

# 2023: € 4 billion new damage to Brazil

An update on Rabobank's destructive financing of deforestation

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## About this report

This report has been commissioned by Greenpeace Netherlands.

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## Summary

This report provides an update of the key numbers of two reports<sup>1</sup> published in 2023 on the profits, damage, and accountability of Rabobank's financing of forest-risk activities related to soy, beef, and pulp and paper that put pressure on Brazilian biomes. The calculated damages include environmental and social damage but exclude the damage to the intrinsic value of nature and the loss of culture and cultural diversity as these cannot be calculated.

In this update, the damage estimate includes one extra year, 2023, to cover the period 2000-2023.

In 2023, Rabobank continued to be exposed to Brazilian forest-risk activities: both directly by providing loans to Brazilian agribusinesses and indirectly by financing Dutch dairy and animal protein activities that source Brazilian soy. This financing causes climate damage, biodiversity damage, and health damage.

For Rabobank's exposure to deforestation and CO<sub>2</sub>e emissions in Brazil through its financing of Dutch dairy and animal protein activities, the addition of the year 2023 increases the estimated deforestation footprint by 2,800 hectares to 59,900 hectares and the related GHG emissions by 0.2 million tons of CO<sub>2</sub>e to an estimated total of 7.1 million tons. The estimates for Rabobank's exposure to deforestation and emissions through its rural financing activities in Brazil increase to 345,000 hectares (+14,400 hectares in 2023) and 105 million tons (+4.7 million tons) of CO<sub>2</sub>e emissions, respectively, in the period 2004-2023. Thus, the investigated 2023 financing by Rabobank may have been linked to a total of 17,200 hectares of deforestation in Brazil, adding 4.4% to the 2000-2022 total and leading to a total estimate of 404,900 hectares in the period 2000-2023. The 17,200 hectares in 2023 are equal to the size of the island Texel.

In 2023, € 3.9 billion (+5.9%) of damage value was added in a low-end scenario, raising the total damage to € 69.9 billion in the period 200-2023. In a high-end scenario, the year 2023 added € 31 billion (+6.7%) in damage value, to a total of € 492 billion for the period 2000-2023.

While Rabobank's relevant financing can be linked to € 69.9 billion to € 492 billion damage, the bank is sharing this accountability with other actors in the crucial supply chains of soy and beef. In 2023, Rabobank added € 515 million (or 5.5%) to the low-end range of its own accountability bill, leading to a total of € 10.0 billion in accountability for the 24-year period 2000-2023. The high-end increased by € 3.8 billion (or 6.2%) in 2023 to a total of € 65.0 billion accountability for the 2000-2023 period.

While these damages were externalised, Rabobank and its managers continued to benefit from a further addition to the net interest income and the gross profit generated on the above-described financing of forest-risk activities in Brazil. In 2023, € 214 million net interest income was generated on the loans related to the Brazilian damage calculated above, and € 101 million gross result. This lifted the total net interest income to € 2.1 billion (a relatively high +11.3% through 2023) in the 2000-2023 period, and the gross result to € 0.8 billion (+14.1%). The double-digit contribution of 2023 to the 2000-2023 period was due to continued high forest-risk financing in 2023, high 2023 profit margins, and the fact that financing in the early part of the 2000-2023 period was lower.

## Abbreviations

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<b>CO<sub>2</sub>e</b>	Carbon dioxide equivalent
<b>Gross profit</b>	Gross proceeds minus expenses
<b>Net interest income</b>	Gross interest proceeds minus interest costs for funding

## Introduction and methodologies

This report provides an update of the key numbers of two reports<sup>2</sup> published in 2023 on the profits, damage, and accountability of Rabobank's financing of forest-risk activities related to soy, beef, and pulp and paper that put pressure on Brazilian biomes.

The current report emphasizes the additions to profits, damage, and accountability in 2023, related to Rabobank's financing and provision of forest-risk loans in Brazil and through the financing of business activities in the Netherlands that benefit from embedded Brazilian soy.

The applied methodologies are explained in the two previous reports. In pricing the damages per ton CO<sub>2</sub>e and biodiversity loss per hectare, the same numbers have been used to enable the comparison between the period 2000-2022 and the period 2000-2023.

When discussing the 'Base Report', this refers to the report of 5 July 2023, titled *€ 0.7 billion in profits, € 66 billion in damages*.<sup>3</sup>

# 1

## Loans and profits on Brazilian exposure

This section updates the financing by Rabobank of Brazilian forest-risk activities in soy, beef, and pulp & paper, and the financing of the Dutch livestock agricultural sector. Subsequently, the net interest margin and gross profits are updated.

### 1.1 Update on loans and profits on Rabobank's Dutch activities

In 2023, Rabobank continued to lend to the Dutch animal protein sectors, including dairy and meat. However, the borrowing was € 463 million lower than at the end of 2022 (Table 1). In total, € 10.9 billion of loans were outstanding to these two sectors at the end of 2023.

**Table 1 Rabobank: Dutch loan linked to Brazilian forest-risk**

€ million	2000	2005	2010	2015	2020	2021	2022	delta	2023
Dairy, Dutch Retail	n/a	n/a	Down	Na	8,322	8,193	7,858	<b>-211</b>	7,647
Animal protein, Dutch Retail	n/a	n/a	Up	Na	3,681	3,586	3,521	<b>-252</b>	3,269
Loans Dutch Retail Dairy + protein					12,003	11,779	11,379	<b>-463</b>	10,916
Loans based as % of 2020-2022*			8,374	11,007					
Loans based on 2010**	5,228	5,858							
<b>Loans used as a basis for calculation</b>	5,228	5,858	8,374	11,007	12,003	11,779	11,379	<b>-463</b>	10,916
Market share Dutch Food & Agri market	87%	83%	84%	85%	85%	75%	80%		Na

Source: Profundo; \*) respectively, 2010 / 2015 total dairy and protein financing x average 2020-2022 relation (Dutch dairy + protein/total dairy + protein financing); \*\*) based on change of Dutch private sector loans versus 2010 x 2010's € 8,374 million.

The total net interest income on loans to the Dutch dairy and animal protein sectors was € 313 million in 2023. Due to the addition of one year, the total net interest income for the period 2000-2023 increased to € 3,975 million (+8.6%) versus € 3,662 million in 2000-2022 (see Table 2). Of these numbers, 25% is related to embedded Brazilian soy, thus € 994 million net interest income in 2000-2023 (+8.6%). The 8.6% increase is a relatively high number in a 24-year period because of a relatively strong profit margin in 2023, continued financing of forest-risk activities in 2023, and lower financing in the earlier years of the 2000-2023 period (Table 1).

The gross result related to the Brazilian embedded-soy activities was € 42 million in 2023, bringing the total to € 362 million (+13.1%) for the period 2000-2023. The relatively strong increase due to the addition of one year is the result of the same reasons as in the preceding paragraph.



**Table 2 Rabobank: Profits on Dutch soy-sourcing sector (2000-2023)**

€ million	2000-2005	2006-2010	2011-2015	2016-2022	Total	2023	2000-2023
Net interest income	767	672	881	1,341	3,662	<b>313</b>	3,975
<b>of which 25% related to Brazilian-embedded soy</b>	192	168	220	335	915	<b>78</b>	994
Gross result (total income minus operational expenses)	233	252	310	484	1,280	<b>167</b>	1,447
<b>of which 25% related to Brazilian-embedded soy</b>	58	63	78	121	320	<b>42</b>	362

Source: Profundo.

## 1.2 Update on loans and profits on Rabobank's Brazilian activities

In 2023, Rabobank provided US\$ 0.7 billion in additional finance in forest-risk loans and underwriting services to companies engaged in beef, pulp & paper and soy in Brazil. Consequently, In the period 2003-2023, Rabobank provided approximately US\$ 10.4 billion (2000-2022: US\$ 9.7 billion). Pulp & paper (US\$ 4.5 billion; no new loan on top of 2000-2022) accounted for 44% of all identified forest risk-attributable financing. The beef and soy sectors accounted for respectively 30% and 27% – US\$ 3.1 billion (+US\$ 0.3 billion in 2023) and US\$ 2.8 billion (+US\$ 0.4 billion in 2023).

It should be noted that data for the period 2003-2012 is incomplete, particularly for Brazil's National Rural Credit System (SNCR). Therefore, the SNCR loans between 2003 (Rabobank started the program) and 2012 have been estimated based on a stable compounded average growth rate until the first public number in 2013.

Important for calculating Rabobank's profit in 2023 from its Brazilian activities, are the outstanding loans in 2023. These remained unchanged at US\$ 6.3 billion. Based on this, it can be calculated that in 2023 Rabobank earned an additional US\$ 64 million gross profit on forest-risk activities in its Brazilian local business and corporate loans, and US\$ 147 million in net interest income (0).

**Table 3 Rabobank: Profits on Brazilian forest-risk loans (2000-2023)**

	2000	2005	2010	2015	2020	2021	2022	2023
<b>Wholesale &amp; rural (€ million), global*</b>								
Net interest income	Na	1,415	2,197	2,197	2,197	2,447	2,857	2,837
Total income, including fee income	Na	2,226	3,579	3,436	2,772	3,524	3,766	3,822
Gross result (total income minus operational expenses)	Na	950	1,165	1,165	1,165	1,759	1,845	1,653
Net interest income/wholesale & rural loans (margin %)	Na	2.6%	2.2%	2.2%	2.1%	2.3%	2.4%	2.3%
Gross result/total income (margin %)	Na	42.7%	32.6%	33.9%	42.0%	49.9%	49.0%	43.2%
<b>Soy, Beef, Pulp &amp; Paper Brazil, based on Wholesale &amp; rural data (US\$ million)</b>								
<b>Outstanding loans Brazil Soy, Beef, Pulp &amp; Paper</b>	<b>0</b>	<b>82</b>	<b>141</b>	<b>3,040</b>	<b>11,052</b>	<b>6,855</b>	<b>6,340</b>	<b>6,287</b>
<b>Net interest income</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>68</b>	<b>229</b>	<b>154</b>	<b>151</b>	<b>147</b>
<b>Fee income</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>2</b>
<b>Total income, including fee income</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>70</b>	<b>230</b>	<b>157</b>	<b>152</b>	<b>149</b>
<b>Gross result (total income minus operational expenses)</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>24</b>	<b>97</b>	<b>78</b>	<b>74</b>	<b>64</b>

Source: Profundo; In 2000, Rabobank did not apply segment reporting as domestic retail loans dominated the portfolio; \*) Wholesale & rural is Rabobank's global business activity focused on financial services to large corporates and non-Dutch retail clients. The first half of this table represents the financial key data of that activity, which are applied to Rabobank's Brazilian forest-risk activity (second half of the table) to calculate net interest income and gross profit.

When these outcomes for specific years are recalculated into profit for certain periods and a total for 2000-2023, the total net interest income linked to Brazilian soy, beef, and pulp & paper financing is US\$ 1,272 million (+US\$ 147 million in 2023), and the gross result, after operating expenses, is an accumulated US\$ 522 million in 2000-2023, with US\$ 64 million in 2023 (Table 4).

**Table 4 Rabobank: Profits on Brazilian forest-risk loans (2000-2023), total**

US\$ million	2000-2005	2006-2010	2011-2015	2016-2022	Total	2023	New total
Net interest income	5.3	13.0	174.4	932.3	1,125.0	146.8	1,271.8
Fee income	0.0	0.1	6.7	21.2	28.0	2.0	30.0
Total income, including fee income	5.4	13.1	181.0	953.5	1,153.0	148.8	1,301.8
Gross result	2.3	5.3	59.9	390.0	457.5	64.4	521.8

Source: Profundo.

### 1.3 Total profits from the Netherlands and Brazil linked to forest-risk in Brazil

This section 1.3 makes the addition of the outcomes from sections 1.1 and 1.2.

In 2023, Rabobank's Dutch and Brazilian activities in financing forest-risk sectors generated € 214 million in additional net interest income and € 101 million in additional gross result/profit. As a consequence, the bank earned € 2.1 billion in net interest income and € 0.8 billion in gross results in the period 2000-2023. This means that 2023 added 11.3% to the 2000-2022 total in net interest income and 14.1% to the total gross result for 2000-2022 (Table 5).

The addition of one extra year (2023) to the profits of the period from 2000 onwards is a relatively high, double-digit, percentage. This is due to a relatively strong profit margin in 2023, continuing financing of forest-risk activities in 2023, and because in the early years of the 2000-2023 period, the size of outstanding loans was still relatively small (see Table 1 and 0).

**Table 5 Rabobank: Total profits on forest-risk loans related to Brazil (2000-2023)**

€ million	2000-2005	2006-2010	2011-2015	2016-2022	Total	2023	New total	Growth in 2023*
<b>Net interest income on:</b>								
Dutch soy-sourcing activities (x25% adjustment)	191.8	168.1	220.3	335.3	915.4	78	993.8	
Brazilian forest-risk loans	4.8	9.7	135.2	825.0	974.7	135.9	1,110.6	
Total net interest income	196.6	177.7	355.5	1,160.3	1,890.1	214.3	2,104.4	11.3%
<b>Gross result on:</b>								
Dutch soy-sourcing activities (X25% adjustment)	58.2	63.1	77.5	121.1	319.9	42	361.6	
Brazilian forest-risk loans	2.1	3.9	46.4	345.2	397.6	59.6	457.2	
Total gross result	60.3	67.0	123.9	466.2	717.4	101.4	818.8	14.1%
Average US\$/€	1.10	1.35	1.29	1.13		1.08		

Source: Profundo; \*) growth 2023 in addition to 2000-2022.

# 2

## Environmental, health and social impacts

The preceding chapter updated the loans and underwriting services to the sectors linked to deforestation in Brazil by one extra year to the new period of 2000-2023, and the profits generated on this activity. This section will update the damages by the addition of one extra year. The damages consist of climate damage, biodiversity damage, and health damage. Crucial input factors for this calculation are the hectares of deforestation, emissions from this deforestation, and emissions from cattle ranching. Finally, Rabobank's share of the total damage bill has been calculated. It needs to be considered that Rabobank's financing is used by actors in the supply chain which bear a part of the accountability.

### 2.1 Climate damage

#### 2.1.1 Deforestation and emissions linked to embedded soy in the Netherlands

According to statistical data, across the 24 years from 2000-2023, an estimated 37.2 million tons of Brazilian soybean equivalents were used in animal feed in the Netherlands. Trase's supply chain mapping suggests that Dutch soy imports between 2013 and 2020 were on average linked to a deforestation footprint of 24.9 hectares per metric ton.<sup>4</sup> When applying the 33%-share of Dutch domestic use of these soy imports and the 30%-share of the bank in the enterprise value of the Dutch dairy and protein sector, an estimated 59,900 hectares of deforestation were linked to Rabobank's Dutch financing activities. In this total estimate, the bank's exposure in 2023 accounted for 2,800 hectares.

Drawing on Trase data, a life cycle assessment (LCA) study by Escobar et al. (2020) concludes that the imports of Brazilian soy to the Netherlands were on average connected to GHG emissions of around 0.64 tons of CO<sub>2</sub>e per ton of soybean equivalent (SBE) in the period 2010-2015, considering CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O. These volumes include emissions during production, transport, and processing. Land use change accounts for around 40% of the footprint.<sup>5</sup> We assume that a similar emission factor was relevant across the analysed 2000-2023 period. This leads to the conclusion that Rabobank has been exposed to an estimated 7.1 million tons CO<sub>2</sub>e emissions from Brazilian soy through its Dutch financing activities from 2000 to 2023, with 2023 accounting for 0.2 million tons (Table 6).

**Table 6 Rabobank: Deforestation + emissions linked to Dutch use of Brazilian soy (2000-2023)**

Period	Brazilian soy (est., mln tons SBE)	Deforestation footprint (est., 1,000 ha)	GHG emissions (est., mln tons CO <sub>2</sub> e)
Dutch use of Brazilian soy 2000-2023	37.2		
Average annual deforestation linked to Dutch soy imports (2013-2020)		24.9	
Extrapolating deforestation linked to Dutch soy imports (period 2000-2023)		597.3	
Correcting for Dutch domestic use of soy (33%) (2000-2023)		199.7	
Total GHG emissions from Dutch use of Brazilian soy 2000-2023 (based on average 0.64 tons CO <sub>2</sub> e / ton SBE)			23.8
Share Rabobank financing 2000-2023 (30%)	11.1	59.9	7.1
<b>Of which 2023</b>	<b>+0.4</b>	<b>+2.8</b>	<b>+0.2</b>

Note: SBE=soybean equivalent.

Source: Profundo; Eurostat (2024), "EU trade since 1988 by HS2-HS4"; ISTA Mielke (various dates), *Oil World Annual Statistics*; Escobar, N., E.J. Tizado, E.K.H.J. zu Ermgassen, P. Löfgren, J. Börner and J. Godar (2020), "Spatially-explicit footprints of agricultural commodities: Mapping carbon emissions embodied in Brazil's soy exports", *Global Environmental Change*, 62: 102067; Trase (2024), "Brazil soy supply chain"; FAO (2019), *Technical Conversion Factors for Agricultural Commodities*.

### 2.1.2 Deforestation and emissions linked to forest-risk financing of Brazilian rural clients

By multiplying Rabobank's share in Brazilian rural credit per year and state with 1) the correction factor of 37% for other types and sources of financing, and 2) the reported deforested hectares by biome, and 3) extrapolating backwards to 2004 as the first year of Rabobank servicing the Brazilian rural sector, an estimate of the bank's exposure to the observed deforestation across biomes is obtained. The previous analysis suggested that Rabobank may have been exposed to an estimated deforestation of 331,000 hectares across the six Brazilian biomes in 2004-2022. Expanding the analysis by one year to 2023 adds 14,400 hectares to this estimate, resulting in 345,000 hectares in the period 2004-2023. The largest share is accounted for by the Cerrado biome (52%), reflecting its position at the agricultural frontier in recent years. The Amazon biome has an estimated share of 28%, followed by other biomes with shares between 2%-10% (Table 7).

Applying average CO<sub>2</sub>e-emissions per hectare and year to the identified deforestation footprint, the addition of 2023 data increases the estimated CO<sub>2</sub>e emissions linked to Rabobank's rural financing activities in Brazil by 4.7 million tons to a total of 105 million tons across the period 2004-2023 (Table 7).



**Table 7 Rabobank: Deforestation + emissions linked to rural credit in Brazil (2004-2023)**

Data	Amazon	Cerrado	Pantanal	Caatinga	Mata Atlantica	Pampa	Total
Total deforestation 2013-2023 (1,000 ha)	9,004	10,185	678	2,828	1,282	1,189	25,165
Rabobank share in deforestation 2013-2023 (est., 1,000 ha)	62	115	9	21	10	4	221
Rabobank share in deforestation 2004-2012 (est., 1,000 ha)	34	65	5	12	5	2	124
Total Rabobank share in deforestation 2004-2023 (est., 1,000 ha)	96	180	13	33	15	7	345
<b>Of which 2023 (est., 1,000 ha)</b>	<b>+4.9</b>	<b>+6.6</b>	<b>+0.5</b>	<b>+1.4</b>	<b>+0.6</b>	<b>+0.4</b>	<b>+14.4</b>
Biome share in total (%)	28%	52%	4%	10%	4%	2%	
Emission factors (average tons CO <sub>2</sub> e/yr/ha)	536	217	217	217	217	217	
Emissions from Rabobank's share in deforestation 2004-2023 (est., mln tons CO <sub>2</sub> e)	51	39	3	7	3	1	105
<b>Of which 2023 (est., mln tons CO<sub>2</sub>e)</b>	<b>+2.6</b>	<b>+1.4</b>	<b>+0.1</b>	<b>+0.3</b>	<b>+0.1</b>	<b>+0.1</b>	<b>+4.7</b>

Source: Profundo; Forests & Finance (2024); INPE (2024), "TerraBrasilis – PRODES desmatamento"; Brazilian Government (2021), *Technical Annex II to the Fourth Biennial Update Report (BUR): Results Achieved by Brazil From Reducing Greenhouse Gas Emissions from Deforestation in the Cerrado Biome for REDD+ Results-Based Payments*, p. 69; Brazilian Government (2021), *Technical Annex I to the Fourth Biennial Update Report (BUR): Results Achieved by Brazil from Reducing Emissions from Deforestation in the Amazon Biome for REDD+ results-based payments*, p. 54.

### 2.1.3 Methane emissions

In 2023, Rabobank had new finance of US\$ 346 million to the beef sector, of which US\$ 1 million to meat processors. In total, the financing in 2000-2023 of beef/cattle ranching reached US\$ 2,947 million and of meat processors US\$ 158 million. Based on the methodology developed in the Base Report, the methane emissions related to this financing have been estimated at 165.4 million tons CO<sub>2</sub>-eq in the 2000-2023 period. This is an increase of 17 million tons in 2023, or +12% (Table 8).

**Table 8 Rabobank: Methane emissions in 2000-2023**

		<b>Beef / cattle ranching</b>	<b>Meat processors</b>	<b>Total - Low</b>	<b>Total - High</b>
Financial flows (US\$ mln) 2000-2022	A	2602	157	2,759	2,759
New in 2023	B	345	1		
Financial flows (US\$ mln) 2000-2023	C = A + B	2,947	158	3,105	3,105
Outstanding (US\$ million) in various years	D = C X 3		475		
Emission (ton) per US\$ (2018)	E	0.050	0.040		
Total GHG CO <sub>2</sub> -eq GWP 20 (mln ton) 2000-2023	F = (C resp D) x E	146.6	18.8	165.4	165.4
<b>New/additional GHG CO<sub>2</sub>-eq GWP 20 (mln ton) 2023</b>	<b>G = F -/- H</b>			<b>17.3</b>	<b>17.3</b>
Total GHG CO <sub>2</sub> -eq GWP 20 (mln ton) 2000-2022	H			148.1	148.1

Source: Profundo; the use of financial flows means that double-counting does not exist. 'Financial flows' differs from 'outstanding loans' as 'outstanding' is reported every year, while 'flow' is only reported at the time of transaction.

#### **2.1.4 Rabobank's climate damage costs: deforestation and methane**

To calculate climate damage costs, the GHG or CO<sub>2</sub>e emissions are multiplied by a price per ton of emission.

In 2023, Rabobank's climate damage costs due to **deforestation** have increased by € 421 million to an estimated € 5.7 billion. This calculation is based on the 0.2 million tons of CO<sub>2</sub>e linked to Dutch activities and 4.7 million tons linked to its Brazilian activities. For the calculation of CO<sub>2</sub>e costs per ton, € 86 (Low) and € 1,160 (High) have been applied, which were also used in the Base Report. In 2000-2023, Rabobank could be linked to climate damage from deforestation of € 9.7 billion to € 130.5 billion (Table 9), + 4.6% versus 2000-2022.

**Table 9 Rabobank: Climate costs from deforestation in Brazil, 2000-2023**

	Low	High
Dutch linked activities 2000-2022	6.9	6.9
Brazilian 2000-2022	100.7	100.7
Sub-Total emissions (million tons CO <sub>2</sub> -eq) 2000-2022	107.6	107.6
New in 2023:		
Dutch linked activities 2023	0.2	0.2
Brazilian activities 2023	4.7	4.7
Sub-Total emissions (million ton CO <sub>2</sub> -eq) 2023	4.9	4.9
Total emissions (million ton CO <sub>2</sub> -eq) 2000-2023	112.5	112.5
CO <sub>2</sub> -eq price/ton (€)	86	1,160
Total climate damage 2000-2023 (€ million)	9,675	130,500
<b>Additional climate damage costs 2023</b>	<b>421.4</b>	<b>5,684.0</b>

Source: Profundo.

In 2023, Rabobank's climate damage costs from financed **methane** emissions in Brazil increased by € 1.5 billion - € 20.1 billion (Table 10).

**Table 10 Rabobank: Climate costs from methane in Brazil, 2000-2023**

	Beef / cattle ranching	Meat processors	Total - Low	Total - High
Total GHG CO <sub>2</sub> -eq GWP 20 (mln ton) 2000-2023	146.6	18.8	165.4	165.4
CO <sub>2</sub> -eq price/ton (€)			86	1,160
Total climate damage 2000-2023 (€ million)			14,225	191,867
Total climate damage 2000-2022 (€ million)			12,736	171,794
<b>New/additional in 2023 (€ million)</b>			<b>1,488</b>	<b>20,074</b>

Source: Profundo.

## 2.2 Biodiversity damage

The total biodiversity loss can be calculated based on Table 6 and Table 7 which calculated the size of deforestation in Brazil linked to Rabobank's Dutch and Brazilian loan and underwriting activities. Again, the same damage values per hectare as in the Base Report were applied. In 2023, € 1.2 billion in biodiversity damage occurred through Rabobank financing (Table 11). If no restoration takes place and the biodiversity is harmed 'into eternity', this leads to € 6.3 billion damage 'into eternity' on top of the € 143 billion calculated last year. Consider that all these values are based on ecosystem services and that the intrinsic value of nature cannot be calculated.

**Table 11 Rabobank: Biodiversity damage in Brazil, 2000-2023**

Item	Factor	Area	Value
Biodiversity loss (ha) 2000-2022	A	434,224	
New biodiversity loss 2023 (ha)	B	19,264	
Biodiversity loss (ha) 2000-2023	$C = A + B$	453,488	
Biodiversity value per hectare per year (€)*	D		5,328
Biodiversity damage during 23 years (€ mln)	Base Report		53,212
Biodiversity damage during 24 years (€ mln)	$E = C \times D$		55,572
Adjustment factor (building up from zero to 100%)	F		0.5
<b>Biodiversity damage (€ mln) - Low scenario</b>	$G = E \times F$		<b>27,786</b>
Biodiversity damage 2023 into eternity (DCF-based, 2% discount rate)	H		121,292
<b>Total biodiversity damage (€ mln) 2000-2023 - High scenario</b>	$I = G + H$		<b>149,079</b>
Total biodiversity damage (€ mln) 2000-2022 - High scenario	J = Base Report		142,746
<b>New damage created in 2023</b>			
<b>Damage in 2023 (€ mln)</b>	$K = G - \text{Base Report}$		<b>1,180</b>
<b>New damage into eternity created in 2023 (€ mln)</b>	$L = I - J$		<b>6,333</b>

Source: Profundo; \*) ecosystem services-based, excluding intrinsic value of nature.

## 2.3 Health impacts

### 2.3.1 Air pollution from deforestation – the damage

Deforestation emissions have increased by 4.9 million tons of CO<sub>2e</sub> per year. The Base Report links these to health costs from burning-based small particle air pollution.

These costs increased further by € 789 million—€ 883 million in 2023, to a total range of € 18.1 billion—€ 20.3 billion for the period 2000-2023 (Table 12).

**Table 12 Rabobank: Health costs due to air pollution 2000-2023**

€ million	Factor	Low	High
Disability years 2015 (million)	A	103	103
Costs from study 2020, per year in €	B	64,066	71,640
Total costs	$C = A \times B$	6,605,185	7,386,102
Global CO <sub>2</sub> -eq emissions (bln ton) 2018	D	41.0	41.0
Rabobank's 2000-2022 contribution (mln ton)	E	107.6	107.6
New 2023 (mln ton CO <sub>2</sub> -eq) by Rabobank	F	4.9	4.9
Rabobank's 2000-2023 contribution (mln ton)	$G = E + F$	112.5	112.5
% of Rabobank 2000-23 relative to global 2018	$H = G/D$	0.27%	0.27%
Rabobank's health cost/damage 2000-2023	I	18,120	20,262
Rabobank's health cost/damage 2000-2022	J	17,330	19,379
<b>New damage 2023</b>	<b><math>K = I - J</math></b>	<b>789</b>	<b>883</b>

Source: Profundo, based on Birnbaum, H.G., Carley, C.D., Desai, U., Ou, S. and P.R. Zuckerman (2020, December), "Measuring the impact of air pollution on health care costs", *Health Affairs*, Vol. 39(12); Cohen, A.J., M. Brauer, R. Burnett et al. (2017, 10 April), "Estimates and 25-year trends of the global burden of disease attributable to ambient air pollution: an analysis of data from the Global Burden of Diseases Study 2015", *The Lancet*, 389: 1907–1918.

### 2.3.2 Pesticides and occupational health diseases and water quality – the damage

In 2023, the health costs related to the use of pesticides linked to soybean farming financed by Rabobank increased by € 6.7 million to € 106 million (Table 13). It should be considered that this is only a part of all health care costs related to the use of pesticides, i.e. occupational health care costs and water treatment costs. The damage of the use of pesticides related to a decline in pollinators and less healthy fruit, for instance, has not been taken into account.



**Table 13 Rabobank: Health and water treatment costs from pesticides**

	2021	2000-2022/2023
Global number/costs of treatment of occupational diseases (US\$ million)	1,400	
Global costs of treatment of drinking water (US\$ million)	4,600	
Total (US\$ million)	6,000	
Total (€ million)	5,263	
Soybean production's share as % of global use of HHPs (Highly Hazardous Pesticides)	26%	
Brazilian as % of global HHPs	34%	
Health care + water treatment costs related to Brazilian soybean's HHPs use	465	
Rural program's share in financing farmers in Brazil	37%	
Rabobank's share in rural programs, including soy	2.1%	
Rabobank's costs (€ million)	3.6	
<b>2000-2023</b>		
Rabobank: 2021 soy financing as % of total Rabobank's soy financing 2000-2023		3.4%
Multiplier from 2021 to total (x) 2000-2023		29.2
Total externalised cost Rabobank 2000-2023		105.6
<b>2000-2022</b>		
Rabobank: 2021 soy financing as % of total Rabobank's soy financing 2000-2022		3.7%
Multiplier from 2021 to total (x) 2000-2022		27.4
Total externalised cost Rabobank 2000-2022		98.9
<b>New externalized costs in 2023</b>		<b>6.7</b>

Source: Profundo.

## 2.4 Summary of total damage

In 2023, Rabobank generated an estimated € 3.9 billion (low-end scenario) to €33 billion (high-end scenario) additional damages in Brazil linked to its Dutch and Brazilian financing activities (Table 14). For the whole period 2000-2023, the total estimated damage was between € 69.9 billion and € 491.8 billion.

**Table 14 Environmental and social damage by Rabobank in 2000-2022\***

	<b>2000-2022</b>		<b>New 2023</b>		<b>2000-2023</b>	
	Damage - Low	Damage - High	Damage - Low	Damage - High	Damage - Low	Damage - High
<b>Climate damage</b>						
Climate damage (CO <sub>2</sub> e mln tons), deforestation	108	108	5	5	113	113
Costs per ton (€)	86	1,160			86	1,160
Climate damage (€ mln), deforestation	9,254	124,816	421	5,684	9,675	130,500
Climate damage (CO <sub>2</sub> e mln tons), beef/cattle ranching – methane	148	148	17	17	165	165
Costs per ton (€)	86	1,160			86	1,160
Climate damage (€ mln), beef/cattle ranching – methane	12,736	171,794	1,488	20,074	14,225	191,867
Total climate damage 2000-2023 (€ million)	21,990	296,610	1,910	25,758	23,900	322,367
<b>Biodiversity</b>						
Biodiversity (hectares)	434,224	434,224	19,264	19,264	453,488	453,488
Biodiversity damage (€ mln)	26,606	142,746	1,180	6,333	27,786	149,079
<b>Health damage</b>						
Air pollution (€ mln)	17,330	19,379	789	883	18,120	20,262
Pesticides (€ mln)	99	99	7	7	106	106
Other social/socio-economic impact (€ mln)	Na	Na			Na	Na
Total health + other social damage (€ mln)	17,429	19,478	796	889	18,225	20,367
<b>Total damage (€ mln)</b>	<b>66,025</b>	<b>458,834</b>	<b>3,886</b>	<b>32,980</b>	<b>69,911</b>	<b>491,813</b>

Source: Profundo; \*) Brazilian damage, through financing forest-risk activities in Brazil and indirectly through soy-sourcing sectors in the Netherlands.

## 2.5 Damage assigned to the Rabobank

In the three crucial supply chains (Dutch soy-sourcing, Brazilian soy, Brazilian beef) that Rabobank is financing, more companies from other sectors are active and are therefore accountable for the damage linked to Rabobank's financing. These companies include farmers, meat processors, animal feed companies, and downstream companies.

The methodology for calculating the accountability of the various levels in the supply chain has been developed in the report Rabobank's share in the Brazilian bill (2023).<sup>6</sup> This includes the weighting of the 'awareness' of the various stakeholders in the three supply chains about their damage contribution. The report calculated that Rabobank's share or accountability in the

environmental and social damage in Brazil linked to its financing of Brazilian soy-sourcing activities in the Netherlands and its direct financing of Brazilian forest-risk activities was € 9.5 billion - € 61 billion.

In 2023, € 515 million (or 5.5%) were added to the low-end scenario of this accountability bill's range, leading to a total of € 10.0 billion for the 24-year period 2000-2023. The high-end increased by € 3.8 billion (or 6.2%) in 2023 to a total of € 65.0 billion for 2000-2023.

**Table 15 Summary of share of damage for Rabobank (awareness scenario)**

€ million	Dutch chain	Brazil soy	Brazil beef	Total	% increase through 2023
<b>2000-2023</b>					
<b>Total damage linked to Rabobank's financing</b>				491,813	
Low scenario	5,871	21,975	42,066	69,911	
High scenario	31,576	118,138	342,099	491,813	
<b>Weighted damage assigned to Rabobank</b>					
Low scenario	818	5,022	4,130	9,970	
High scenario	4,400	26,998	33,591	64,989	
<b>2000-2022</b>					
<b>Total damage linked to Rabobank's financing</b>					
Low scenario	5,630	21,022	39,374	66,025	
High scenario	30,277	113,027	317,484	460,788	
<b>Weighted damage assigned to Rabobank</b>					
Low scenario	784	4,804	3,866	9,455	
High scenario	4,219	25,830	31,174	61,223	
<b>2023 New/additional</b>					
<b>Total damage linked to Rabobank's financing</b>					
Low scenario	241	953	2,692	3,886	5.9%
High scenario	1,299	5,111	24,616	31,025	6.7%
<b>Weighted damage assigned to Rabobank</b>					
Low scenario	34	218	264	515	5.5%
High scenario	181	1,168	2,417	3,766	6.2%

## References

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