Setting up catchment studies for developing strategies to improve water quality

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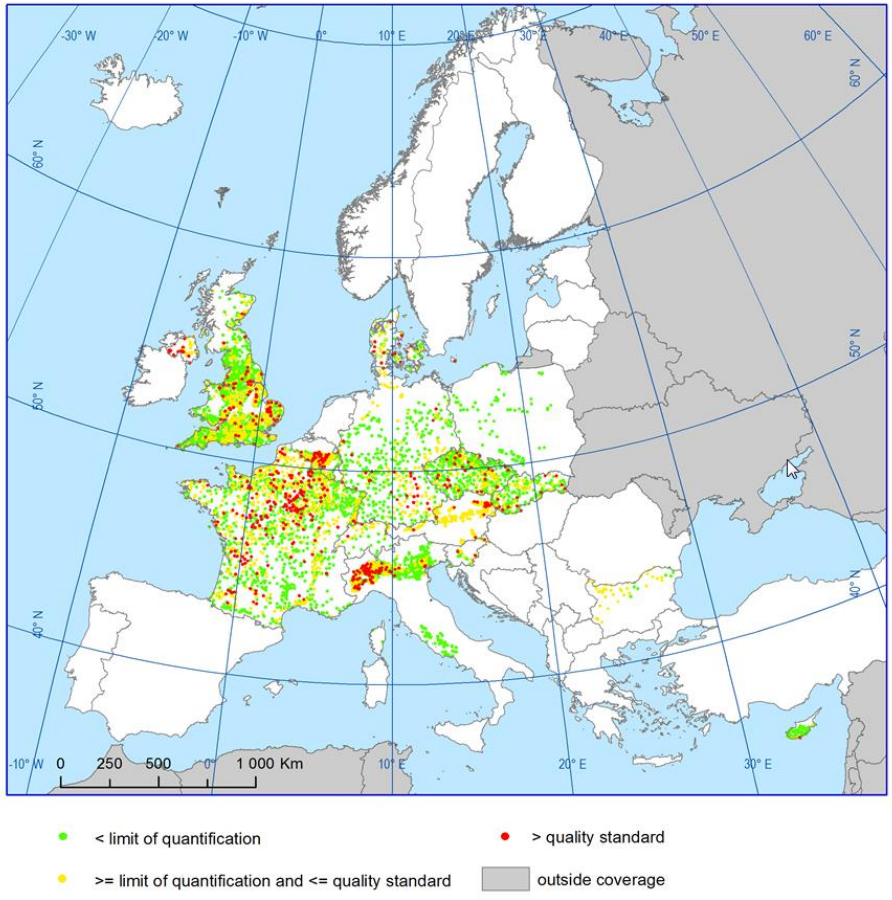
PESTICIDE POLLUTION OF DRINKING WATER SOURCES IS A CONTINUING CONCERN …

Occurrence and exceedance of selected pesticides in groundwater monitoring stations, 2010-2011 (Source: Eurostat)



Points of concern:

- Hot-spots of exceedance across Europe (>0.1 µg/l)
- Hot-spots = intensive agriculture
- Pollution sources are diffuse, monitoring and treatment costly
- Poor information across Europe
- **Mitigation measures are not in place, or not effective and need farmer engagement**

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OBJECTIVES OF WATERPROTECT

- *"Contribute to **effective uptake and realisation of management practices and mitigation measures** to protect **drinking water** resources"*

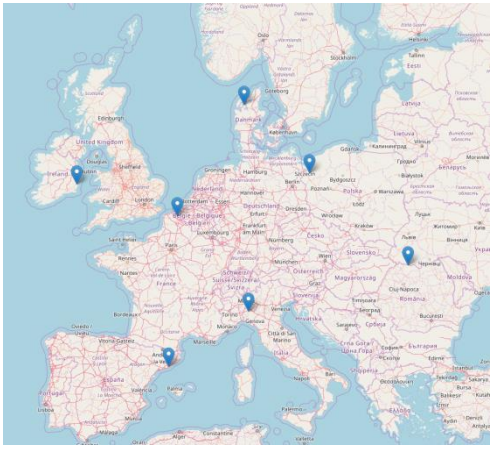
Action ! In local "action labs" across EU (BE, IE, DK, IT, ES, PL, RO)

New governance: alternative financing

Share data: participatory monitoring

Best management into practice

Bring information close to actor



- *"**Upscale** findings **from action labs** to other regions"*
- *"**Advise policy makers:** WFD, CAP, nitrate and pesticide directives"*
- *"**Strategic communication** to stakeholders **and dissemination** to the public"*

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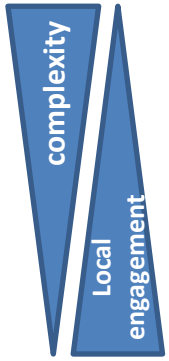
PARTICIPATORY MONITORING IN 7 ACTION LABS

WATERPROTECT

Designing, aligning and bringing together *monitoring data from:*

- *Scientists*
- *Environment agencies*
- *Drinking water companies*
- *Local farmers*
- *Local citizens*



Local actors become more engaged in the monitoring and they trust the results.

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BEST MANAGEMENT PRACTICES

- *Engage actors to implement measures !*

Diffuse sources:
Bufferstrips
Mgt practices
Dams, pools

Treatment point sources

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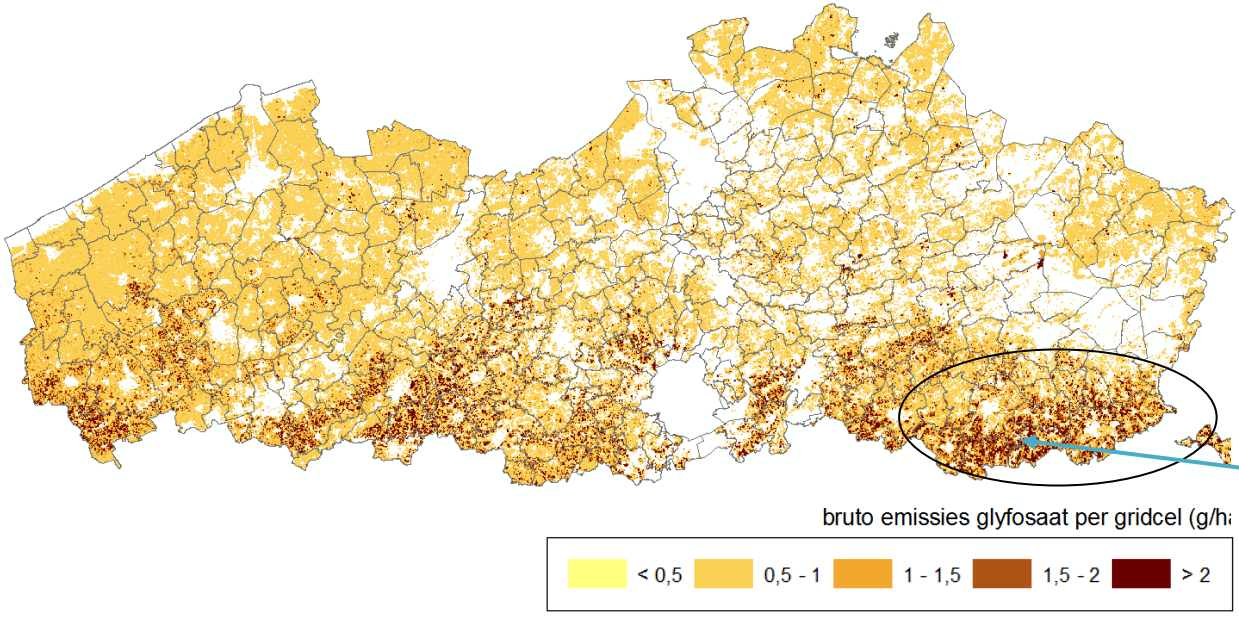
Inspiration ? Running pilot study catchment !

- Monitoring study (2014-2018) with implementation of measures (2016-2018)
- area of interest = the Haspengouw region in southern Limburg, agriculture, mixed with residential landuse
- multiple pesticides detected in headwaters

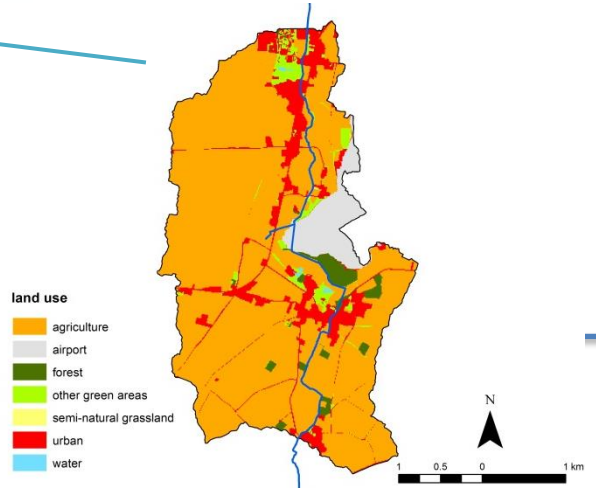


http://www.vmm.be/nieuwsmap/mira-pesticidegebruik-en-emissie-naar-oppervlaktewater

Cicindria catchment

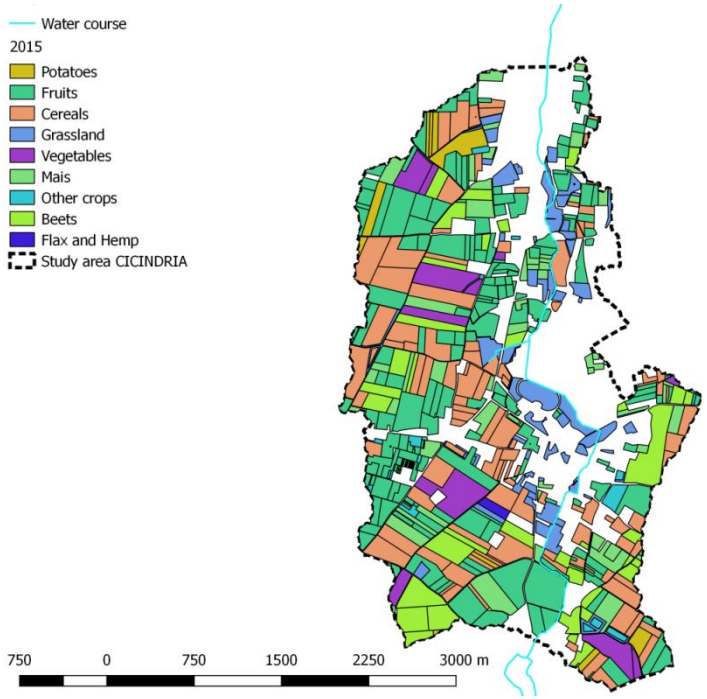
area: 1075 ha

72% agriculture

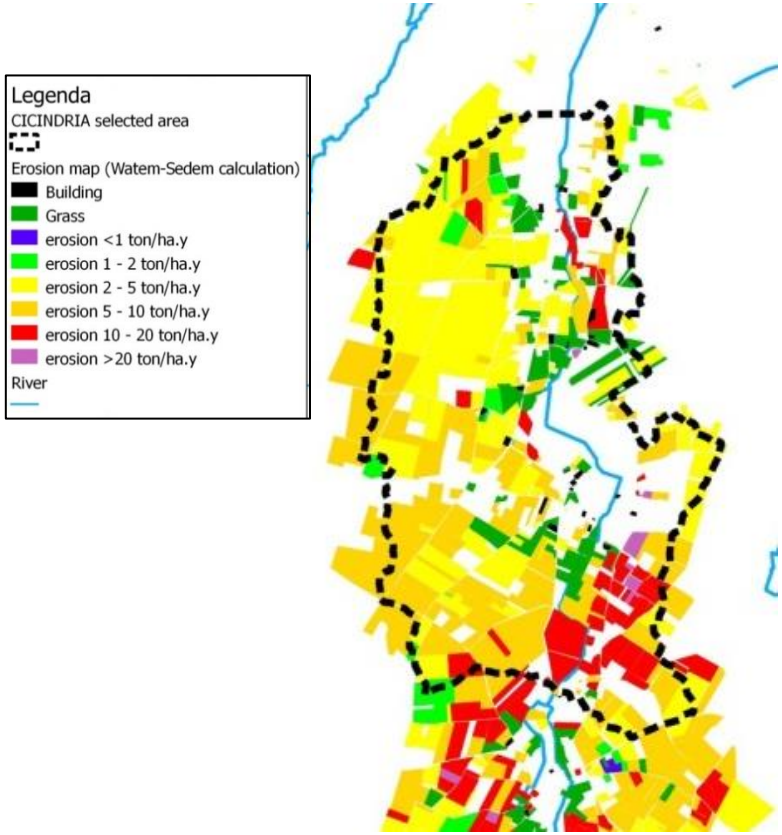


This project is funded by the Glyphosate Env Stewardship Steering Group (GESSG)

Cicindria catchment

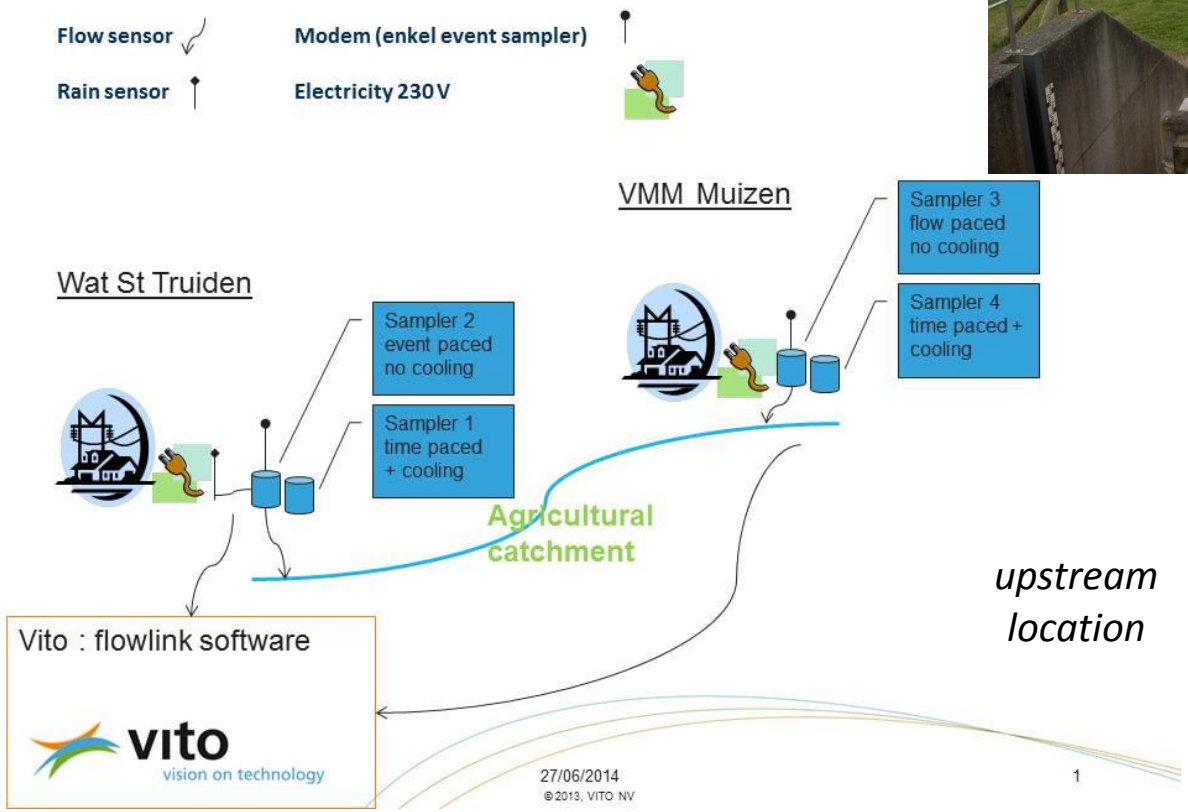


Apple & pear 32%
Cereals 23%
Beet 12%
Maize 7%
Grassland 6%



Monitoring 2014-2018

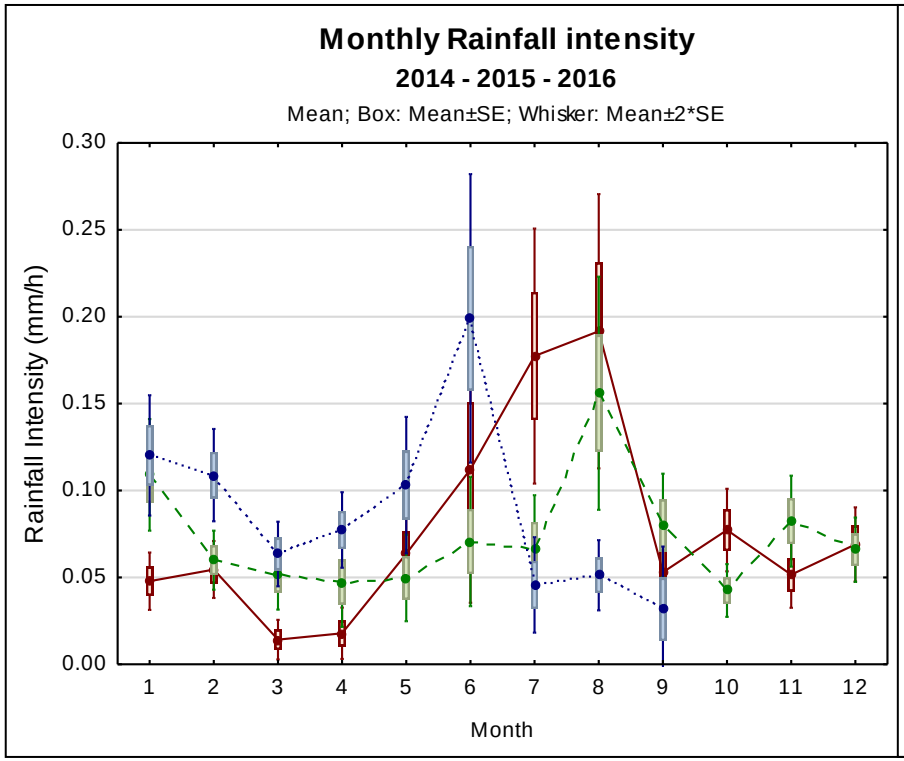
downstream location

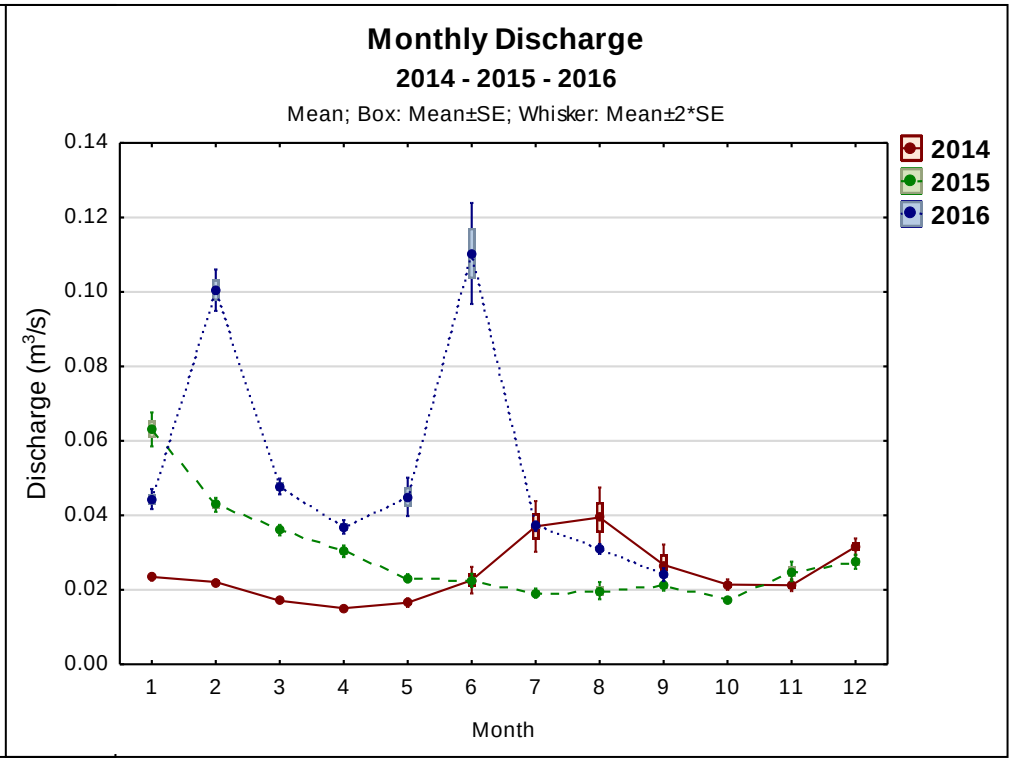


upstream location

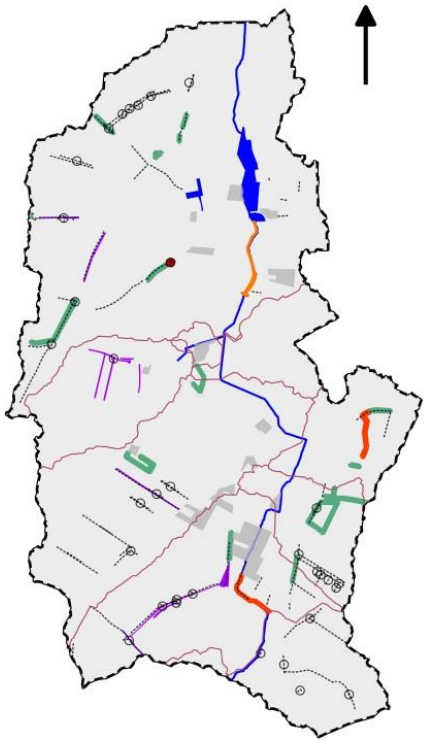
Precipitation & Discharge

- 2014 – 2015 – 2016
  - Precipitation: VMM station, Niel-bij-Sint-Truiden
  - Discharge: VMM station, Muizen



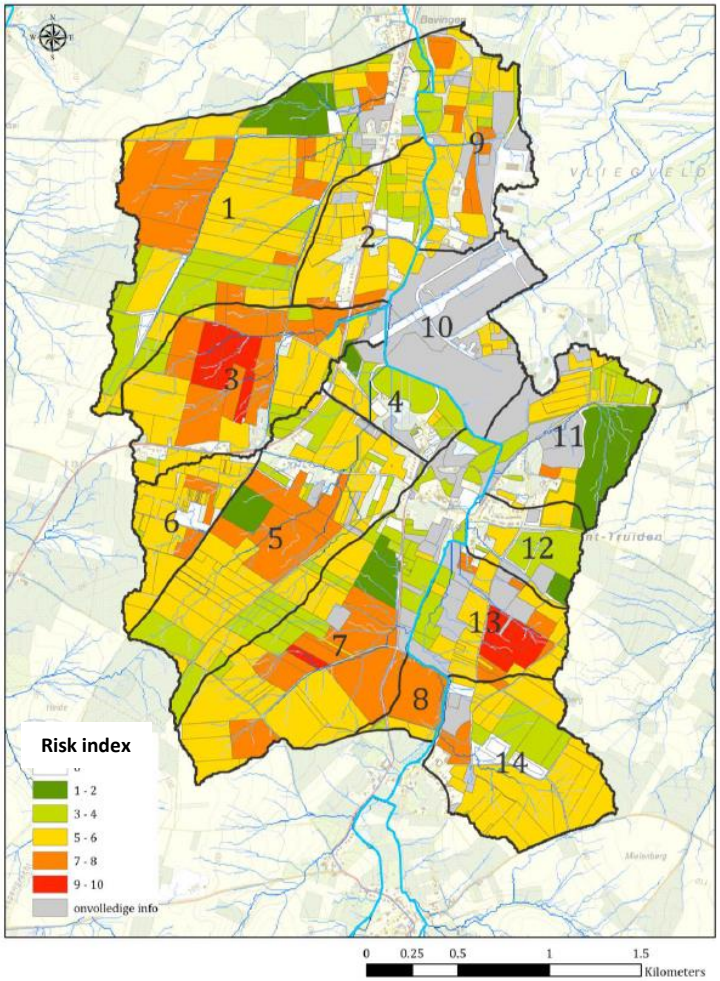


Proposed, planned & implemented measures (regardless pesticides)



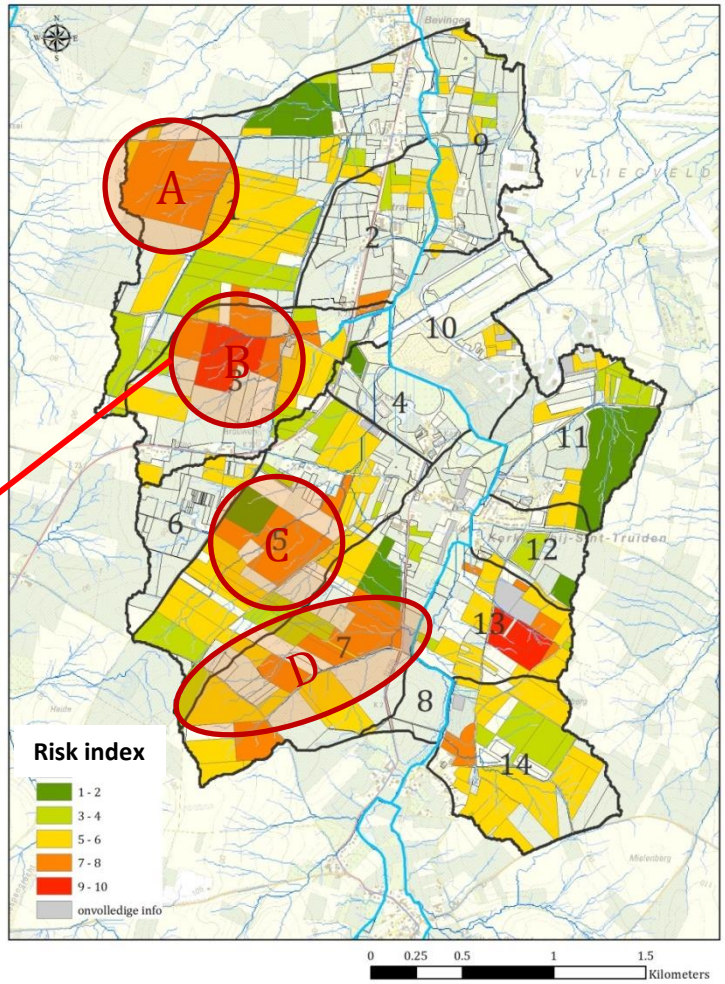
Pesticides: Implementation of measures - risk map

- **risk map** including information on
  - topography
  - crop cover
  - estimated pesticide use
  - potential erosion risk
  - connectivity of the agricultural parcels to the river
- **field validation** using **observations**
  - runoff during stormflow events
  - roads short-circuiting runoff to the river
  - erosion
  - installed mitigating measures



From risk map to priority zones

- **priority zones** for measures of erosion control
- target farmers with a significant impact on the pesticide load to surface water
- encourage farmers to enter a voluntary erosion control program supported by the local government



Communication strategy

Two lines of communication:

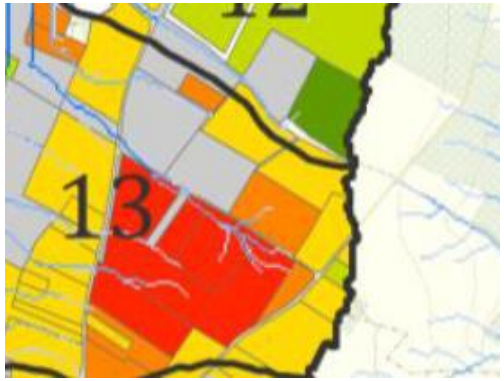
1. General communication to whole group of farmers, farmers association:
    - Information on safe use, measures on point sources (biofilters), mitigation measures
    - Problem identification, catchment information using risk map

2. Targeted personal communication to farmers with fields in priority zones with proposition for buffer strips

Implementation of measures

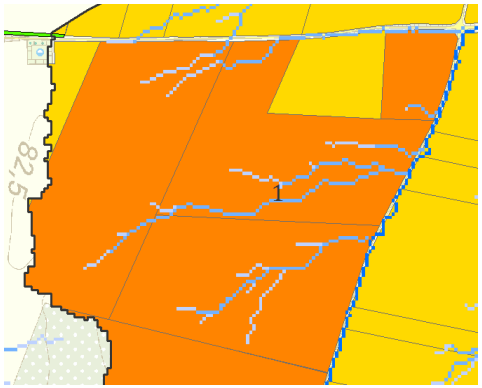
- Implemented measures in target zones in **2016**:
  - 11 grassbufferstrips in the catchment (8,46 ha)
  - most of the bufferstrips are 9 m wide, and 3 bufferstrips are 21 m wide

ZONE E



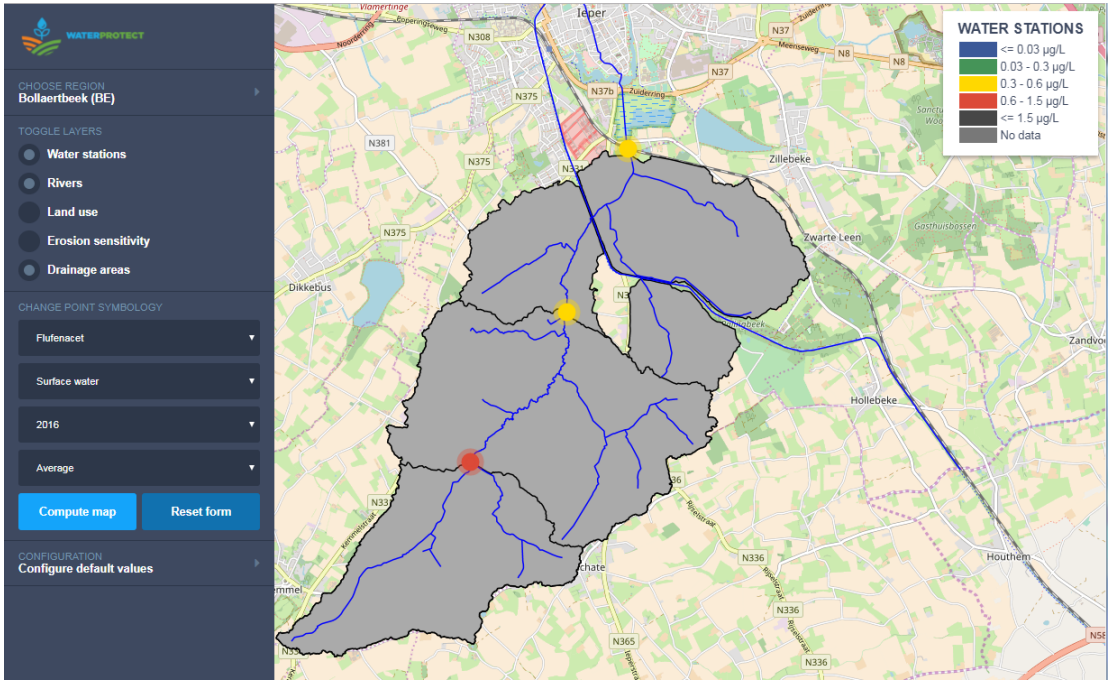
- For **2017**: up to now confirmation of 4 measures (3 strips and 1 parcel) in crucial locations

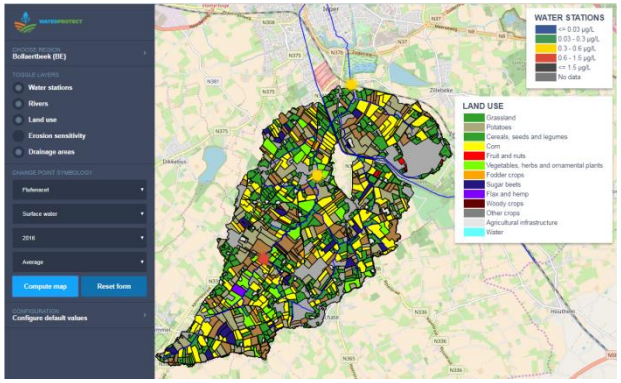
ZONE A

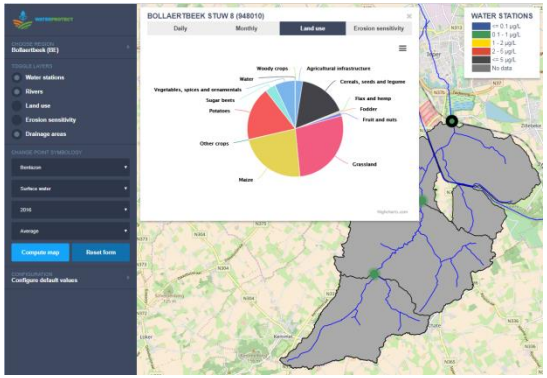


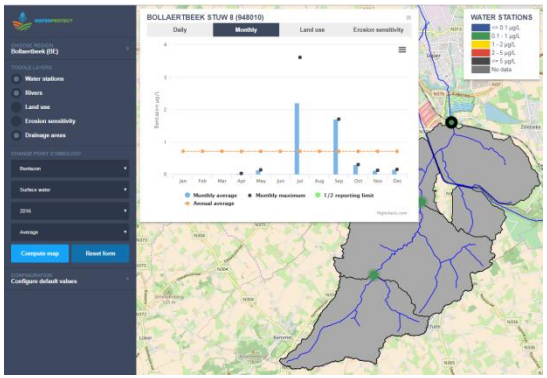
COLLABORATIVE TOOLS (GIS + MODELS)

- *Harmonised data*
- *Easy access*
- *Link action to water quality*
- *Visualise landscape*
- *Show impact of behaviour*









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ACTION LAB MULTI-ACTOR MANAGEMENT

WATERPROTECT

Knowledge

Resource system (catchment)

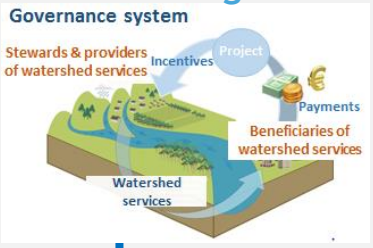
Are part of

Resource units

Land
Soil
Surface water
Groundwater

New governance

Governance system

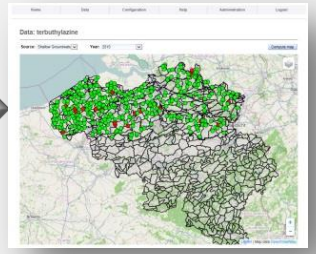


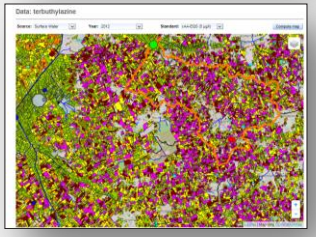
Define & set rules for

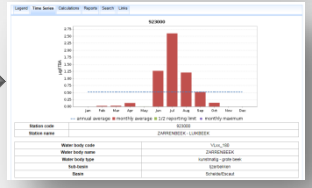
Actors

Farmer
Water producer
Food producer
Consumer

Easy access for actors to information (ICT tools)







Measures towards improved groundwater and surface water quality

Better systems **knowledge** of resources

Improved stakeholder **engagement**

Implementation of measures & improved water quality

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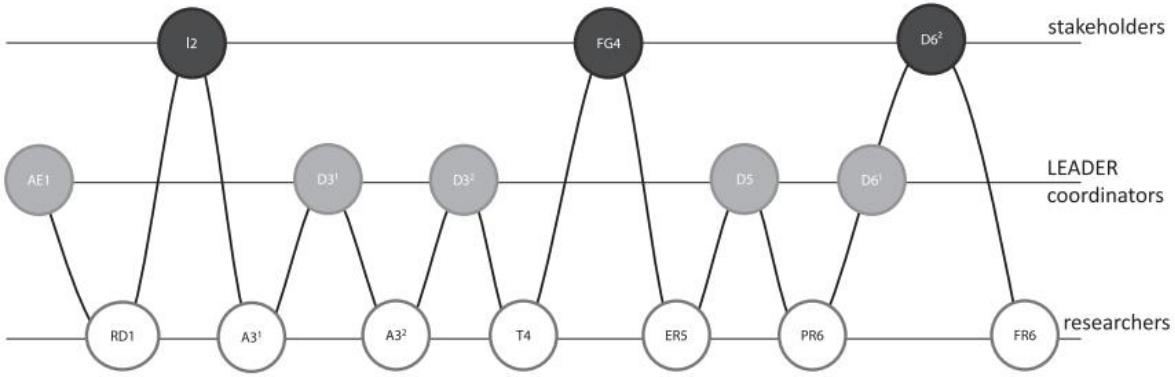
The social perspective: multi actor approach

- A transparent and fair process
- Visualization of the process for better understanding
- An equal involvement of all actors
- A neutral start for the process by sharing common objectives and a common language
- Social and emotional dynamics to encourage overall group functioning



Key: the colors indicate specific meeting constellations (white: scientists; grey: project meetings; black: stakeholder meetings). Each circle mirrors a specific activity. The number in the circle refers to the specific stage of the process. The capital characters indicate a specific activity:

AE: assignment and exploration
RD: research design
I: interviews
A: analysis
D: discussion
T: translation
FG: focus group
ER: extensive report
PR: provisional report
FR: final report

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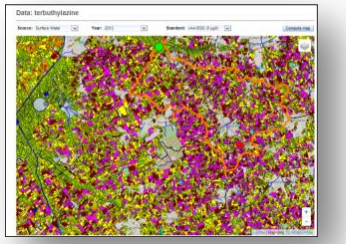
WATERPROTECT IMPACTS

Impacts	Targets
multi-actor approach for a close cooperation and sharing of information and knowledge	40 training events 500 interactions webtools
sustainable impact on diffuse pollution and point sources at action lab level	13 mitigation systems installed or demonstrated
reduction of costs of water treatment	trend to improvement of water quality
harmonised datasets on water quality	7 harmonised datasets in 7 countries available through web
co-created participatory monitoring approaches	350 farmers + consumers participating 175 users of the webtool
water governance models that lead to higher adoption rates of best management practices	14 BMPs implemented through the governance process
strong multiplier effect to extend best practices across Europe and to translate the lessons into policy reforms and actions	6 EU workshops initiate EIP Water Governance in Agriculture



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WATERPROTECT CORE PARTNERS

WATERPROTECT

Project management

vito

www.vito.be

Multi-actor management

ILVO
Flanders research institute for agriculture, fisheries and food

www.ilvo.be

Upscaling to EU

ewp
the voice of water

www.ewp.eu

Romanian action lab

ASOCIATIA ECOLOGIC

www.ecologic.org.ro

Belgian action lab

inagro
RESEARCH & ADVICE IN AGRICULTURE & HORTICULTURE

www.inagro.be

Danish action lab

GEUS

www.geus.dk

Polish action lab

POLISH GEOLOGICAL INSTITUTE
MENTE ET MALLEO
1919
NATIONAL RESEARCH INSTITUTE

www.pgi.gov.pl

Irish action lab

teagasc
AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY

www.teagasc.ie

Italian action lab

UNIVERSITÀ CATTOLICA del Sacro Cuore

www.unicatt.it

Spanish action lab

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WATERPROTECT ACTORS & STAKEHOLDERS

- **Action lab actors (17 local project partners)**
  - Environment Agencies
  - Drinking water producers
  - Consumer organisations
  - Local communities
  - Farmers advisory
- **Action lab stakeholders (30 local organisations signed letters of Support)**
  - Local rural networks
  - Farmers unions
  - Fertilizer and plant protection products industry
  - NGO's and nature conservation
  - Ministeries: environment, agriculture
- **EU level stakeholders (WaterProtect Advisory Board)**
  - COPA-COGECA (Farmers)
  - ECPA (Plant protection industry)
  - CEEP (Water producers)
  - BelFertil (Fertilizer industry)
  - EFBW (Mineral Water Bottlers)
  - EU expert = Jenny Kreuger
- **EU policy (DG RTD and DG AGRI)**
  - EIP Agri

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Thank you

More info? Visit www.water-protect.eu

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