

Climate Change and WFD in the light of the results so far of the Project ClimateWater.

The Project ClimateWater (Bridging the gap between adaptation strategies of climate change impacts and European water policies, www.climatewater.org) is aimed at the analysis and synthesis of data and information on the likely water related impacts of the changes of the climate with special regard to their risk and to the urgency of getting prepared to combat these changes and their impacts. The Project identifies major adaptation strategies that were developed in Europe and also globally for preventing, eliminating, etc. the impacts of global climate changes on water resources and aquatic ecosystems, including all other water related issues of the society and nature. Research needs in the field of 'climate impact on the water cycle and water users' will be identified with special regard to the most important output of the project the identification of gaps that would hinder the implementation of the EU water policy in combating climate impacts on water.

The project is being implemented by a Consortium that consists of 11 Institutions (VITUKI, H, the Co-ordinator; UNIDEB FE, H; CNR-IRSA, I; USF, D; GeoEcoMar; Ro; GEONARDO, H; UNIVIEN, A; UNILEI, UK; SHMU, SK; SOGREAH, F; and MRA, Malta).

Regarding WFD it was found that there exist some major gaps. The most serious gap is that non-point or diffuse pollution, which intensifies with climate change impacts, is not handled properly by WFD related documents. Such impacts are the flushing away of hazardous substances from abandoned industrial sites and waste deposits, and highly contaminated waste water flooding the streets, etc.

Therefore EU wide (world wide) research into a holistic solution is needed. This solution, as revealed so far by the EU FP-7 Project 'ClimateWater' (www.climatewater.org), may be called an **ecohydrological approach**.

The essence of ecohydrology is to upgrade terrestrial and aquatic ecosystems and their edge communities (the ecotones) by indentifying sources of degradation problems (erosion, sedimentation, excess nutrient loads, other pollutants, too little or too much water and flow) and find hydrological-hydraulic that is water-engineering and pollution control solution (also by modelling), while enhanced ecosystems will, through their upgraded functional performance, resilience and resistance, provide means of controlling flows and water quality, thus helping to upgrade the entire river basin in concern for all the uses of Man and nature.

The main requirement is to trace (by appropriate planning tool, e.g. models) the fate of water and its constituents from the place where water falls until a final destination, e.g. a River Basin outflow point and plan the strategies. The practicable (and practiced) planning tools are missing.

In earlier projects we have developed appropriate tools and have shown the ecohydrological solutions. The models and methods developed there were never been in actual use as no follow-up activity (maintenance of models with data base renewal, field measurements for recalibration etc) could ever been achieved.

A very special issue of the planning-forecasting models for supporting WFD's RBMP is the lack of models of on-line type accidental pollution emergency. We have proven (supported by publications of the developers of the AEWS system or ICPDR, designed for this purpose), that it never worked as were never calibrated and verified (e.g. see the Baia Mare/Nagybánya cyanide case and more recently the red slurry accident of Kolontár-Devecser, Hungary). One of the most urgent task of the EU action strategies is to upgrade data base (maintain, verify and recalibrate models) of the already existing forecasting tools.

A highly important additional requirement of developing real planning tools for international river basins is that the equitable use of the quality and quantity of water resources of river basins be really ensured in an enforceable manner by relevant international legal regulations, agreements and conventions. (e.g. the existing ones always have an amendment or footnote that allows the escaping from all obligations).