



# The different colours of water in Belgium

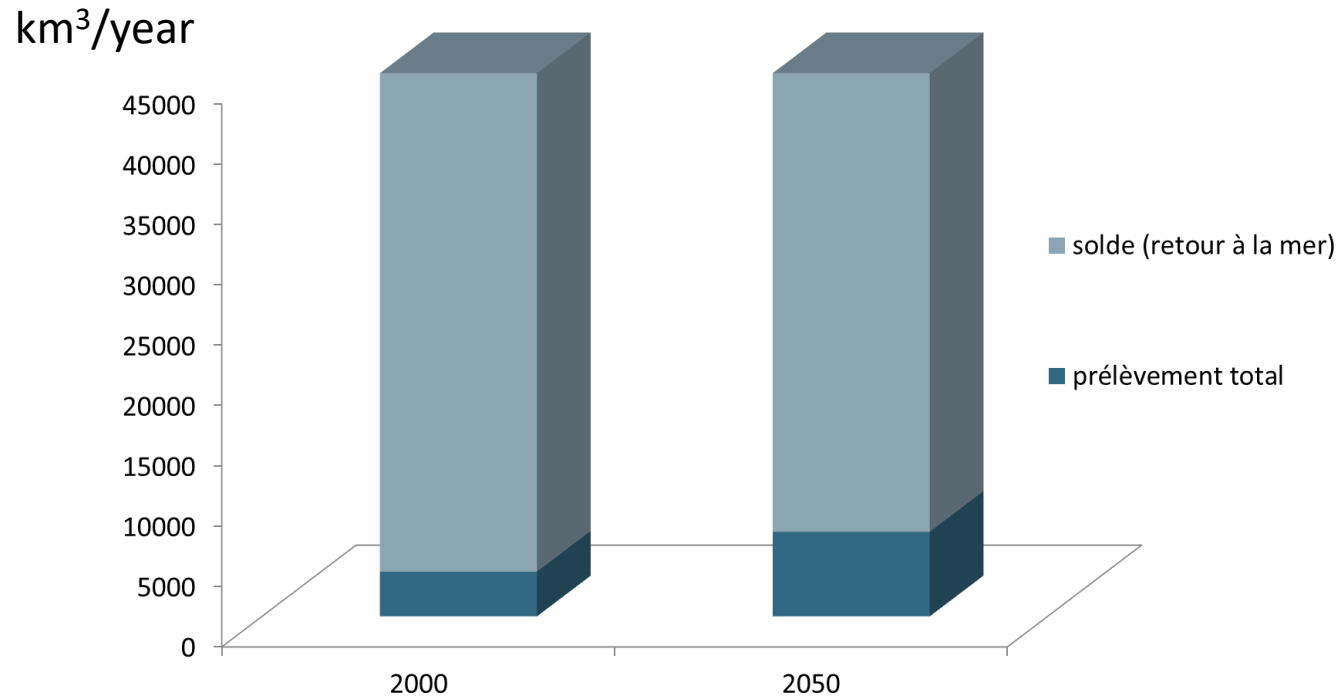
*APNU lecture*

12/10/23

**M. Vanclooster, UCLouvain – Earth and Life Institute**

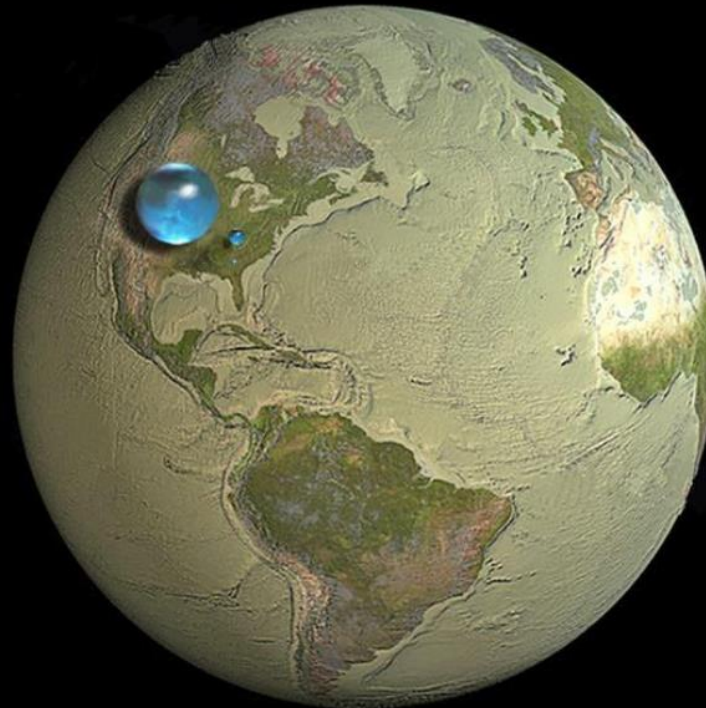


# Global water use



# Global water availability

**Drop on the planet: visualizing the Earth's water**



**Water in, on, and above the Earth**



**Liquid fresh water**

**Freshwater lakes and rivers**

Howard Perlman, USGS  
Jack Cook, Adam Nieman  
Data: Igor Shiklomanov, 1993



# The multi-dimensional aspects of water in Belgium

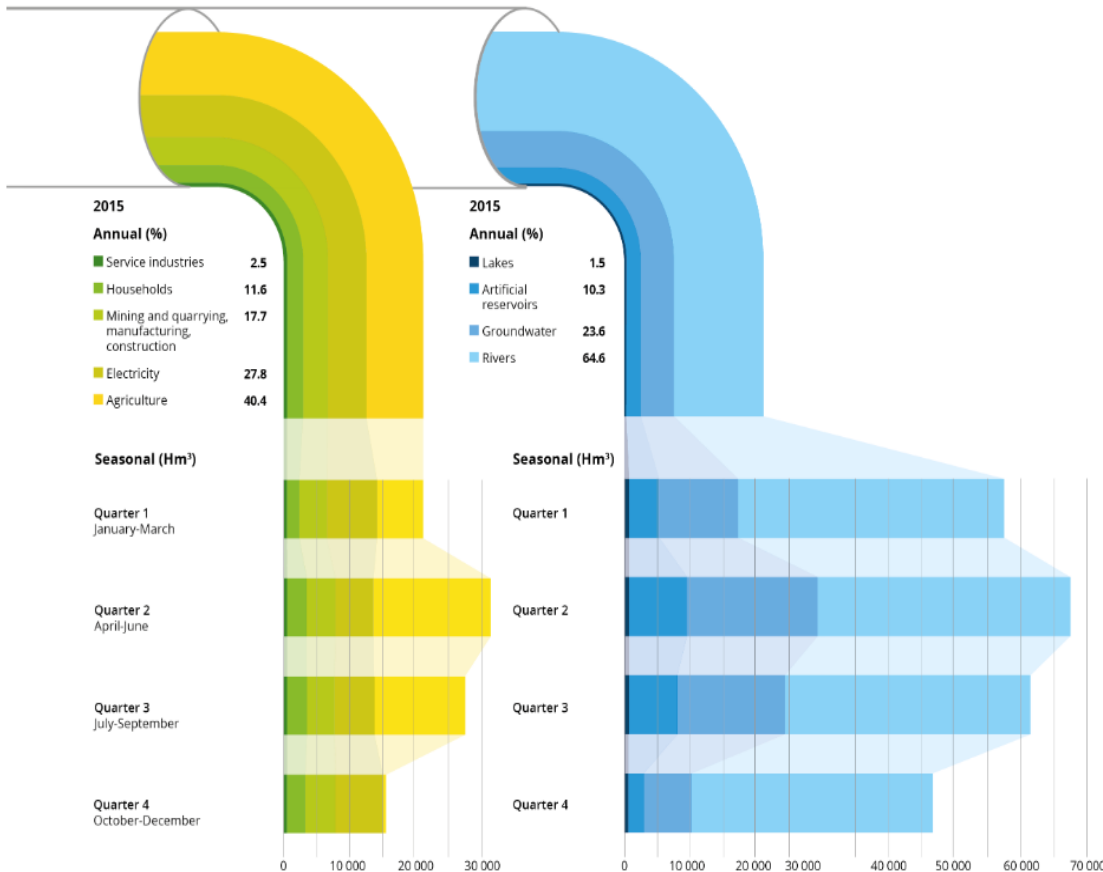
- Water is a multifunctional natural resource
- Water is blue, green, grey, salt, fresh, virtual
- Water is strongly impacted by Climate Change
- Water is essential for economy and jobs
- Water is at risk
- Water is cross-cutting theme in the development agenda

# Water use in Europe

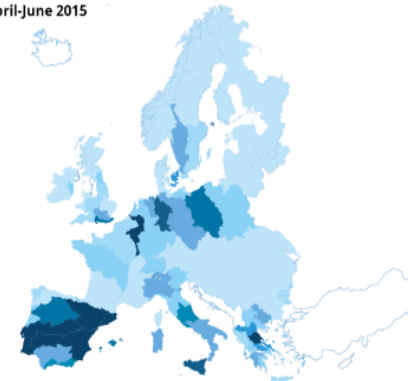
Water use by economic sectors

Freshwater abstraction by source

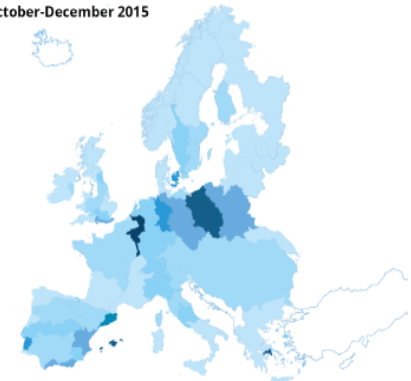
Water exploitation by river basin (%)



April-June 2015

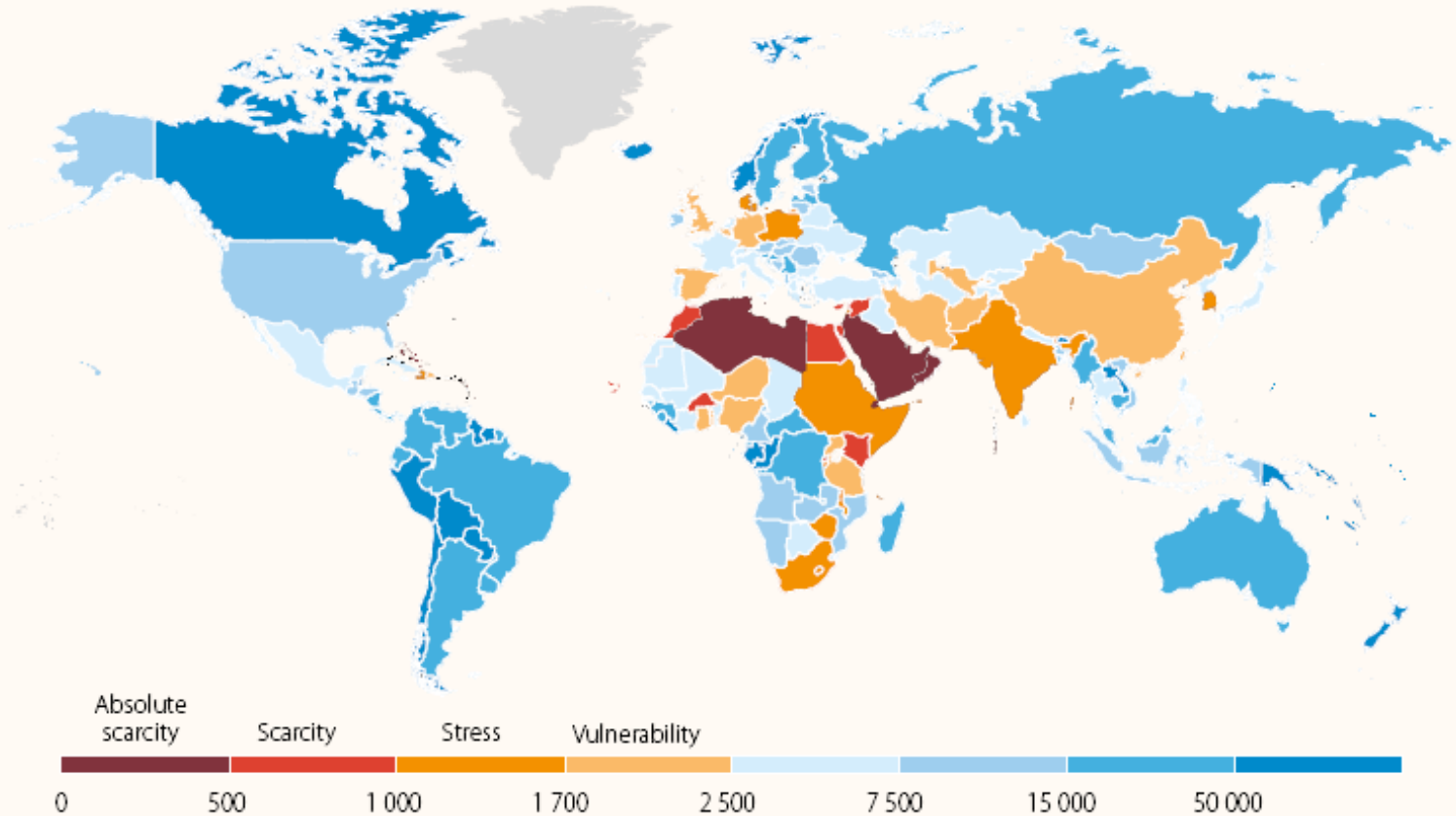


October-December 2015



# Belgium has water stress

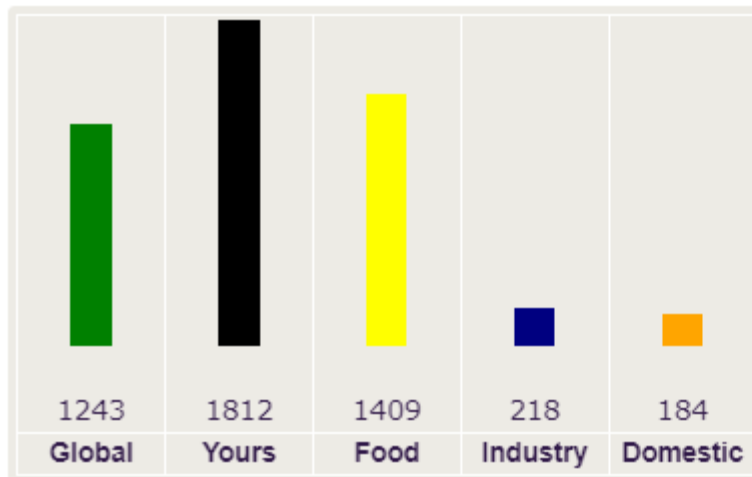
Total actual renewable water resources per capita (2011)



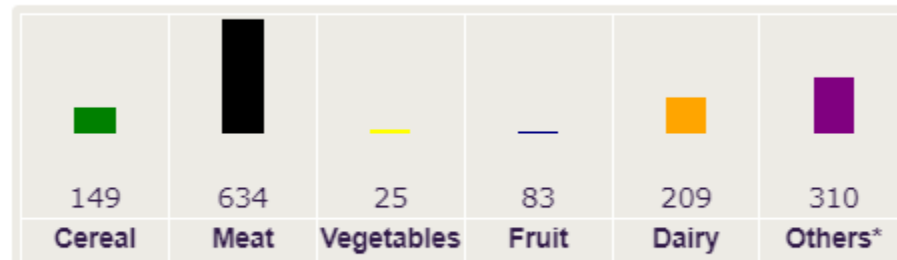
# Belgian water foot print

Your water footprint is **1811.6 m<sup>3</sup>** per year.

## Components of your water footprint and comparison to the global average



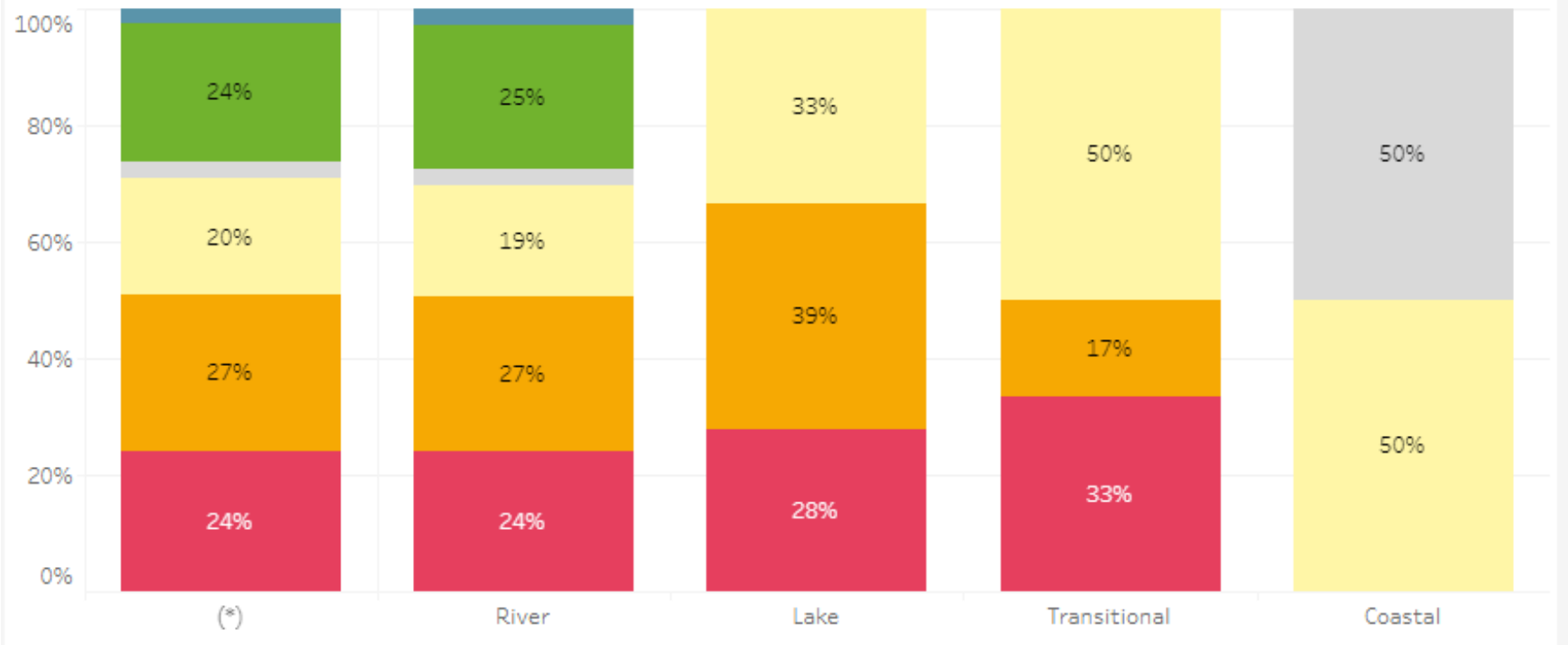
## Categories within the food component of your water footprint



\* Others include vegetable oil, starchy roots (cassave, potato), sugar & sweeteners, pulses, animal fats, treenuts, stimulants (coffee, tea, c

# Belgian water quality

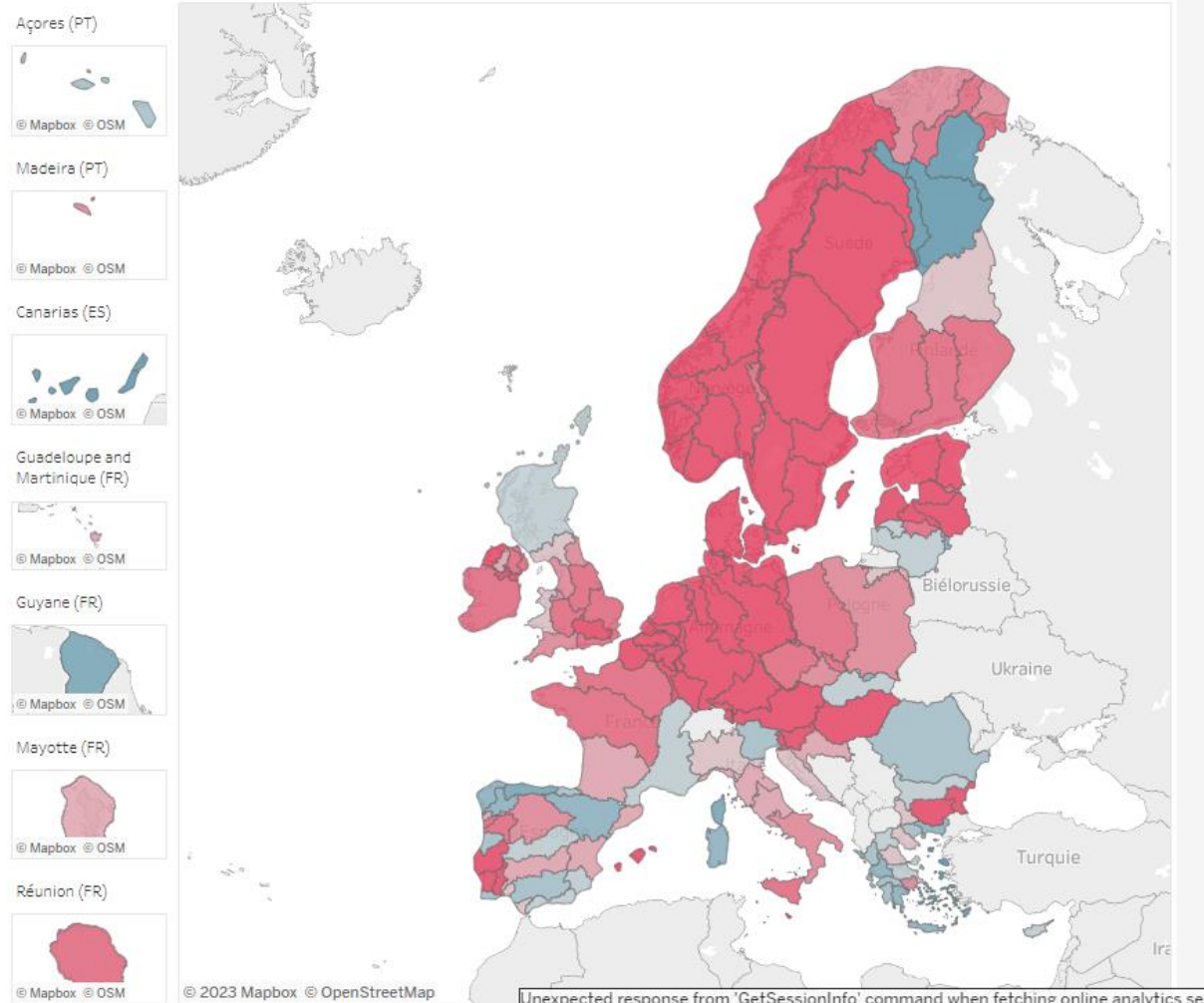
Surface water bodies: Ecological status or potential, by category (2nd RBMP)



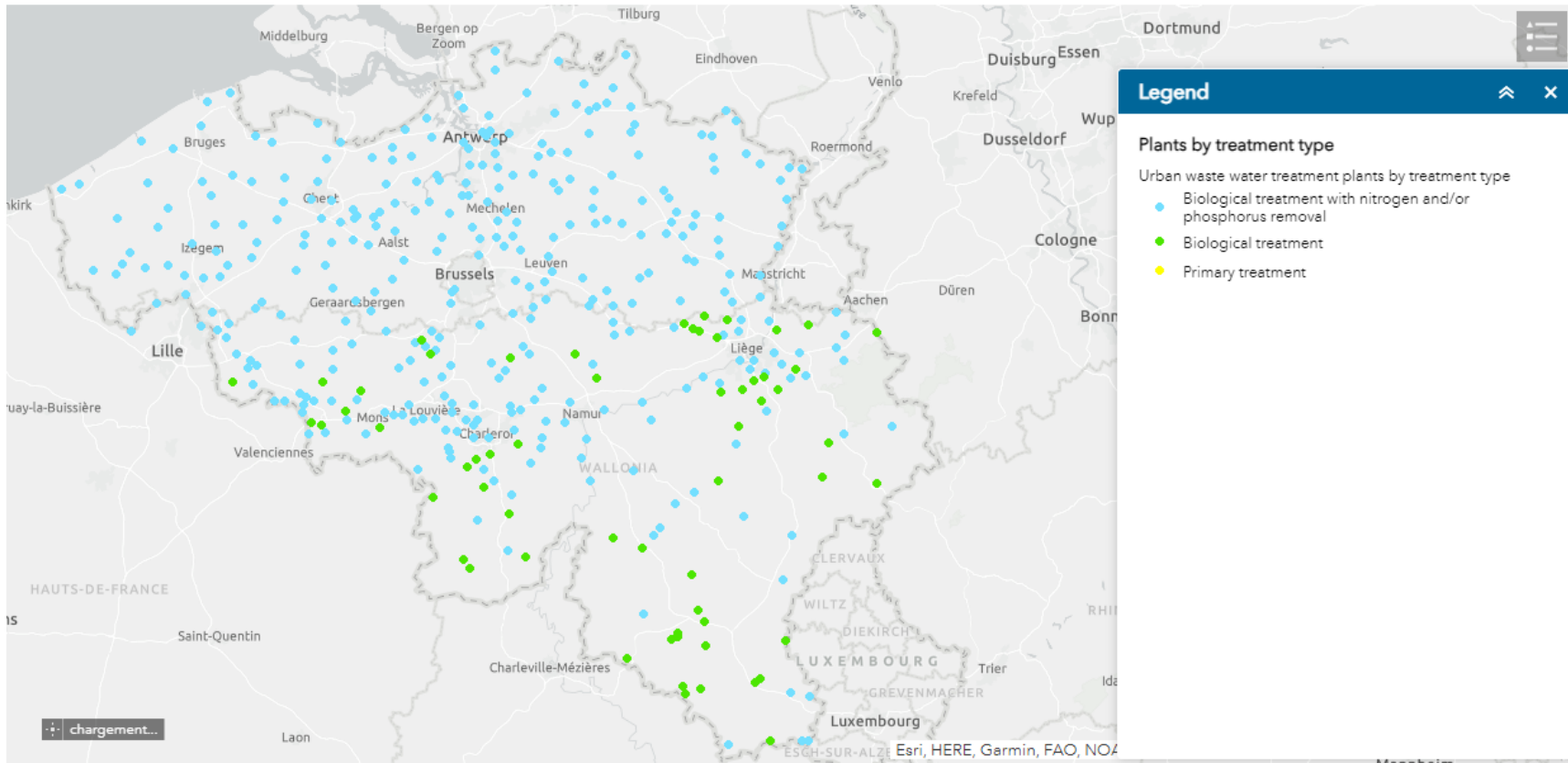


# European water quality

Water bodies (excluding unknown status) failing to achieve Good Surface water status, by RBD



# Belgian grey water



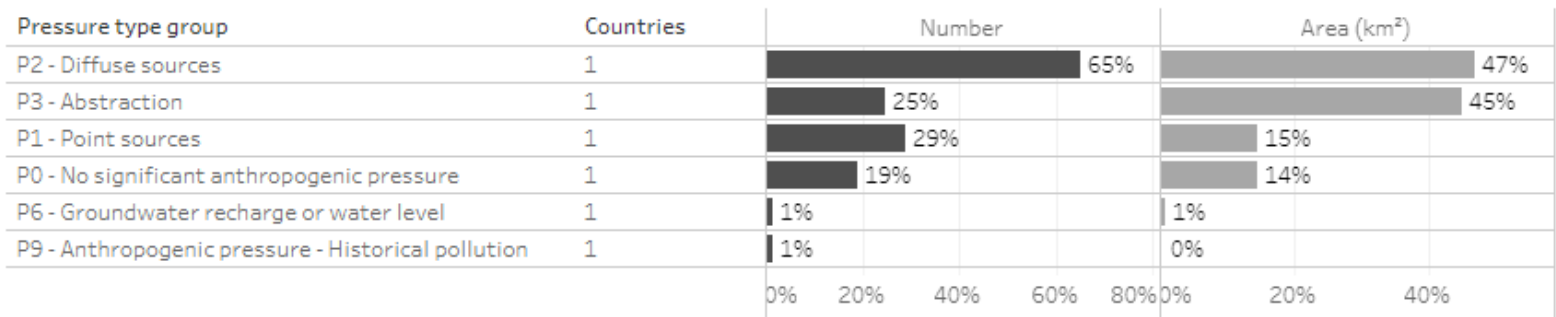
# Belgian groundwater pressures

## Groundwater bodies: Significant pressures

Show:

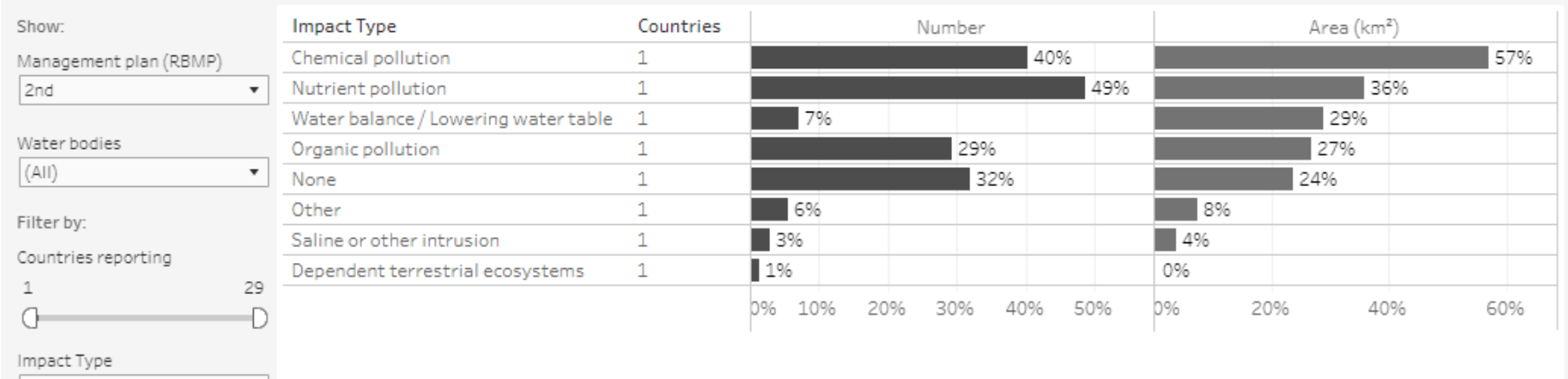
- (Tout)
- Austria
- Belgium
- Bulgaria
- Croatia
- Cyprus
- Czechia
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece

### 2nd River Basin Management Plans - Belgium


 Source: <https://water.europa.eu/data-maps-and-tools/>

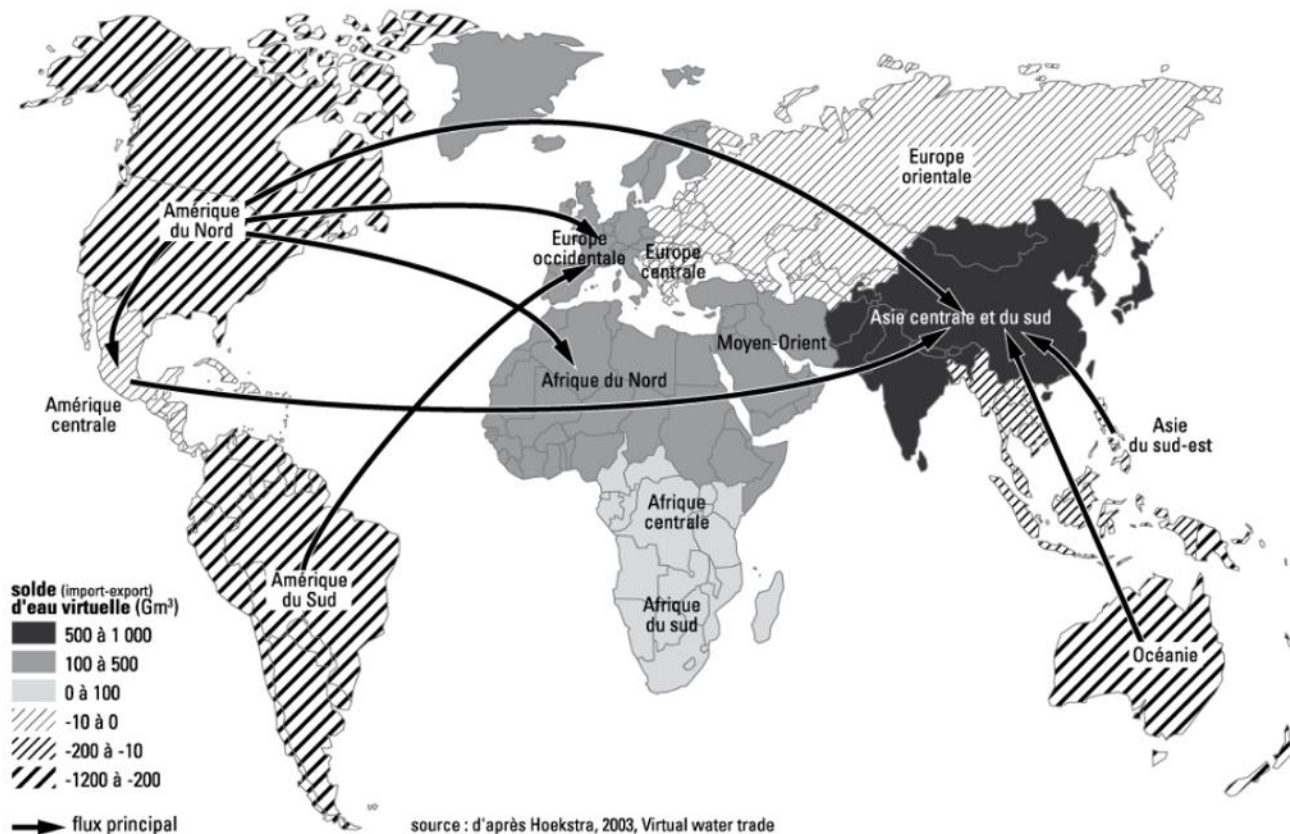
# Belgian groundwater: impacts

## Groundwater bodies: Significant impacts



Source: <https://water.europa.eu/data-maps-and-tools/>

# Virtual water trade to Europe (and Belgium)



# Economic value of water in Europe

[HOME](#) > [NIEUWS](#) > WATERAFHANKELIJKE SECTOREN GOED VOOR 24% VAN DE JOBS IN DE EU

## Waterafhankelijke sectoren goed voor 24% van de jobs in de EU

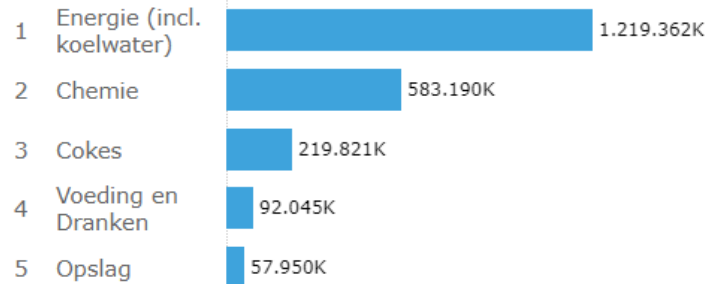
Gepubliceerd op 28 februari 2019

Naar analogie met de recent uitgevoerde studie over het socio-economische belang van

# Economic value of water in Flanders

## Watergebruik

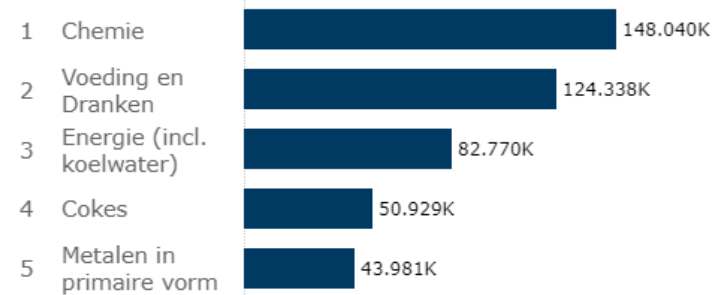
### De 5 belangrijkste watergebruikers in 2020 (m<sup>3</sup>)



[Meer details ►](#)

## Waterkosten

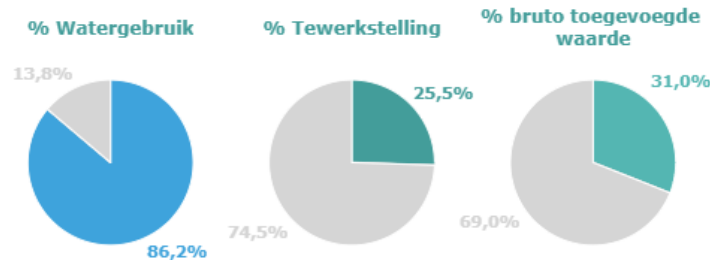
### De 5 sectoren met de hoogste waterkost in 2020 (€)



[Meer details ►](#)

## Tewerkstelling

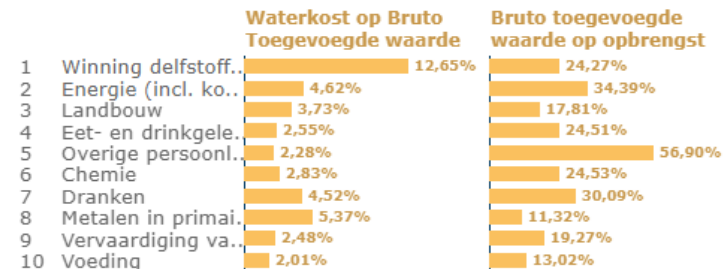
### Aandeel van de 15 meest waterintensieve sectoren in 2020 in:



[Meer details ►](#)

## Watergevoeligheid

### Sectoren gevoelig aan stijgende waterprijzen in 2020:



[Meer details ►](#)

# Unesco – International Hydrological Program (IHP): IX Phase (2022-2029)

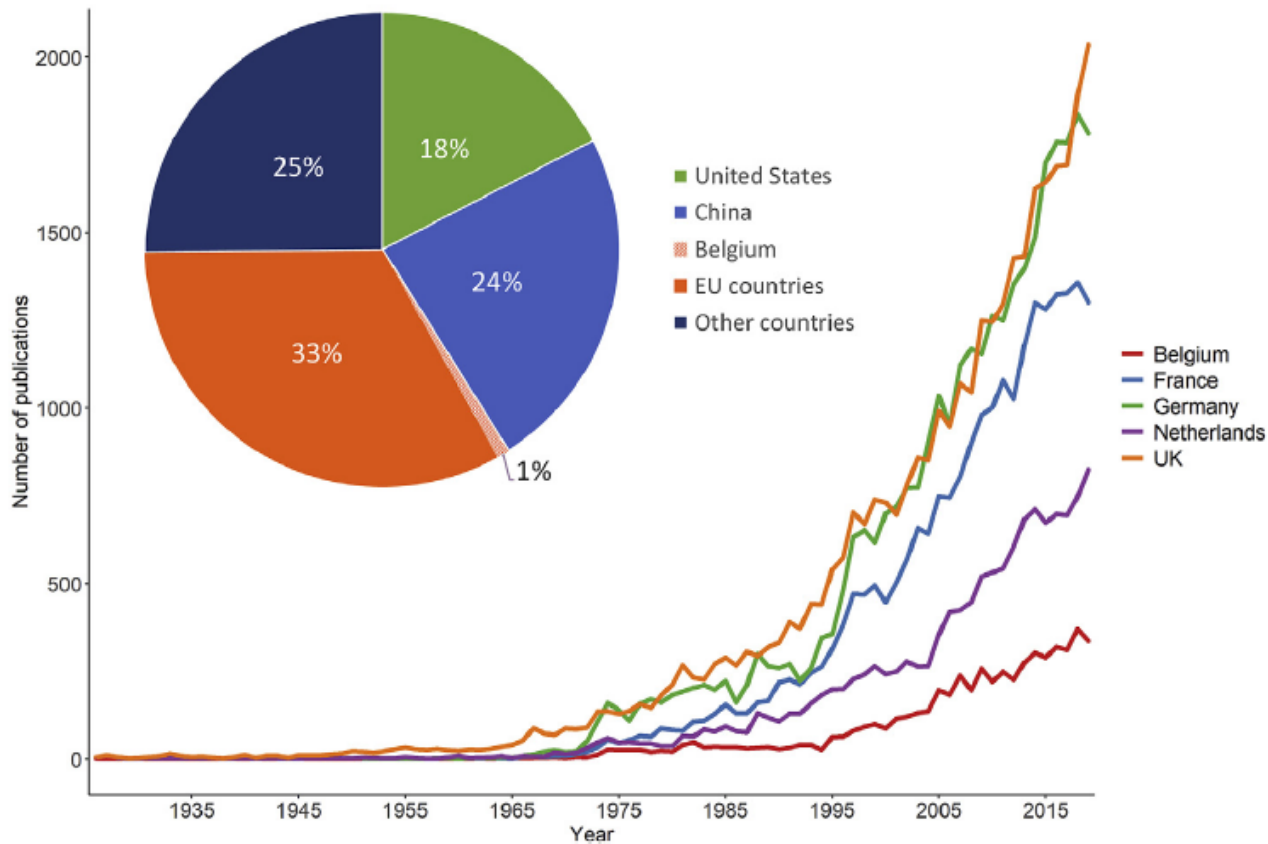
1. Scientific Research and Innovation
1. Water Education for the Fourth Industrial Revolution including Sustainability
1. Bridging the data and knowledge gaps
1. Integrated and Inclusive Water Resources Management under conditions of global change
1. Water Governance based on science for mitigation, adaptation and resilience







# Scientific research on water in Belgium



# Scientific research on water of Belgian researchers

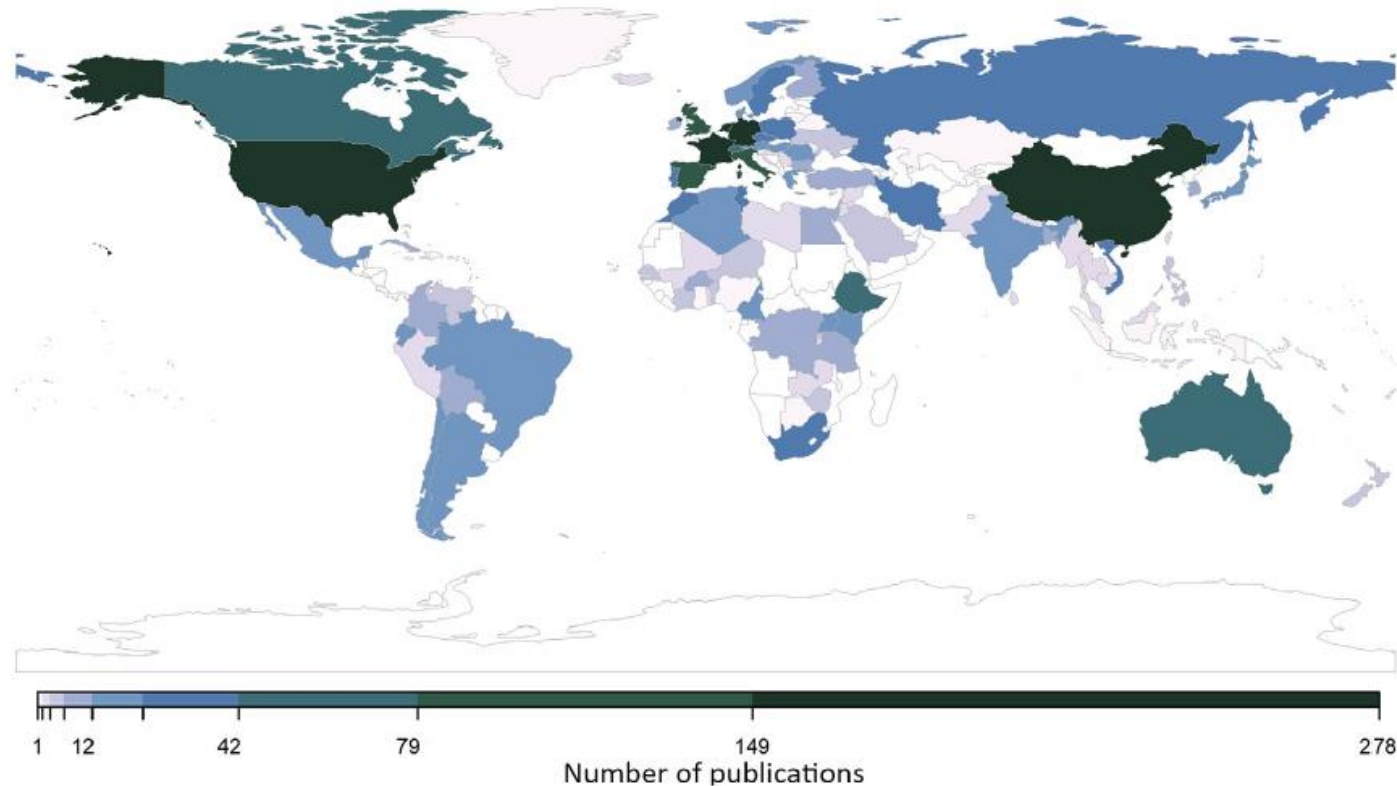


Fig. 2. Map of the countries collaborating with Belgian institutions in water research from 1926 to 2019.

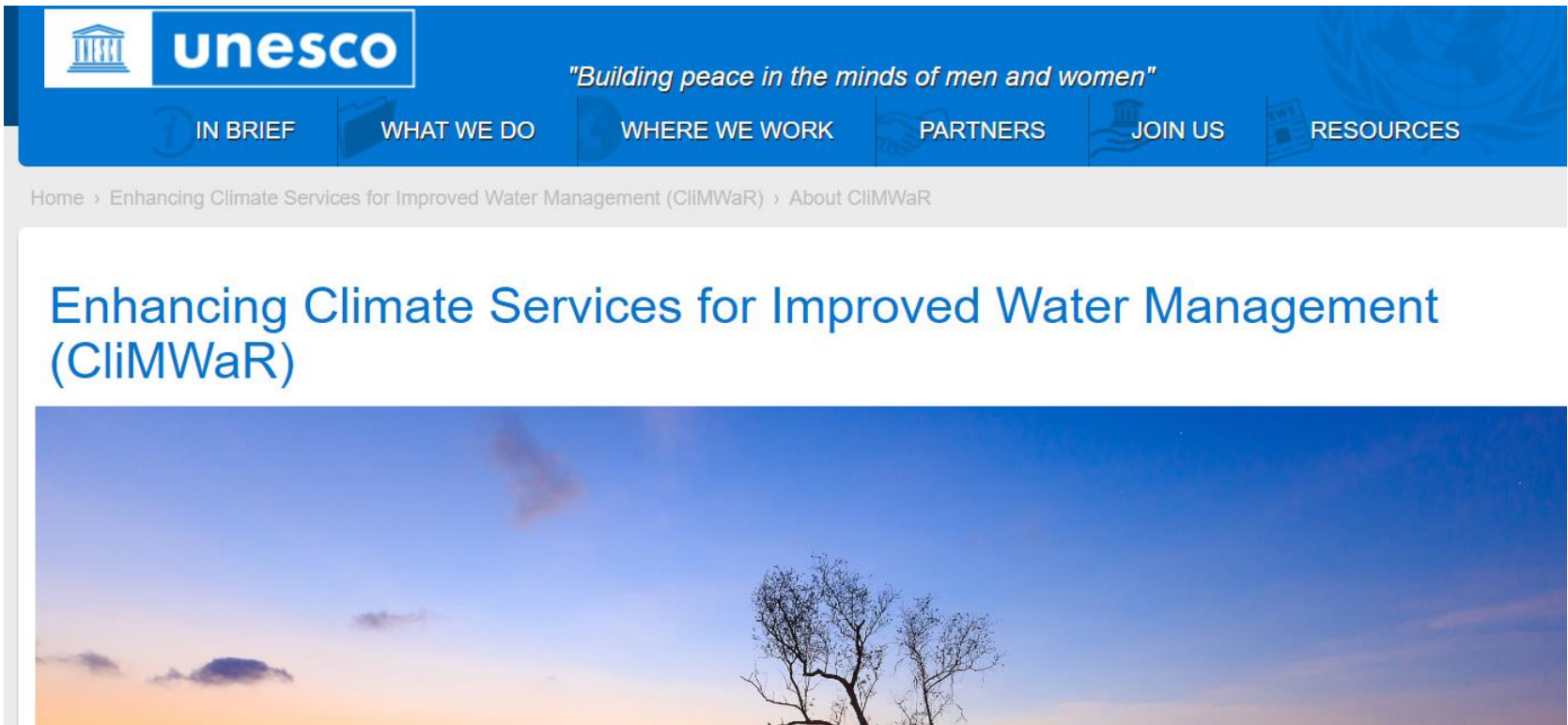
Source: Long et al., 2002. Journal of cleaner production

# Belgian water research in support of reaching the Sustainable Development Goal-6



Fig. 6. Word clouds of the top 20 most common author keywords in Belgian water research in support of the achievement of SDG 6 and each of its targets. The size and the color of the texts reflect their popularity within a target but not among the targets. (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

# Unesco Flanders – FUST - IHP



The screenshot shows the UNESCO website header with the logo and the motto "Building peace in the minds of men and women". The navigation menu includes "IN BRIEF", "WHAT WE DO", "WHERE WE WE WORK", "PARTNERS", "JOIN US", and "RESOURCES". The breadcrumb trail reads "Home > Enhancing Climate Services for Improved Water Management (CiimWaR) > About CiimWaR". The main heading is "Enhancing Climate Services for Improved Water Management (CiimWaR)". Below the heading is a large image of a sunset or sunrise over a body of water with silhouettes of trees in the foreground.





## Priority 2: Water education and training

### SPW Support

Toutes les équipes du département de la Communication ont été fortement motivées par les conséquences de l'afflux de personnes réfugiées ukrainiennes et, à partir du 1er septembre, 85.074 affiches, 47.060 brochures et 92.450 dépliants ont été imprimés ou dupliqués, et 38 capsules vidéo montées.

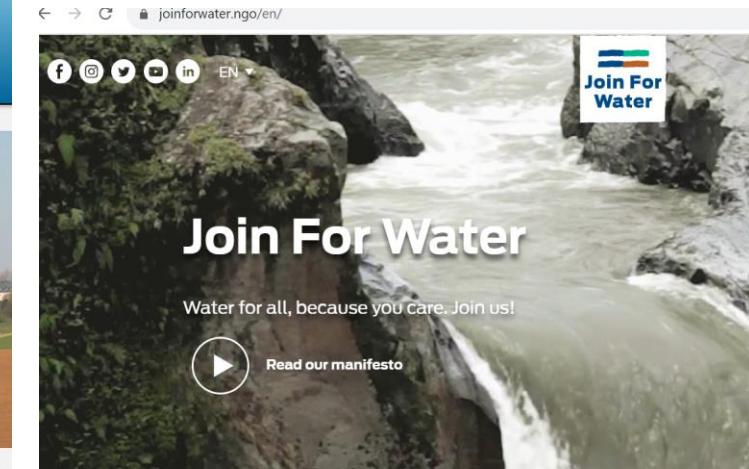


L'information aux citoyens et citoyennes

<b>7.692.761</b> visites sur le site internet Wallonie.be	<b>27.817</b> personnes abonnées sur Facebook
<b>98.972</b> abonnements au magazine 'Vivre la Wallonie'	<b>115</b> locom (lettre)



### Contrat de rivière Dyle-Gette



# Water education and training

**ARES** ACADÉMIE DE RECHERCHE ET D'ENSEIGNEMENT SUPÉRIEUR

/ ÉTUDES SUPÉRIEURES / STATISTIQUES / INTERNATIONAL COOP

**/ DÉVELOPPEMENT**

/ DES PARTENARIATS ACADÉMIQUES EN FAVEUR DES OBJECTIFS DE DÉVELOPPEMENT DURABLE

**vliruos** SHARING MINDS, CHANGING LIVES

FYP2 2022-2027 FYP2 REPORTING FORMATS DOCUME

About VLIR-UOS Scholarships Project funding

VLIR-UOS supports partnerships between Flemish universities or universities of applied sciences and arts, in Flanders and in our partner countries, that are searching for answers to global and local challenges.

## Master de spécialisation en Nexus Eau-Énergie-Alimentation



- 01/ Objectif(s) de la formation
- 02/ Contenu de la formation
- 03/ Conditions d'admission
- 04/ Informations complémentaires
- 05/ Établissement(s) organisateur(s)



**IUPWARE**  
Interuniversity Programme in Water Resources Engineering

Home Programme Scholarships and Funding Opportunities Applicants Alumni News and Events Contact FAQ

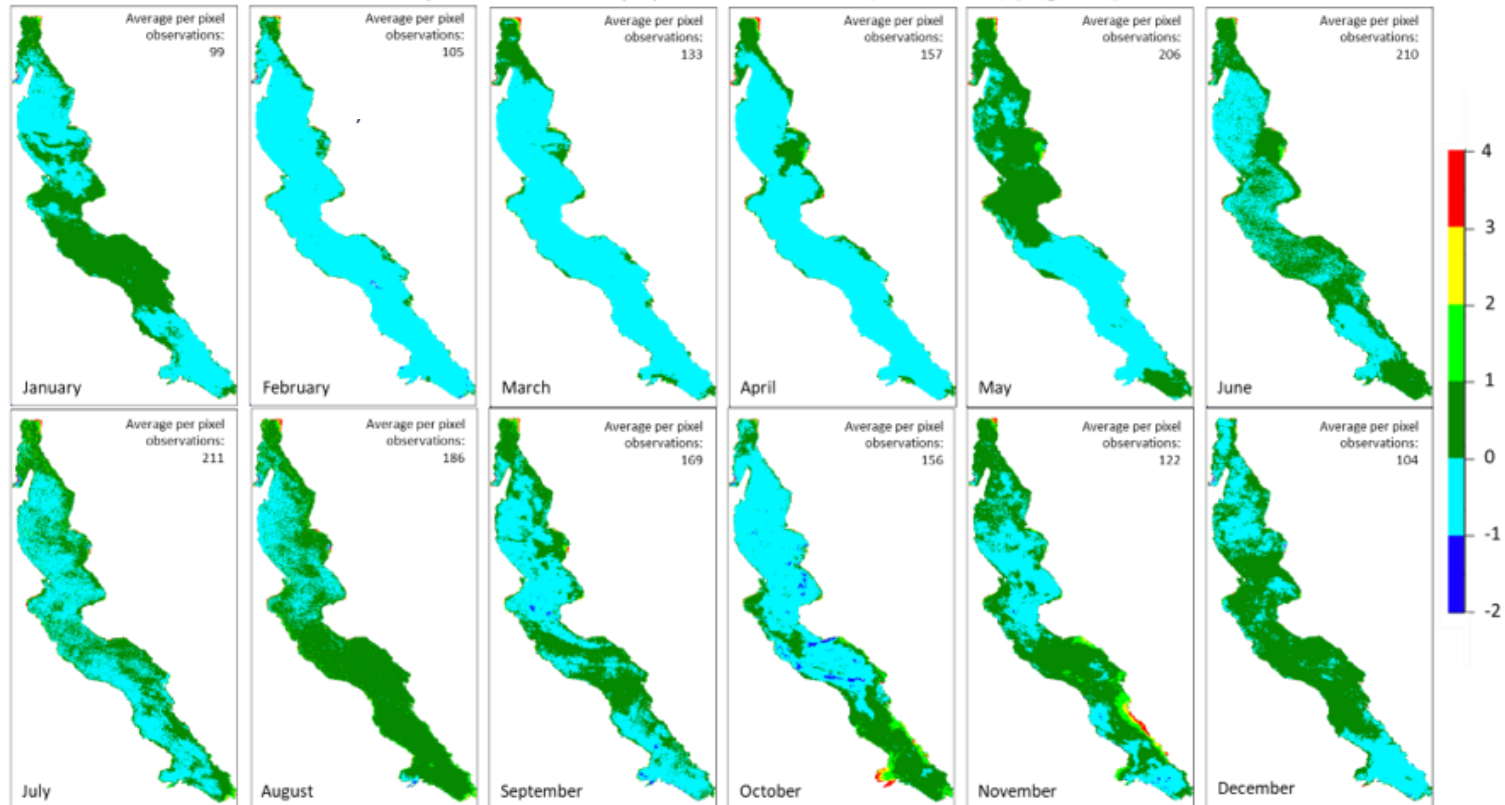
**MSc in Water Resources Engineering**

Solving water challenges

CLICK TO BEGIN

# Priority 3: Bridging data gaps: Remote Sensing

Monthly trends in chlorophyll-a concentration (2002-2020) [mg.m-3]

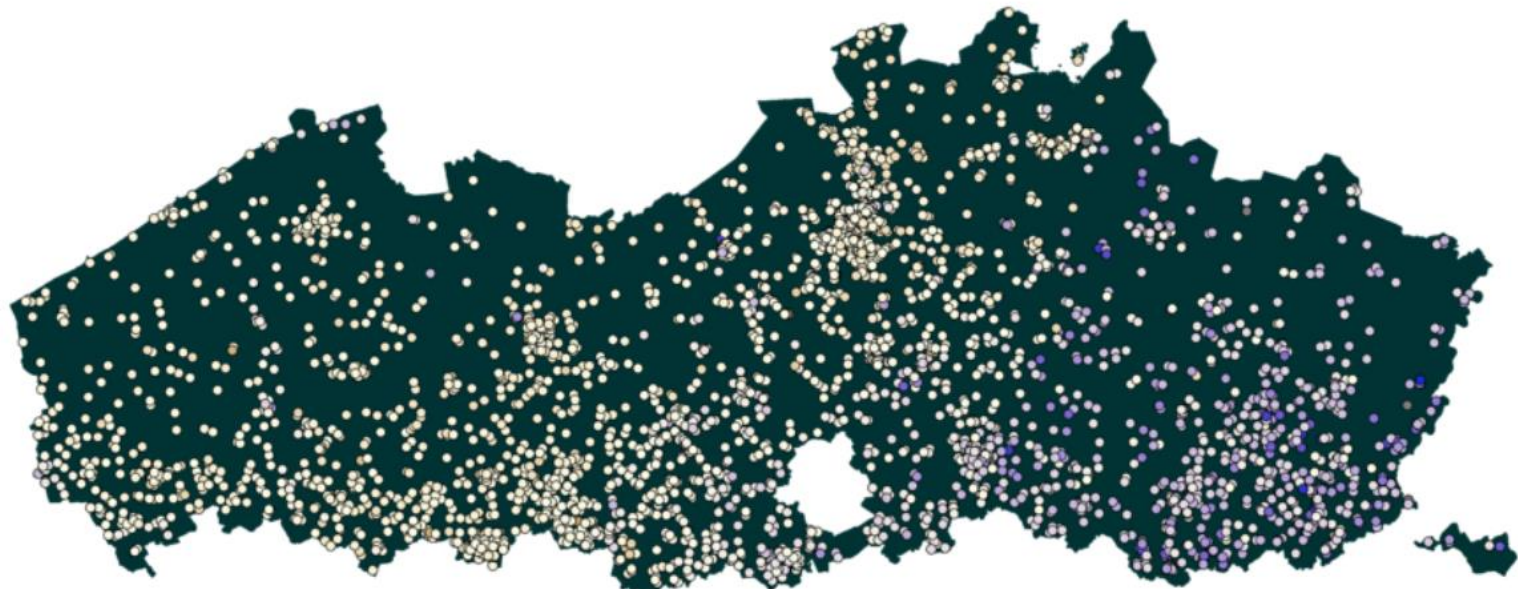




# Priority 3: Bridging data gaps: Citizen Science

**CURIEUZE  
NEUZEN**

Verandering bodemvocht tussen 11 en 14/7/2021



## Priority 4: Integrated and inclusive water resources management

The screenshot shows the Blue Deal website. On the left, the 'About Blue Deal' section features a wavy blue graphic and an aerial view of a green landscape with a water channel. The text reads: 'About Blue Deal' and 'An ambitious plan to combat water scarcity and drought through collaboration.' On the right, a navigation menu includes 'CITOYEN', 'PROFESSIONNEL', 'ENSEIGNEMENT', and 'BLOG'. Below the menu is a banner for 'Plan de gestion régionale de l'eau' with a date of '03.11.2022 Eaux'.

The screenshot shows the website of the Société Publique de Gestion de l'Eau (SPGE). The header includes navigation links: 'Accueil', 'Plan du site', 'Contact', and 'Cartographie de l'assainissement'. The main content area is titled 'Société publique de gestion de l'eau' and contains a paragraph: 'La Société Publique de Gestion de l'Eau (SPGE) est une société anonyme publique mise en place par la Région wallonne en 1999. Sa mission essentielle est d'assurer la coordination et le financement du secteur de l'eau en Wallonie. En concertation avec les autres partenaires de l'eau (42,927 kb), elle a pour priorités de l'assainissement des eaux usées (de l'épuration à la station d'épuration) et de la protection des captages.'

The banner is titled 'ENQUÊTE PUBLIQUE' and features the headline 'Donnons vie à l'eau !'. Below the headline, it reads '3<sup>èmes</sup> Plans de gestion des Districts Hydrographiques Wallons'. At the bottom, the dates 'Du 2 novembre 2022 au 2 mai 2023' are displayed next to a blue wave icon.

## Take home message

- The different dimensions and multifunctionality of water should be considered when talking about water in Belgium.
- Water is a critical resource for maintaining Belgian prosperity and economy, but the Belgian water resources are subjected to considerable constraints and pressures.
- The 9th phase of UNESCO's International Hydrological Program (2022-2029) focuses on 5 priority areas. In each of these priority areas, different projects and activities are developed by different Belgian citizens, actors of civil society, public authorities and Belgian researchers.

