

# micropollutants in water

European Parliament, Strasbourg  
October 28, 2015

watertreatment - France

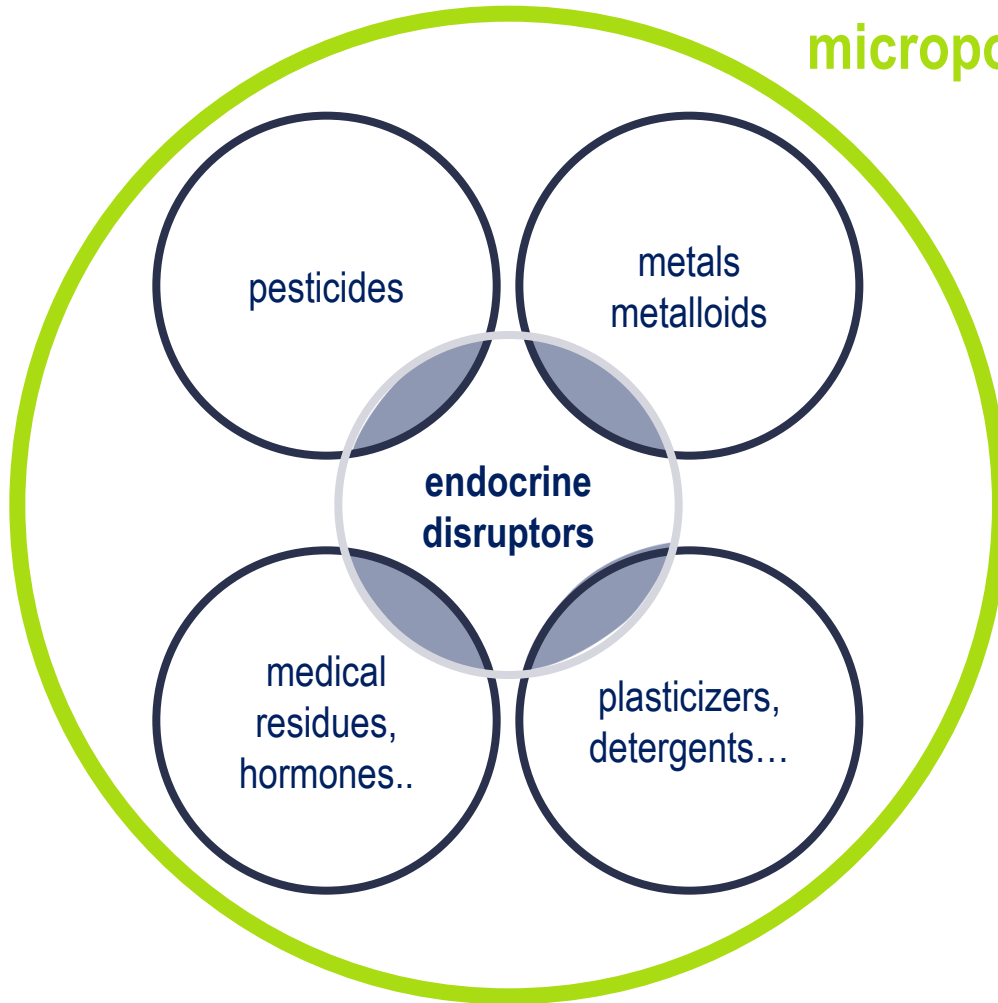
ready for the ressource revolution



# micropollutants in wastewater

an « emerging » subject, a growing concern

## micropollutants



- a **proven impact** on natural environment (fishes' reproductive organs ...)
- potential effects on human health (cocktail effects...), and a causal link still unknown
- existing wastewater treatment plants remove only a little part (which goes into the sewage sludge)

# what strategy for the reduction of micropollutants ?

## reduction at the source, necessary but not sufficient ?

- 100.000 chemical molecules listed in Europe
- **frequent nonpoint source pollution** (e.g. : drugs and hormones)
- inertia (e.g. : atrazine)



## why complementary treatments on plants ?

- wastewater treatment plant, **strategical point** for central collection, and last point before natural environment
- an **affordable** treatment cost : 2 to 3 €/inhabitant.year (< 2 % of the water bill)
- induced benefits: **reuse**, energetic efficiency of wastewater treatment plants...

→ relevant combination of « preventive » and « curative » approaches

focus : Switzerland



# how to treat micropollutants ?

## available technologies at a reasonable cost

- processes resulting from 14 years of research and development
- major references: Sophia Antipolis, Dübendorf (Switzerland), Lausanne (Switzerland)
- a **favorable impact attested on the aquatic life** on natural environments
  - decrease of the ecotoxicity and removal of the endocrine disruptors' effects

### adsorption

- activated carbon



Pairing

### oxydation

- ozone



→ develop the competencies of the European companies in terms of exporting (an increasing interest in China, Australia, Singapore (IWA trade fair)...)

focus : Lausanne



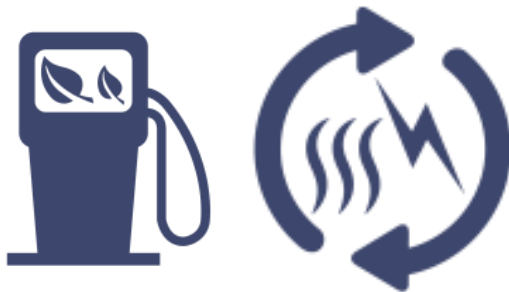
# and the micropollutants trapped on sewage sludges ?

## researches in progress about sludges

- need to acquire additional knowledge
- measure of the impact (agricultural fertilizers...)

## promote advanced sludge recycling

- **energy valorization** (methanization, advanced thermal uses) : biomethane, electricity, heat
- **materials recycling** : reuse of phosphorus and nitrogen



circular  
economy



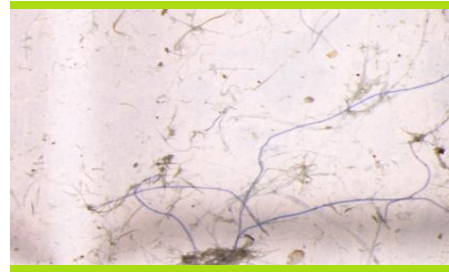


# more recently, other emerging subjects...

## microplastics

**14.000 billion**

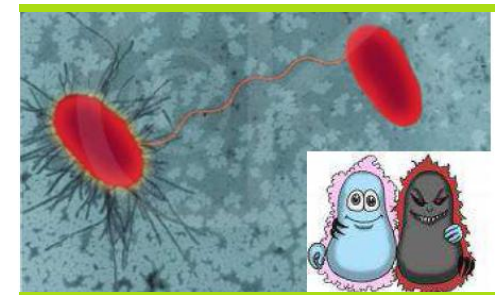
fibers produced everyday in France in washing machins



## antibiotic resistance from bacteria (linked to microorganisms)

**70 %**

of bacteria responsible of nosocomial infections are resistant to at least one antibiotic supposed to treat them

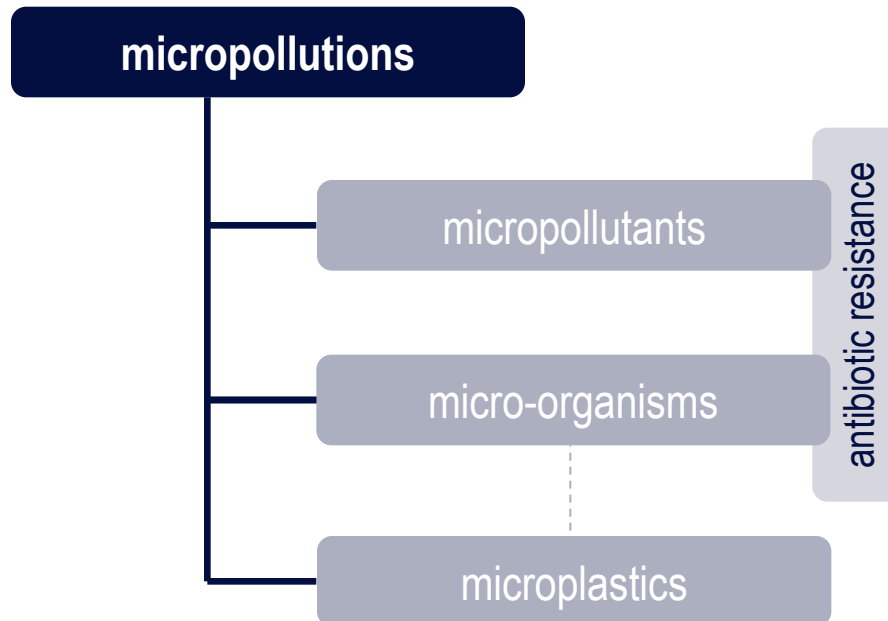


# our approach,

to get an overall view of « micropollutions »

## why getting an integrated view of micropollutions ?

- **links** between micropollutions (micropollutants, microplastics, microorganisms)
- study of the impacts of a treatment on other micropollutants
- **induced benefits** of a treatment : e.g. reuse



# a proactive approach to strengthen European leadership on micropollutants :

our suggestions

to consolidate a **common European knowledge base** on micropollutants

to establish a **global calendar**

to get a balanced approach between **reduction at the source and treatment of micro-pollutants**

to promote large-scale projects in order to **consolidate the expertise in exportation**