

# THE EUROHARP PROJECT: A PAN-EUROPEAN STUDY ON QUANTIFICATION OF DIFFUSE POLLUTION SOURCES AND MODEL APPLICABILITY

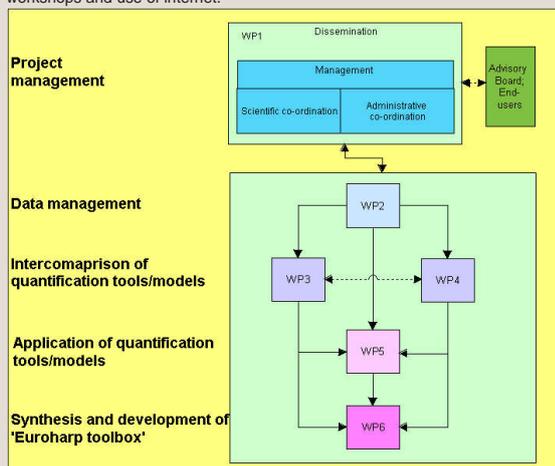
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## Approach to the problem

Nitrogen and Phosphorus losses from diffuse sources represent the main cause of decreased water quality in many European freshwater systems. There are a number of quantification tools (QTs) in use for quantifying these losses. However, the lack of transparency and compatibility of the current QTs in Europe has been identified as a major constraint for various water policy initiatives, e.g. European Union's Water Framework Directive (WFD) and the OSPAR Strategy to Combat Eutrophication. EUROHARP compares 9 contemporary QTs for diffuse losses of nutrients. The study is carried out in 17 European catchments, covering significant gradients in climate, soil conditions, hydrology, land use and agricultural practices. The major outcome of the project will be a guidance for selection of QTs under different environmental conditions as well as resources and data availability ('EUROHARP Toolbox').

Flow of information in EUROHARP. Data from all catchments are prepared in a common format (WP2) before use in the detailed scientific intercomparison of models (WP 3 and 4) and in the test of applicability of models in the different catchments (WP5). Based on the scientific intercomparison and the applicability test, guidance for choice of appropriate quantification methodology is developed as part of WP6. Special attention is given to the end-user dialogue through annual workshops and use of internet.



## Decision support

The level of complexity varies between the nine contemporary QTs in EUROHARP. It follows that the level of process orientation and complexity in quantification approaches would need to be balanced with important aspects related to the applicability and the practicability of the QTs being used. Key issues are the suitability for a particular use and the definition of "good enough" for that purpose. The EUROHARP project will give end-users access to a decision support system (DSS), which will extract and transform the major outcome of the comprehensive testing of currently applied QTs in Europe into practical recommendation as regard choice of QTs for different purposes.

Some expectations expressed by members of the EUROHARP Advisory Board.

End users	Expected project-results
OSPAR Commission	OSPAR need the results from the EUROHARP intercomparative study to prepare a guideline on how OSPAR member states should quantify diffuse losses for use in their reporting to the Commission.
European Environmental Agency (EEA)	EEA is developing scenarios, prospective analysis and integrated environmental assessment for every 5th year (State and Outlook report). It is planned to develop scenarios for nutrients/eutrophication and there is a demand for reliable quantitative data.
The French Water Agency	For the French Water Agencies the most important factor is to have available quantification tools that enable the selection of the water bodies which conceal a risk of non-compliance of the 'good state' (ref. WFD). Emphasis should be put on presenting the results in a good pedagogic manner, which will be necessary to explain results to policy makers/stakeholders.
Spanish Ministry of the Environment	There is a need for loss coefficients adapted to the conditions in Spain, e.g. concentrations of P and N in agricultural surface runoff and subsurface flow based on vegetation, soils, climate, retention coefficients for rivers. The results from EUROHARP is expected to assist Spain in its effort to improve the quantification of diffuse losses of nutrients.

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Representatives of EUROHARP at the annual partner meeting in Oslo March 2003.

## End-user involvement in the spirit of the Water Framework Directive

More than ever is the management of European waters strongly dependent on the availability of sound scientific knowledge of the topics considered. The EC research policy aims at a short and structured transfer of knowledge from science to policy decisions. In the EUROHARP project this aspect is taken on board both with regard to how end-users are being involved in the project itself, how a pan-European demand for results are included in the project design and how this relates to the spirit of end-user involvement in the WFD.

End-users, e.g. river basin district managers, may require a number of outputs from models that not necessarily can be supplied on the basis of one single quantification approach. On one hand is the need to quantify in detail and with great spatial specificity the loss of nutrients through different pathways (e.g. through tile drainage, through groundwater leakage) in order to define efficient counter measures on a detailed level. On the other hand is the demand for gathering aggregated loss overviews from large areas (hundreds of water-courses, countries) in order to detect trends over time related to politically agreed objectives.

Key end-users of results from Euroharp are members of the Advisory Board

DG Environment of the EC	Po River Basin Authority
DG Research of the EC	Environmental Protection Agency (Ireland)
European Environment Agency (EEA)	The Spanish Ministry of Environment
International Commission for the Protection of the Danube River (ICPDR)	The Morsa-catchment organisation (Norway)
OSPAR Commission	

EUROHARP partners

Federal Environmental Agency Ltd. (FEA Ltd)	Joint Research Center (EC-JRC)
Hydrobiological Institute (HBI-AS CR)	Lithuanian Institute of Water Management (LIWM)
National Environmental Research Institute (NERI)	Centre de Recherche Public - Gabriel Lippmann (CRP-GL)
Finnish Environment Institute (FEI)	Alterra, Green World Research (ALTERRA)
Institut français de l'environnement (IFEN)	Center for Soil & Environmental Research (JORDFORSK)
BETURE-CEREC Company (BETURE-CEREC)	Norwegian Institute for Water Research (NIVA)
Institute of Freshwater Ecology and Inland Fisheries (FV-IGB)	The Norwegian Institute for Urban and Regional Research (NIBR)
National Technical University of Athens (NTUA)	Andalusian Regional Ministry for Environment (OTCV)
VITUKI Consult Rt. (VITUKI)	Swedish Meteorological and Hydrological Institute (SMHI)
Kirk McClure Morton (KMM)	Sveriges Lantbruksuniversitet (SLU)
Water Research Institute - National Research Council (IRSA-CNR)	ADAS Consulting Ltd. (ADAS)



Towards European Harmonised Procedures for Quantification of Nutrient Losses from Diffuse Sources