



**RAMBOLL**

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Sustainable change.

# Biodiversity vision, targets and roadmap

Finnish Chemical Industry KT ry

# Contents

1. Summary
2. Aim of the work
3. Comparison of reviewed frameworks
4. Global value chain mapping
5. Impacts and dependencies
6. Stakeholder expectations
7. Summary of materiality assessment
8. Biodiversity vision for 2045
9. Biodiversity roadmap to 2030

# 1. EXECUTIVE SUMMARY

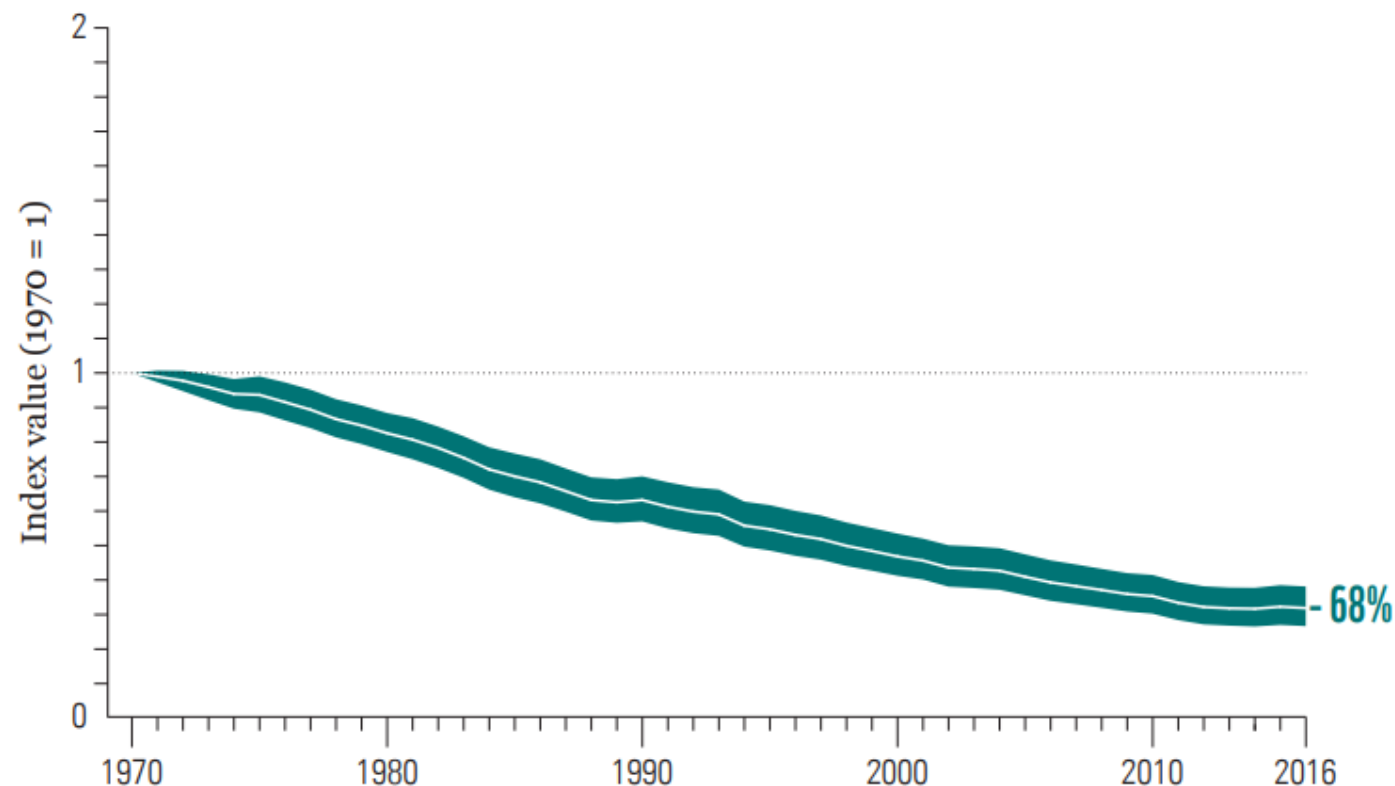
- Companies in the chemical industry are at very different stages in taking biodiversity into account. Some companies have strategic nature goals and action programs with indicators, but the majority are still in their infancy. Large and medium-sized companies and chemical manufacturers are ahead of other companies in their biodiversity work.
- It is possible for the chemical industry to take the target related to nature positivity for 2045, or even earlier. It is worth looking at nature and climate goals at the same time, as the majority of the positive effects of nature-related activities take place through investments that also affect climate and circular economy goals.
- During the work, several challenges were identified that may slow down biodiversity strategy processes at the company level.
  - Biodiversity work is very local by definition and obtaining good results from the process requires finding information on the various stages of a company's operations. There is a lack of spatial, good quality biodiversity data in many locations globally.
- The long-term goal of biodiversity could be nature or net positivity in 2045. At the same time, it is important to focus on reviewing the current decade in roadmap work and concrete actions.

## 2. AIM OF THE WORK

- In recent years, industrial companies have become increasingly aware of the effects of nature loss on their business. Many companies in the chemical industry, especially the largest ones, have already taken concrete steps to reduce biodiversity loss, set targets and measure the implementation of measures. However, most companies do not yet have biodiversity goals.
- The aim of the strategy process was to make biodiversity more familiar to all companies involved in Chemical Industry Federation of Finland and to help them choose relevant biodiversity tools and frameworks for further company-level refinement and goal-setting.
- Aim of the work was also propose ambitious enough but measurable biodiversity strategic goals for Chemical Industry Federation of Finland for both the short and medium term. This biodiversity target-setting is to be in line with existing Carbon neutral chemistry 2045 target and sustainability targets of Responsible Care Programme.

- It is estimated that more than half of the world's GDP is strongly linked to nature and the services it provides.
- Virtually all business has an impact on natural capital. It is also about risk management in production and value chains.
- Biodiversity is included in e.g. EU taxonomy requirements. In the future, standardized measurement methods will be created for various projects.
- The 2020 global Living Planet Index shows an average 68% decrease in monitored vertebrate species populations between 1970 and 2016.
- The time for action is now: it is estimated that we will only have this decade to reverse the loss of biodiversity.
- According to the World Economic Forum, the global shift to a nature positive measures could generate more than \$ 10 trillion in annual business benefits and 395 million new jobs by 2030. (WCEF, 2020).

## BIODIVERSITY LOSS MUST BE ADDRESSED IMMEDIATELY



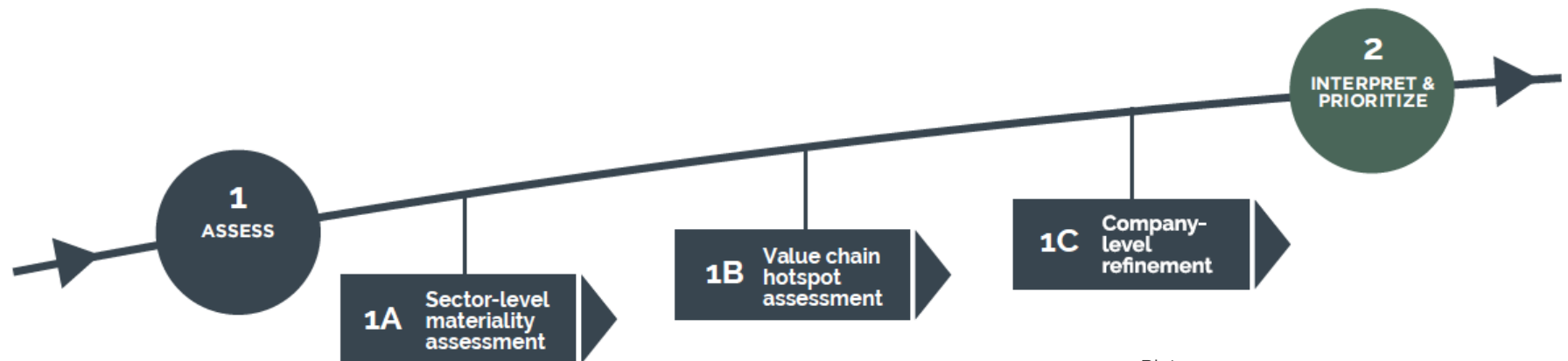
The global Living Planet Index: 1970 to 2016 Average abundance of 20,811 populations representing 4,392 species monitored across the globe declined by 68%. The white line shows the index values and the shaded areas represent the statistical certainty surrounding the trend (range: -73% to -62%). Source - WWF/ZSL (2020) 107.

# 3. COMPARISON OF REVIEWED BIODIVERSITY FRAMEWORKS

Name	Scope	Overview	Advantages	Limitations
Science Based Targets for Nature (SBTN)	specific to biodiversity	A framework that sets measurable targets to become nature positive by assessing, prioritizing, measuring, addressing and tracking impacts and dependencies on nature	Consolidated and comprehensive. Targets address the interconnection of issue areas and interrelated risks. No monitoring and reporting burden for companies; builds on existing resources and tools	No single unit of measurement for SBTs for nature exists, but different metrics can be used. Still at a developmental stage
Biological diversity protocol	specific to biodiversity	Produces a biodiversity impact inventory for assessing impacts and applies the Biodiversity Accounting Framework to build Statements of Biodiversity Position and Performance and account for biodiversity gains and losses	Enables consolidation of site impact data. Aligned with mitigation hierarchy. Does not require impact driver/pressure data. Accounts for both cumulative and periodic net impacts. Can support biodiversity impact disclosure	Does not assess dependencies or ecosystem services. Requires primary impact data – time consuming and expansive
Guidelines for corporate biodiversity performance, IUCN	specific to biodiversity	Produces key elements of a corporate-level biodiversity strategic plan through four stages. Can incorporate different metrics.	Simple, stepwise process for all companies. Allows retrofitting of existing goals.	Dependence on site-level data
Natural Capital protocol	holistic environment	Standardised decision-making framework for identifying, measuring and evaluating direct and indirect impacts and reliance on natural capital	International standardized framework; high uptake and wide range of case studies. Flexible, offers a range of tools. Can be applied alongside other standards.	Technical document, not accessible to everyone. Not a guidance or standalone tool, requires the use of natural capital tools
Product Biodiversity Footprinting (PBF)	product biodiversity footprint	An eco-design tool for companies to improve the biodiversity performance of products, through the identification and improvement of the most sensitive aspects of their life cycle, and the comparison of different variants	Incorporates entire LC; accounts for all types of pressures on biodiversity. Toolkit available	Does not currently include cause-and-effect trajectories, e.g. ecotoxicity related to pollution, vulnerability

## 4. GLOBAL VALUE CHAIN MAPPING

- As stated in SBT for nature: “A key difference between designing targets for climate versus for nature is that for nature, the impact assessment, response option assessment, and progress assessment need to be **location specific.**” Therefore, the important part of strategy and vision is to collect more location specific data on value chains.
- Biodiversity impacts and risks of Chemical industry in general were assessed in two workshops with final product manufacturer companies on 15.3.2022 and with chemical manufacturer companies on 17.3.2022
- Materiality and value chain assessment shed a light to company’s impacts and dependencies on nature. The idea of SBT for Nature framework was applied in this assessment phase.
  - At first, locations of value chain parts were added to global map.



## 5. BIODIVERSITY IMPACTS AND RISKS

- Different pressures on biodiversity (IPBES 2019) were assessed through value chain (raw material production, upstream, direct operations, downstream).
- Then these pressures were categorized either “high”, “low” or “I don’t know” following SBT for Nature step 1A. Furthermore, results from the two workshops were referred to databases of EXIOBASE DATA & ENCORE MATERIALITY RATINGS for relevant reference fields.
- This sector-level materiality assessment gives indications of nature impacts and potential risks through value chains. It is to be noted that this is a preliminary screening method, and gives only indications of areas that needs to be taken into account were proceeding with strategy work.



# Upstream biodiversity impacts and risks

		Upstream											
		Land/Water/Sea Use Change			Resource exploitation		Climate Change	Pollution				Invasives and Other	
Production Process		Terrestrial ecosystem use / Deforestation	Freshwater ecosystem use	Marine ecosystem use	Water use	Land degradation Other resource use	GHGs emissions	Non-GHG air pollutants	Water pollutants	Soil pollutants	Solid waste	Disturbance	Biological alterations/interferences
<b>RESULTS:</b>													
<b>WORKSHOP 17.3.</b>	<b>Chemical manufacturers</b>	H/M/ND	M/ND	ND	H/M	H/M/L	VH/H	M	M	M/L/ND	M	L/ND	ND
<b>WORKSHOP 15.3.</b>	<b>Product manufacturers</b>	H/ND	ND	ND	VH/H	ND	VH/H	M	M	M	M	M	ND
LITERATURE*	Basic chemical manufacturing	H	M	M	H	ND	VH	M	M	M	M	M	ND
	Commodity chemicals	H	M	M	H	ND	VH	M	M	M	M	M	ND
	Synthetic fertilizer production	H	M	M	H	ND	VH	M	M	M	M	M	ND

VH=very high, H=high, M=medium, L=low, VL=very low, ND=no data

\* SOURCE <https://sciencebasedtargetsnetwork.org/wp-content/uploads/2021/09/SBTN-Initial-Guidance-Technical-Annexes-2Aug2021.docx>  
 DATA: EXIOBASE DATA & ENCORE MATERIALITY RATINGS

# Direct operations biodiversity impacts and risks

		Direct operations											
		Land/Water/Sea Use Change			Resource exploitation		Climate Change	Pollution				Invasives and Other	
Production Process		Terrestrial ecosystem use / Deforestation	Freshwater ecosystem use	Marine ecosystem use	Water use	Land degradation Other resource use	GHGs emissions	Non-GHG air pollutants	Water pollutants	Soil pollutants	Solid waste	Disturbance	Biological alterations/interferences
<b>RESULTS:</b>													
<b>WORKSHOP 17.3.</b>	<b>Chemical manufacturers</b>	H/ L/ ND	ND	ND	H	H/L	VH/M	H/M	H	L	H/VL	L/ ND	L/ ND
<b>WORKSHOP 15.3.</b>	<b>Product manufacturers</b>	M/L	ND	ND	H	M/L /ND	H/M	H	M	ND	M	ND	ND
LITERATURE*	Basic chemical manufacturing	H - ND	ND	ND	VH/H	ND	H	H/L	H - M	H - M	ND	H	ND
	Commodity chemicals	VL	ND	ND	H	ND	VH	VH	ND	M	M	ND	ND
	Synthetic fertilizer production	ND	ND	ND	H	ND	VH	VH	ND	ND	ND	ND	ND

VH=very high, H=high, M=medium, L=low, VL=very low, ND=no data

\*Source: <https://sciencebasedtargetsnetwork.org/wp-content/uploads/2021/09/SBTN-Initial-Guidance-Technical-Annexes-2Aug2021.docx>  
DATA: ENCORE IMPACTS

# Downstream biodiversity impacts and risks

		Downstream operations											
		Land/Water/Sea Use Change			Resource exploitation		Climate Change	Pollution				Invasives and Other	
Production Process		Terrestrial ecosystem use / Deforestation	Freshwater ecosystem use	Marine ecosystem use	Water use	Land degradation Other resource use	GHGs emissions	Non-GHG air pollutants	Water pollutants	Soil pollutants	Solid waste	Disturbance	Biological alterations/interferences
<b>RESULTS: WORKSHOP 17.3.</b>	<b>Chemical manufacturers</b>	M/L/ND	ND	ND	H/ND	M/L/ND	VH/H	H/M	H/M	M/L	H/VL	M/ND	M/ND
<b>RESULTS: WORKSHOP 15.3.</b>	<b>Product manufacturers</b>	M/L/ND	H/M/ND	ND	H/M	M/L/ND	H	H/M	H/M	ND	M	ND	ND
LITERATURE*	Basic chemical manufacturing	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Commodity chemicals	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Synthetic fertilizer production	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

VH=very high, H=high, M=medium, L=low, VL=very low, ND=no data

\*SOURCE: <https://sciencebasedtargetsnetwork.org/wp-content/uploads/2021/09/SBTN-Initial-Guidance-Technical-Annexes-2Aug2021.docx>

DATA: DOWNSTREAM RATINGS ARE UNDER DEVELOPMENT in SBT for Nature

# 6. STAKEHOLDER EXPECTATIONS

Stakeholders were invited into a workshop in April 2022. Ministry of Environment, Ministry of Economic Affairs and Employment, Finnish Environmental Institute SYKE, Finnish Innovation Fund Sitra, Young Biodiversity influencers – network, Birdlife Finland, Kasvinsuojeluyhdistys ry and two companies from Biodiversity Ad Hoc group were joining this workshop. Later, comments from Greenpeace were also received. Expectations of these stakeholders were following:

## Targets & visions

- Bold, clear, effective targets
- Climate and nature combined in visions
- Not seeing changes as undermining competitiveness
- Roadmap

## Effectiveness

- Model for global operations
- Integration of local & global BD-work (e.g. CBD)
- Measuring (influencing)

## Communication and knowledge

- Clarity, inclusiveness and transparency
- BD-specialists in companies and knowledge to the management level
- Co-operation between industries/lines
- Sharing good practices, creating cooperation network

## Operational level

- Applicability of the biodiversity frameworks for real company challenges
- Compensation as a tool
- Requirements for supply chains
- Reduction of impacts by logistics and impacts on soil and water
- The impacts of the actual product, e.g. fertilizers



# REFLECTION ON STAKEHOLDER FEEDBACK

- Several stakeholders are very interested in biodiversity work of chemical industry. Biodiversity work could also be done together with stakeholders in the roadmap phase.
- It is difficult for many stakeholders to understand the impact of the whole chemical industry. It therefore makes sense to talk about biodiversity work through practical examples: the measures taken by companies and the strategic review help stakeholders to understand the effects more concretely.
- Stakeholders wish to see ambitious biodiversity targets. Can nature targets be set more ambitious than climate targets and how would this be done in practice?



# 7. SUMMARY OF MATERIALITY ASSESSMENT

- **Raw materials and upstream (sourcing):**
  - It is essential to find out more information on impacts on terrestrial, freshwater and marine ecosystems.
  - Cutting water use and GHG emissions from upstream mitigates also biodiversity risks.
- **Direct operations:**
  - Resource use (land, water), GHG emissions and direct pollution (air, water, soil) accounts for majority of recognised biodiversity risks. However, impacts vary tremendously from company to company.
- **Downstream (market):**
  - Markets for final products and chemical manufacturer differ globally: while final products are mainly for European markets, chemical markets are truly global.
  - Since there is a lack of reference data of downstream impacts, at this point it would make sense to focus on reducing pollution and GHG emissions.
- **Value-chain mapping:**
  - hot spots to find more information about biodiversity impacts are Asia-Pacific and Southern America.
- **Stakeholders expect:**
  - Targets should be bold, clear and effective
  - Climate and nature combined in visions
  - Not seeing changes as undermining competitiveness
  - More detailed roadmap

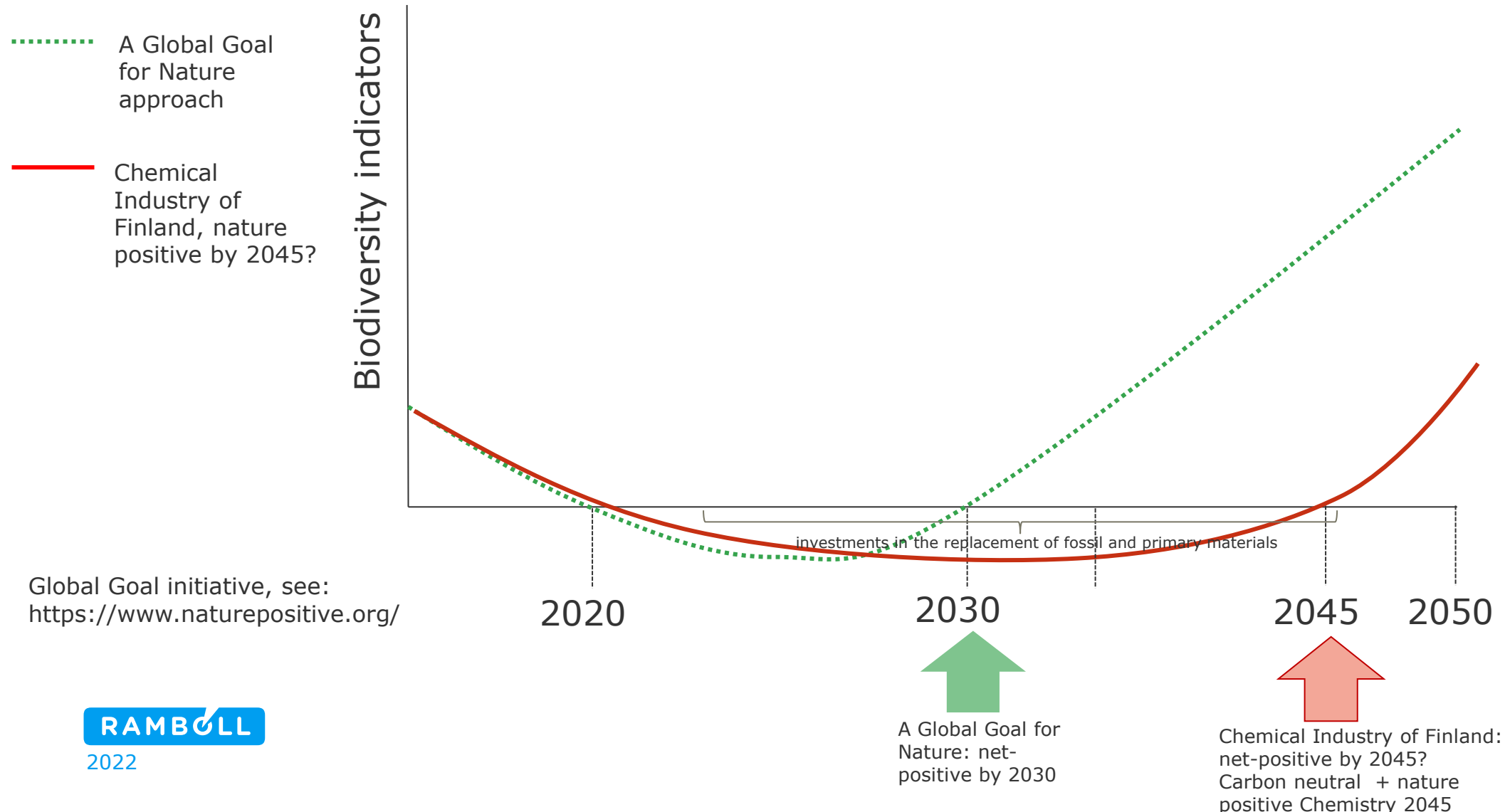
**8. BIODIVERSITY VISION FOR 2045:  
Nature positive, climate neutral Chemical Industry  
NET-POSITIVE CHEMISTRY BY 2045**



# VISION FOR 2045: NATURE POSITIVE, CLIMATE NEUTRAL CHEMICAL INDUSTRY OR NET-POSITIVE CHEMISTRY BY 2045

- As G7 leader stated in 2021 “our world must not only become net zero, but also nature positive, for the benefit of both people and the planet.” A nature positive approach contributes to solving both climate and biodiversity crisis. At its heart, the UN Global goals will be to halt and reverse the destruction of nature by 2030 with a full recovery of a resilient biosphere by 2050. Aim is to become “nature positive” by 2030.
- Finnish Chemical Industry wants to be one of the pioneers in taking nature goals into account as part of profitable and sustainable operations. The vision of climate neutrality in the chemical industry is set for 2045. During the work, it has become clear that biodiversity and climate work need to be more closely linked. Therefore, when vision is to be set, a complete “net-positive vision” would be most recommendable.
- The Finnish chemical industry's climate and circular economy work is ambitious, but it is also based on realistic goal settings. Replacing raw materials with circular and bioeconomy solutions requires major investments. These are also places of influence in terms of biodiversity. Circular economy solutions can also make a significant contribution to nature goals (Sitra, 2022).

**Net positivity or nature positivity** means a situation where the effects of the activity on nature as a whole turn positive compared to the initial situation. The perspective is significantly influenced by which starting year is chosen. A global goal for Nature uses an approach with year 2020 as a baseline. The graph compares the Chemical Industry's vision for 2045 nature positivity (red line) with the global nature goals of the Global Goal initiative (green, dotted line). In the future SCOPE3 scenarios and biodiversity net targets should be considered and analysed simultaneously.

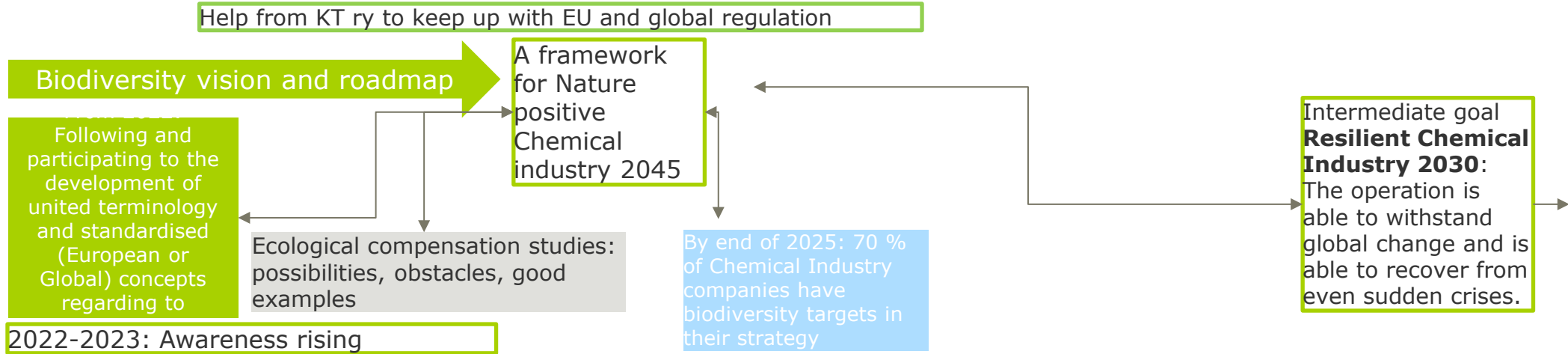


# 9. BIODIVERSITY ROADMAP TO 2030



# BIODIVERSITY ROADMAP TO 2030

**Biodiversity  
Actions of  
Kemianteollisuus ry**



2022

2023

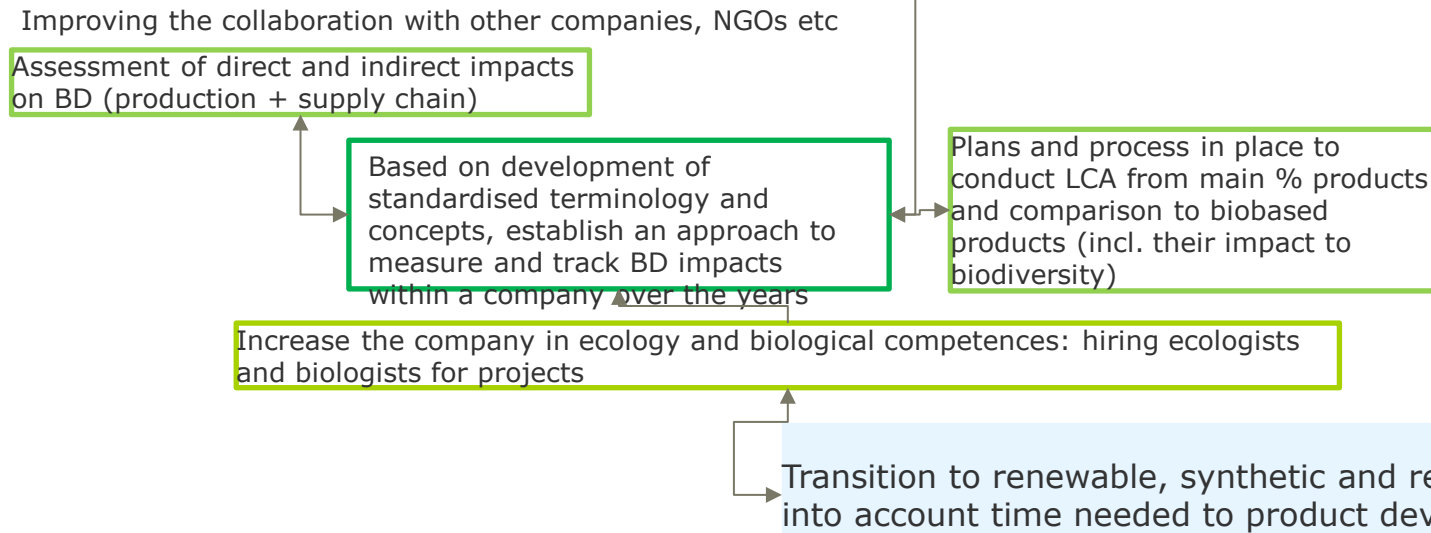
2024

2025

2026

2027

**Potential  
measures at  
company-level**



# "Transformative change"



means a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values.

By its very nature, transformative change can expect opposition from those with interests vested in the status quo.

But such opposition can be overcome for the broader public good."

—IPBES  
Global Assessment

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Sustainable  
change.

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