

Website  
[no3impactfund.com](http://no3impactfund.com)

**NO3**   
IMPACT FUND



un



WASSER FÜR ALLE,  
ALLE FÜR WASSER

TRINK  
WASSER  
MENSCHEN  
RECHT



# Agenda

## 01

### The Problem

RP & Germany

EU Comparison

Health Risks

Stakeholder Costs

## 02

### The Solution

Fund Structure

Investments

Unit Economics

J-Curve

## 03

### Additional Information

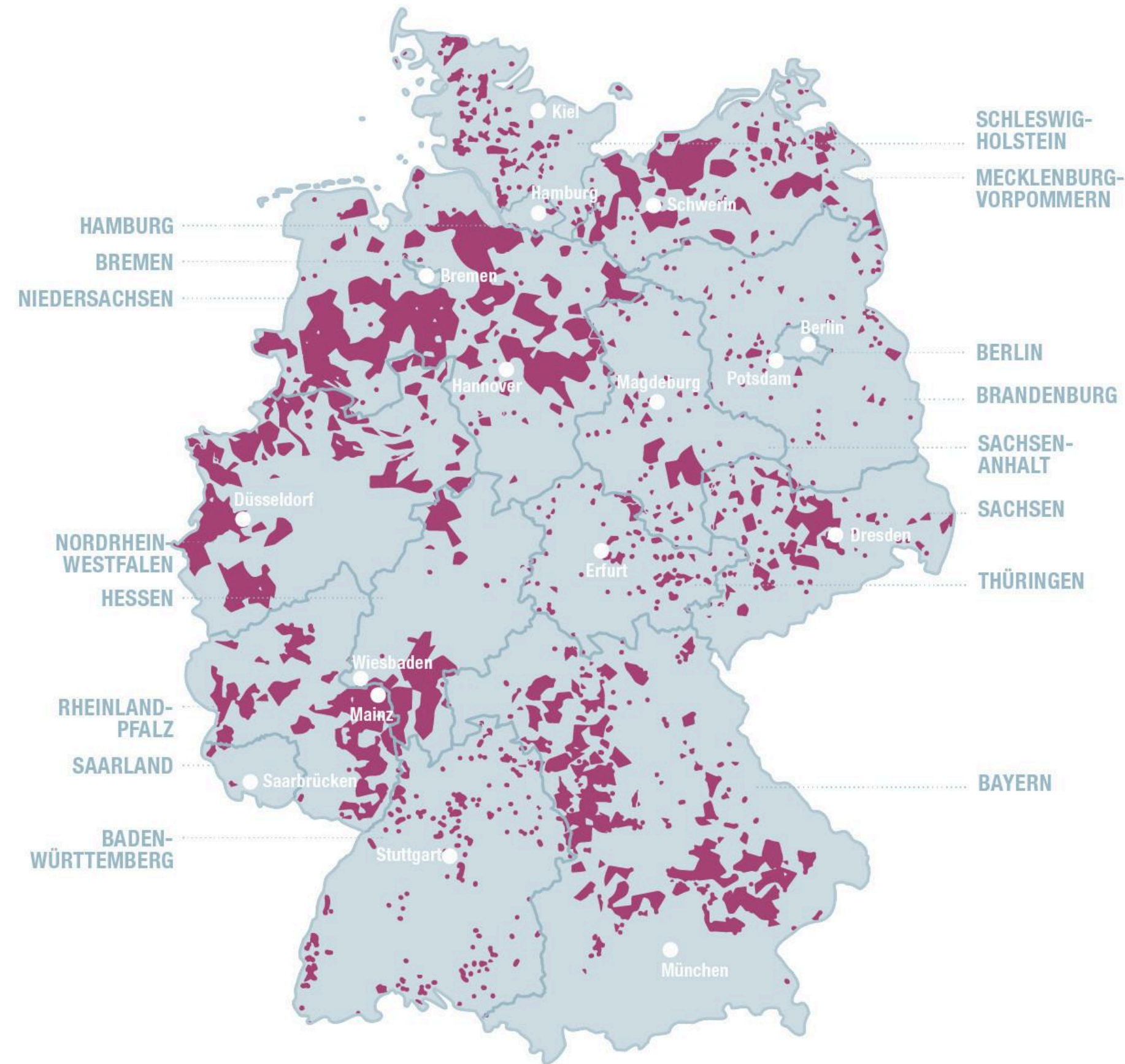
Investors

Risk & Mitigation

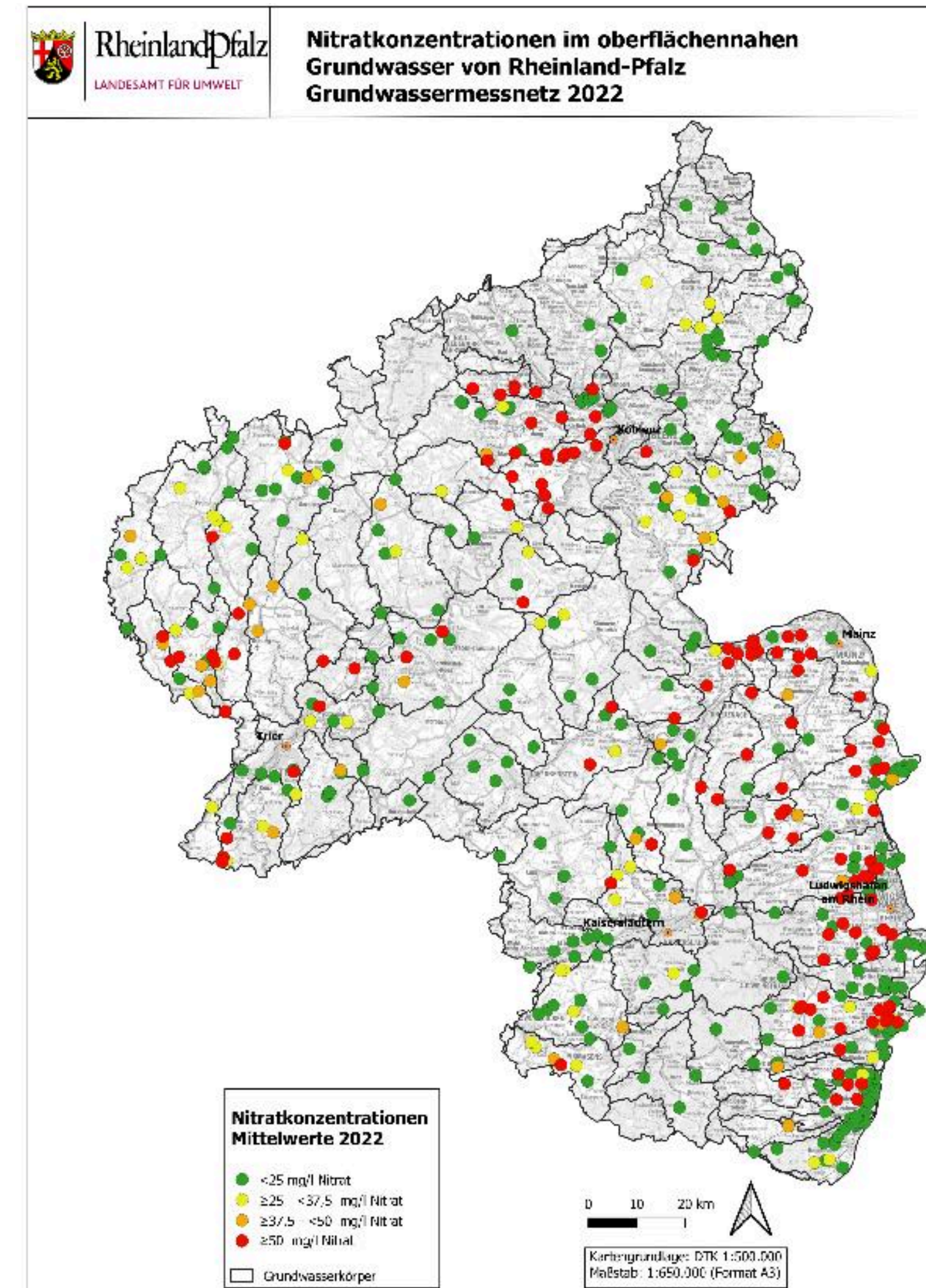
Scaleability

## The Problem

# Nitrate pollution of the groundwater

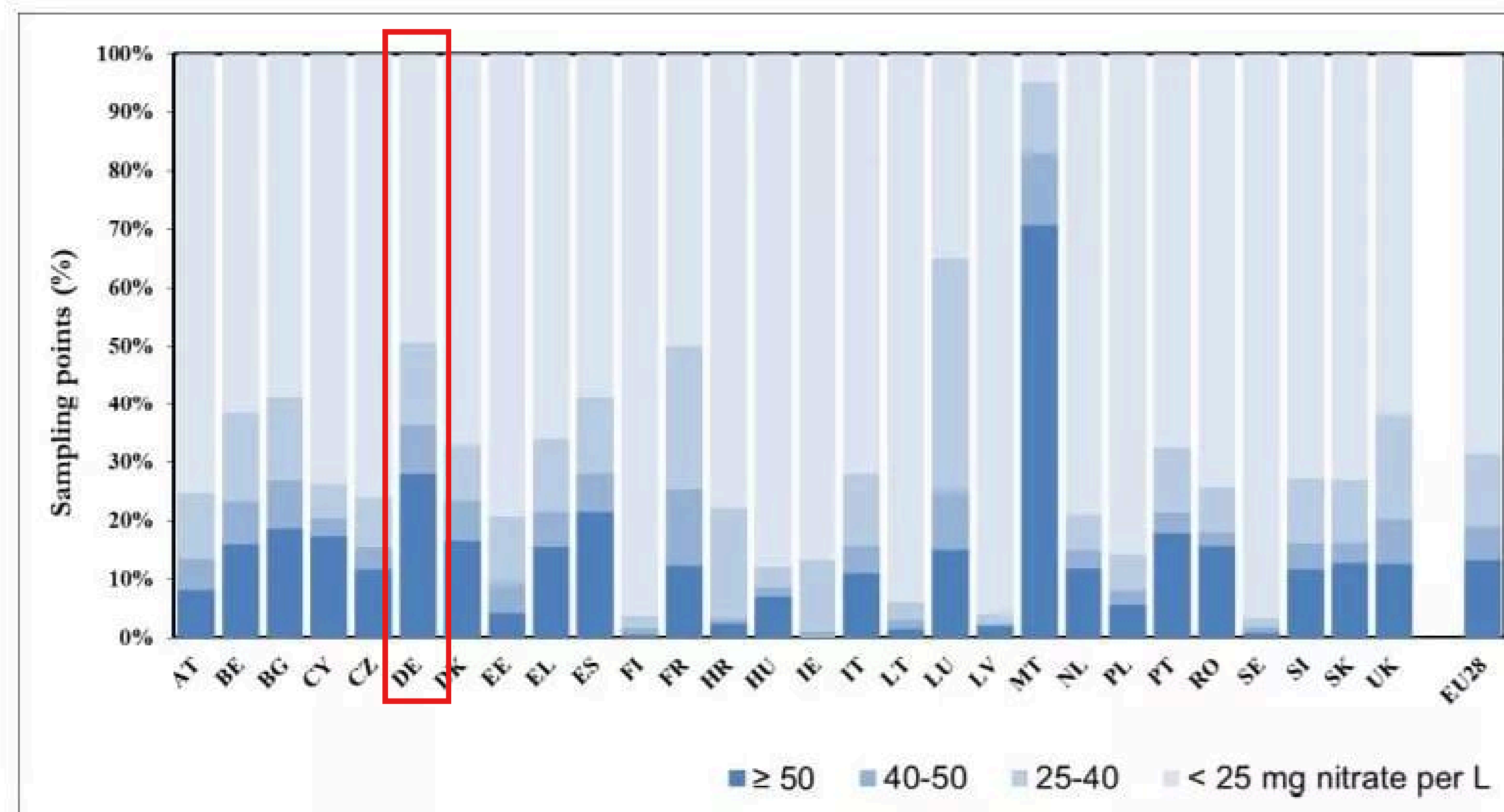


DVGW-Grafik; Quelle: Umweltbundesamt/Nitratbericht 2024



## The Problem

# Germany has breached EU law by exceeding the limits of nitrate in groundwater



*Figure A. Frequency diagram of annual average nitrate concentrations in groundwater<sup>27</sup>. Results are presented for all groundwater stations at different depths.*

## The Problem

# Nitrate contamination is a persistent EU public-health and water-cost problem

**50 mg/L**

EU legal nitrate limit for drinking & groundwater

EU Drinking Water Directive

**14.1%**

EU groundwater stations exceeding the limit (2016–19)

EEA Nitrates Directive reporting

**21 mg/L**

Average EU groundwater nitrate — unchanged since 2000

EEA Groundwater Quality 2022

**80%**

Nitrogen discharge from agriculture (EEA)

European Environment Agency

**€6.1bn**

Annual EU drinking water cost from nitrogen leaching

Water sector EU estimate



**Infants at highest risk**

### Methemoglobinemia (Blue Baby Syndrome)

Infants are most vulnerable. Nitrate above 10 mg/L in drinking water impairs blood oxygen transport. EU health authorities directly link this to elevated nitrate exposure in early life.

**EU limit set specifically to protect infants**



**+3% colon cancer incidence**

### Cancer Risk

EU peer-reviewed studies link long-term exposure above 25 mg/L to a 3% increase in colon cancer incidence — representing a population-averaged health loss of €2.9 per capita in affected regions. (Schullehner et al., 2018)

**Risk doubles above 25 mg/L long-term**



**€13.8bn/yr total EU burden**

### Billions in Annual Water Treatment Costs

Nitrate pollution drives €6.1bn/year in EU drinking water costs and €7.7bn/year for surface water treatment — costs that fall on utilities, governments, and ultimately consumers across Europe.

**Prevention saves far more than remediation**

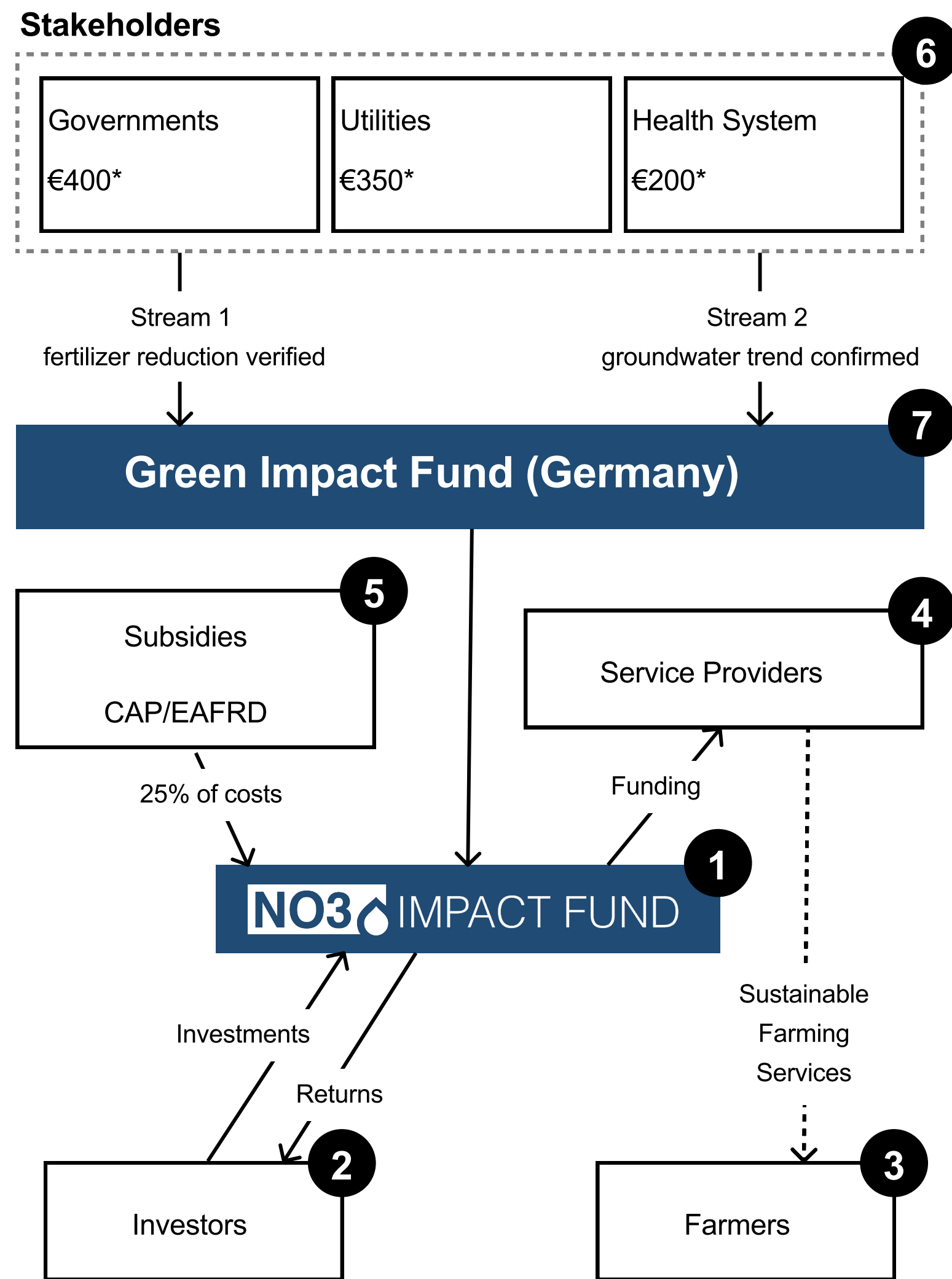
## The Problem

# Nitrate costs stakeholders billions

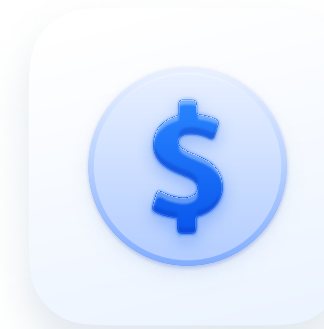
STAKEHOLDER	CURRENT ANNUAL COST	→	WITH NO3 FUND	ANNUAL SAVING	Rhineland-Palatinate
<b>Health Systems</b> GKV / statutory health insurers	<b>~€2.9bn</b> nitrate-linked healthcare costs (EU est.)	→	<b>~€2.45bn</b> 15% reduction via prevention & early intervention	↓ <b>~€450M / yr</b> saved for health system	<b>~€6M/yr</b> annual savings → <b>€2M/yr</b> (outcome payments)
<b>Water Utilities</b> Drinking water & surface water operators	<b>~€3.8bn</b> drinking + surface water treatment (EU)	→	<b>~€2.3bn</b> 40% cost reduction via source prevention	↓ <b>~€1.5bn / yr</b> saved for water utilities	<b>~€5M/yr</b> annual savings → <b>€3.5M/yr</b> (outcome payments)
<b>Government</b> Federal & state	<b>~€2bn</b> EU fines + remediation + compliance cost	→	<b>Fines avoided entirely</b>	↓ <b>~€500m+ / yr</b> fines + remediation avoided	<b>~€10M/yr</b> annual savings → <b>€4M/yr</b> (outcome payments)
<b>Combined stakeholder cost burden</b>	<b>~€8.7bn</b> total EU nitrate cost burden	→	<b>~€6.3bn</b> projected with full fund deployment	↓ <b>~€2.4 / yr</b> total annual savings unlocked	<b>~€21M/yr</b> annual savings → <b>€9.5M/yr</b> (outcome payments)

## The Solution

# The NO3 Impact Fund



\*per ton of verified nitrate reduction in the groundwater



## Outcome-Based Returns

~11% net IRR generated exclusively from verified outcome payments.



## Multi-Payer Model

Three independent payer streams each compensating based on verified environmental outcomes



## Scalable Across Europe

Validated in Rhineland-Palatinate, replicable across Germany and the EU using standardized contracts

# Where does your investment go?

01



## Precision Farming Equipment

Variable-rate fertilizer applicators, GPS-guided field systems, and smart spreaders deployed across participating farms at zero cost to farmers.

**50%**

fertilizer reduction target

02



## Digital Soil & Monitoring Systems

Real-time soil sensors, drone-assisted field mapping, and IoT data platforms that continuously track nutrient levels and application rates.

**24/7**

field data collection

03



## Verification & Outcome Data

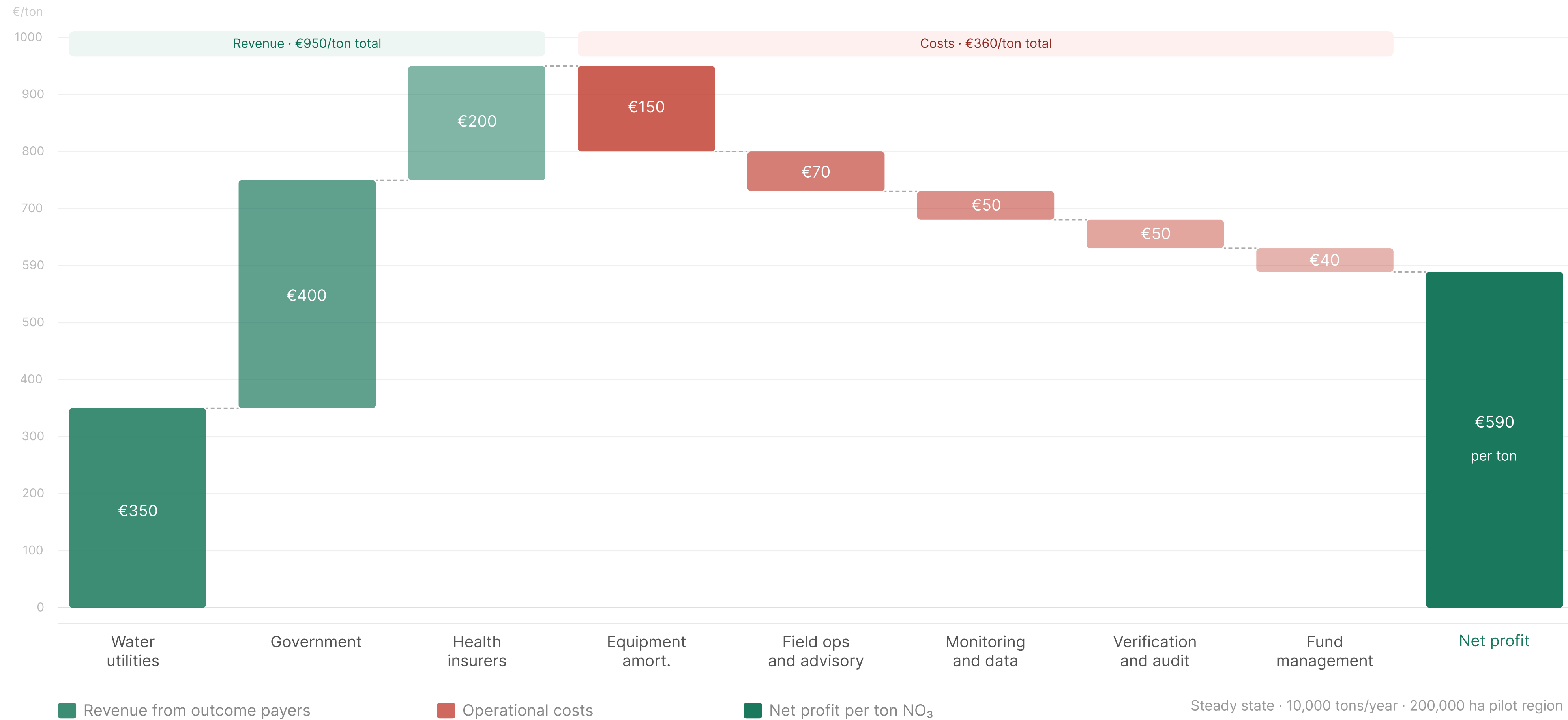
Independent measurement infrastructure for groundwater testing, ISO 14064-standard audits, and digital reporting that unlocks outcome payments.

**75%**

payment tied to verified  
NO<sub>3</sub> decline

## The Solution

# Unit Economics (Waterfall)



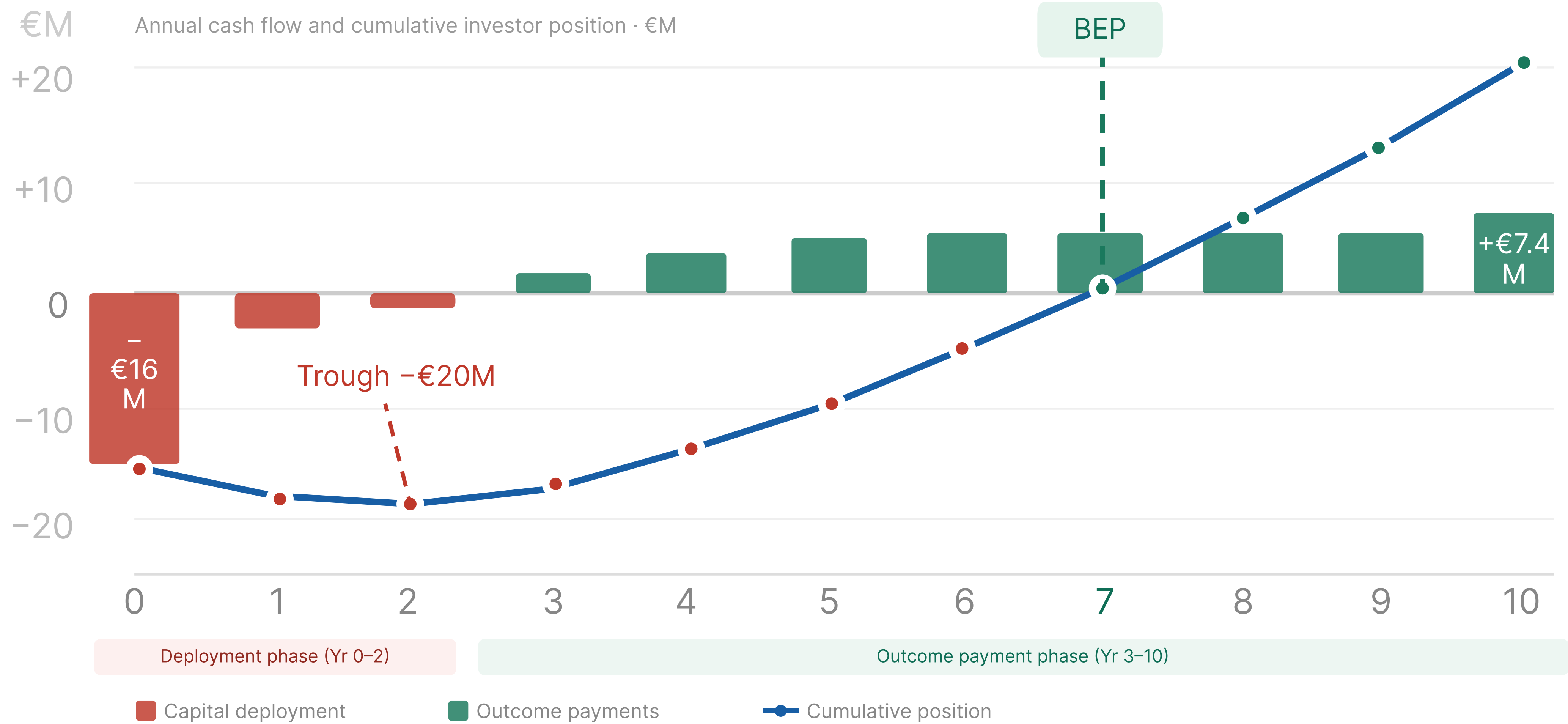
# The Solution

## J-Curve - NO3 Impact Fund

FUND SIZE  
€20M

TARGET IRR  
~11%

BREAKEVEN  
Year 7



## Additional Information

# Investors

### Development Finance Institutions



KfW Capital · EIF · DEG

Mandated to crowd in private capital for environmental transition. EAFRD co-financing fits directly into DFI mandate. Natural anchor LP or first-loss provider.

Ticket  
€3-5M

Anchor LP / first-loss

### Foundations with PRI/MRI mandates



Bosch Stiftung · Stiftung Mercator · DBU

Program-Related Investments allow endowment deployment into impact vehicles. At 11% net IRR, this fund exceeds typical PRI hurdles while delivering verified SDG 6 impact.

Ticket  
€1-3M

Impact-first LP

### Insurance Companies



Allianz · Munich Re · AXA

CSRD and SFDR Art. 9 mandates require documented impact allocations. ISO 14064-aligned verification and SDG reporting make this a clean compliant allocation.

Ticket  
€2-4M

SFDR Art. 9 allocation

### Family Offices



Agrar Focus & Impact First

Ag-focused family offices gain a regulatory hedge as nitrate rules tighten across Germany. Impact-first family offices find strong values alignment with water and agricultural sustainability.

Ticket  
€0.5-2M

Strategic / values-aligned

### Total Fund Size

€20M  
Pilot Fund

#### Indicative allocation

DFIs €5M  
Foundations €4M  
Insurance €5M  
Ag land €3M  
Family offices €3M

A proof-of-scale pilot establishing the foundation for further expansion.

## Additional Information

# Risk & Mitigation

### Impact and measurement risks



#### Measurement lag

5–15 year soil travel time delays groundwater verification



#### External attribution

Rain, upstream farms, and industry affect groundwater

#### Stream 1 decoupled

Digital farm data triggers early payments → no groundwater lag required

#### Paired watersheds

Each zone matched to a control catchment. Impact measured vs. control only

### Operational and counterparty risks



#### Payer non-payment

Public payers may delay or renegotiate contracts

#### 3 independent payers

No single payer exceeds 50% of revenue. EAFRD creates EU accountability



#### Farmer retention

Adoption hesitancy or dropout after onboarding

#### Zero-cost participation

Farmers keep €100–250/ha fertilizer savings. 3-year minimum agreements

All four risks are structurally mitigated within the fund design rather than managed reactively. The two-stream payment structure, paired watershed methodology, and diversified payer base are built into the model from inception.

Additional Information

# Scaleability



**RP**

Fund Size  
**€20M**

Hectares  
**200K**

Start  
**Now**



**Germany**

Fund Size  
**€80-100M**

Hectares  
**1M+**

Start  
**5 years**



**EU**

Fund Size  
**€400M+**

Hectares  
**6M+**

Start  
**15 years**

# Thank you.

[no3impactfund.com](http://no3impactfund.com)

# Appendix

- Term Sheet
- Assumptions
- Biological Background
- Impact across the value chain
- SDGS
- Market Failure
- Team

## Appendix

# Term Sheet

Fund name NO3 Impact Fund I
Fund type Closed-end blended finance vehicle
Asset class Environmental outcomes / impact private debt
Fund size €20M Pilot Tranche I; scalable to €80–120M in Phase II
Target IRR ~11% net LP outcome-risk adjusted
Horizon 10 years + 2yr extension option
Investment period 2 years from first close
Management fee 2.0% p.a. during investment period 1.5% on NAV thereafter
Carried interest 20% above 8% preferred return European waterfall
GP commitment 2% of total fund size
Distribution waterfall Return of capital → 8% preferred return → 80/20 LP/GP split
Minimum LP commitment €500,000
Target investors DFIs · Foundations (PRI/MRI) · Green infrastructure funds Impact-first family offices · Insurance mandates (SFDR Art. 9)

Leverage None at fund level CAP/EAFRD subsidy co-financing at project level
Structure German GmbH & Co. KG SFDR Article 9
Outcome payers State/federal governments · Water utilities · Health insurers (GKV)
Verification standard ISO 14064-aligned paired control watershed methodology
Establishment costs Capped at 1.5% of total commitments charged to the fund
Fund expenses Audit, legal, insurance, and verification costs borne by the fund
Reporting Quarterly financials annual audited accounts and impact report
Key man clause Suspension of capital calls triggered by departure of key principals
Clawback Full clawback on carried interest if preferred return not met
Recycling Subsidy receipts may be redeployed during investment period
No-fault removal 75% LP vote can remove GP without cause
Advisory committee LP advisory committee reviews conflicts of interest and fund actions
Impact framework SDG 6 primary · SDG 3, 13, 15 secondary Carried interest subject to impact performance conditions

## Appendix

# Assumptions

### Agronomic

#### Enrolled area

200,000 ha

~60% of RP arable land, concentrated in designated nitrate vulnerable zones

#### Baseline N application

160 kg N/ha/year

Conservative mid-range for RP arable farming based on Destatis/UBA data

#### Fertilizer reduction rate

28% (160 → 115 kg N/ha)

Upper range of published precision ag studies (xarvio, John Deere field trials)

#### Leaching coefficient

25% of applied N

Applies to high-risk RP soil profiles (loess, limestone-derived). Lower-risk soils use 15–20%

#### N to NO<sub>3</sub> conversion

Factor 4.43

Standard molecular weight conversion (NO<sub>3</sub> = 62g/mol, N = 14g/mol)

#### Total annual NO<sub>3</sub> reduction

~10,000 tons NO<sub>3</sub>/year

200,000 ha × 45 kg N saved × 25% leaching × 4.43 = 49 kg NO<sub>3</sub>/ha

#### Groundwater travel time

5 to 15 years

RP-specific range; loess and limestone soils, moderate permeability

### Financial

#### Fund size

€20M private capital

Pilot tranche; total project value ~€26M incl. CAP/EAFRD subsidies

#### CAP/EAFRD subsidy coverage

25% of equipment costs

Within published EAFRD co-financing range for precision ag investments

#### Equipment deployment cost

€75/ha gross; €56/ha net of subsidy

Variable-rate applicators, GPS receivers, sensors across 200,000 ha portfolio

#### Equipment amortization

€150/ton over 10-year fund life

€15M net equipment / 10yr / 10,000 tons = €150/ton

#### Target IRR

~11% net LP

Risk-adjusted outcome-risk premium; comparable EIB/KfW vehicles: 6–9%

#### Breakeven year

Year 7

Reflects J-curve deployment in Yr 0–2, ramp Yr 3–6, steady state Yr 6–10

#### Year 10 terminal value

€1.5M equipment residual

Conservative residual value of precision ag hardware at fund termination

### Outcome payer revenue

#### Water utilities · €350/ton

€3.5M/year

Avoided treatment cost (RO, ion exchange). RP utilities spend €5–10M/yr on supplementary nitrate treatment

#### Government · €400/ton

€4.0M/year

EU WFD compliance value and penalty avoidance. Germany faces infringement proceedings with nine-figure exposure

#### Health insurers (GKV) · €200/ton

€2.0M/year

Prevention value under Prevention Act. UBA estimates nitrate health burden at €150–580M/year nationally

#### Total revenue

€950/ton · €9.5M/year at steady state

Single contractual counterparty via Green Impact Fund (Germany) framework

#### Net profit

€590/ton · €5.9M/year at steady state

After equipment amortization (€150), field ops (€70), monitoring (€50), verification (€50), fund mgmt (€40)

#### Revenue ramp assumption

Yr 3: 25% · Yr 5: 75% · Yr 6+: 100%

Reflects phased farm onboarding and Tranche 2 verification timeline of 36–48 months post-baseline

### Verification and risk

#### Attribution methodology

Paired control watershed

Each intervention zone matched to a comparable non-intervention catchment. OECD attribution standard

#### Verification standard

ISO 14064-aligned

Third-party auditor validates both digital farm data and groundwater monitoring results annually

#### Stream 1 payment trigger

Digital farm data · from Year 3

xarvio / Operations Center confirms fertilizer reduction vs. farm baseline. Fast, auditable, lag-independent

#### Stream 2 payment trigger

Catchment groundwater trend · from Year 5

Directional NO<sub>3</sub> decline vs. paired control catchment. Payment per enrolled ha within verified catchment

#### Farmer retention assumption

3-year minimum service agreement

Farmers retain €100–250/ha/year in fertilizer cost savings. Zero financial downside from participation

#### Scaling gate conditions

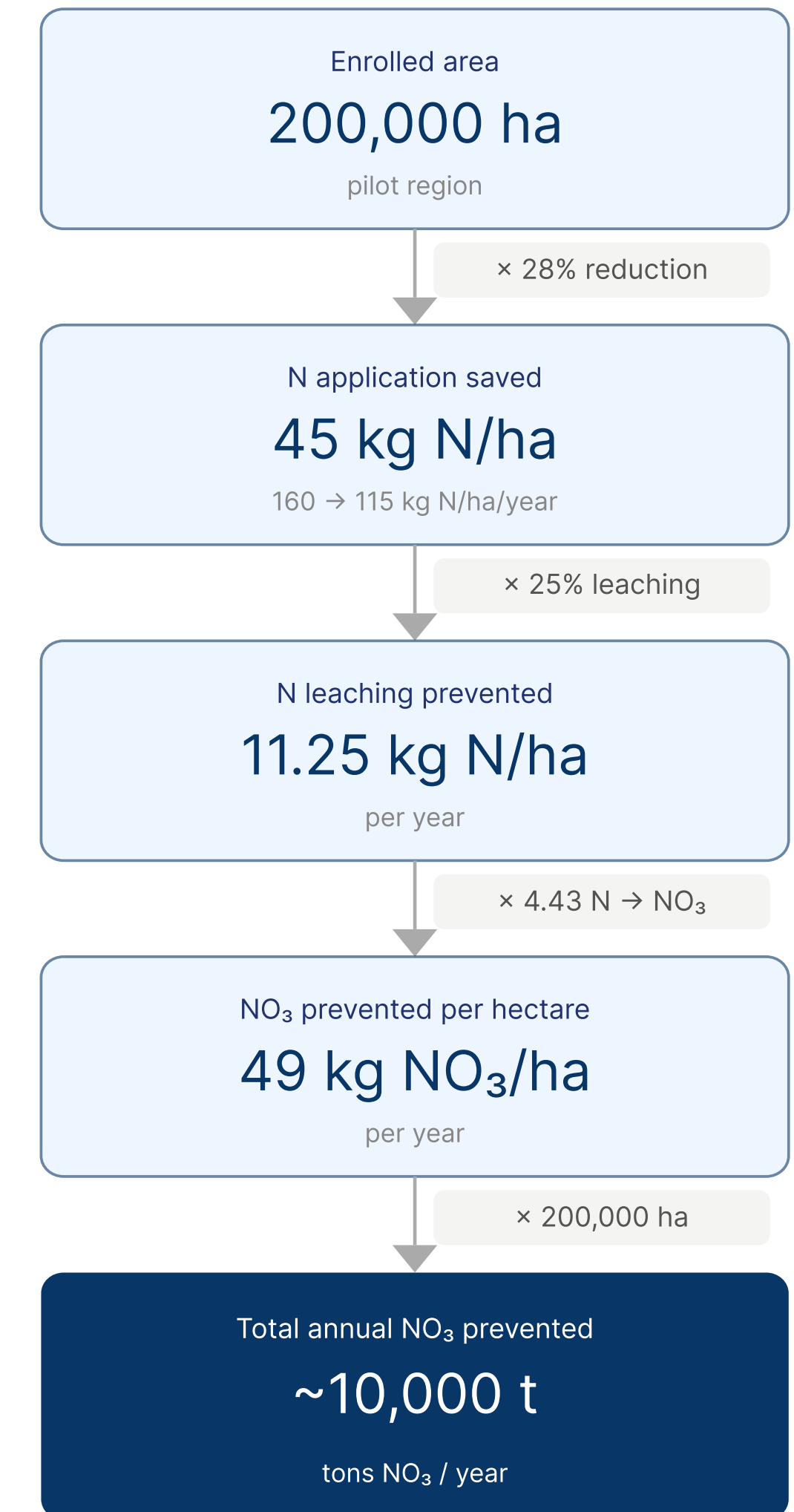
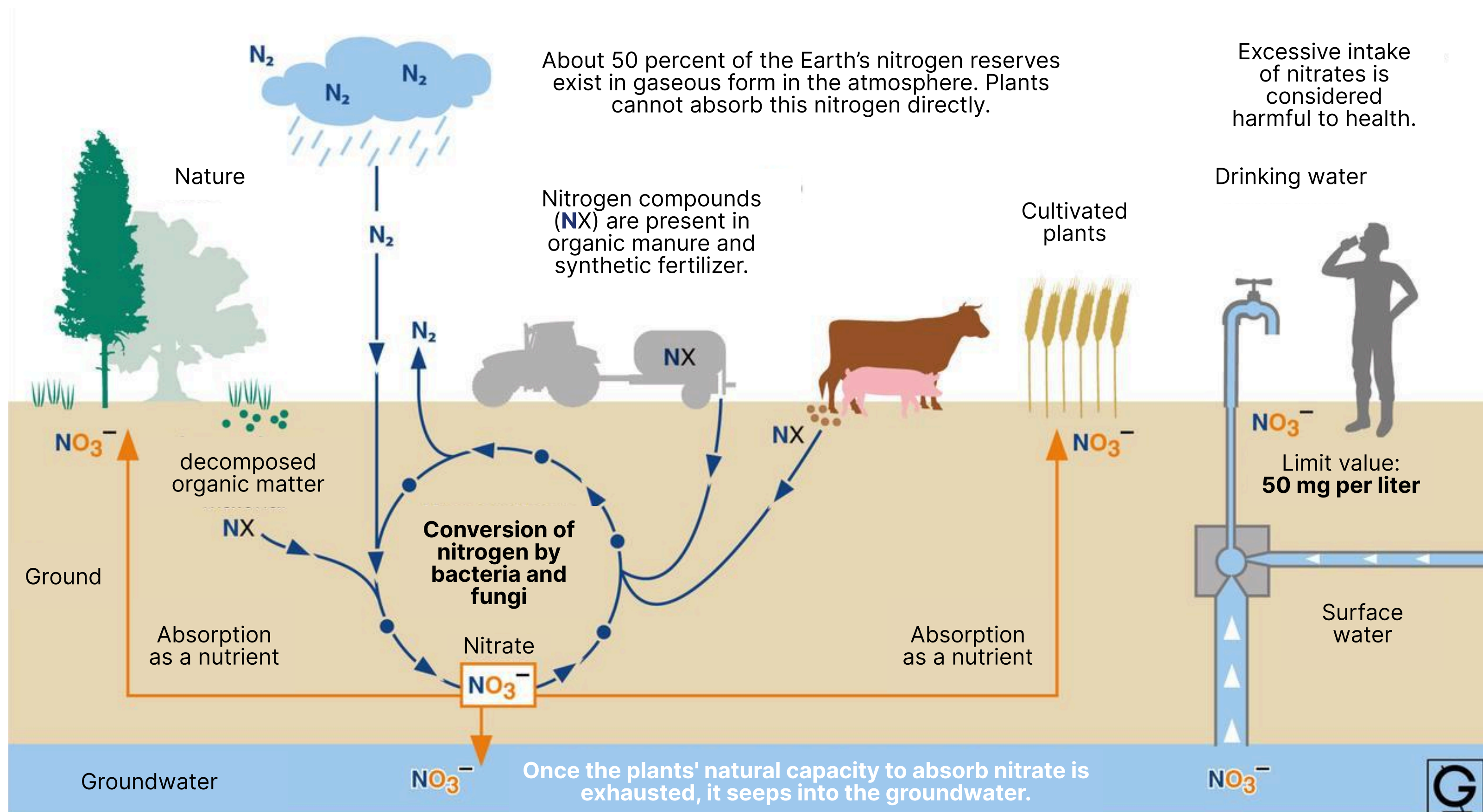
Phase II conditional on Phase I milestones

Stream 2 triggered in 70%+ of portfolio and one documented payer case study accepted by a new regional authority

## Appendix

# Biological Background







**Where does nitrate come from?** → Nitrate ( $\text{NO}_3^-$ ) is a compound made up of nitrogen (N) and oxygen (O). It is an important nutrient for plants and animals and is naturally formed and broken down in a continuous cycle.



$49 \text{ kg} \times 200,000 \text{ ha} \div 1,000 = 9,800 \text{ t}$   
rounded to ~10,000 t/year






## Appendix

# Impact across the value chain

Beneficiary	Impact	Benefit
 <b>Farmers</b>	<p>Access to precision agriculture infrastructure at zero cost. Fertilizer spend reduced by €100–250/ha/year through optimized nutrient management. No financial downside from participation.</p>	<p>Lower operating costs, improved regulatory compliance, and modernized farming practices without capital investment.</p>
 <b>Water Utilities</b>	<p>Reduced nitrate concentration lowers treatment intensity. Annual purification cost savings of €5–10M across Rhineland-Palatinate.</p>	<p>Lower operational expenditure, reduced infrastructure stress, and improved supply quality for end consumers.</p>
 <b>Government</b>	<p>Measurable progress toward EU Water Framework Directive compliance. Reduced exposure to infringement proceedings and EU penalty payments.</p>	<p>Regulatory risk reduction, avoided penalty costs, and documented environmental progress at state and federal level.</p>
 <b>Health System (GKV)</b>	<p>Lower nitrate exposure reduces methemoglobinemia incidence and nitrosamine-linked cancer risk across 4 million residents. Prevention value monetized through outcome payments.</p>	<p>Reduced treatment costs and alignment with Germany's Prevention Act mandate to fund environmental health interventions.</p>
 <b>Investors</b>	<p>~11% net IRR generated exclusively from verified outcome payments. SFDR Article 9 compliant. First-mover exposure to EU environmental outcomes finance with institutional-grade governance.</p>	<p>Risk-adjusted returns tied to measurable real-world results, with full impact auditability and no revenue without verified impact.</p>
 <b>Environment</b>	<p>1,500–2,000 tons NO<sub>3</sub> prevented from leaching annually. Synthetic fertilizer use reduced by up to 50% on participating farms. Soil biodiversity improved across 100,000 hectares.</p>	<p>Groundwater quality improvement, reduced ecosystem degradation, and enhanced long-term soil resilience across the pilot region.</p>

# Appendix

# SDGS

Impact	Water quality and contamination reduction	Public health protection	Climate and emissions reduction	Soil and ecosystem resilience
Goal	Reduce nitrate leaching into groundwater systems across Rhineland-Palatinate through verified precision agriculture intervention.	Lower population-level nitrate exposure and reduce associated health risks, particularly methemoglobinemia and nitrosamine-linked cancer risk.	Reduce greenhouse gas emissions from synthetic fertilizer production and N <sub>2</sub> O release from over-fertilized soils across 100,000 hectares.	Transition 100,000 hectares to sustainable nutrient management, restoring soil biodiversity and reducing long-term ecosystem degradation.
KPIs	<ul style="list-style-type: none"> <li>• 1,500–2,000 tons NO<sub>3</sub> prevented from leaching annually</li> <li>• NO<sub>3</sub> concentration trend in monitored wells (mg/L vs. baseline)</li> <li>• Number of monitored sites below EU threshold (50 mg/L)</li> </ul>	<ul style="list-style-type: none"> <li>• Estimated reduction in methemoglobinemia incidence</li> <li>• Residents benefiting from improved drinking water quality (target: 4M+)</li> <li>• GKV-documented prevention cost savings (€/year)</li> </ul>	<ul style="list-style-type: none"> <li>• Synthetic fertilizer use reduced on participating farms (target: 50%)</li> <li>• N<sub>2</sub>O emissions avoided (tons CO<sub>2</sub> equivalent/year)</li> <li>• CO<sub>2</sub> savings from reduced upstream fertilizer production</li> </ul>	<ul style="list-style-type: none"> <li>• Hectares transitioned to precision nutrient management (100,000 ha)</li> <li>• Soil organic matter improvement on participating farms</li> <li>• Reduction in fertilizer runoff reaching surface water bodies</li> </ul>
SDGs				 

# Why hasn't this been solved before?

01

## Misaligned Incentives

The wrong parties pay; the wrong parties benefit



### THE FAILURE

Farmers cause the pollution. Utilities and health systems pay to treat it. Governments face EU fines. No single actor had both the incentive and the ability to fix the problem — so nobody did. Farmers bore zero cost of downstream damage. Cost and benefit were completely decoupled.

→ Classic negative externality with no price signal



### WHAT CHANGED

Outcome-based contracts now link farmer behaviour directly to verified savings for payers. The NO3 Fund monetises the benefit for the parties who receive it — and routes it back as returns. Incentives are aligned for the first time.

→ Multi-payer outcome model creates the price signal

Negative externality  
→ solved by outcome contracts

02

## Fragmented Responsibility

No single owner; dozens of stakeholders, no coordinator



### THE FAILURE

Water utilities, health insurers, federal and state governments, the EU, farmers, and agri-industry all touch this problem — none had authority over the others. Coordination was impossible without a neutral intermediary and a shared contract. Regulatory attempts (Nitrates Directive, 1991) ran for 30+ years with insufficient enforcement.

→ 30 years of policy without measurable improvement



### WHAT CHANGED

The Green Impact Fund (Germany) acts as a single contractual intermediary — pooling obligations from three independent payer streams into one relationship. One contract, one governance structure, one verified measurement standard (ISO 14064).

→ Blended finance structure dissolves coordination risk

Coordination failure  
→ solved by single intermediary

03

## No Return Mechanism

Private capital had no path to verified, contractual returns



### THE FAILURE

Even motivated investors had nowhere to go. Environmental improvements in groundwater are a public good — benefits are diffuse and non-excludable. Without outcome contracts, there was no mechanism to capture value from the savings generated for payers. Grants and subsidies alone couldn't scale.

→ Public good with no private capture mechanism



### WHAT CHANGED

Outcome-based finance creates a contractual revenue stream tied to verified NO<sub>3</sub> reduction. Public payers compensate only on results — so private capital absorbs execution risk and earns 11% net IRR from a previously uninvestable environmental problem.

→ First private capital path into nitrate remediation

Public goods problem  
→ solved by verified payment triggers

# The Team

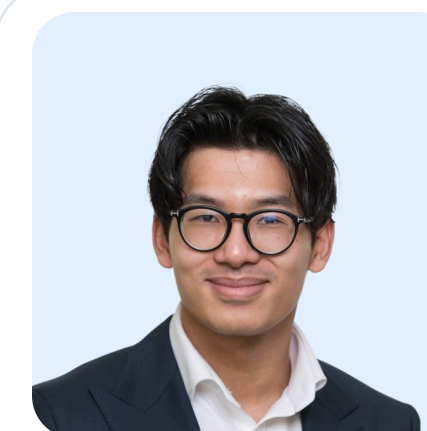


**Ivan Sachau**

Strategy / IT



Ivan combines financial markets experience with a strong strategy and technology foundation. Having worked in M&A at Deloitte and Wealth Management at Rothschild & Co, he understands how capital and operational strategy intersect. His background in inhouse consulting at BASF, where he contributed to their circular economy strategy, gives him a direct appreciation for the kind of systemic, real-world impact the NO3 Fund aims to create.



**Long Schmidt**

Private Markets



Long brings private markets expertise built across M&A, equity research, and investment management roles at firms including Rothschild & Co, DealCircle, and FERI Group. He currently holds an analyst position at Rothschild & Co while also founding his own fund. His hands-on experience structuring deals and evaluating investment opportunities makes him well-placed to identify and deploy capital into the solutions the NO3 Fund is looking for.

Together, Ivan and Long bridge the two most critical gaps in impact investing: the ability to identify where intervention creates measurable change, and the capability to structure how capital flows to make it happen. For the NO3 Impact Fund, this means a team that can evaluate the problem landscape in depth and translate that analysis into compelling investment opportunities.

## Appendix

# Sources I

### **Nitrate pollution and groundwater — Germany**

1. DIW Berlin (2022) — Nitratverschmutzung steigert Kosten der Trinkwasserversorgung [https://www.diw.de/de/diw\\_01.c.860915.de/nitratverschmutzung\\_steigert\\_kosten\\_der\\_trinkwasserversorgung\\_\\_wasserknappheit\\_verschaeft\\_nutzungskonflikte.html](https://www.diw.de/de/diw_01.c.860915.de/nitratverschmutzung_steigert_kosten_der_trinkwasserversorgung__wasserknappheit_verschaeft_nutzungskonflikte.html)
2. Deutschlandfunk — Der große Durst: Verteilungskampf ums Grundwasser <https://www.deutschlandfunk.de/der-grosse-durst-verteilungskampf-ums-grundwasser-100.html>
3. Umweltbundesamt (2022) — Nitrat im Grundwasser: Ursachen, Folgen, Maßnahmen <https://www.umweltbundesamt.de/themen/wasser/grundwasser/nutzung-belastungen/nitrat>
4. Umweltbundesamt (2017) — Quantifizierung der Kosten diffuser Stickstoffeinträge in die Gewässer <https://www.umweltbundesamt.de/publikationen/quantifizierung-der-kosten-diffuser-stickstoffeintraege>
5. Bundesministerium für Umwelt (2020) — Nitratbericht 2020: Gemeinsamer Bericht der Bundesministerien <https://www.bmu.de/publikation/nitratbericht-2020>
6. Statistisches Landesamt Rheinland-Pfalz — Landwirtschaft in Rheinland-Pfalz <https://www.statistik.rlp.de>
7. Landesamt für Umwelt Rheinland-Pfalz — Grundwasser-Überwachungsprogramm <https://www.lfu.rlp.de/themen/wasser/grundwasser>
8. BMEL (2023) — Landwirtschaftlicher Strukturwandel und Nährstoffmanagement in Deutschland <https://www.bmel.de/DE/themen/landwirtschaft/pflanzenbau/ackerbau/nitrat.html>

### **Nitrate pollution — European and international**

1. European Environment Agency — Nitrates Directive reporting 2016–2019 <https://www.eea.europa.eu/publications/nitrates-directive-reporting-2016-2019>
2. EEA Groundwater Quality Report 2022 <https://www.eea.europa.eu/publications/groundwater-quality-in-europe-2022>
3. EU Drinking Water Directive (2020/2184) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020L2184>
4. European Commission — Nitrates Directive (91/676/EEC) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31991L0676>
5. European Commission (2021) — Water Framework Directive: Fitness Check [https://ec.europa.eu/environment/water/water-framework/fitness\\_check.htm](https://ec.europa.eu/environment/water/water-framework/fitness_check.htm)
6. OECD (2012) — Water Quality and Agriculture: Meeting the Policy Challenge <https://www.oecd.org/env/water-quality-and-agriculture-9789264168060-en.htm>
7. WHO (2017) — Nitrate and Nitrite in Drinking Water: Background Document for Development of WHO Guidelines <https://www.who.int/docs/default-source/wash-documents/wash-chemicals/nitrate-nitrite-background-jan17.pdf>
8. European Court of Auditors (2021) — Special Report: Sustainable Water Use in Agriculture <https://www.eca.europa.eu/en/Pages/DocItem.aspx?did=57442>

### **Health impacts of nitrate**

1. Schullehner et al. (2018) — Nitrate in drinking water and colorectal cancer risk: A nationwide population-based cohort study, *International Journal of Cancer* <https://doi.org/10.1002/ijc.31306>
2. Ward et al. (2018) — Drinking Water Nitrate and Human Health: An Updated Review, *International Journal of Environmental Research and Public Health* <https://doi.org/10.3390/ijerph15071557>
3. Powlson et al. (2008) — When does nitrate become a risk for humans?, *Journal of Environmental Quality* <https://doi.org/10.2134/jeq2007.0177>
4. Bundesinstitut für Risikobewertung (BfR) — Nitrat in Trinkwasser und Lebensmitteln <https://www.bfr.bund.de/de/nitrat-54338.html>
5. Weyer et al. (2001) — Municipal Drinking Water Nitrate Level and Cancer Risk in Older Women: The Iowa Women's Health Study, *Epidemiology* <https://doi.org/10.1097/00001648-200103000-00013>

## Appendix

# Sources II

### **Precision agriculture and fertilizer reduction**

1. BASF / xarvio (2021) — Digital Farming Solutions: Yield and Input Optimization Field Trial Results <https://www.xarvio.com/int/en/field-manager.html>
2. John Deere Operations Center — Precision Agriculture Technology Overview <https://www.deere.com/en/technology-products/precision-ag-technology>
3. Finger et al. (2019) — Precision Farming at the Nexus of Agricultural Production and the Environment, Annual Review of Resource Economics <https://doi.org/10.1146/annurev-resource-100518-093929>
4. European Commission Joint Research Centre (2020) — Precision Agriculture: An Opportunity for EU Farmers <https://publications.jrc.ec.europa.eu/repository/handle/JRC112165>
5. Gebbers and Adamchuk (2010) — Precision Agriculture and Food Security, Science <https://doi.org/10.1126/science.1183899>
6. Destatis (2023) — Düngemittelverbrauch in der Landwirtschaft <https://www.destatis.de/DE/Themen/Branchen-Unternehmen/Landwirtschaft-Forstwirtschaft-Fischerei/Produktionsmethoden/duengemittel.html>

### **CAP subsidies and agri-environmental payments**

1. European Commission — Common Agricultural Policy: Overview and EAFRD <https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy>
2. European Commission (2021) — European Agricultural Fund for Rural Development (EAFRD) Regulation <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013R1305>
3. INEA (2022) — EAFRD Co-financing Rates for Environmental Measures <https://www.eafrd.eu/financing-rates>
4. Lankoski and Ollikainen (2013) — Agri-Environmental Policy Instruments and the Environment, Annual Review of Resource Economics <https://doi.org/10.1146/annurev-resource-091912-151946>

### **Blended finance and impact investing**

1. Convergence (2023) — The State of Blended Finance Report <https://www.convergence.finance/resource/state-of-blended-finance-2023>
2. OECD (2018) — Making Blended Finance Work for the Sustainable Development Goals <https://doi.org/10.1787/9789264288768-en>
3. GIIN (2023) — Annual Impact Investor Survey <https://thegiin.org/research/publication/2023-annual-impact-investor-survey>
4. Social Finance (2020) — Outcomes-Based Finance in Environmental Markets: Lessons from Social Impact Bonds <https://www.socialfinance.org.uk/resources>
5. Gustafsson-Wright et al. (2020) — The Potential and Limitations of Impact Bonds: Lessons from the First Five Years, Brookings Institution <https://www.brookings.edu/research/the-potential-and-limitations-of-impact-bonds>

### **SFDR, ESG regulation and institutional mandates**

1. European Commission — Sustainable Finance Disclosure Regulation (SFDR) (2019/2088) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R2088>
2. European Commission — Corporate Sustainability Reporting Directive (CSRD) (2022/2464) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022L2464>
3. PRI (2023) — Responsible Investment in Agriculture and Food Systems <https://www.unpri.org/agriculture>

### **Germany's Prevention Act and GKV**

1. Bundesministerium für Gesundheit — Präventionsgesetz (2015): Gesetz zur Stärkung der Gesundheitsförderung und der Prävention <https://www.bundesgesundheitsministerium.de/themen/praevention/praeventionsgesetz.html>