

## **Innovative tools for the assessment and management of rural basins for nitrogen and phosphorus control.**

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A lot of initiatives for improving the water quality were developed for 15 years in Brittany in response to the European policy and the ecologist requests. This implies the partnerships of farmer organisations, organisms in charge of rural affairs and research and formation institutes.

The paper presents the 2 main aspects of a possible original and efficient water policy, in the framework of the water management at the watershed scale:

1. Developing new methods of water management, including farming activities, to improve the water quality; 2 methods are presented. The first one consists on the delineation of the functional upstream network, because we need a clear delineation of the whole network to apply the regulation concerning the river bank and stream network protection. The second one focuses on improving the management of controversial wetlands. The method defines three levels of wetlands: the Potential, the Existing and the Effective Wetlands (The PEEW approach). These tools are embedded in a holistic approach in free access on the web (TERRIT'EAU : [http://agro-transfert-bretagne.univ-rennes1.fr/Territ\\_eau](http://agro-transfert-bretagne.univ-rennes1.fr/Territ_eau)),
2. Developing new methods to assess the pressure, status and impact taking into account the complexity of a system submitted to a recent and light water policy, a strong hydrological variability and a long response time. The main tool is a deterministic agro-hydrological model, TNT2, well adapted to the physical environment, validated on a long term agro-hydrological observatory, and using different land-use and land cover scenarios.