



How Can the Water Framework Directive Deal with the Xenobiotics Issue?

V Naddeo*, D Scannapieco and V Belgiorno

Sanitary Environmental Engineering Division – SEED, Dept. of Civil Engineering, University of Salerno, Via Ponte don Melillo, 84084 Fisciano (SA), Italy

In Europe, management and protection of the environment have historically been entitled to local ornational agencies. This began to change with the long list of water-related European directives, which have set increasingly co-ordinated European targets for drinking, waste and bathing waters. The most relevant one, the Water Framework Directive (WFD), aims to enhance the general quality of water environment. The overall environmental classification will drive the management and policy outcomes for individual Europeancountries. Eventually, all member states will be required, under law, to have their water bodies in a ‘good’ statusby 2015. If a water body is classified as less than ‘good’, then the member state must provide actions that willbring waterquality back to a ‘good’ status. Indeed, one of the objectives of the WFD, besides ecological status, is to achieve a good environmental status for all European waters by 2015. A number of aspects are considered during the assessment, such as chemical and biological pollution. A critical issue in this context is related to the occurrence of chemicals in European surface-water bodies, therefore the Directive calls for a regular monitoring of a list of hazardous compounds in waters. This is based on compliance checking of average concentrations with environmental quality standards (EQSs), thanks to which it can be defined the chemical status of water bodies. It has to be noted that an increasing number of emerging compounds is discharged into the environment, such as pharmaceuticals, pesticides and hormones. In addition, some of these chemicals are proven to be bio accumulative and/or ecotoxicological. Obviously, as long as pharmaceuticals and personal care products have been used,

they have been present in the environment, and year after year new pharmaceutically active compounds were developed, increasing the range of molecules introduced into the environment. Pesticides are also regarded as emerging compounds, being included in a broad range of organic micro pollutants that have ecological impacts. Although terrestrial impacts by pesticides do occur, the principal pathway that causes ecological impacts is that of water contaminated by pesticide runoff; farm workers must manage risks associated with inhalation and skin contact²³. Pesticide occurrence in surface water has two main human health impacts.

As a consequence of this, environmental sciences are faced with the challenge posed by monitoring programs carried out at the European scale, which require the development or improvement of monitoring programs and the establishment of international programs for quality assurance and quality control (QA/QC), including the production of new reference materials.

In the past few years, thanks to a considerable effort of researchers and policy-makers, it has been possible to develop a strategy to implement the WFD, as well as to promote several interdisciplinary projects, which have resulted in a better understanding of communication and knowledge-transfer gaps. The science that is nowadays presented is a result of theincreasing collaboration occurring between European policy-makers, regulators and scientists. This is critical as the action required to take on such a multifaceted environmental directive requires input and uptake at all levels of environmental management.

***Corresponding author:** V. Naddeo, Assistant Professor, Sanitary Environmental Engineering Division – SEED, Dept. of Civil Engineering, University of Salerno, Via Ponte don Melillo, 84084 Fisciano (SA), Italy, Tel: +39 089 96 9333; Fax: +39 089 96 9620; E-mail: vnaddeo@unisa.it

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