



Hoogheemraadschap van
Delfland

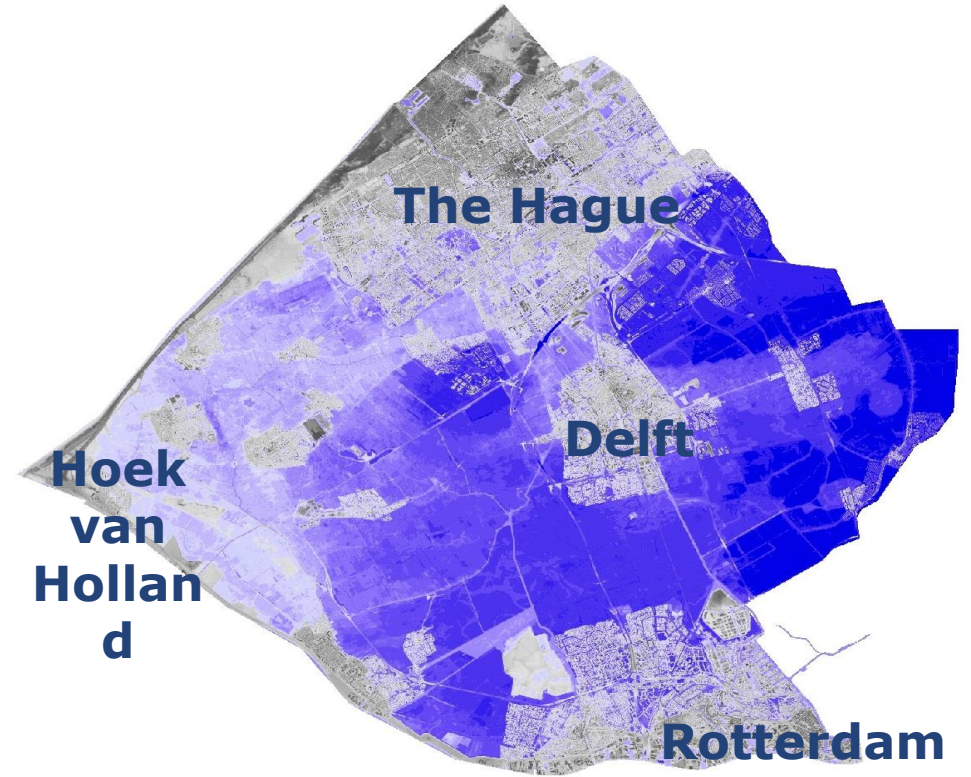
Workshop Leakage in Greenhouses Improving water quality in a horticultural area



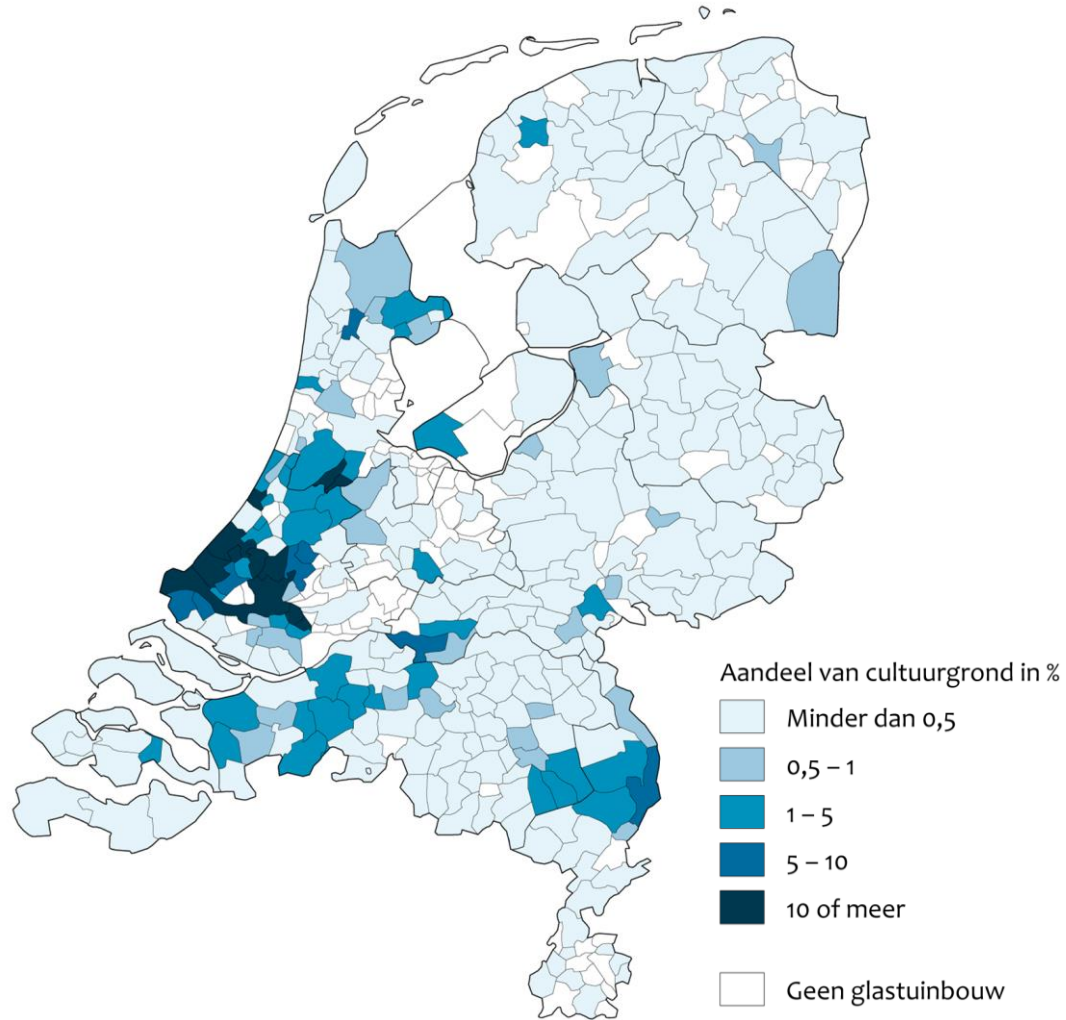
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Location Delfland



Horticulture in the Netherlands



- Total surface area greenhouses:
3815 (9279 hectare)

- Area greenhouses Delfland:
1582 (3825 hectare)

41% in Delfland

Water quality issues



Important legislation in the Netherlands

Plant protection products and biocides Act

To launch, use, authorisation and registration of plant protection products and biocides.

Spraying license

Everyone who works with professional plant protection products must have a certificate of competence (= spraying license). Exam and keep knowledge up to date.

Emission or use limits

Limits use or emission of nutrients. They get stricter every year.

Healthy Growth, Sustainable Harvest

Second policy report sustainable plant protection 2013-2023

Objective for ecological quality of surface waters :

2018: decrease in the number of exceedances of the environmental quality standards for plant protection products in surface water, by 50% compared to 2013

2023: by 90% compared to 2013 (virtually no exceeding of standards)



(almost) Zero emission from the Horticulture in the Netherlands in 2027



- <https://www.youtube.com/watch?v=jdEnAywteb8>

Gebiedsgerichte Aanpak "Area-oriented approach"



What are we looking for?

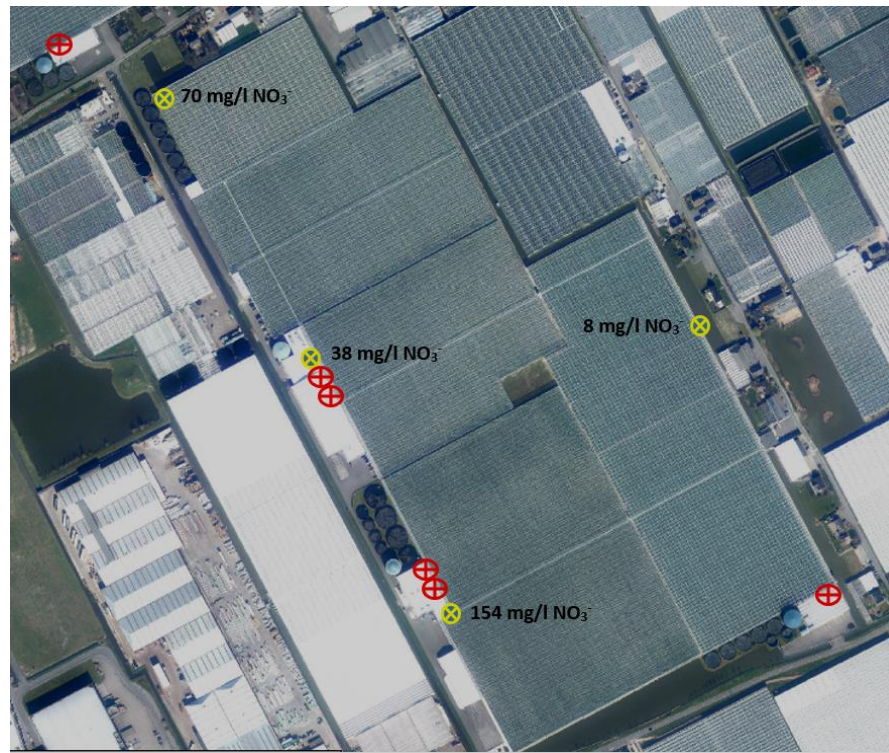
- Emissions of nutrients & pesticides
Forbidden to discharge on surface water
- Allowed to discharge on sewage system (after purification)
- 99% have a connection to the sewage system



Why horticulturists discharge water?

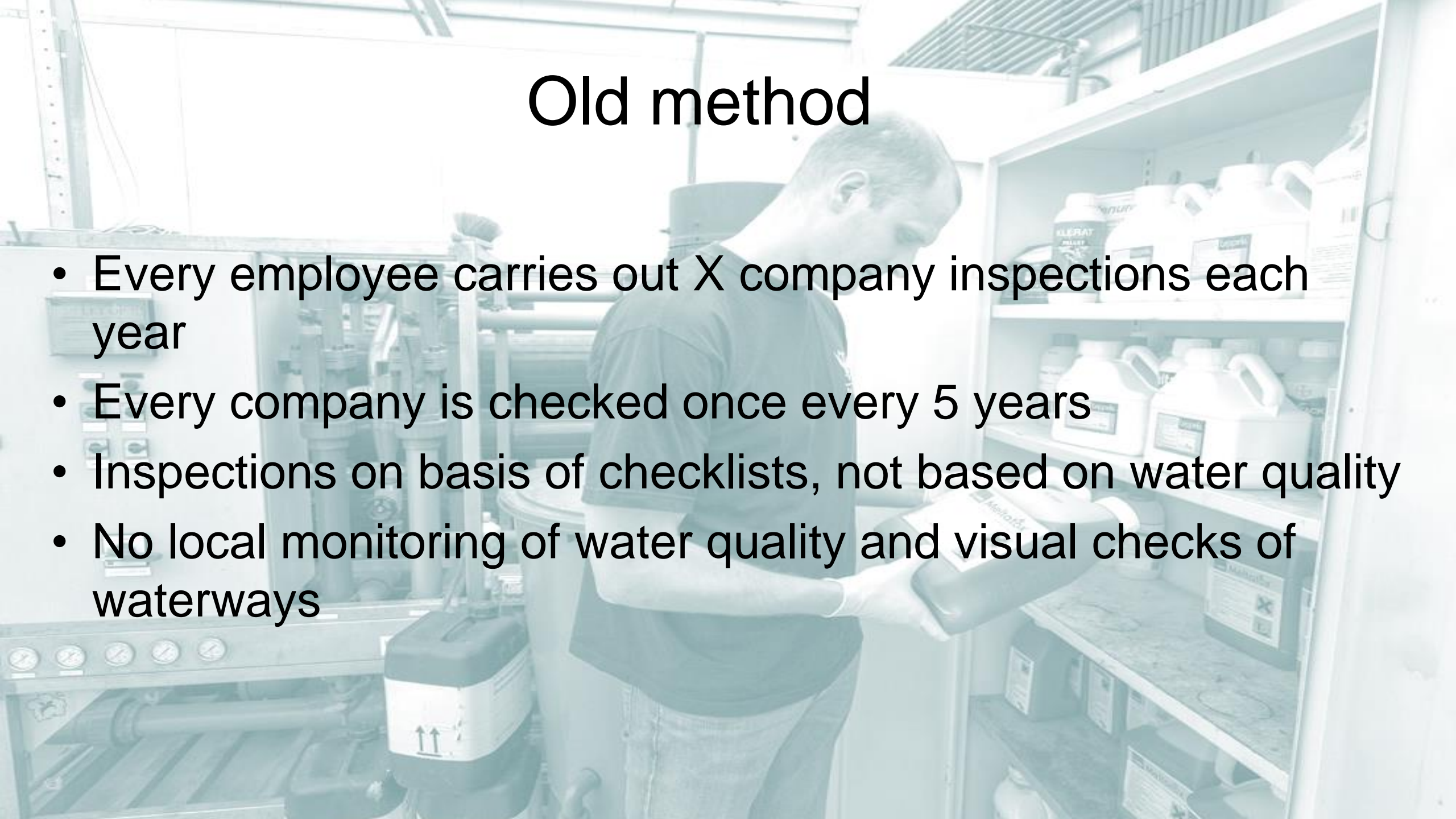
- Sodium content too high (recirculation)
- Diseases or viruses
- Too much water (start of production)
- Growth start with a clean system
- Sewage system problems (capacity)
- Calamities
- Crop rotation
- Leaks to soil or surface water





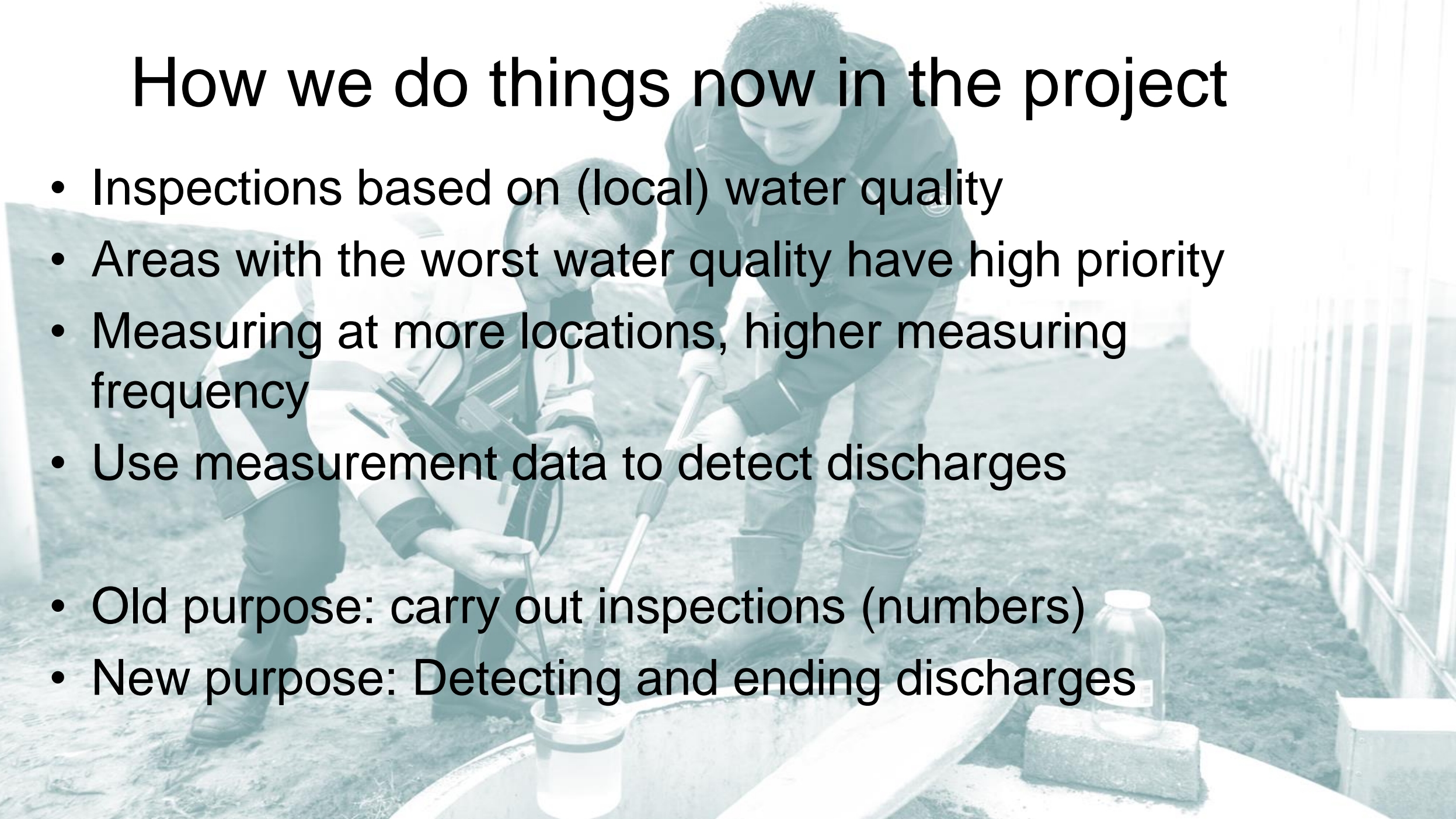
Old method

- Every employee carries out X company inspections each year
- Every company is checked once every 5 years
- Inspections on basis of checklists, not based on water quality
- No local monitoring of water quality and visual checks of waterways

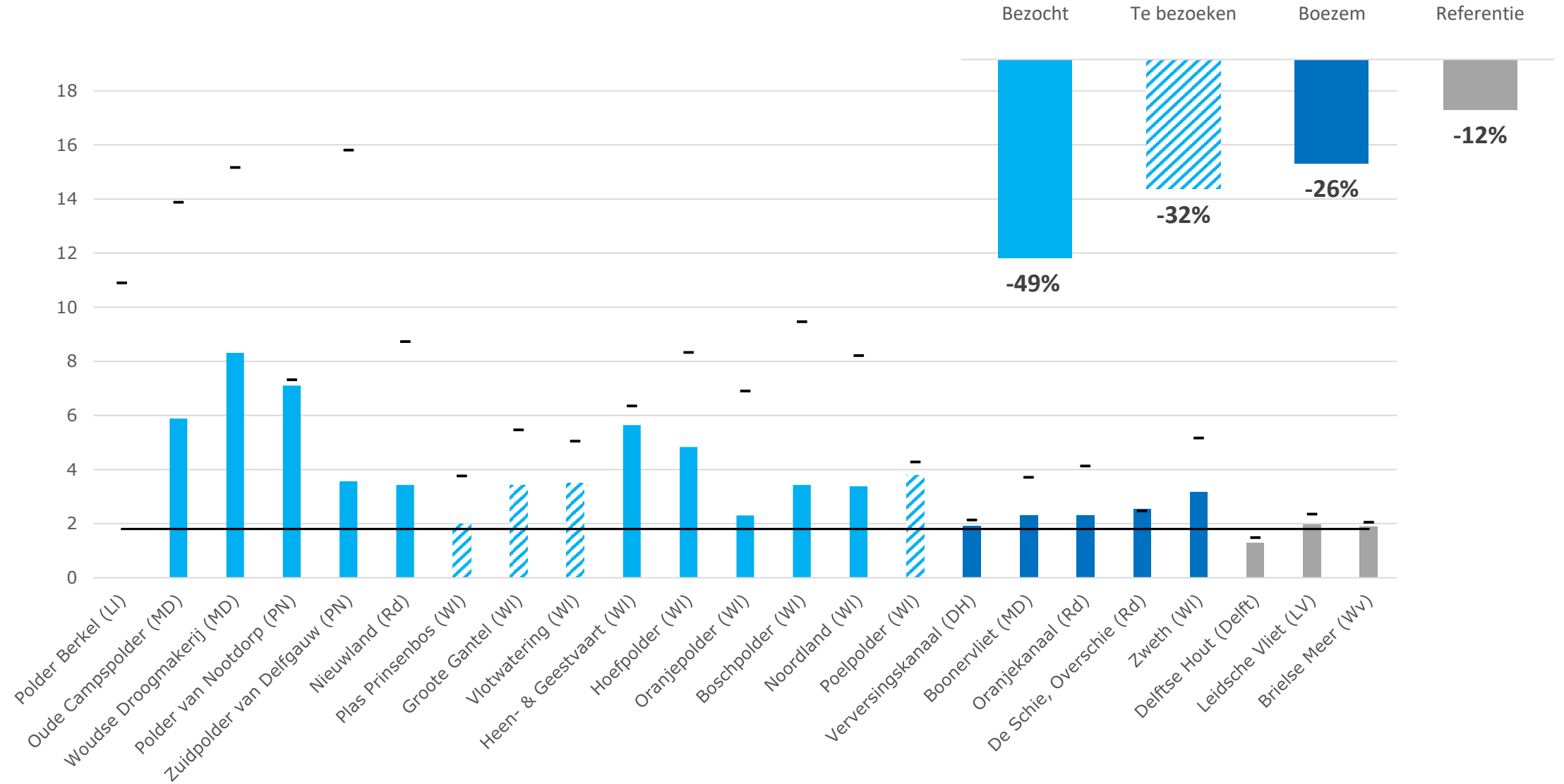


How we do things now in the project

- Inspections based on (local) water quality
- Areas with the worst water quality have high priority
- Measuring at more locations, higher measuring frequency
- Use measurement data to detect discharges
- Old purpose: carry out inspections (numbers)
- New purpose: Detecting and ending discharges

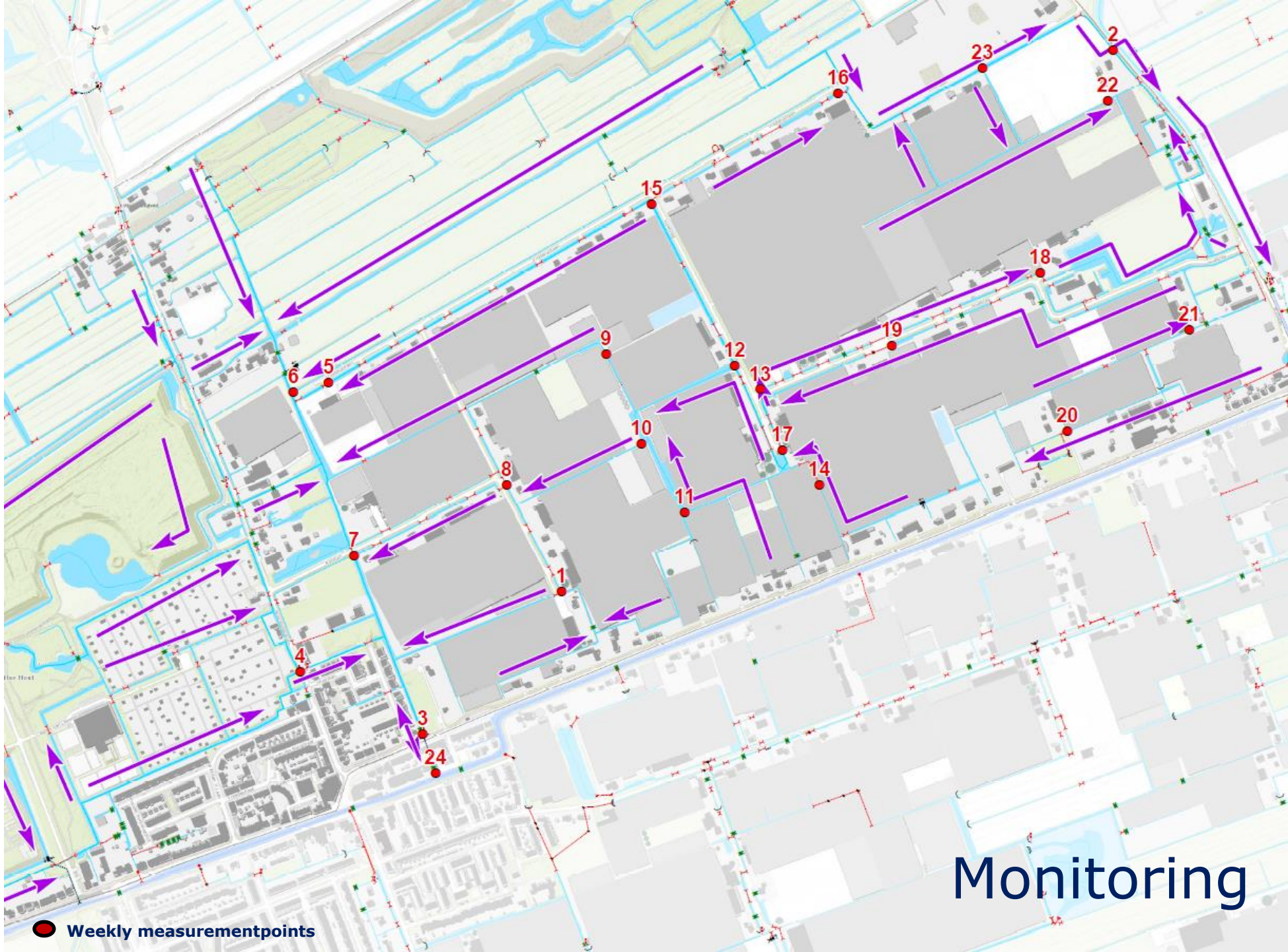


It works!



The start (2010)

- Team Water quality: Pilot in the Zuidpolder van Delfgauw
 - Measuring more and local helps finding source(s) of emissions.
 - Choose a defined area: polder
- Team Surveillance & Enforcement the wastewater of the horticulture to the sewer system
 - First inform and give advice about the legislation
 - Make sure to take enough time



● Weekly measurementpoints

Monitoring

The first polders



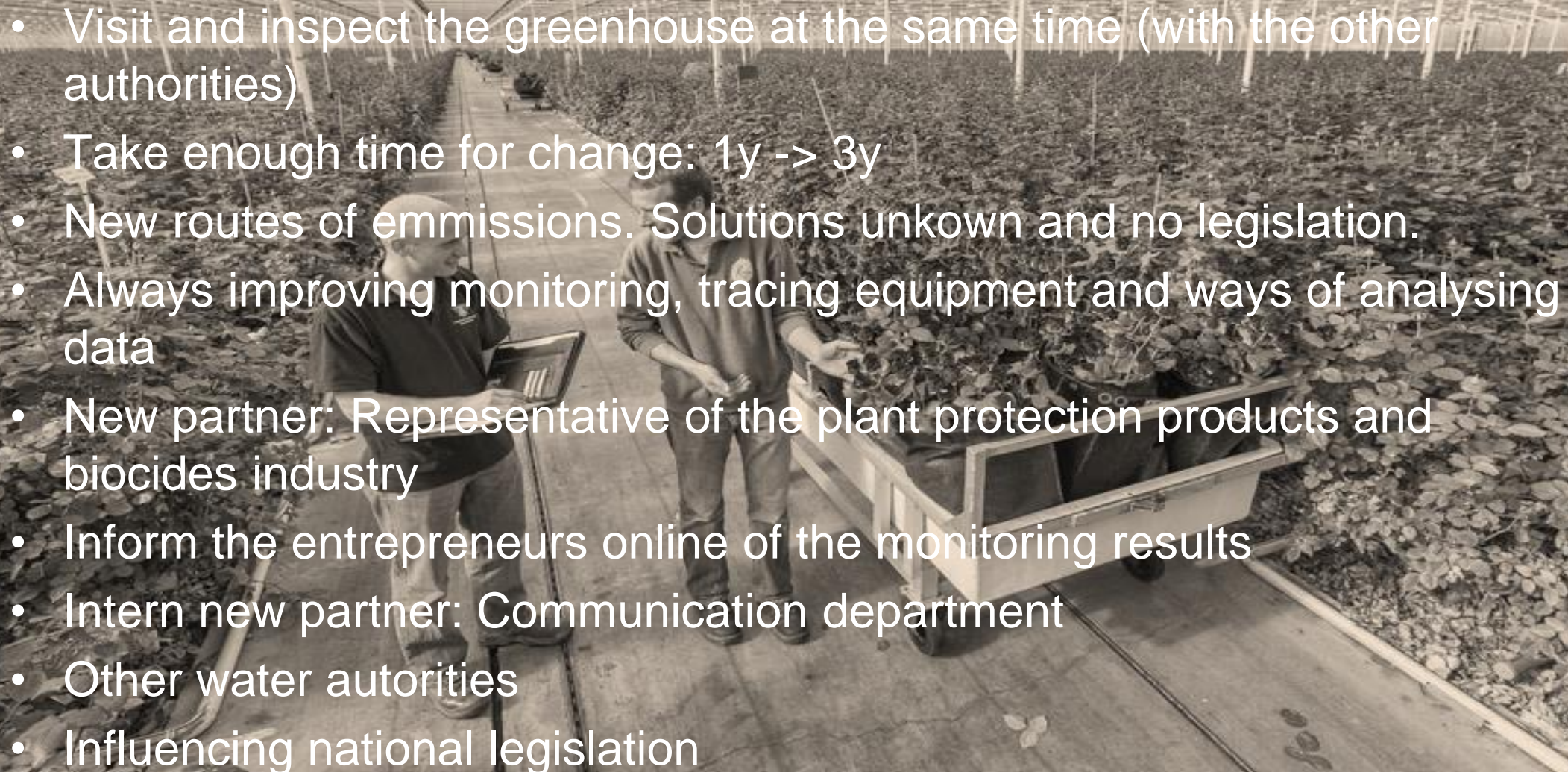
- Again in the Zuidpolder van Delfgauw (2013)
 - Partners: water quality, Surveillance & Enforcement, municipality, NVWA
 - Monitoring also inside the greenhouses
 - Visit all entrepreneurs
- Dorppolder (2014)
 - New monitoring and tracing equipment
 - Presenting intermediate results to the entrepreneurs
 - Political interest

The first polders

A man in dark clothing is working on a polder dike. He is using a long-handled tool, possibly a hoe or a similar agricultural implement, to clear or maintain the dike. The dike is covered in tall grass and some small plants. In the background, there is a large, long structure with a corrugated metal roof, likely a greenhouse or a covered walkway. The overall scene is in a rural or agricultural setting.

- Boschpolder
 - Partners: water quality, T&H, municipality, NVWA
 - Monitoring is crucial; before, during and after the project
- Oranjepolder
 - Adding partner: representatives entrepreneurs horticulture
 - Startmeeting
 - Gradually reduce the intensity of the project; follow-up fase

To the current form

- Visit and inspect the greenhouse at the same time (with the other authorities)
 - Take enough time for change: 1y -> 3y
 - New routes of emissions. Solutions unknown and no legislation.
 - Always improving monitoring, tracing equipment and ways of analysing data
 - New partner: Representative of the plant protection products and biocides industry
 - Inform the entrepreneurs online of the monitoring results
 - Intern new partner: Communication department
 - Other water authorities
 - Influencing national legislation
- 

Current development and challenges



Water awareness

'I stand for clean water.'

Jan Reijm

(Firma Reijm en zoon)



Lessons Learned

Projects are a learning process
Learning by doing; trial and error

Collaboration pays off!
Find the shared interest

Maintain a good relationship with your partners

Initiative from government to the entrepreneurs and retail

Enforced to cooperative to facilitating organization

Thank you for your attention



