

**REGULATION – The Water Framework Directive 2006/11/CE (WFD) on the protection of groundwater (GW) against pollution and deterioration asks Member States to identify significant and sustained upward trends in all bodies or groups of bodies of groundwater that are characterized as being at risk in accordance with Annex II to Directive 2000/60/EC.**

## Transboundary study of unregulated and emerging contaminants in Upper Rhine aquifer

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### Topics

#### EMERGING CONTAMINANTS IN THE WATER CYCLE

Upper Rhine aquifer is a very productive aquifer. But it is highly vulnerable due to very low natural protective cover at its surface. This aquifer is under various pressures (agricultural, industrial, domestic). Consequently the water body is impacted by point source pollutions and diffuse pollutions, reason why it was classified at risk to cause a failure of Water Framework Directive objectives. Despite historical interests in characterizing these pollutions, nowadays there is a need for better constrain the presence of unregulated and emerging contaminants.

### 2 OBJECTIVES

This project aims to determine the occurrence of organic contaminants, including pesticides and some of their metabolites, industrial compounds but also emerging contaminants such as pharmaceuticals. The list of molecules was elaborated in a consensus way based on the up to date knowledge from experts of French, German and Swiss research organisms and public authorities in charge of water quality assessment of this aquifer. The selection of molecules of interest was based on availability of analytical methods, current knowledge on contaminants occurrence in groundwater and type of pressures. A list of 82 molecules has been established and will be analyzed on the groundwater samples.



### 1 FRAMEWORK OF THE STUDY – TRANSBOUNDARY INVENTORY OF WATER QUALITY OF UPPER RHINE AQUIFER

In 2016, this inventory will be lead during the INTERREG V project ERMES-Rhin, under the supervision of the APRONA. This transboundary inventory is the 5<sup>th</sup> since 1991. It was earlier based on a list of regulated contaminants. This new inventory will enable a trans-boundary research and analysis of targeted unregulated and emerging contaminants in Upper Rhine aquifer.

### 3 BRGM ASSIGNMENT

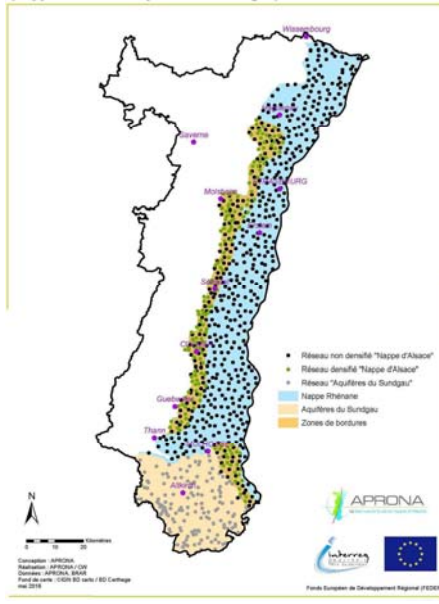
**Work of support to transboundary steering committee and scientific watch on the current state of scientific knowledge and developments. BRGM scientific expertise for the establishment of the list of emerging contaminants in preparation for the transboundary inventory :**

- Support for the definition of a list of potential targets for emerging contaminants ;
- Organization of a transboundary experts workshop about emerging contaminants in BRGM Alsace held on 16th December 2015 ;
- Support for the establishment of a list of emerging substances to seek in the Upper Rhine French side aquifer.

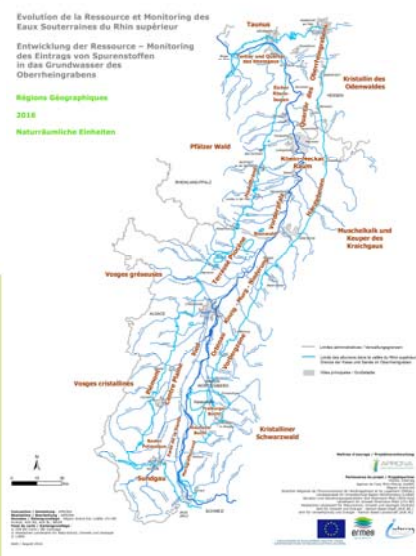
**Scientific expertise within the recommendations for the sampling and sample analysis operations and advices for the tender definition :**

- Support for the definition of quantification limits: considering national laws, recent works by AQUAREF concerning analytical capabilities of national laboratories and foreign partners practices to ensure homogeneous operations at the catchment scale ;
- Measurements survey on the French side began in August 2016.

ERMES-Rhin 2016 - Réseau de mesures (Nappe d'Alsace et Aquifères du Sundgau)



PROJET ERMES - RHIN 2016



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Fundings BRGM assignment : Water Agency Rhin Meuse - BRGM

### 4 CONCLUSIONS

Results will help stakeholders to better manage the groundwater resources of Upper Rhine aquifer. This is the first campaign for unregulated and emerging contaminants at such an extensive scale with this density of measurements.