversity conservation.

**Figure 1: Planetary Boundaries**



Source: Richardson et al., 2023, p.4

## Problem Formulation

In recent years, the global community has become increasingly aware of the critical need to address biodiversity loss. However, as businesses continue to grow and develop, there is a rising concern about the negative impacts they may have on biodiversity. The problem at hand involves understanding the specific ways in which corporate activities influence biodiversity, both directly and indirectly. Key questions include:

1. **Direct Impact:** How do the operational activities of corporations, such as resource extraction, land use changes, and waste disposal, directly affect local and global biodiversity?
2. **Indirect Impact:** To what extent do supply chains, including sourcing raw materials and manufacturing processes, contribute to biodiversity loss, and how can these impacts be mitigated?
3. **Corporate Initiatives:** What measures are companies currently implementing to address their impact on biodiversity? Are these initiatives effective, and what are the challenges faced in their implementation?
4. **Regulatory Environment:** How do existing regulations and international frameworks influence corporate behavior concerning biodiversity conservation? Are there gaps in current regulatory approaches that need to be addressed?
5. **Business Opportunities:** Can companies turn biodiversity conservation into a business opportunity? What are the potential benefits for businesses that adopt sustainable practices, and how can such practices contribute to long-term profitability and corporate reputation?

**Direct Impact.** The operational activities of corporations, such as resource extraction, land use changes, and waste disposal, have a significant direct impact on local and global biodiversity. These activities can lead to a reduction in species richness and abundance, as well as changes in ecological assemblages (Newbold et al., 2015). However, there are opportunities for corporations to mitigate these impacts through the development of economic incentives for biodiversity (Spurgeon, 2008) and the topic is part of the CSR debate, companies still use a reactive approach to biodiversity (Overbeek et al., 2013). Despite some progress, there is still a need for more robust corporate biodiversity accountability, with a focus on science-based commitments and meaningful indicators (Addison, 2018), due to the evidence that the operational activities of corporations directly affect local and global biodiversity (Sharma, 2020).

**Indirect Impact.** Supply chains, particularly in the food industry, significantly contribute to biodiversity loss, with the impacts varying based on sourcing patterns and consumer behavior (Green 2019). Monitoring and assessing these impacts is crucial, but current tools have major gaps, particularly in certification and standards, business accounting, and scientific modeling (Beck-O'Brien & Bringezu, 2021). Despite the significant role of supply chain operations in biodiversity decline, corporate responsibility reporting has not traditionally given these impacts equal weight (Whatling, 2010). International trade, driven by consumer demand in developed countries, is a major driver of biodiversity threats in developing nations (Lenzen et al., 2012). To mitigate these impacts, there is a need for improved monitoring tools, stronger corporate responsibility reporting, and a shift towards more sustainable and regenerative farming practices.

**Corporate Initiatives.** Boiral and Heras-Saizarbitoria (2017) highlight the importance of stakeholder involvement in corporate biodiversity initiatives, specifically identifying the involvement of non-governmental organizations, experts, public authorities, and coalitions of companies. Corporate measures commonly include the implementation of sustainable sourcing practices, biodiversity-friendly land management, and the development of conservation action plans. Moreover, companies are engaging in partnerships with environmental organizations and integrating biodiversity considerations into their decision-making processes. While these initiatives represent positive steps toward corporate environmental responsibility, assessing their overall effectiveness remains a complex task. Challenges in the implementation of biodiversity initiatives often arise from the need for standardized measurement metrics, lack of comprehensive regulatory frameworks, and the necessity for transparent reporting practices.

Moreover, businesses may encounter difficulties in integrating biodiversity considerations into existing operational models without compromising economic viability.

A critical evaluation of these corporate initiatives is essential to understand their impact, identify successful strategies, and address the barriers hindering their implementation, ultimately guiding businesses toward more effective biodiversity conservation practices. Also, economic incentives for biodiversity are seen as a potential strategy for companies, but be cautious that these may not always reflect genuine commitment to biodiversity. There is a need for more substantive action, rather than for symbolic gestures.

**Regulatory Environment.** The regulatory environment plays a pivotal role in shaping corporate behavior with regard to biodiversity conservation. Existing regulations and international frameworks provide a foundation for businesses to align their practices with environmental sustainability goals. However, the effectiveness of these regulations varies globally, with some regions demonstrating more stringent enforcement than others. Gaps in the current regulatory approaches are evident in the lack of standardized biodiversity metrics, making it challenging to measure and compare the impact of corporate activities consistently (Smith et al., 2019).

Boiral and Heras-Saizarbitoria (2017) further emphasize the need for best practices in corporate biodiversity management, suggesting that current regulatory approaches may not be comprehensive enough. Pandey (2020) underscores the importance of policy implementation and good governance in corporate social responsibility for biodiversity conservation. But there is also a potential of civil regulation, particularly through partnerships between corporations and NGOs, that might address these gaps.

The regulatory environment can also be summarized in the Corporate Social Responsibility measures organizations are undertaking to harmonize international standards and foster collaboration between governments, businesses, and environmental organizations.

**Business Opportunities.** Businesses can indeed turn biodiversity conservation into a profitable opportunity, with potential benefits including enhanced corporate reputation and long-term profitability (Snep, 2009). By adopting sustainable practices, businesses can enhance operational efficiency, reduce resource consumption, and mitigate negative impacts on biodiversity. Investing in sustainable supply chains, eco-friendly technologies, and green infrastructure not only contributes to biodiversity conservation but also positions companies to capitalize on the growing market demand for environmentally conscious products and services. Furthermore, sustainable practices can lead to cost savings through resource efficiency, risk mitigation by anticipating and addressing regulatory changes, and improved brand reputation. As consumers increasingly prioritize ethical and sustainable choices, businesses that align with biodiversity conservation goals can cultivate a positive corporate image, strengthen customer loyalty, and access new market segments.

## Company practices

### Deutsche Bahn

#### Objective and Implementation

As one of the largest landowners in Germany, Deutsche Bahn Railways and Transportation has a huge responsibility in terms of how it uses the land available to it to protect nature and species.

Embracing a „Green Transformation“ as part of its sustainability strategy, Deutsche Bahn acknowledges its responsibility and is exploring its challenges and opportunities in balancing rail infrastructure expansion with biodiversity conservation.

The company has implemented over 38,000 nature and species protection projects since 2010. To offset environmental impacts from new rail infrastructure, Deutsche Bahn creates new habitats by demolishing old buildings and de-sealing areas. Strict adherence to legal requirements guides the temporary relocation of species like bats, common to certain stations. Collaborating with EU-funded projects like „Boosting Green Infrastructure through Biodiversity-Oriented Design of Business Premises“, Deutsche Bahn consults partners on natural design principles for company premises, emphasizing elements like wildflower meadows and nesting aids for pollinators.

#### Results

Deutsche Bahn's efforts have resulted in 46,000 biodiversity conservation activities since 2010. The company's commitment to protecting specific species, such as endangered wild bees, peregrine falcons, and Apollo butterflies, includes providing habitats for over 50 million bees through free access to DB land for private beekeepers. Notable initiatives, like the installation of "Arks" for wild bees at some stations, showcase the company's dedication to biodiversity preservation. The successful implementation of these projects not only contributes to national and international sustainability goals but also serves as an inspiration for other companies to engage in meaningful biodiversity conservation efforts. The case emphasizes the importance of collaboration, local engagement, and the successful integration of various factors in achieving successful biodiversity projects within corporate settings.

*Source: Deutsche Bahn, 2023*

## Mercedes Benz

### Objective and Implementation

The biodiversity project at the Mannheim plant received official recognition from the UN Decade for its commitment to biodiversity protection and enhancement. Mercedes-Benz Group has prioritized biodiversity conservation alongside climate, emissions, water, and soil protection. Internal biodiversity guidelines were developed and implemented across German locations. Initiatives include minimizing land consumption through multi-story, dense construction, creating natural spaces on undeveloped areas, implementing green roofs and facades, and installing insect hotels and bird nesting aids. Activities are documented and guided by the German Nature and Biodiversity Conservation Union (NABU). The company collaborates with external partners to create replacement habitats when direct support and compensation measures are not feasible.

### Results

Implementation occurs at the individual factory level, with many German Mercedes-Benz plants evaluating areas using a self-developed Biodiversity Index (BIX). The BIX assesses ecological significance, ranging from Level 0 (area with no ecological importance) to Level V (very high ecological ecosystem). Mercedes-Benz Group actively engages in protecting threatened bird species, involving employees, neighbors, and apprentices. Noteworthy successes include the natural transformation of the Sindelfingen plant, resulting in the hatching of approximately 30 peregrine falcon chicks by 2021. The Immendingen Test and Technology Center spans 500 hectares, featuring a 33-hectare wildlife passage with underpasses and bridges to safely facilitate wildlife crossings. Wildlife on-site, such as lizards, slowworms, grass snakes, and hazel dormice, were relocated during construction. In 2021, the Mercedes-Benz Berlin plant ecologically upgraded 2,000 square meters, planting fruit trees, regional shrubs, creating flower meadows, a small pond, and new bird nesting sites. The sustainability of these measures is ensured through a monitoring concept spanning ten years for open spaces and 25 years for forests. The degree of goal achievement is regularly assessed, allowing for adjustments if objectives are at risk of being missed. Mercedes-Benz's comprehensive approach highlights its commitment to long-term biodiversity conservation within its operations.

*Source: Mercedes Benz, 2023*

## Conclusion

Business can and must take a leading role toward mitigating biodiversity impacts in partnership with policy makers and customers (Beck-O'Brien & Bringezu, 2021). However, there is a need for increased accountability and clearer roles for businesses in meeting global biodiversity goals (Smith, 2019). Biodiversity offsets, which incentivize conservation, are a promising approach for managing business impacts (Rajvanshi, 2015). Despite these opportunities, there are concerns about the reliability of corporate engagement and the need for substantive, rather than symbolic, action on biodiversity (Smith, 2018).

## Guiding Questions for Study

- Discuss the relationship of climate change and biodiversity, connected to the SDGs. Identify the connections to the MOOC modules. What did you not know yet?
- Think about the concept of the planetary boundaries. Is this more adequate to discuss sustainability than the triple bottom line?
- How do the impact categories differ from company to company?
- What additional measures can companies take to counteract biodiversity loss? Evaluate the addressed measures. Are they enough? Discuss in class.
- Research on the SDGs subgoals and indicators. Can they be used for corporate reporting and strategy planning?
- Is an incentive system necessary? How should that incentive system be designed?
- Evaluate the measures of both companies. How would you rate them? Compare these involvements with other initiatives.



## Sources

- Addison, P.F., Bull, J.W., Bull, J.W., & Milner-Gulland, E.J. (2018). Using conservation science to advance corporate biodiversity accountability. *Conservation Biology*, 33, 307 - 318.
- Beck-O'Brien, M., & Bringezu, S. (2021). Biodiversity Monitoring in Long-Distance Food Supply Chains: Tools, Gaps and Needs to Meet Business Requirements and Sustainability Goals. *Sustainability*, 13(15), 8536. <https://doi.org/10.3390/su13158536>
- Boersema, J., Blowers, A., & Martin, A. (2009). Biodiversity loss, poverty and climate change: can one solution fit all. *Journal of Integrative Environmental Sciences*, 6(4), 239-245. <https://doi.org/10.1080/19438150903432701>
- Boiral, O., & Heras-Saizarbitoria, I. (2017). Managing biodiversity through stakeholder involvement: why, who, and for what initiatives. *Journal of Business Ethics*. [https://link.springer.com/article/10.1007/s10551-015-2668-3?sa\\_campaign=email/event/articleAuthor/onlineFirst](https://link.springer.com/article/10.1007/s10551-015-2668-3?sa_campaign=email/event/articleAuthor/onlineFirst)
- Deutsche Bahn (2023): Die Grüne Transformation der Deutschen Bahn. [https://www.deutschebahn.com/de/nachhaltigkeit/gruene\\_transformation-6854082](https://www.deutschebahn.com/de/nachhaltigkeit/gruene_transformation-6854082), accessed: 28.09.2023.
- Green, J.M., Croft, S.A., Durán, A.P., Balmford, A., Burgess, N.D., Fick, S., Gardner, T.A., Godar, J., Suavet, C., Virah-Sawmy, M., Young, L.E., & West, C. (2019). Linking global drivers of agricultural trade to on-the-ground impacts on biodiversity. *Proceedings of the National Academy of Sciences of the United States of America*, 116, 23202 - 23208.
- Lenzen, M., Moran, D., Kanemoto, K., Foran, B., Lobefaro, L., & Geschke, A. (2012). International trade drives biodiversity threats in developing nations. *Nature*, 486(7401), 109-112. <https://doi.org/10.1038/nature11145>
- McElwee, P. (2021). Climate Change and Biodiversity Loss: Two Sides of the Same Coin.
- Mercedes Benz (2023): Nachhaltige Produktion. <https://group.mercedes-benz.com/dokumente/nachhaltigkeit/produktion/2021-03-10-uwe-sindelfingen-2020.pdf>, accessed 28.09.2023
- Newbold, T., Hudson, L. N., Hill, S. L., Contu, S., Lysenko, I., Senior, R. A., Börger, L., Bennett, D. J., Choimes, A., Collen, B., Day, J., De Palma, A., Díaz, S., Echeverria-Londoño, S., Edgar, M. J., Feldman, A., Garon, M., Harrison, M. L., Alhusseini, T., . . . Purvis, A. (2015). Global effects of land use on local terrestrial biodiversity. *Nature*, 520(7545), 45-50. <https://doi.org/10.1038/nature14324>
- Overbeek, G., Harms, B., & Van Den Burg, S. (2013). Biodiversity and the Corporate Social Responsibility Agenda. *Journal of Sustainable Development*, 6(9). <https://doi.org/10.5539/jsd.v6n9p1>
- Pandey, A. (2020). Corporate Social Responsibility Role in Biodiversity Conservation: Policy Action and Good Governance.
- Richardson, K., Steffen, W., Lucht, W., Bendtsen, J., Cornell, S. E., Donges, J. F., Drüke, M., Fetzer, I., Bala, G., von Bloh, W., Feulner, G., Fiedler, S., Gerten, D., Gleeson, T., Hofmann, M., Huiskamp, W., Kummu, M., Mohan, C., Nogués-Bravo, D., . . . Rockström, J. (2023). Earth beyond six of nine planetary boundaries. *Sci Adv*, 9(37), eadh2458. <https://doi.org/10.1126/sciadv.adh2458>
- Sharma, R., Watve, A., Pandey, A. (2020). Corporate Biodiversity Management: Expanding the Horizons of Managing Biodiversity and Environmental Management. In: Sharma, R., Watve, A., Pandey, A. (eds) *Corporate Biodiversity Management for Sustainable Growth. Environment & Policy*, vol 59. Springer, Cham.
- Smith, T., Paavola, J., & Holmes, G. (2019). Corporate reporting and conservation realities: Understanding differences in what businesses say and do regarding biodiversity. *Environmental Policy and Governance*, 29(1), 3-13. <https://doi.org/10.1002/eet.1839>
- Snep, R.P. (2009). Biodiversity conservation at business sites : options and opportunities.
- Spurgeon, J. (2008). 'Corporate Environmental Strategies for Economic Instruments for Biodiversity', *Business Law Review*, 29(10), pp. 221-230.
- Veríssimo, D., MacMillan, D. C., Smith, R. J., Crees, J., & Davies, Z. G. (2014). Has Climate Change Taken Prominence over Biodiversity Conservation. *BioScience*, 64(7), 625-629. <https://doi.org/10.1093/biosci/biu079>

## ESDGs!

- Whatling, D.R., Hedges, P.D., Brown, R., & Fermor, P.M. (2010). Corporate responsibility reporting of biodiversity in the supply chain. *International Journal of Innovation and Sustainable Development*, 5, 51-64.