

Cooperation between Farmers and Water Utilities – a Governance Mechanism to Protect Water Resources

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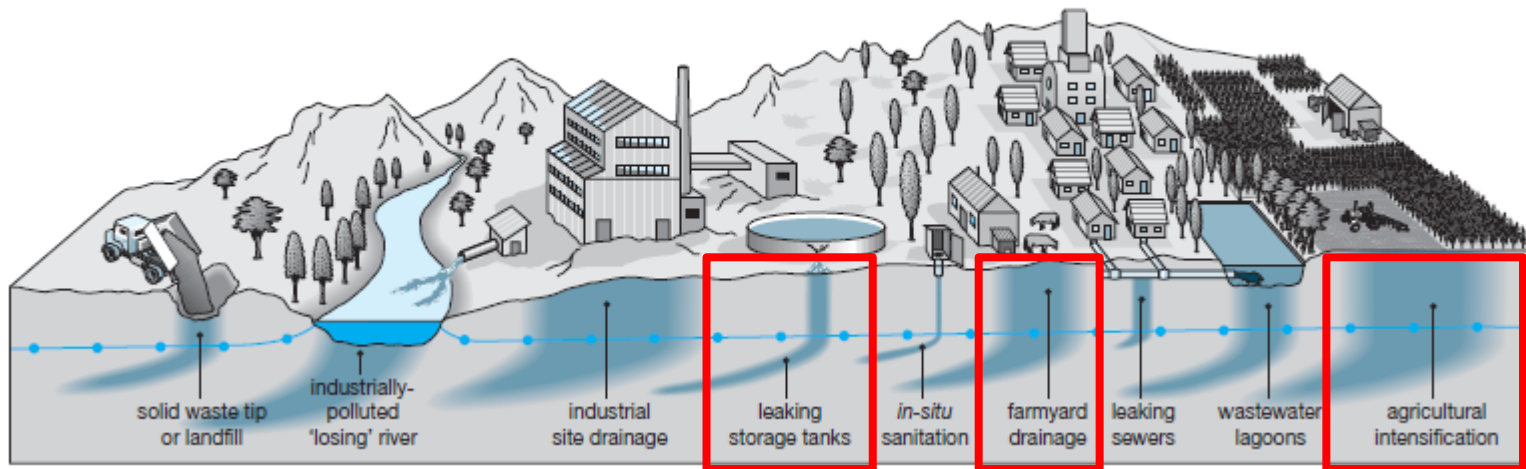
Seminar “Liquid manure and pesticides:
water quality challenges of agriculture”

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Agriculture – Water Nexus



Figure 1: Land-use activities commonly generating a groundwater pollution threat



BMZ-funded project: How to protect water resources from **diffuse, non-point** sources of pollution (nitrate, phosphate)

Source: GW-Mate Briefing Note Series, No. 8/2004

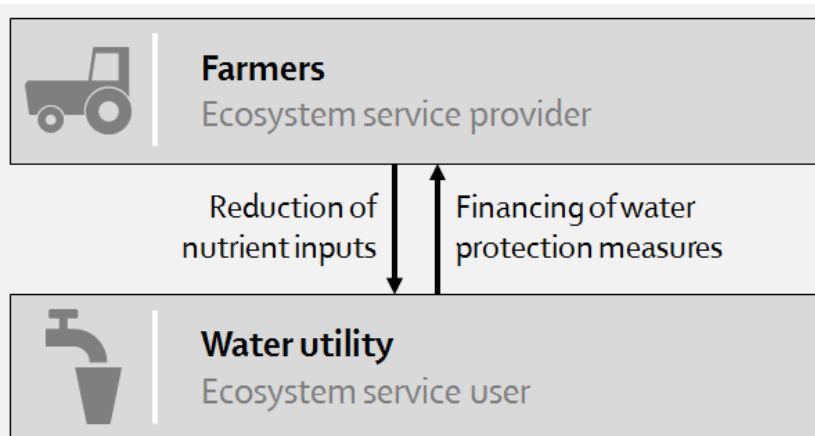
COOPeration between Farmers and Water Utilities – a governance mechanism



527 cooperations in EU
435 in Germany
(200 in Bavaria)
70 in France

(Source: Heinz 2000; 2003; 2008)

Figure 1:





Majority of PES targets sedimentation of reservoirs:

COOP electricity utility – upstream land users

(Columbia: Rodriguez 2017; Costa Rica: Miranda et al. 2006;
Tanzania: Branca et al. 2011)

COOP water utility – upstream land users

(Kenya: WAC 2009)

COOP WG Agriculture, Water and Soil, Wahnbachtal (North-Rhine Westphalia)

11,000 hectares, incl. 8 water protection zones

Agriculture

83% are cultivated by COOP- members

=304 farmers (76% of all farmers)

full-/part-time farms

dairy cattle, sugar beets, vegetables

farm size up to 250 ha

Wahnbach Dam Association: 7 water utilities

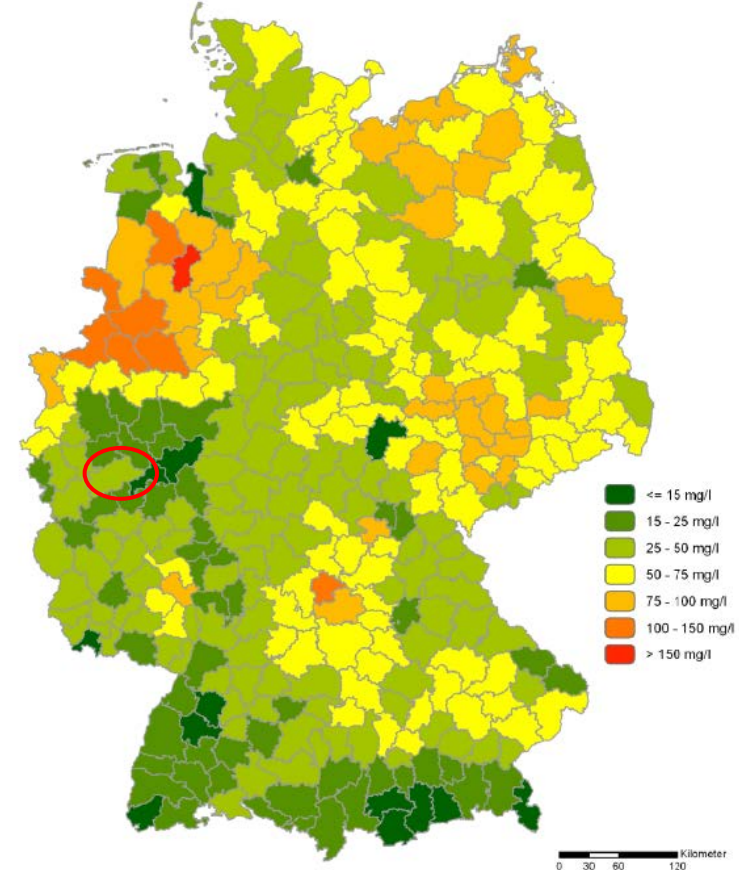
800,000 people (Bonn, counties)

43.3 mio m³ (50:50 surface-groundwater)

High nitrate concentrations up to 260 mg/l close to groundwater wells (1964-1984), decreasing to <25 mg/l

High phosphorous and pesticides values,

but decreasing



WHY and WHO initiated COOPs?



Enforcement of regulations by water authorities failed:
high costs of monitoring/ implementation

North-Rhine Westphalia's Twelve-Point Agreement (1989)

“Find a consensus between water resources protection
and farmers' interests!”

Framework agreement (1991) institutionalizes COOPs
between representatives of water and agriculture

Site-specific individual, voluntary agreements (farmers-water utility)

Local water authority does no longer monitor individual farmers,
but provide advisory services to COOP



Key actor is ...



Working Group Agriculture, Water and Soil (ALWB)

Members / General Assembly

water utilities, **farmers**, local water authority, Office for Agricultural Policy

Board of Directors

only farmers (elected by GA)

Advisory Board

water utility, **chamber of agriculture, farmers' association**

Managing Director ALWB

agricultural advisor employed with Chamber of Agriculture

(Hesse: employed with water utility ☹)



Financing sources

Public support
(6 years)



Cost share of water utilities are set against
Water Extraction Charge
(case study)

Farmers co-
finance soil
sampling

Water utilities
bear lion's
share



Water utility bears costs of COOP (Hesse)

Water tariffs slightly increase by 0.07€/m³ (3.5%) and 0.016 €/m³ (0.9%)
WUs are non-profit organizations (cost recovery acc. EU WFD)

Benefits of COOPerations



Water utility (direct beneficiary) saves money

...by supporting farmers' nutrient and pesticide management to improve raw water quality (1986: from N 90 to 50 mg/l)

alternatives are expensive (de-nitrification plant, purchase of land)
or not available (alternative water source of better quality, land)...

Farmers save money (agro-chemicals) and benefit from

...free advisory services and technical support

...compensations for income losses

...grants for e.g. enlarging slurry storage capacity

Public authorities: reduced transaction costs by changing implementation from state to non-state actors
(COOP as **enforcement mechanism**)



EU WFD & Groundwater Daughter Directive / Common Agricultural Policy

Federal Water Framework Law / Laender Water Law (Groundwater)

* Drinking Water Directive (N 50 mg/l)

* Water Protection Zone Ordinances

Good agricultural practice for protection of waters (2009), and ordinances for plant protection, soil conservation and fertilizer

Instruments applied

- water protection zones (site specific targets, land use restrictions)
- compensations in water protection zones (public, water utility)
- rules for fertilizer application (lock-up periods) (DüngeVO),
for protecting riparian strips
- public support for using advanced technology
- extension services for farmers (fertilization plan, cultivation techniques)



Factors favouring COOPs to be successful



- Regulatory framework creates demand for COOP (self-motivation?)
- High commitment of non-state actors; but supported by (agricultural!) authorities
- Significant representation of farmers in COOP
- Managing director (advisor) is affiliated with agricultural side targeted advice on technology, farming practices...
- (Self-)monitoring of commitments, rules for rule breakers
- Benefits for key actors; cash and in-kind incentives for farmers [a minimum percentage of an area must be under COOP; hot spots]
- Financing: (unequal) contributions from those who benefit
- Science must be right, shared with and accepted by farmers: information on the resource, on sources of pollution, and on effects**

Thank you for your attention!

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