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# Sharpening policy instruments with catchment evaluations and the water quality continuum

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There is a scale dichotomy in water quality management in European agricultural catchments due to the fact that impacts identified at river basin scale are mitigated by management that is typically asserted from research at field or plot scale and implemented at farm scale. Evaluations of management impact are then undertaken back at the river basin scale. The policy instruments in place to mitigate water quality impacts are also based on the integration of scientific research and stakeholder negotiations and can sometimes be blunt compromises. Nevertheless, expectations of accruing water quality benefits remain high and sometimes unchallenged.

Evaluating all catchment components of a pollution transfer continuum from source to impact enables important elements such as lag time between policy implementation and water quality response, water body sampling frequency and allocation of correct dose-response mechanisms to be assessed. These points are particularly important in complex agricultural catchments where multiple nutrient pollution sources have variable impacts on different water body types – and at different times of year.

The tools of catchment water quality policy evaluation are diverse and include metrics of natural resource management, soil and water chemistry, hydrology, ecology and palaeolimnology. Used in combination and with river basin scale and site-specific data inventories, they can provide a powerful suite of evidence for further iterations of water quality policy and projecting realistic expectations of policy success.