

Nitrogen Deposition

Iploca Webinar

New Instructions i.r.t. permitting (Flanders)

Understanding today.
Improving tomorrow.



Gert Pauwels, Accountmanager EIA Antea Belgium nv
Jan Parys, Managing Director Antea Belgium nv
17-06-2021



Nitrogen deposition issues

2



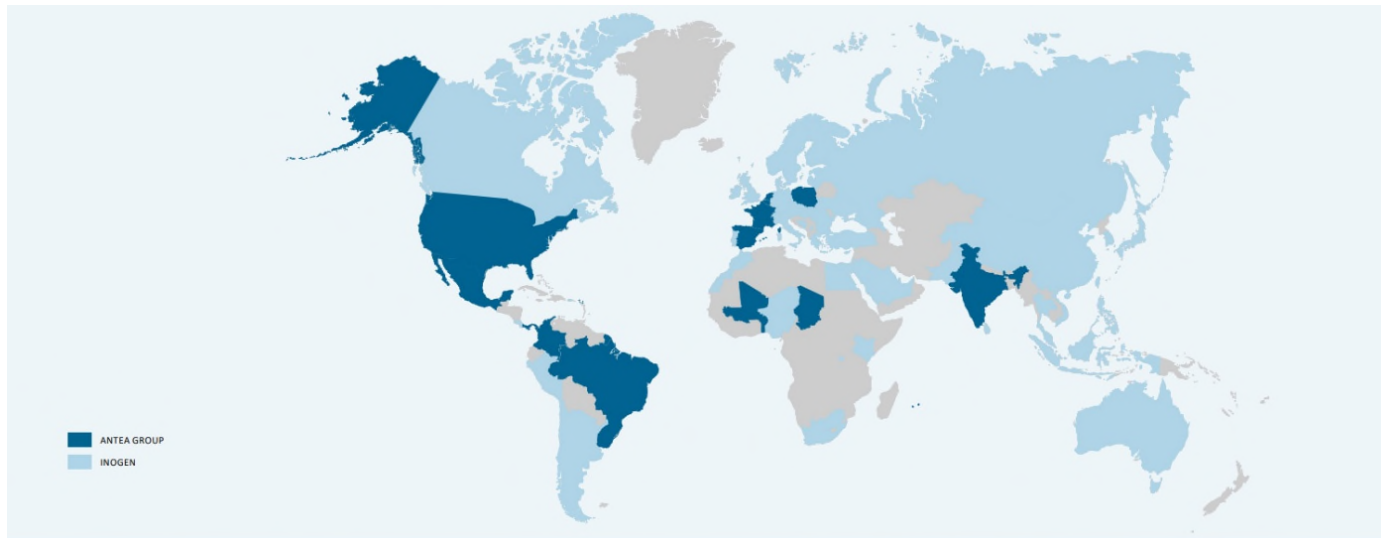
Agenda

- Introduction
- N deposition Issues in the Flanders Region
 - Recent Issues
 - Permitting
 - Future : what's next

About us

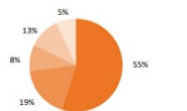
Antea Group worldwide

Antea Group is an international consultancy and engineering company, specialised in full-service solutions for infrastructure, environment, spatial planning and water.

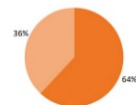


TOTAL REVENUE

2019 € 447 M
2018 € 424 M



- ENVIRONMENT 55% (2018: 54%)
- INFRASTRUCTURE 19% (2018: 19%)
- URBAN PLANNING 8% (2018: 9%)
- WATER 13% (2018: 13%)
- OTHER 5% (2018: 5%)



- PRIVATE 64% (2018: 60%)
- PUBLIC 36% (2018: 40%)

EMPLOYEES WORLDWIDE ANTEA GROUP (HC)

	2019	2018
TOTAL	3,267	3,213
NL	1,481	1,487
FR	855	837
USA	399	384
BE	202	207
SP & LA	100	100
POL	89	-
IND	116	173
BRA	25	25

Inogen ENVIRONMENTAL ALLIANCE
Global Thinking, Local Delivery
Antea Group is a founding partner of the Inogen Alliance, a global network of consultancies with:

- Over 5,000 staff worldwide
- 280 offices worldwide
- Projects completed in over 150 countries



About us

Inogen Alliance

Antea Group is the founding partner of the **Inogen environmental Alliance**, a global network of 5,000 consultants and projects in 150 countries.

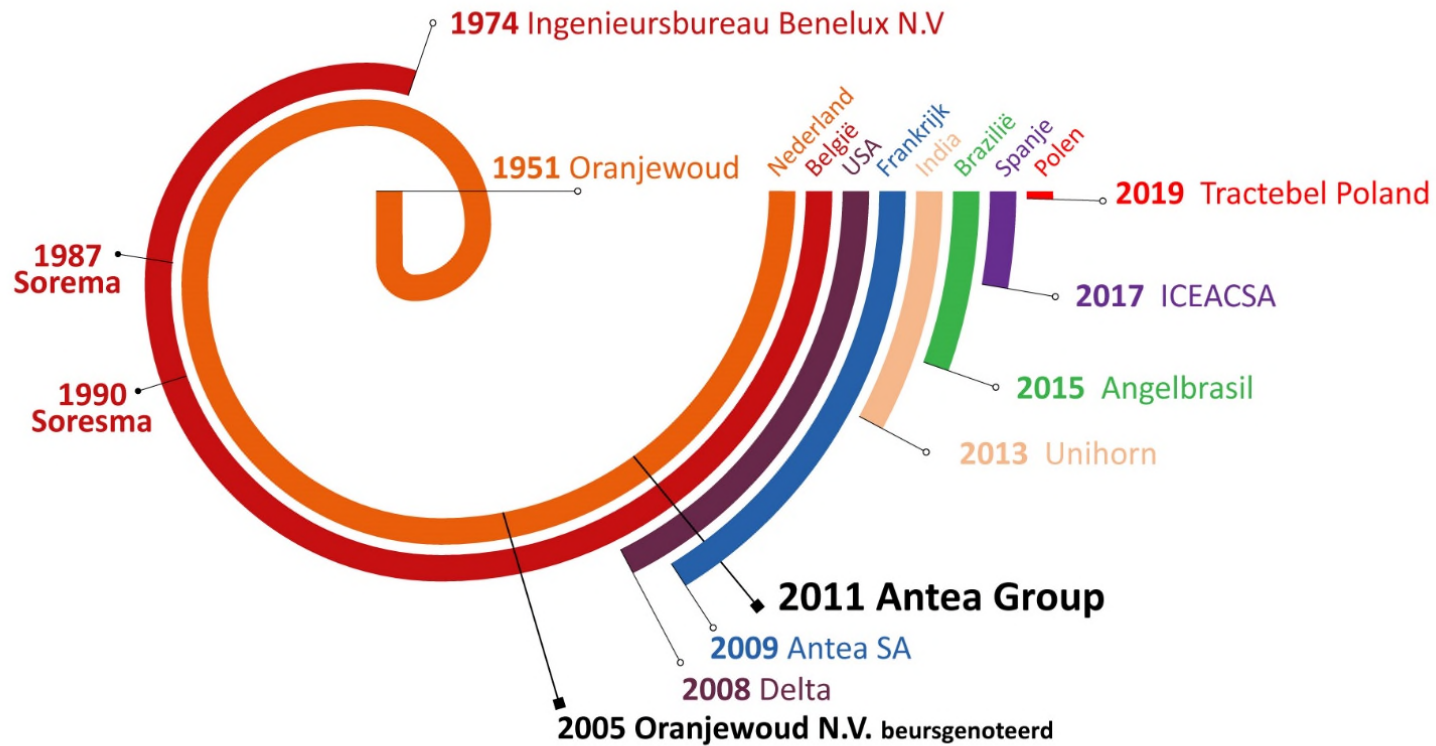
Inogen provides consistent, high quality and cost effective **environmental** and **health and safety** , solutions to multinationals.

The network assists its multinational clients by resolving liabilities from the past, addressing today's requirements and delivering **solutions** for the future.



About us

History



About us



Antea Group Belgium

- 1951** Start of Oranjewoud NV (Bosma brothers) Herenveen, NL
- 1974** Opening first Belgian office
- 1990-...** Growth into the Belgian market
- Now** Antea Belgium nv



Our 250 colleagues are driven by the **complex questions** of today and tomorrow, in order to build a **better future** every day.





© Aquafin

Our Purpose
We guide our clients towards relevant solutions for an ever-changing world.

Corporate Social Responsibility (external CSR)



- 2017-20** VCDO Laureate
- 2020** SDG Pioneer
- 2021** CO₂ prestation ladder

Since 2017, **Voka's Charter for Sustainable Entrepreneurship** (VCDO) helps us anchor sustainability and the **17 sustainable development goals** into our daily business operations. We already made it to the level of *SDG Pioneer*.

From 2021, we'll also invest in climate-proof entrepreneurship with the help of the **CO₂ prestation ladder certification**.

Strategy & Business: Our Domains



**Liveable
Cities**



**Smart Energy
Landscapes**



**Resilient Coasts
& Estuary**



**Climate-proof
Society**



**Sustainably
Growing Ports**

What we do: Our services

Environment



- Soil research and advice
- Ecology
- Energy
- Environmental impact and policy
- Environmental management
- Safety

Urban Planning and Mobility



- Landscape and public space: set up and management
- Environmental policy and impact assessment
- Traffic and mobility
- Regional and urban planning
- Spacial studies and advice
- Permitting

Infrastructure



- Civil construction
- Infrastructure
- Transport via cables and pipelines
- Water construction

Water



- Sediment management
- Water management
- Hydraulic engineering
- Water modelling
- Climate adaptation & mitigation



Introduction of today's webinar

11

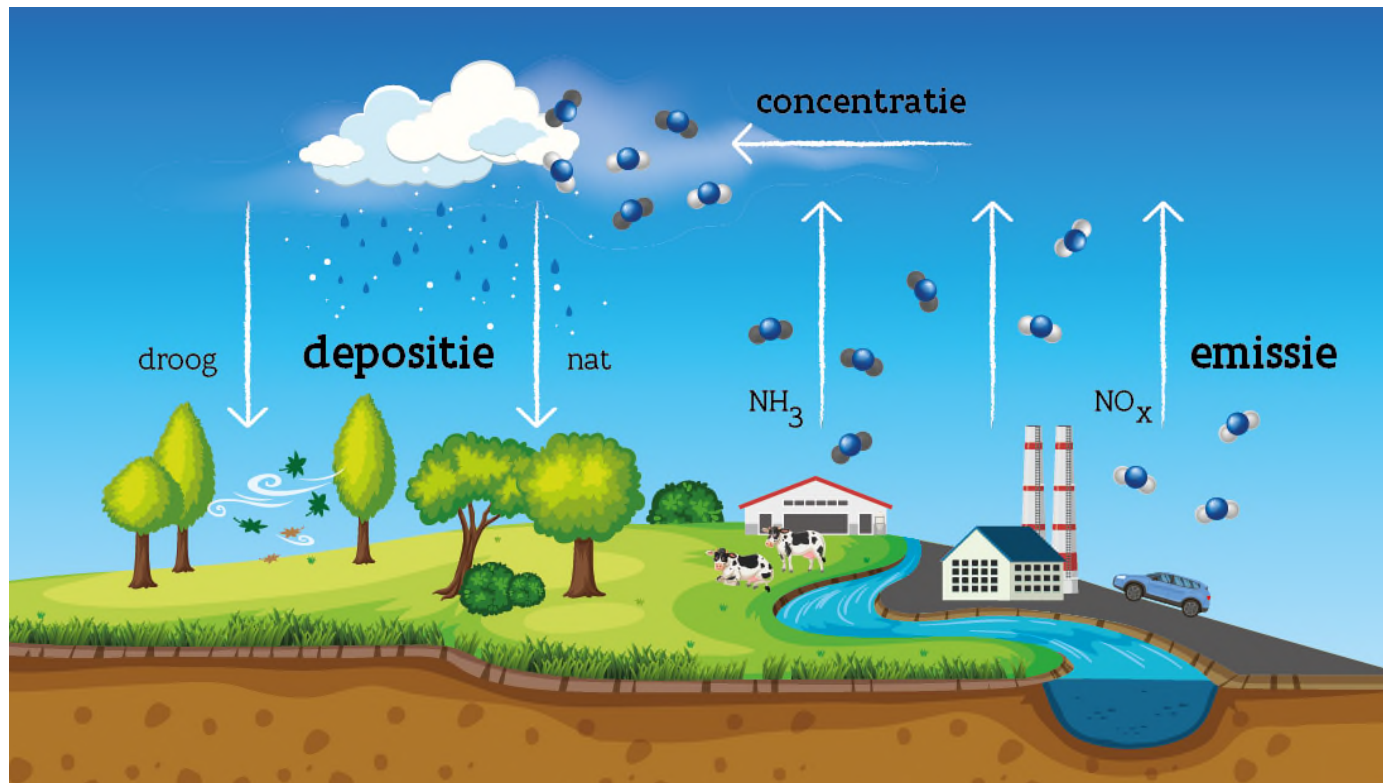
Recent attention to Nitrogen deposition in the Flanders Region (Belgium)

- Case : Permit application barn (poultry) denied
- 'Stikstofarrest' – Nitrogen Ruling (25/02/2021)
- Implications for all permit applications with nitrogen emissions
- Ministerial instruction (02/05/2021)

Nitrogen in Flanders

12

Nitrogen - Emission and deposition



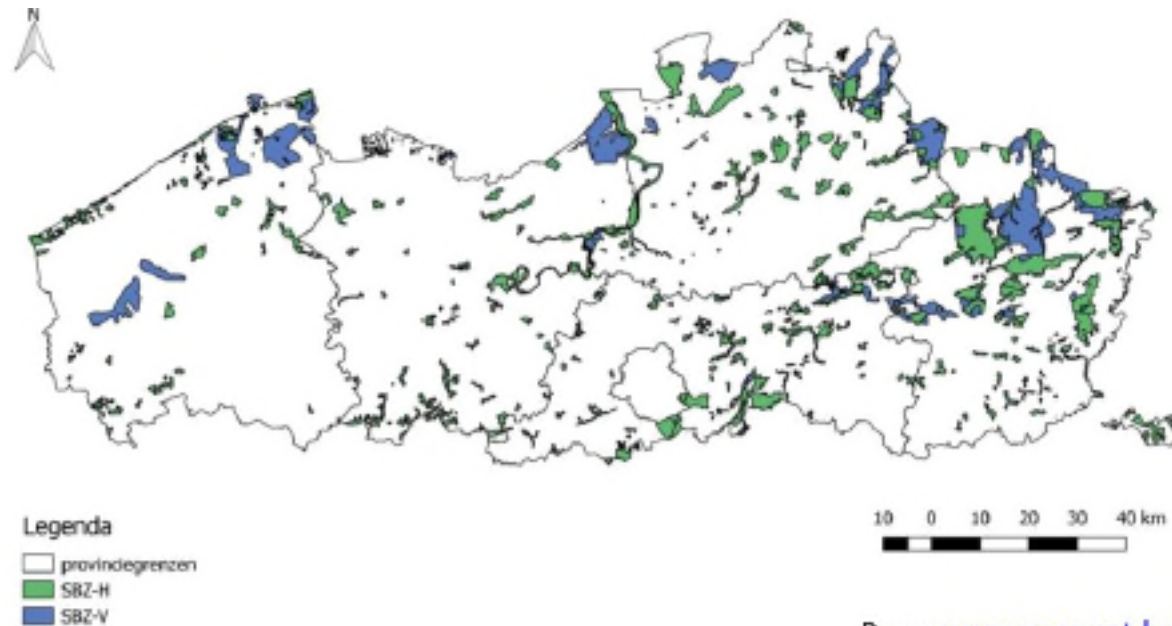
Bron: <https://natura2000.vlaanderen.be/stikstof>

Nitrogen in Flanders

13

N-deposition - impact

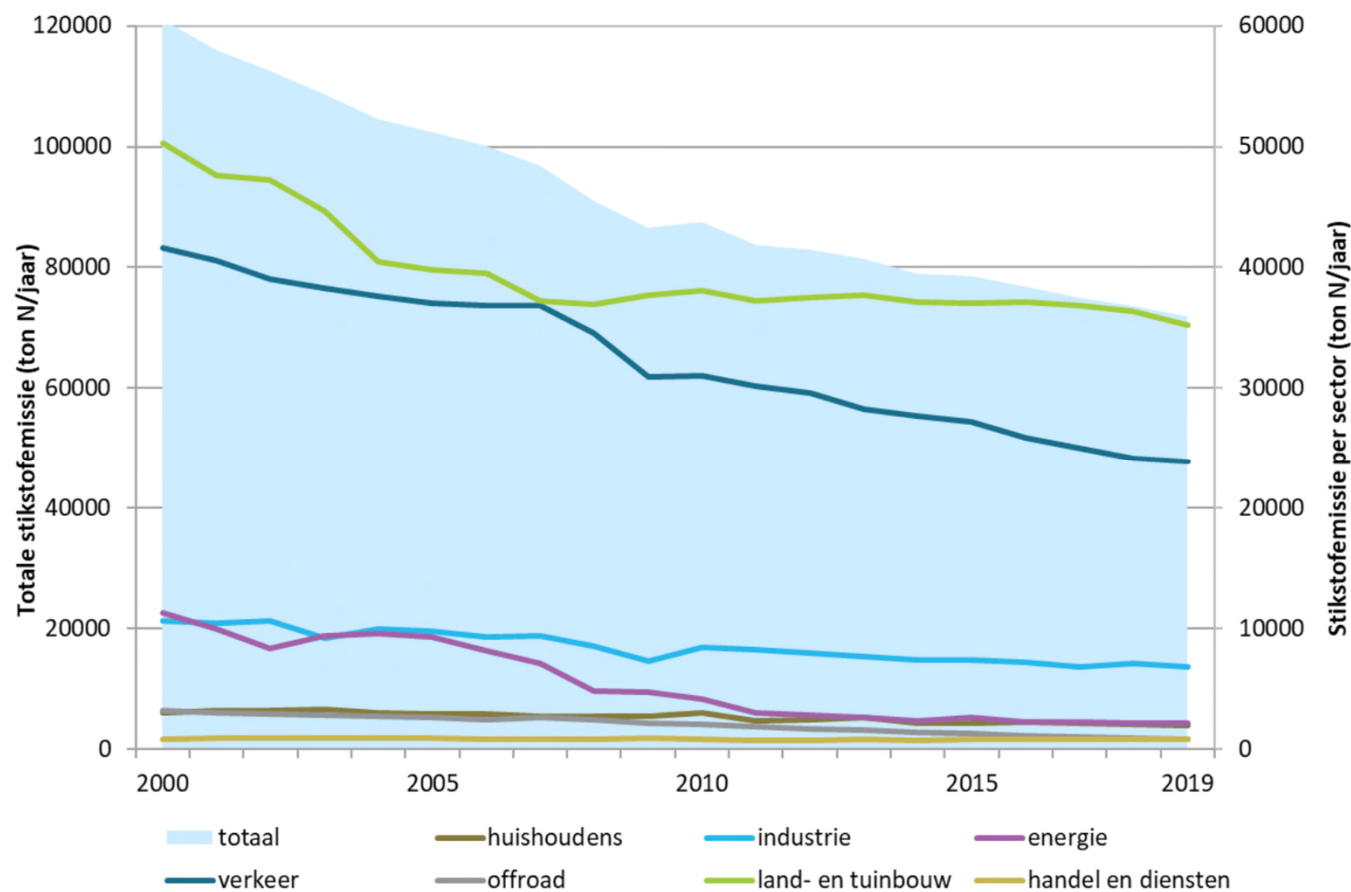
- Acidification and eutrophication → decline in biodiversity
- European protected nature - Habitat directive areas



Bron: www.geopunt.be

Stikstof in vlaanderen

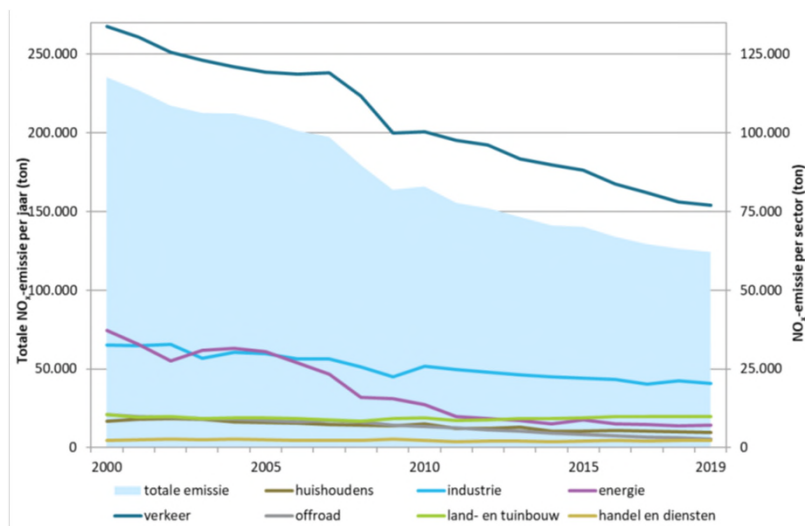
Nitrogen – Emission and deposition - evolution



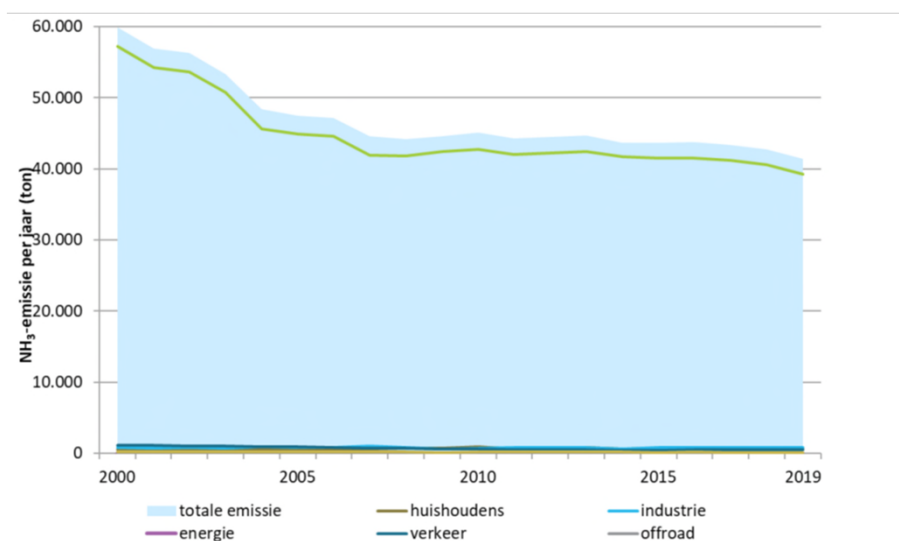
- Bron: Vlaamse Milieumaatschappij, emissie-inventaris lucht 2019

Stikstof in Vlaanderen

Nitrogen Emission and deposition – evolution NO_x and NH₃



NO_x



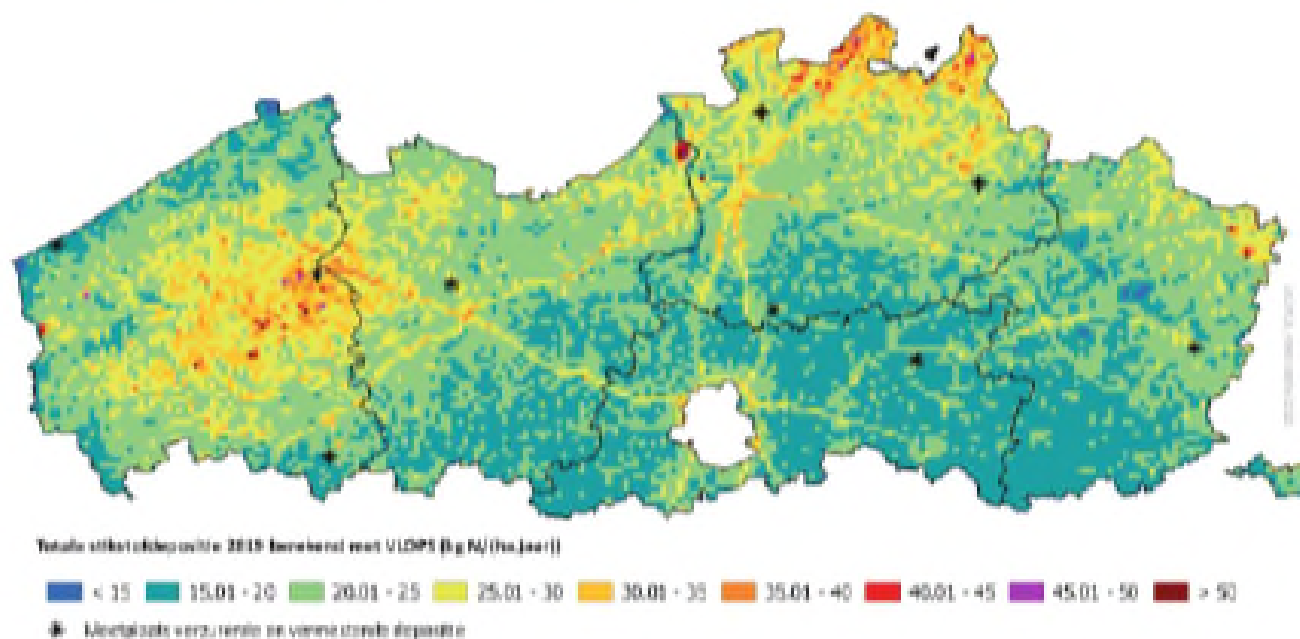
NH₃

Bron: Vlaamse Milieumaatschappij, emissie-inventaris lucht 2019

Nitrogen in Flanders

Total Nitrogen Deposition

Figuur 2.11: Gemiddelde stikstofdepositie (VLOPS20 met emissies van 2018 en meteor van 2019, txd km²)



Nitrogen in Flanders

N-deposition - Impact

Exceeding Critical Deposit Value (KDW)

overschrijding KDW (kg N/ha.jaar)

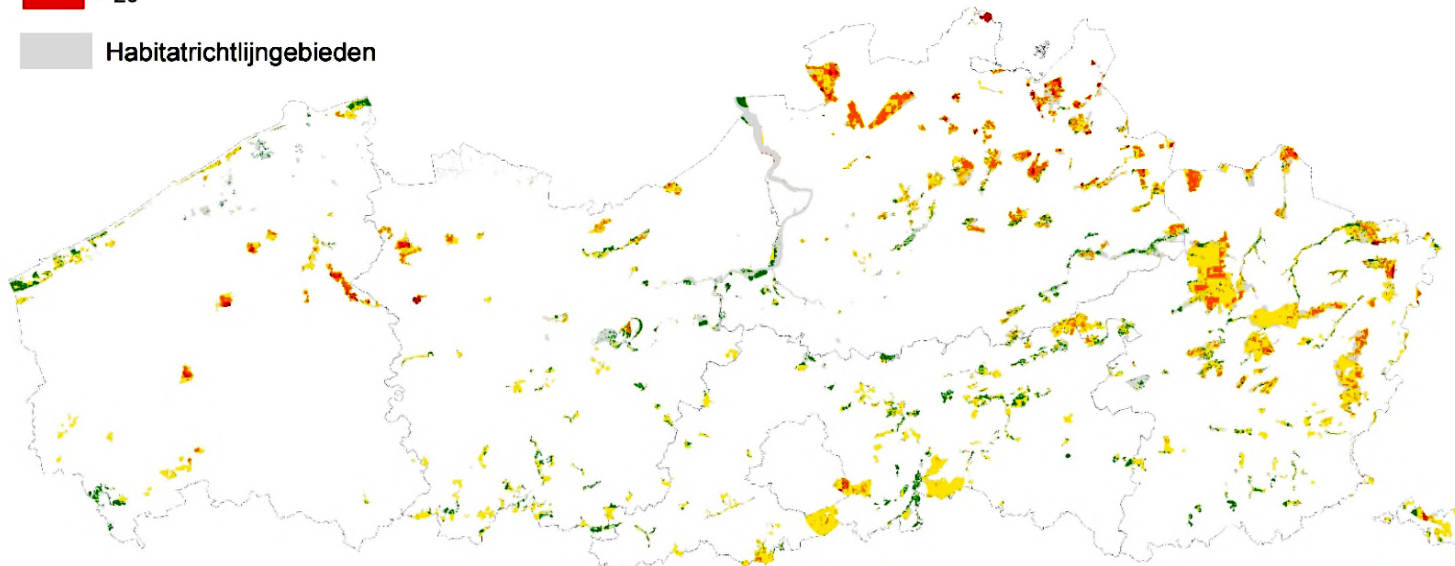
 geen overschrijding KDW

 0 - 10

 10 - 20

 > 20

 Habitatrictlijngebieden



Regulatory history

- Preliminary Programmatic Approach to Nitrogen (PAS, 2014 -2019 - ...)
- Ongoing program, various changes
- Different tools
 - practical guide, communication
 - Significance framework
 - Re-permitting or extending permit based on share of deposition compared to KDW affected habitat (%)
 - Contribution \geq 50% : No permit
 - $5\% \leq$ contribution $<$ 50% : Appropriate assessment: specific analysis of possible significant decline
 - Contribution $<$ 5%: non-significant
 - No new permits if KDW is exceeded
 - Online pre-test
- In anticipation of final PAS

'Stikstof arrest' - Nitrogen ruling 25/02/2021

Licensing disputes Council of the Flemish Region

- Significance framework:
 - Single decision based on significance framework does not suffice
 - Insufficient scientific basis

Impact on permit application

- In principle: no more permit applications can be assessed/granted
- Uncertainty about current and new permit applications
- No legal ground for permits
- Case by case scientific proof: no significant effects (appropriate assessment)
- Cumulative effects to be taken into account

Nitrogen in Flanders

Ministerial instruction 02/05/2021

Ministerial instruction dated 02/05/2021 regarding the assessment of nitrogen emissions from permit applications with potential significant effects on habitat directive areas

- Immediately applicable to permit applications
- Distinction between NH₃ and Nox
 - NH₃: no noticeable decrease
 - Assess each permit application individually
 - Avoid additional emissions
 - No increase allowed in Special Protected Areas
 - Commitment to reduction of emissions
 - NOx: noticeable reduction → new, stricter framework :
 - 5 % threshold value → 1 %

Voortoets

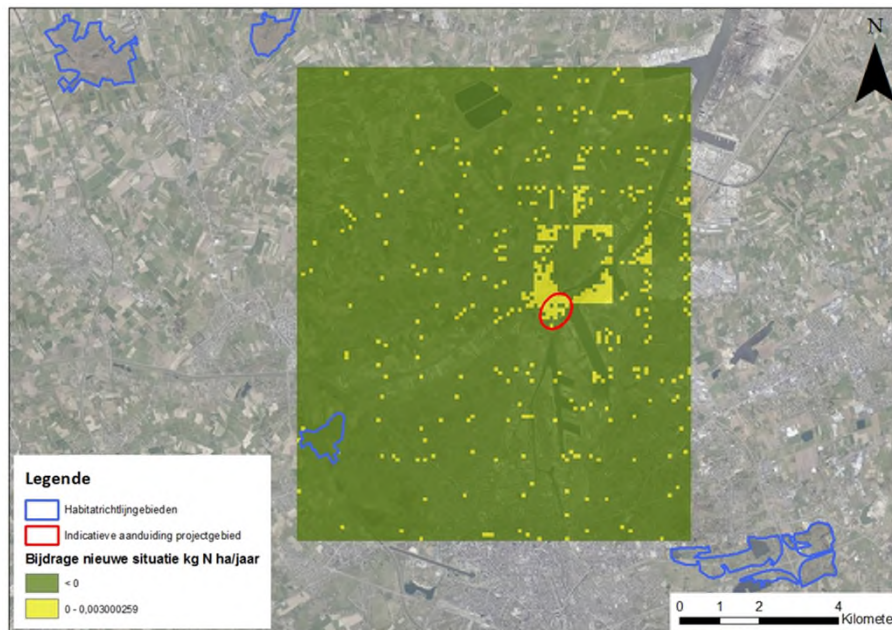
Aandeel voorziene depositie t.o.v. de KDW van de getroffen gevoelige habitat	Gevolg
Kleiner dan 1% (met een maximum van 0,3 kg/N/ha/j)	In principe geen passende beoordeling vereist
Vanaf 1%	Passende beoordeling aangewezen

Nitrogen in Flanders

21

NOx – Permit Applications - practical

- Always pre-test, always justification needed
- Permitting Nitrogen emissions (combustion plants, etc.)
 - Specific justification
 - Quantitative (modelling?)
 - Impact on nearest NAT2000 area – Special Protected Area
 - Go for restriction of N-emission



Nitrogen in Flanders

NOx – Permit Applications - practical

- Always pre-test, always justification needed
- Traffic generation when operating
 - Not explicitly mentioned in min. instruction, no activity requiring a permit
➔ uncertainty
 - Advice: always justification
 - Qualitative
 - Quantitative: compare with previous calculations
 - Specific modelling of the contribution of the project

# bewegingen	Op de weg	Vlak naast de weg (0 – 20m)	Verder dan 20m naast de weg
300	< 0,03 kg N	< 0,02 kg N	< 0,02 kg N
1.000	Max 0,08 kg N	< 0,06 kg N	< 0,06 kg N
2.000	Max 0,17 kg N	0,06 – 0,1 kg N	< 0,06 kg N
3.000	Max 0,25 kg N	Verder te onderzoeken	Verder te onderzoeken

- Source: Antea Group

NOx – Permit application – practical

- Construction phase
 - Not explicitly stated → uncertainty
 - Advice
 - Construction traffic: also justification needed
 - Qualitative
 - Quantitative: compare with previous model results
 - Construction site equipment and machines: idem
- Comparison with the Netherlands
 - Calculation/modelling N-deposition for each piece of equipment used
 - Measures
 - Electrification
 - Stage V – equipment (European regulation)
 - Balancing N-deposition (buying out)

Nitrogen in Flanders

Future

- Adjusting permit applications w.r.t. remarks authorities
- Urgent new final PAS
- Two-stage objective:
 - by 2030 reduce exceedances by 50% compared to 2015
 - favorable situation by 2050
- Starting points:
 - Emission reduction / Recovery management / Legal certainty / Effective and (cost-)efficient / accompanying policy
- When will this happen? End of 2021 ?



Nitrogen in Flanders

25

Questions



Thanks for your attention



Sources

27



- <https://natura2000.vlaanderen.be/stikstof>
- Webinar Adhemar Law
'programmatorische aanpak stikstof' 29/03/2021
<https://www.youtube.com/watch?v=VwhQlgt1St4>
- Studiedag 'VVOR-Inzichten: Vlaanderen en stikstof'
07/05/2021
 - Stikstofdepositie in Vlaanderen – Wouter Lefebvre, VITO
 - Vlaamse Aanpak Stikstof – Katrien Cooman, Vlaamse overheid