

THE GROUNDWATER DASHBOARD OF WALLONIA

A MONITORING TOOL



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Introduction

Groundwater is the dominant resource for drinking water in Wallonia. In 2016, about 372 million m³ have been abstracted of which 302 million m³ for drinking water. Every day our groundwater resources are facing increasing pressures : growth of population, urbanization, agriculture. Thus it is important that managing tools are set up to highlight threats and weaknesses of aquifers and to inform people working in groundwater fields.

« The Groundwater Dashboard of Wallonia » is a synthesis of the data relating to groundwater in Wallonia. This document deals with the differents aspects of groundwater, both in Wallonia and in the international Meuse and Scheldt river basin districts.

Designed and achieved by the « Direction des eaux souterraines » in collaboration with the « Direction de la Coordination des données », this document deals with all aspects related to management of groundwater resources.

It can be consulted on the web <http://environnement.wallonie.be/de/eso/atlas/index.htm> and downloaded as a pdf document.

Methods

Each topic features a map realized with data collected and regularly updated, stored in reference databases, mainly « Dix-sous » and « Calypso ».

« Dix-sous » database contains available data on groundwater and drinking water intakes as well as on piezometers (geolocalisation, nature, equipment, description, operator, abstractions, measured piezometric levels).

« Calypso » contains quality data of drinking water and groundwater (hydrogeochemical and pollutant analyses).

Each topic is composed of a small introduction and is accompagnied with charts, tables and a text to understand what it is about. The map which illustrates the topic is made with ArcMap, an ESRI® Geographic Information System software (GIS).

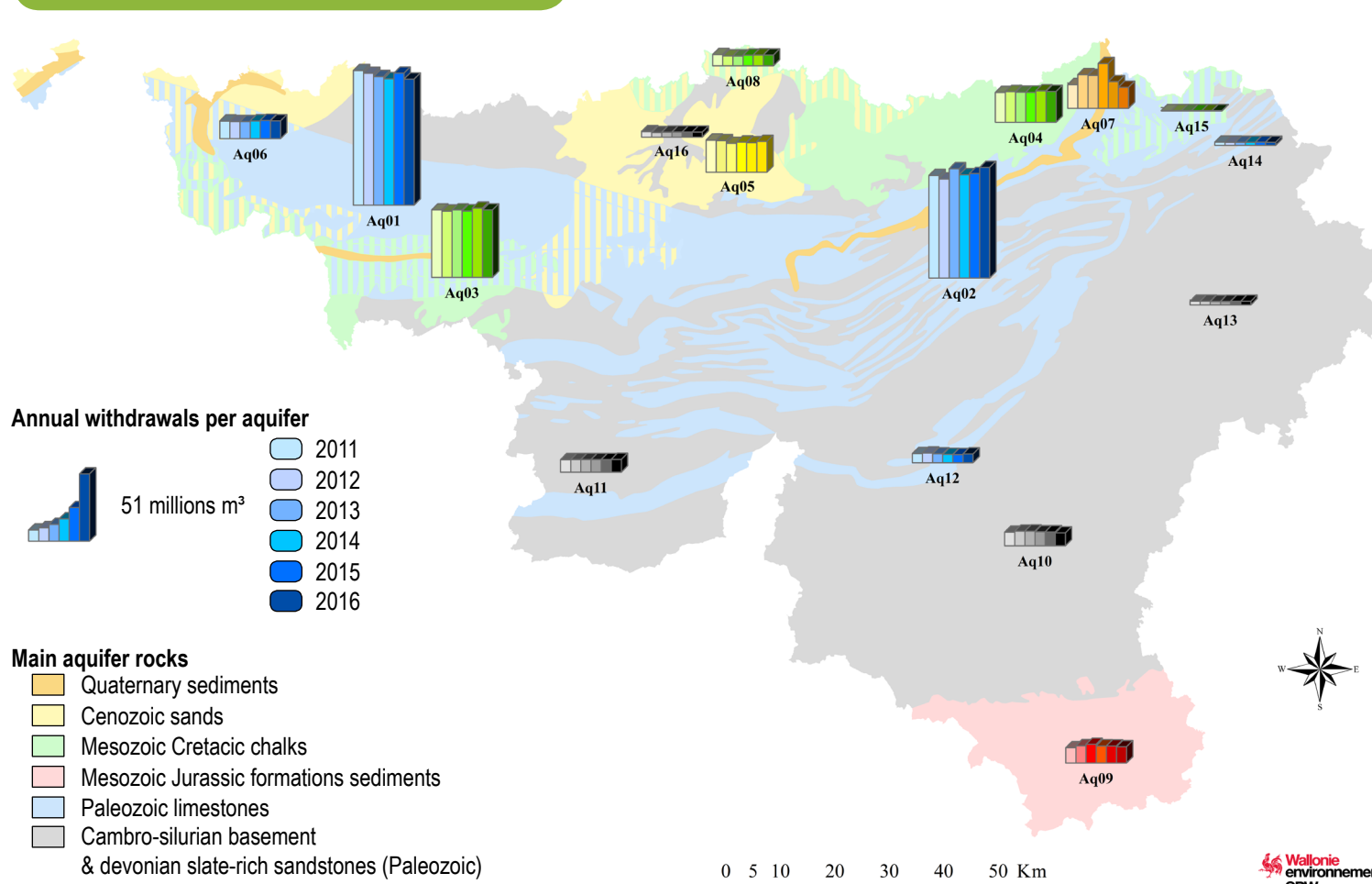
The document is a yearly dynamic tool and informs groundwater managers and stakeholders involved in the distribution of drinkable water regarding :

- its physical and chemical qualities ;
- abstractions ;
- variations of the piezometric levels.

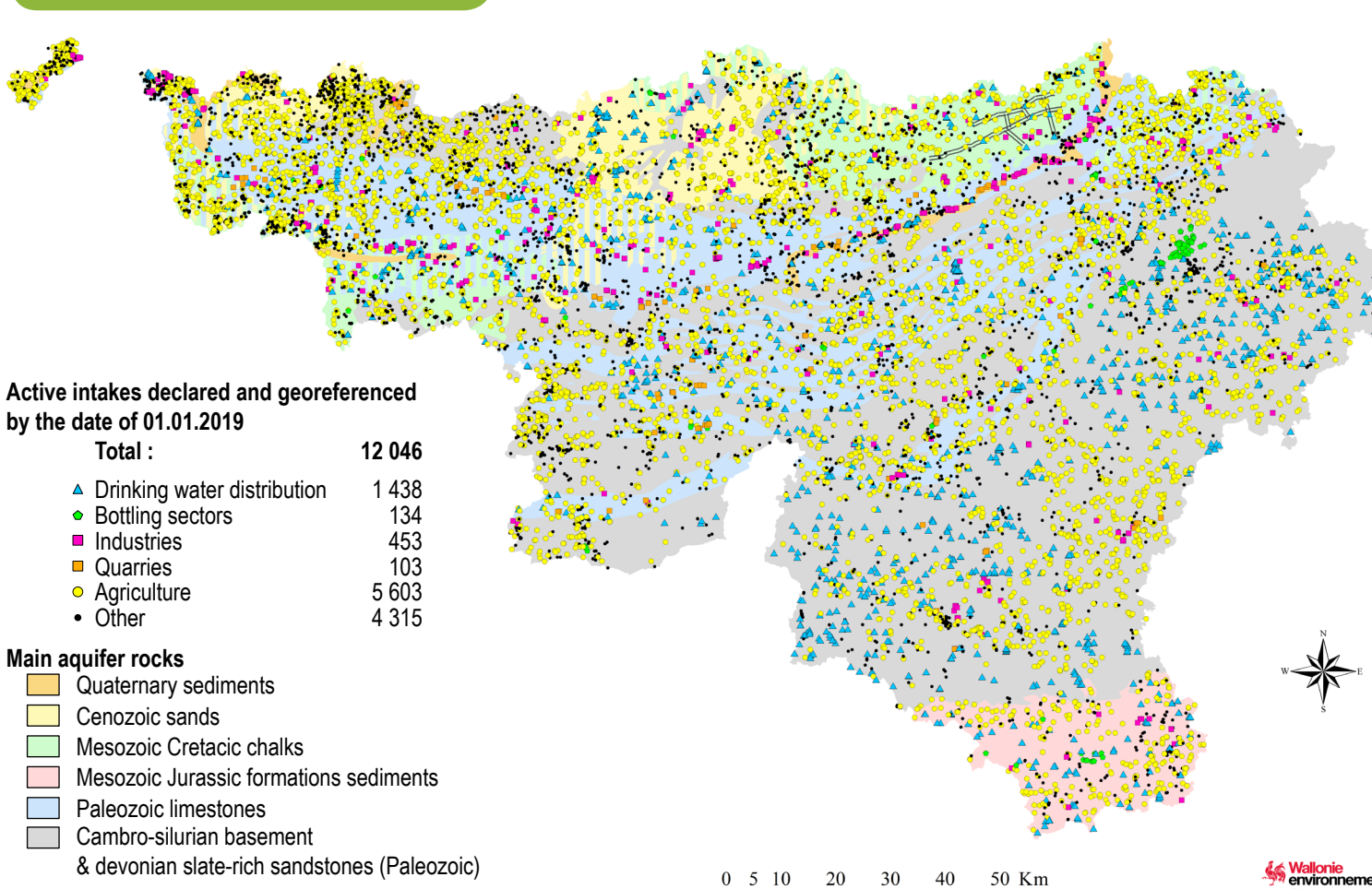
Since 2002, an update is done for the meeting « Assises de l'eau en Wallonie » (<https://www.aquawall.be/fr/assises-de-l-eau.html?IDC=543>) and each year in March for the « World Water Day » (<http://www.un.org/fr/events/waterday/>) and for the « Journée wallonne de l'eau » (<https://www.wallonie.be/fr/evénements/journees-wallonnes-de-leau-0>).

Wallonia & groundwaters into three key-maps

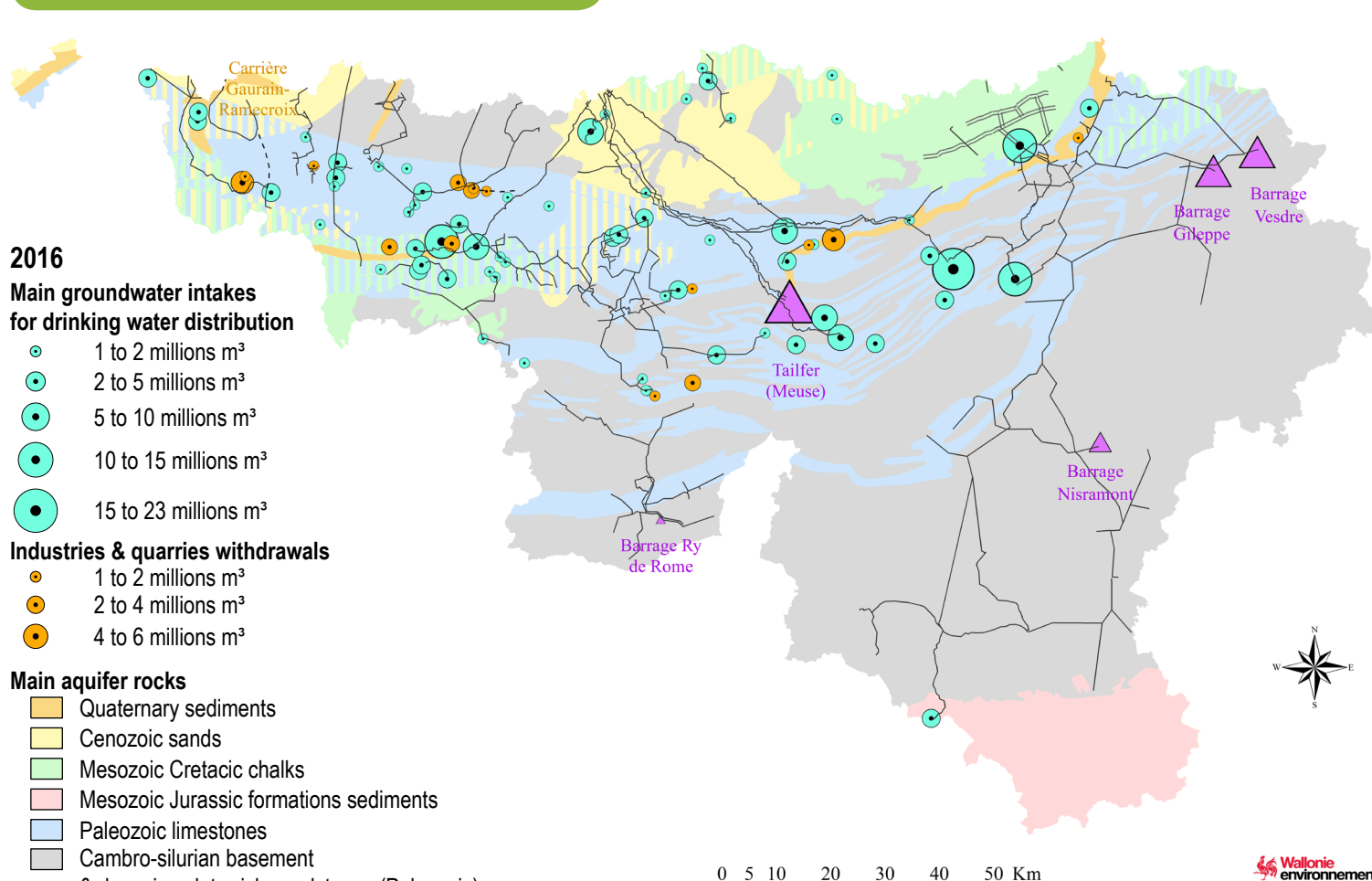
Groundwater withdrawals per aquifer



Groundwater intakes in activity



Principal groundwater intakes in activity



Topics discussed

The document is divided into 6 main chapters :

- 1 The main aquifers in Wallonia : This chapter is a brief overview of the world water reserves, water cycle & main aquifers in Wallonia ;
- 2 Quantitative aspects : This part deals with the water intakes in activity, volumes withdrawn per aquifers & piezometric levels ;
- 3 Qualitative aspects : This section is about geochemistry of the aquifers (characteristic mineralizations, trace elements, nitrate, pesticides) ;
- 4 Monitoring tools : This part lists the existing groundwater protection zones, those

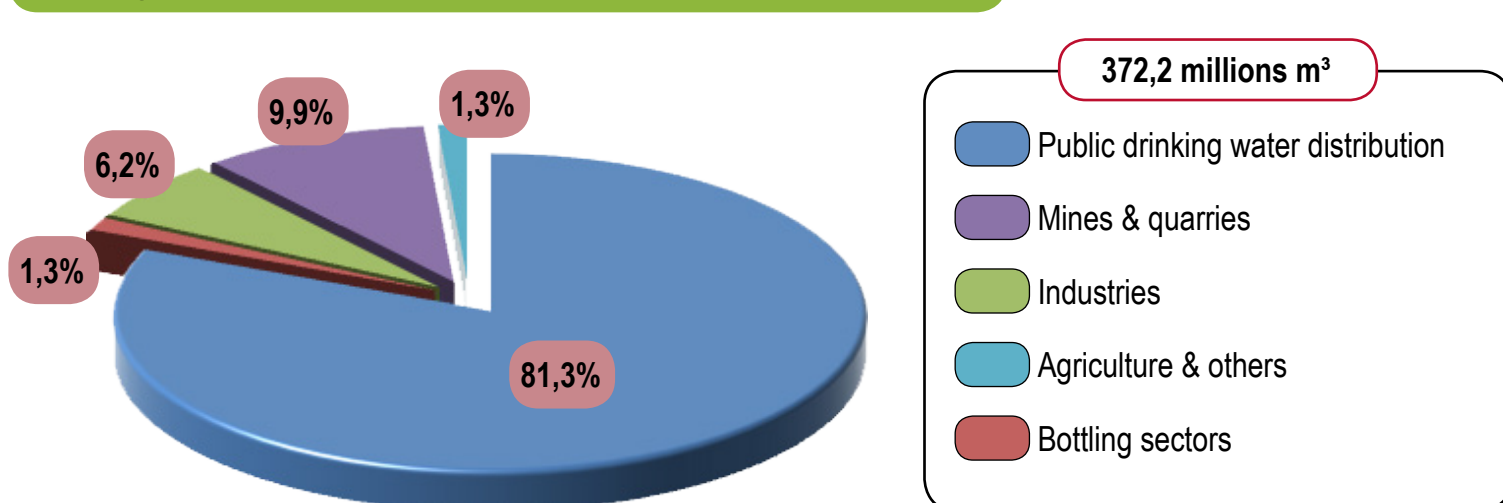
which are at study or scheduled, presents the status of the Hydrogeological map of Wallonia, raises briefly the issue of groundwater vulnerability cartography (« Apsu » method) ;

5 Implementation of the Water Framework Directive (WFD) : This chapter defines the concept of Groundwater bodies introduced by the WFD, how it has been applied in Wallonia, it presents also the status monitoring network of the groundwater bodies and the system of evaluation of quality groundwater (SEQ-ESO) regarding the pesticides ;

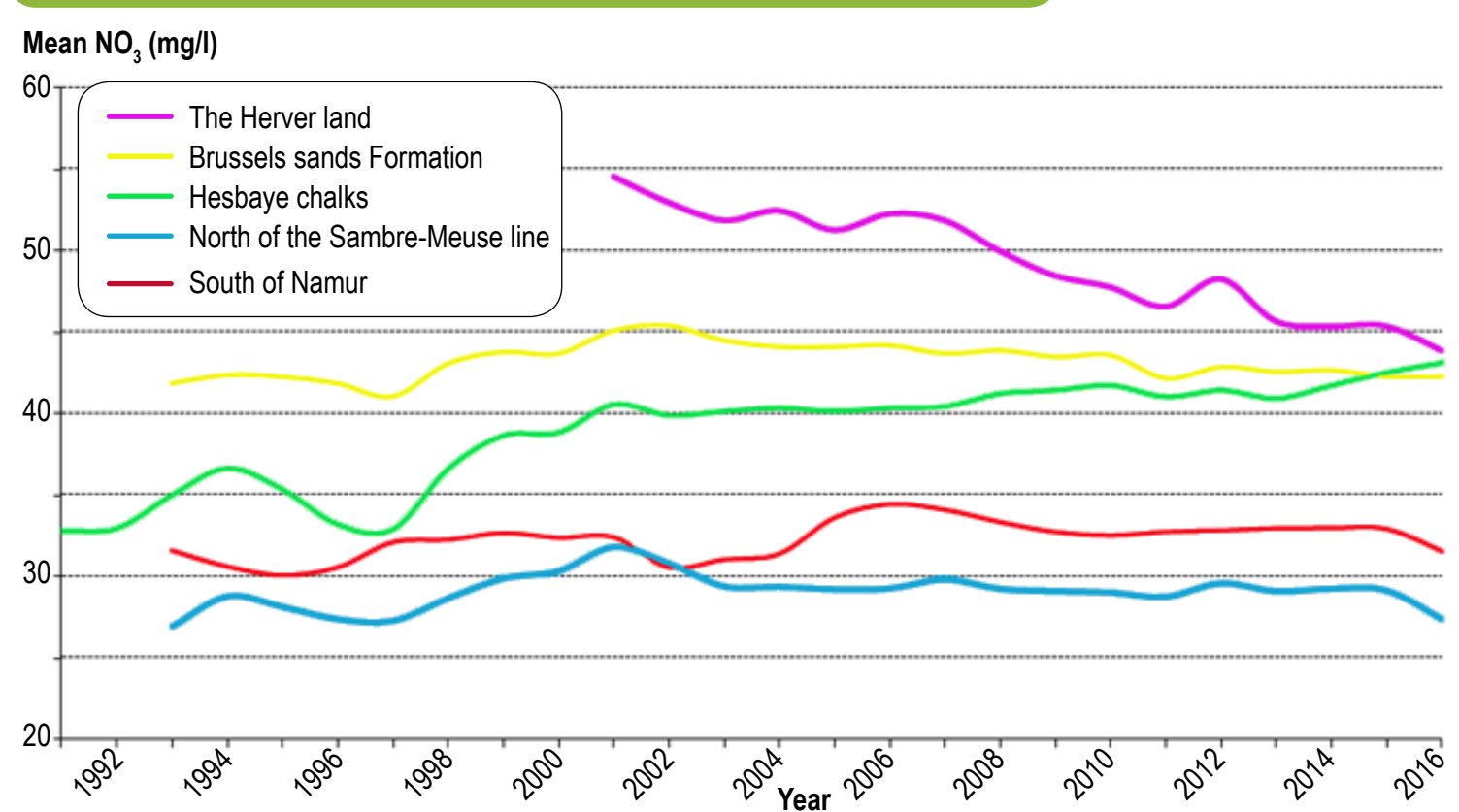
6 Transboundary coordination work : Eventually, this section deals with the setting-up of a platform to manage the transboundary aquifers in a coordinated way.

Why groundwater quality is so important...

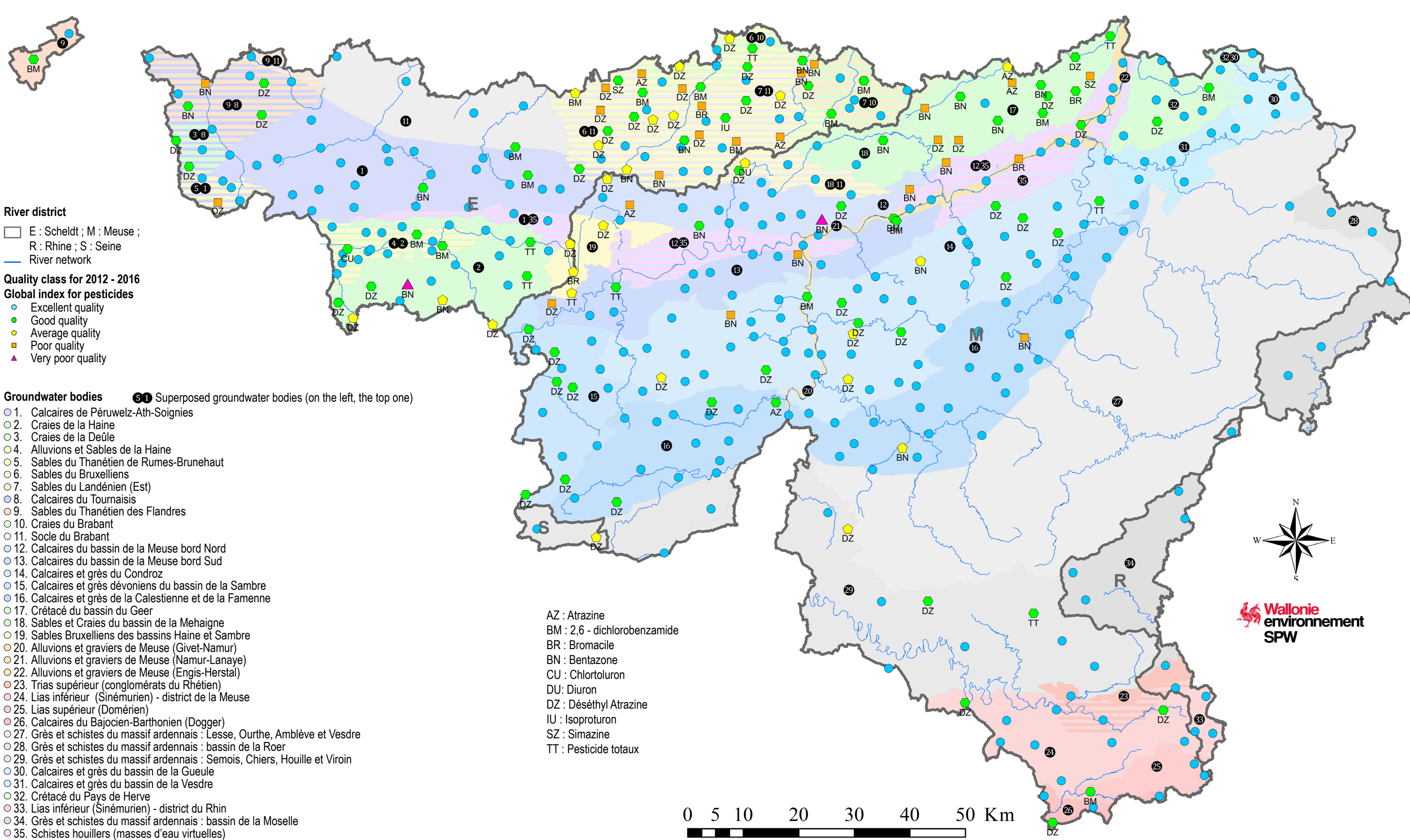
Volume groundwater withdrawn in 2016 (millions m³) in Wallonia



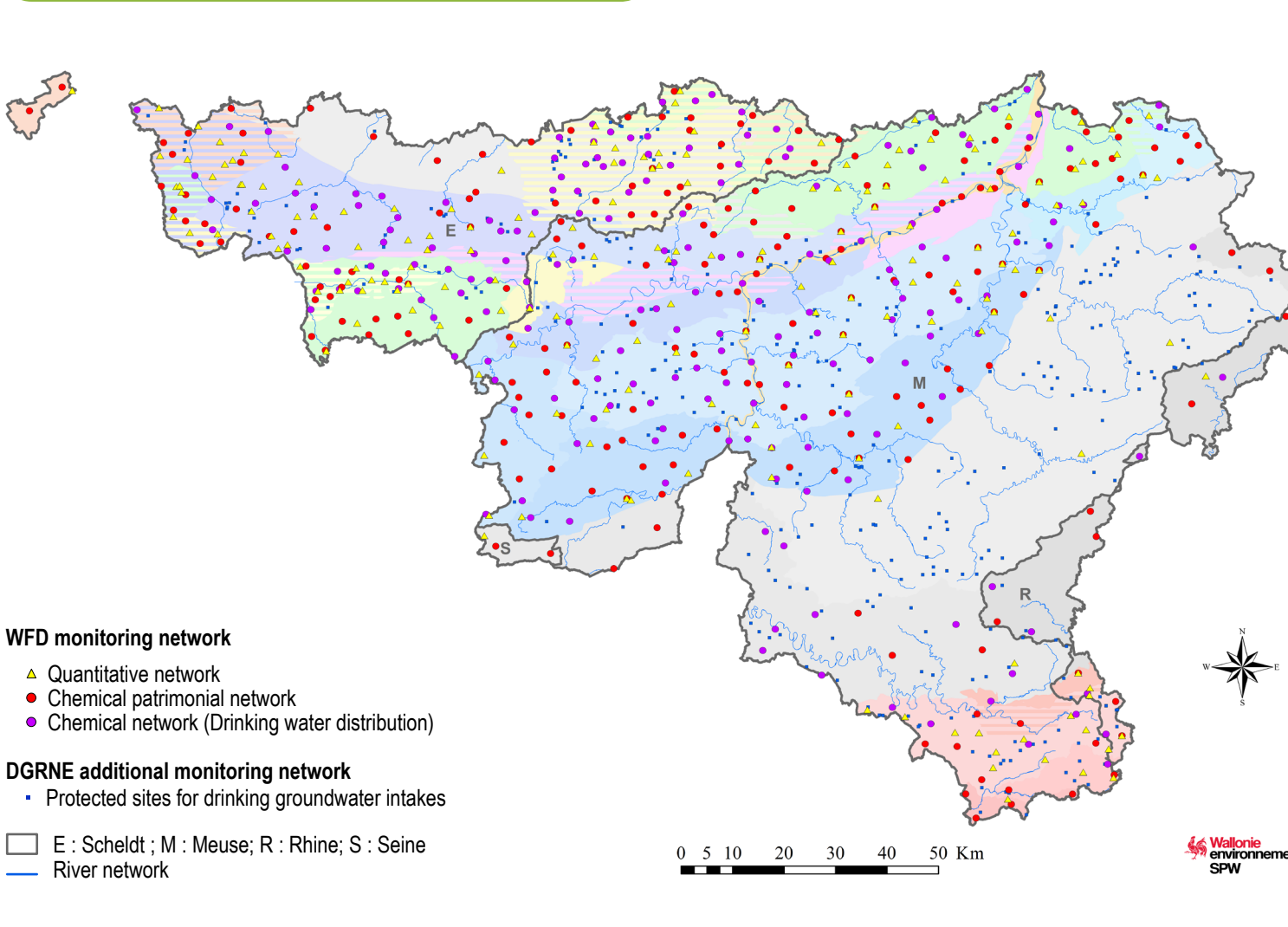
Tendency evolution in the nitrate vulnerable zones defined in Wallonia



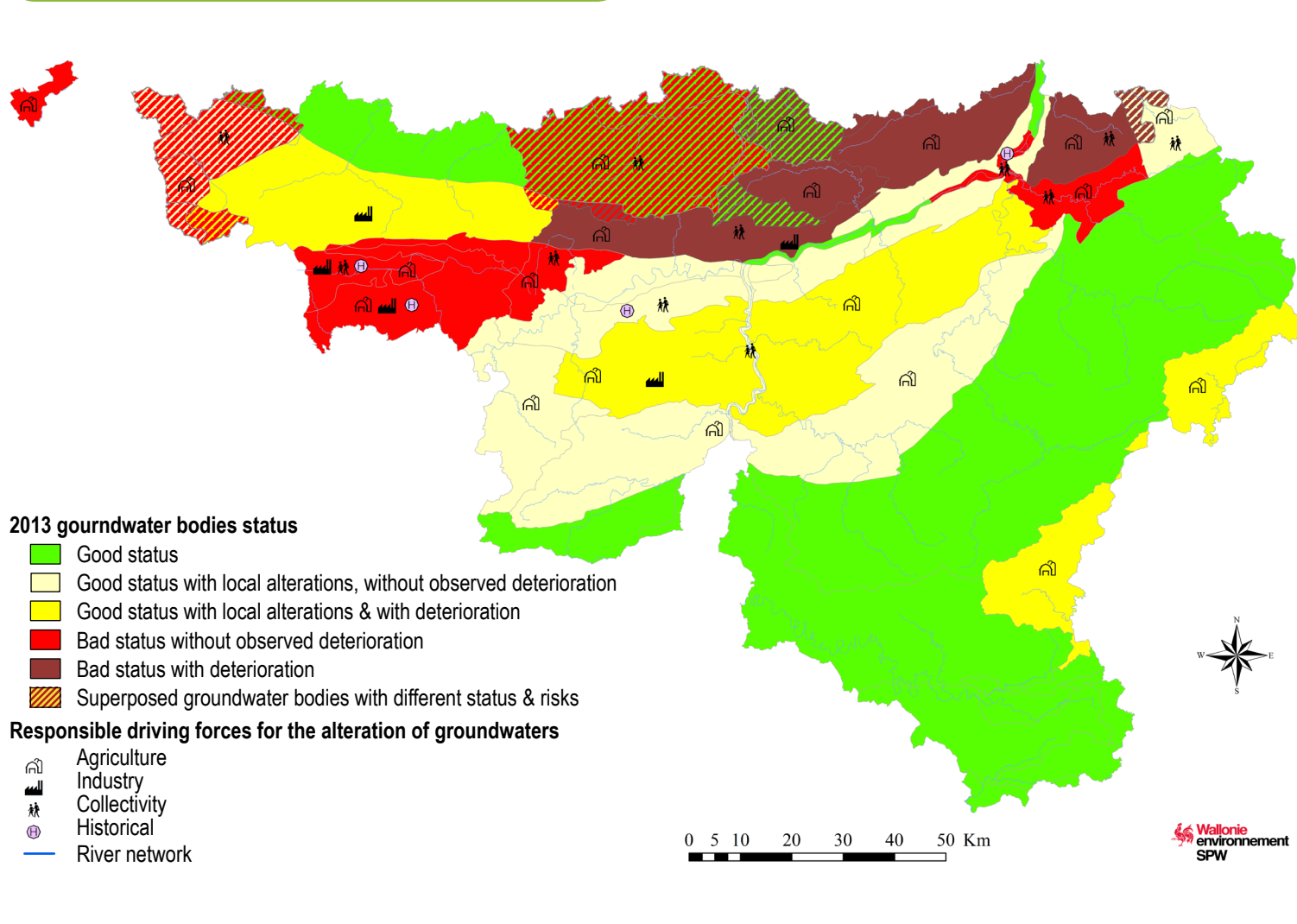
Pesticide quality index for the WFD network



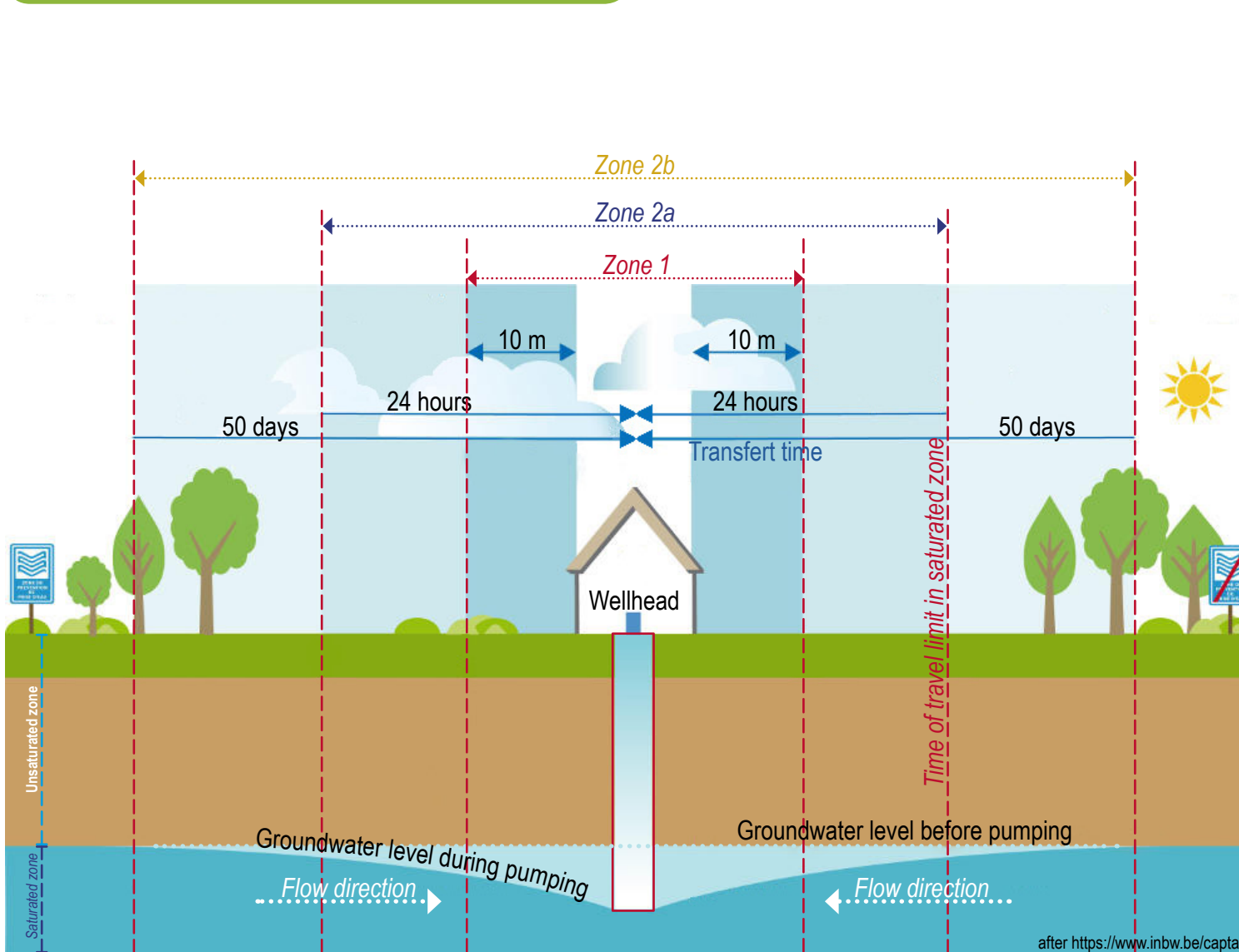
Monitoring network of the groundwater bodies



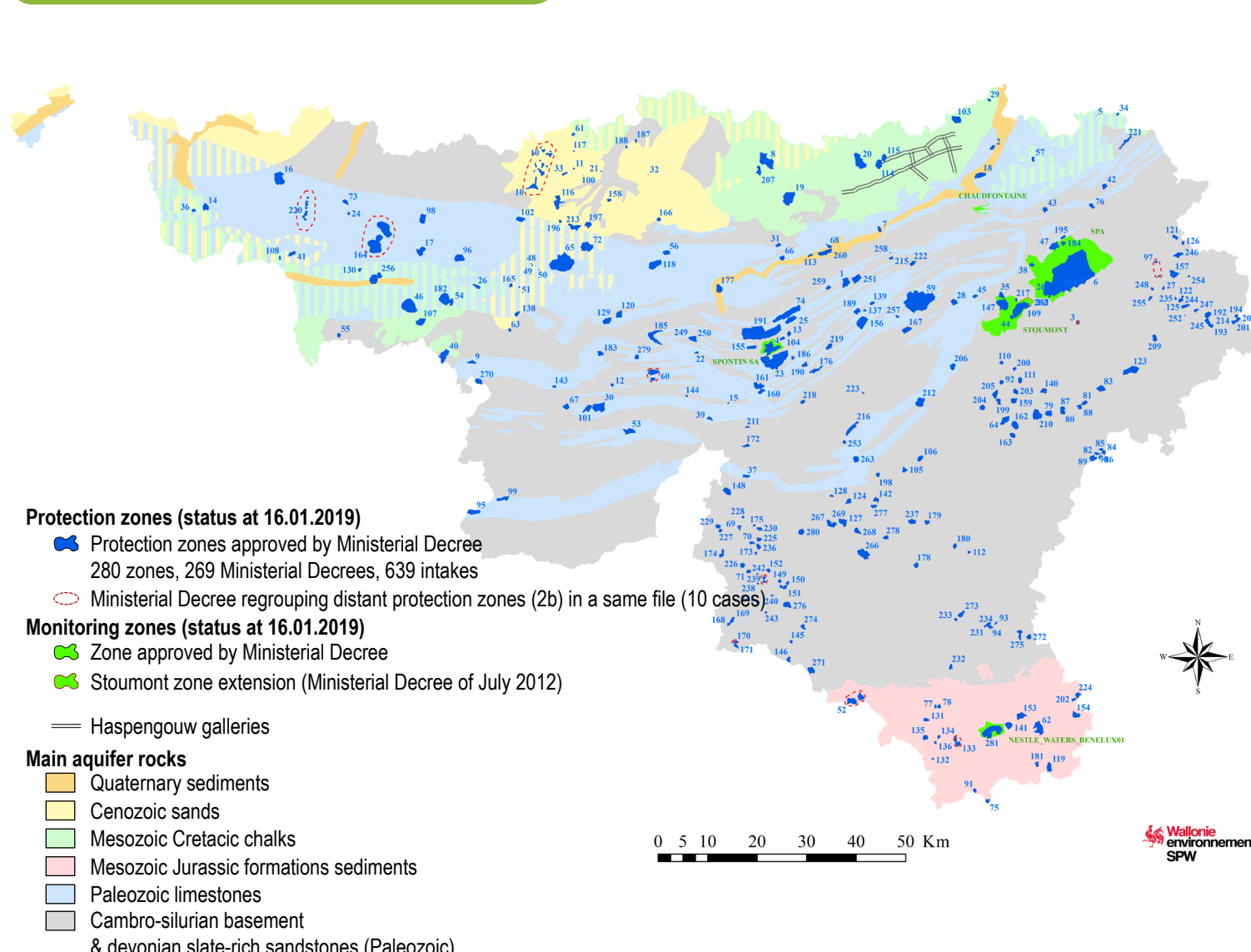
Groundwater bodies chemical status in 2013



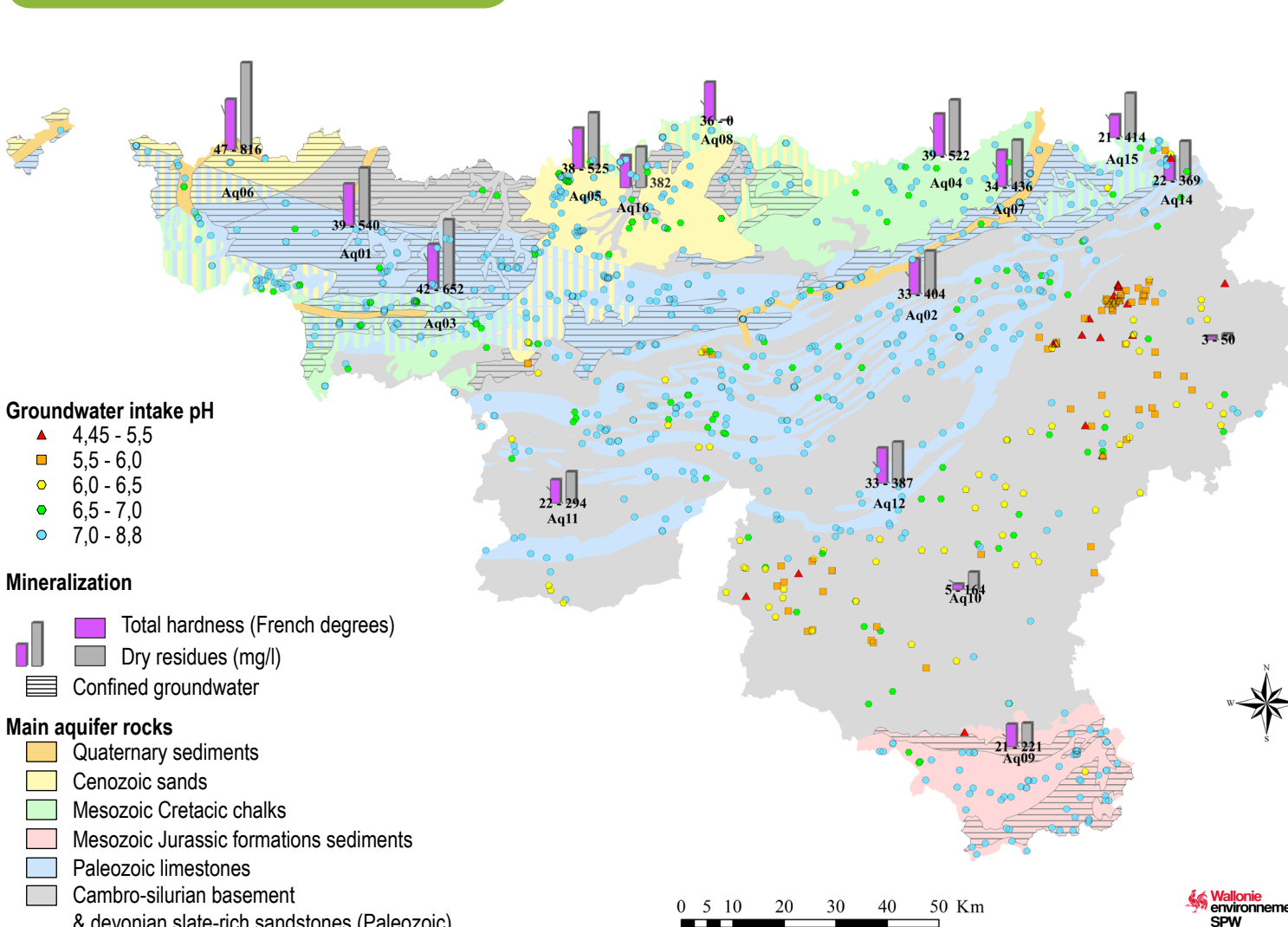
Delineation of protection zones around intakes



Protection zones of groundwater intakes



Groundwater mineralization and pH



References

- 1 « Etat des nappes d'eau souterraines de la Wallonie. Janvier 2019, Dix-septième édition. ».
- 2 2019, SPW Agriculture, Ressources naturelles et Environnement. Dépôt légal D/2019/11802/08.
- 3 « Etat des nappes d'eau souterraine de la Wallonie » : <http://environnement.wallonie.be/de/eso/atlas>
- 4 « Dix-sous cartographie » : <http://carto1.wallonie.be/10SousInt/>
- 5 « piez eau » : <http://piezo.environnement.wallonie.be/>
- 6 « Aquacat » : <https://aquacat.spw.wallonie.be/>
- 7 « WalOnMap » : Wallonie geoportal : <http://geoportal.wallonie.be/>
- 8 « aqualim » : Wallonie geoportal : <http://aqualim.environnement.wallonie.be/>

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