

# Cooperative Agreements between the Water and the Agricultural Sector

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## The nexus issue

The agricultural and drinking water sectors are closely interconnected. By increasing production levels, the agricultural sector has made a major contribution to meeting growing global food requirements in recent decades. This has been made possible by, among other things, the use of nutrients (nitrogen, phosphorous) and pesticides. In industrialised nations and many emerging economies and developing countries, the intensification of agriculture and the increased use of nitrogen and phosphorous has led to a heavy influx of pollutants into surface and ground water, with a highly detrimental effect on water quality and biodiversity in water bodies.

Even though agriculture is not the only source of nitrogen and phosphate enrichment in water bodies, it can contribute to significantly impairing other uses reliant on good water quality, such as the supplying of households with drinking water.

In order to avoid health risks resulting from poor drinking water quality and meet national drinking water standards, use can be made of advanced modern water treatment technologies, though these technologies entail significant investment and operating costs. By contrast, there have been some very positive experiences with voluntary, intersectoral cooperation agreements in Germany, other European countries and the United States. Farmers and water providers agree on water-friendly agricultural practices in water protection areas in order to improve the production and quality of drinking water (provision of ecosystem services).

These measures are financed by the water companies. Drinking water partnerships are considered a suitable and effective approach for reducing agricultural run-off to the benefit of both parties.

## Research goals

The research goal for the sub-project was to analyse drinking water partnerships in Germany as nexus instruments and to assess their applicability in developing countries. Consequently, analysis focused on:

- characterising the conditions under which drinking water partnerships come about,
- identifying the incentive structure of the actors (farmers and water providers) for participating in these cooperation agreements,
- identifying the conditions which enable this approach to be transferred to emerging economies and developing countries.

## Results

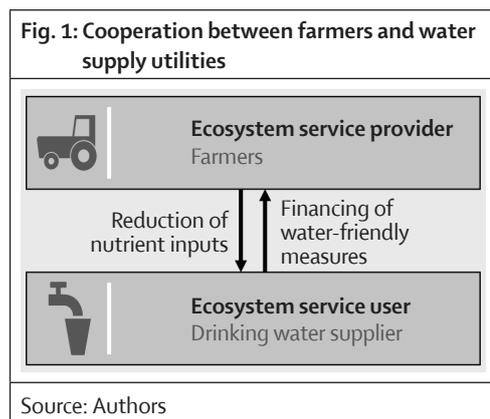
Voluntary drinking water partnerships between water providers and farmers in Germany have significantly reduced nitrogen input into drinking water reservoirs through the financing of water protection measures, and have done so without negatively affecting farmers' crop yields. Examples of such measures include a needs-based fertiliser planning model, sealed storage facilities for solid and liquid manure, and the provision of special technology for liquid manure application.

These partnerships are usually financed by the water providers. In North Rhine-Westphalia, water providers can offset their expenses against the water abstraction levy they pay to the federal state.

The voluntary agreements between water providers and farmers have received a significant boost as a result of the introduction in the mid-1980s of a European threshold limit for nitrates (50 mg/l, from 90 mg/l previously) in drinking water. Policy-makers and administrations saw the partnerships as offering an interesting

Voluntary drinking water partnerships provide a good alternative to regulatory requirements.

alternative to the cost-intensive implementation and monitoring of regulatory requirements.



Experience shows that voluntary partnerships work well if use rights are stipulated clearly in a corresponding legal framework (e.g. regulation on water protection, fertilizer regulation for a water-friendly agricultural sector, usage regulations in drinking water conservation areas) and if stakeholder participation is taken seriously. An adequate set of basic data is essential for water management and the reliable monitoring of compliance with drinking water thresholds. On an agricultural level, there is a need for information about nitrogen run-off and the pathways it takes.

These kinds of voluntary cooperation agreements are also relevant in emerging economies and developing countries when it comes to drinking water regions with intensive commercial agriculture and high nutrient input. Similar

initiatives are already been run under the concept of “payments for ecosystem services” in Colombia, Pakistan, Nepal, Indonesia and the Philippines. However, these mainly concern compensation payments made to farmers by hydropower companies with the aim of limiting soil erosion in the upper reaches of rivers rather than improving drinking water quality.

## Recommendations

Drinking water partnerships between water suppliers and agriculture can be an effective approach for improving drinking water quality. Such partnerships can also be implemented under certain conditions in developing countries and emerging economies:

- a legal framework facilitates partnerships (e.g. thresholds for drinking water and, if relevant, nutrient inputs);
- a sustainable model for financing the partnership (e.g. a water abstraction levy);
- effective integration and involvement of farmers in defining the measures;
- advisory services for farmers and incentives for participating farmers (yield increases, use of technologies);
- good availability of data (e.g. on nutrients in the water, pollution sources).

Development cooperation actors can work to improve conditions through the use of suitable measures and run pilot projects to support the initiation of partnerships on drinking water improvements.

Sustainable financing models and opportunities for participation are the basic building blocks of drinking water partnerships.

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