



**DECISION SUPPORT TOOL FOR ESTABLISHING  
AN ACTION PLAN AIMING TO DECREASE THE  
DISCHARGE OF MICRO POLLUTANTS INTO  
SEWAGE SYSTEM NETWORKS.**

2nd Water JPI Conference. Emerging pollutants in freshwater  
Ecosystems. Helsinki, 6-7th of June, 2018.

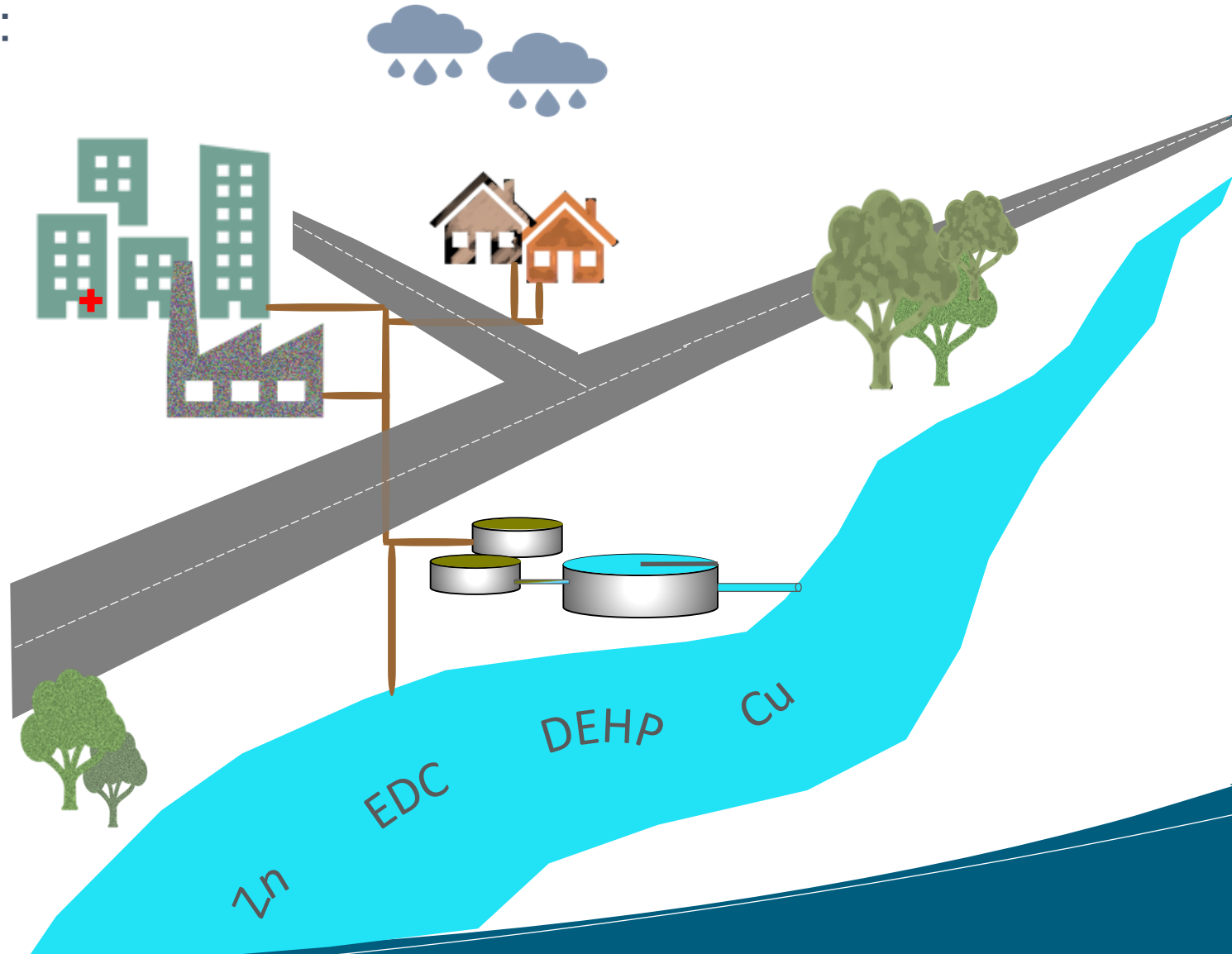
# Decision support tool : $\mu$ pollutants in sewage networks

Problem encountered:

Multiple substances  
Multiple sources



How to create an efficient action plan?



# Decision support tool : $\mu$ pollutants in sewage networks

## LUMIEAU-STRA Project

2015-2018

Strasbourg.eu  
sur métropole

ICU3E

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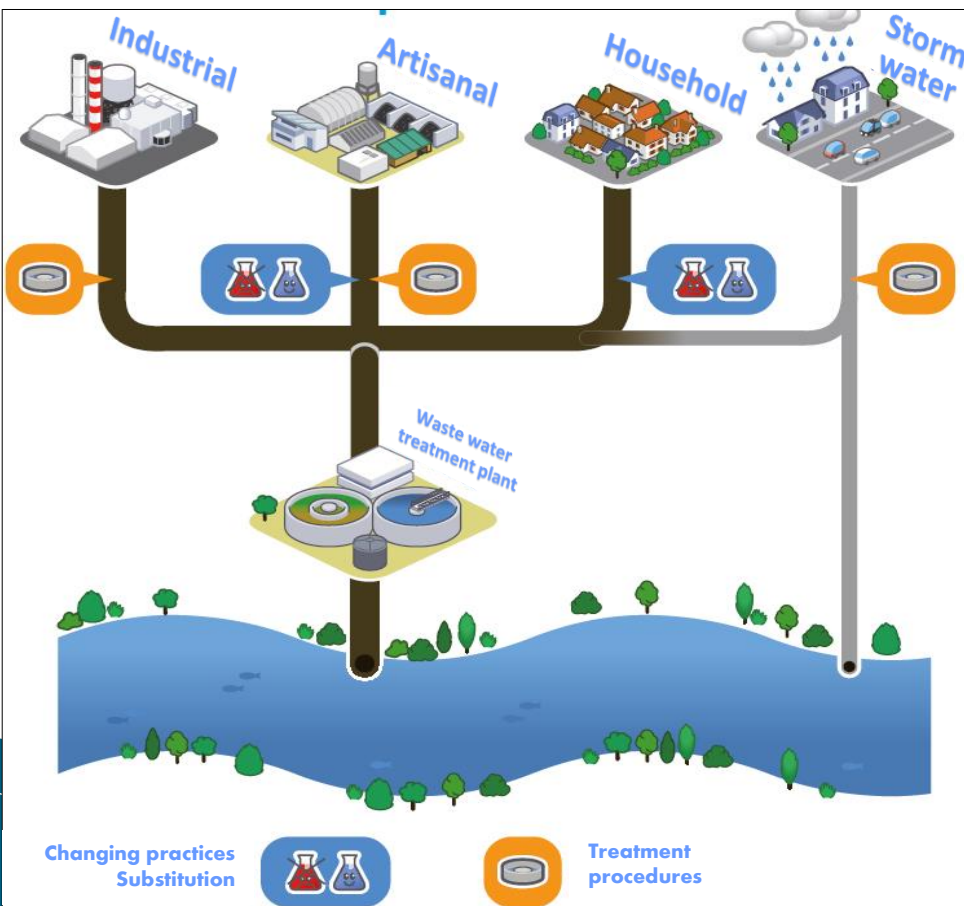
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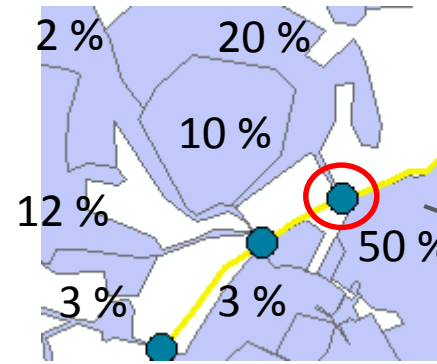
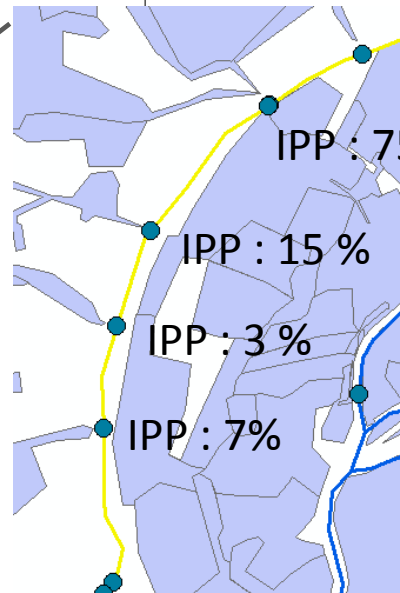
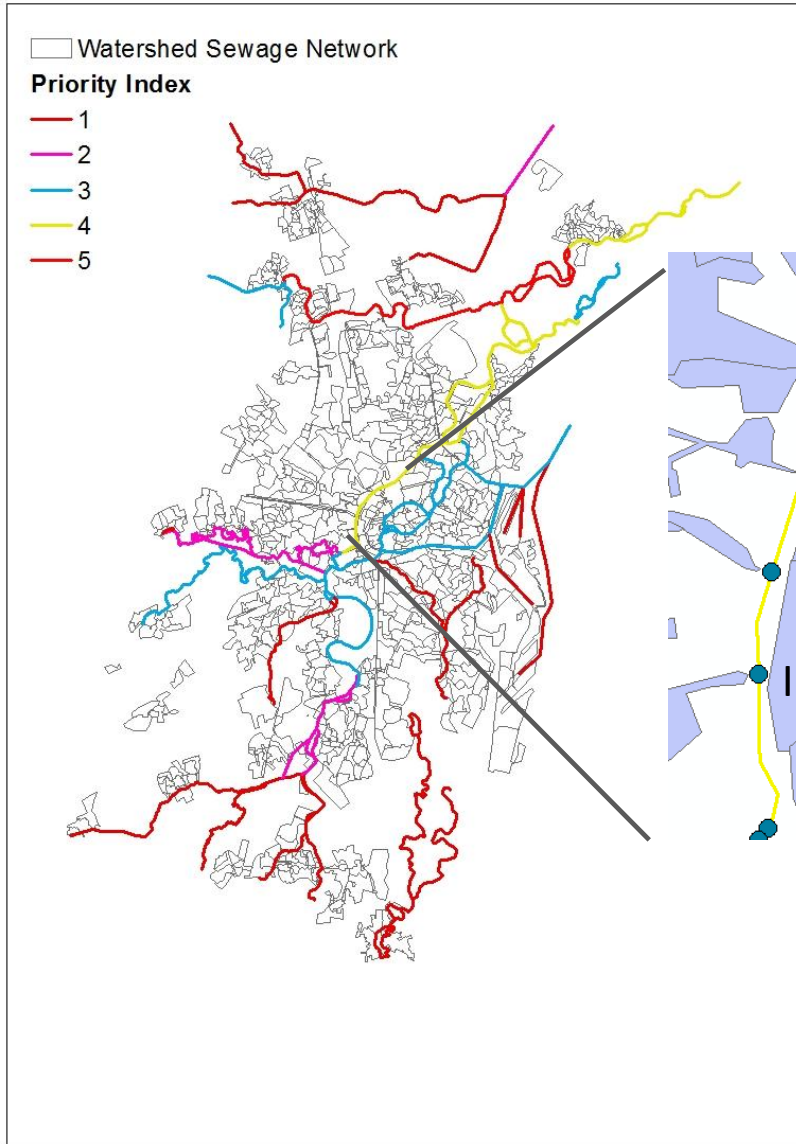
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- Diagnosis and prioritisation
- Testing solutions
- Evaluation and planning

# Decision support tool : $\mu$ pollutants in sewage networks

## Diagnosis and prioritisation



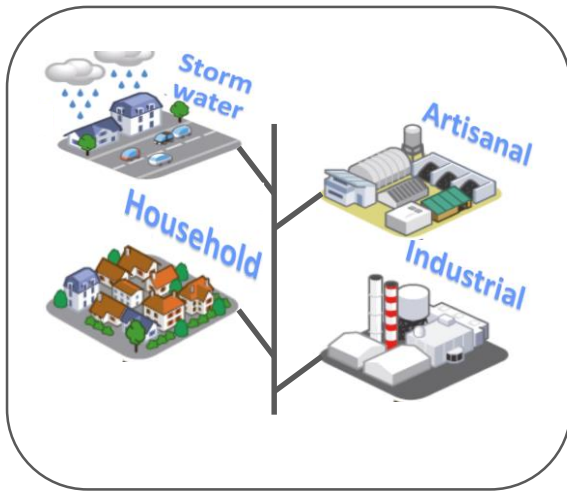
SIRET	%
14569xxxx	16
38692xxxx	8
.....	....

Source	%
Storm water	8
Household	15
Industry / Artisans	77

Activity code	%
2042Z	60
4520A	35
4762Z	12
...	...

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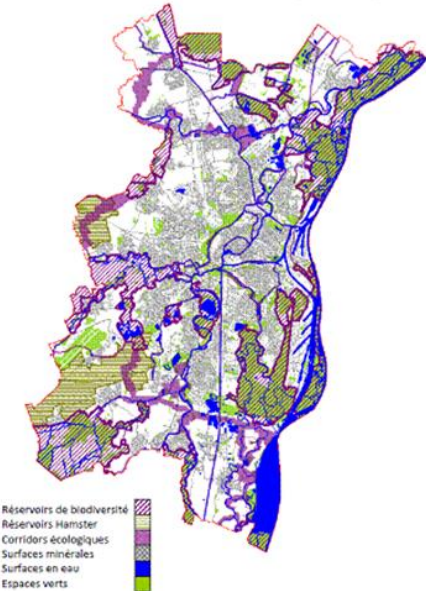
## Diagnosis and prioritisation



Index of flux and potential pressure by source



Hydraulics of sewage network  
Mixed sewage system – discharge during rain events

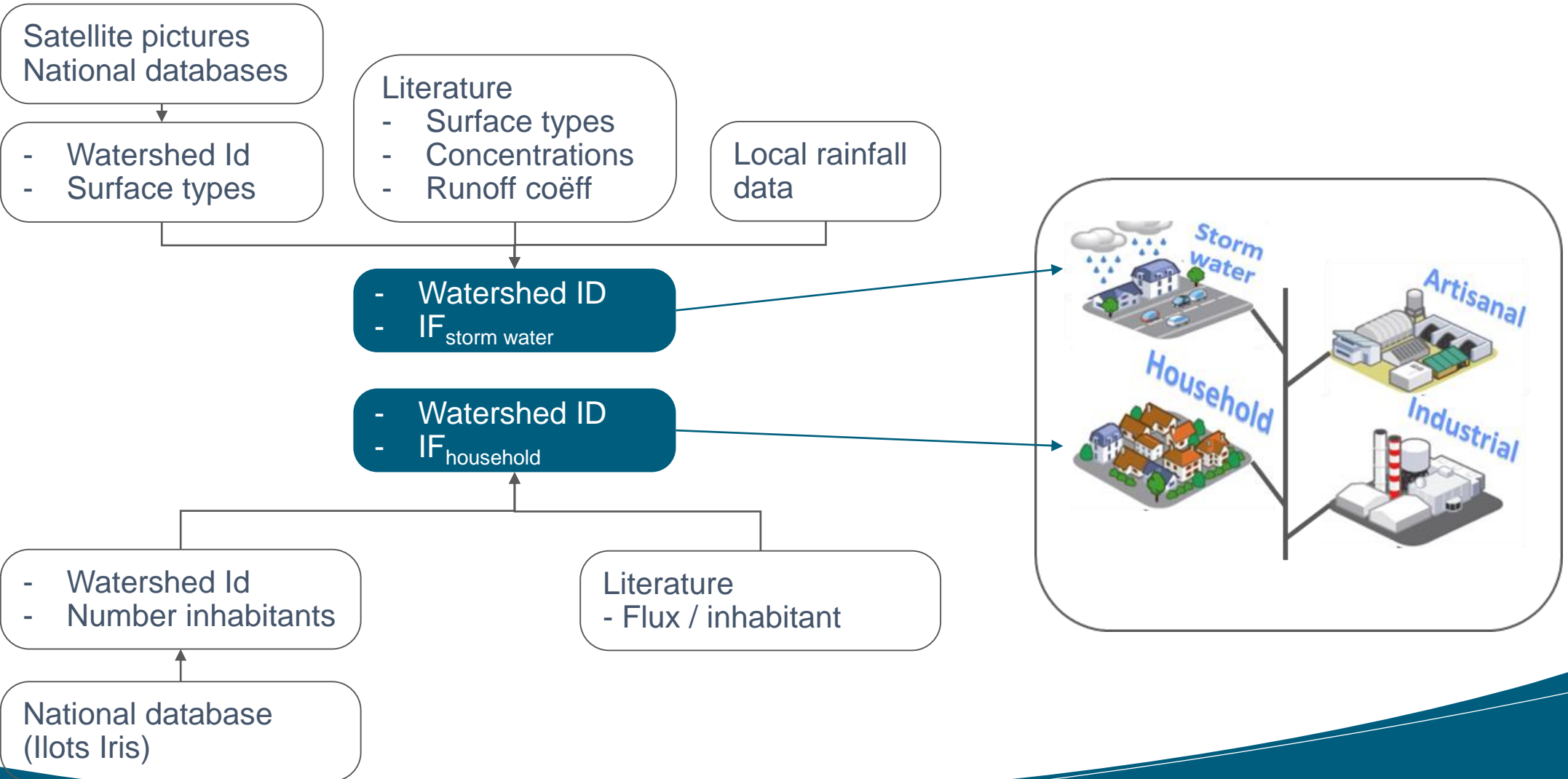


Index of the capacity of acceptance of the receiving water body

**Identify most impacting substances and most important contributors**

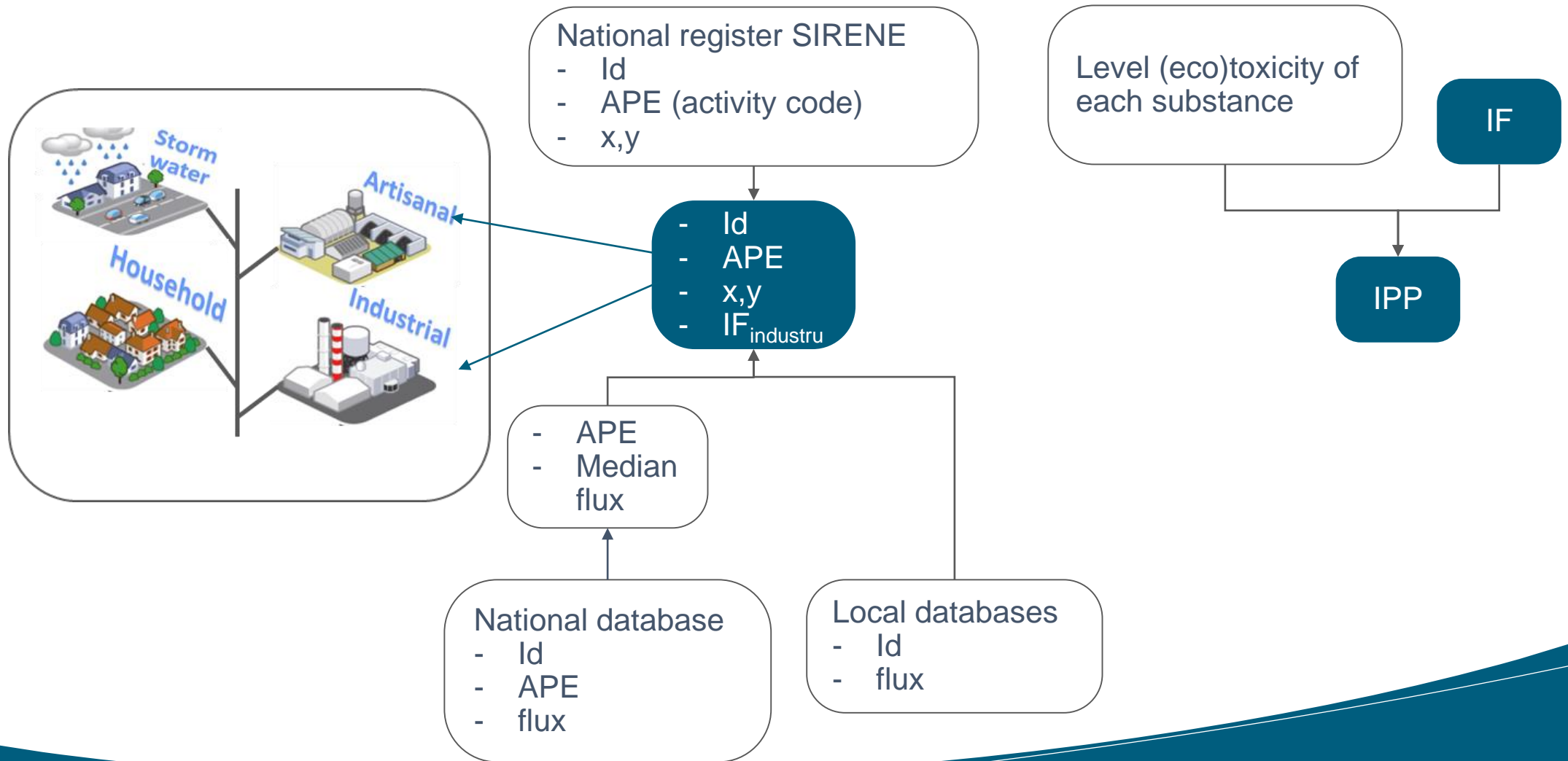
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## Index of flux (IF) and potential pressure (IPP)



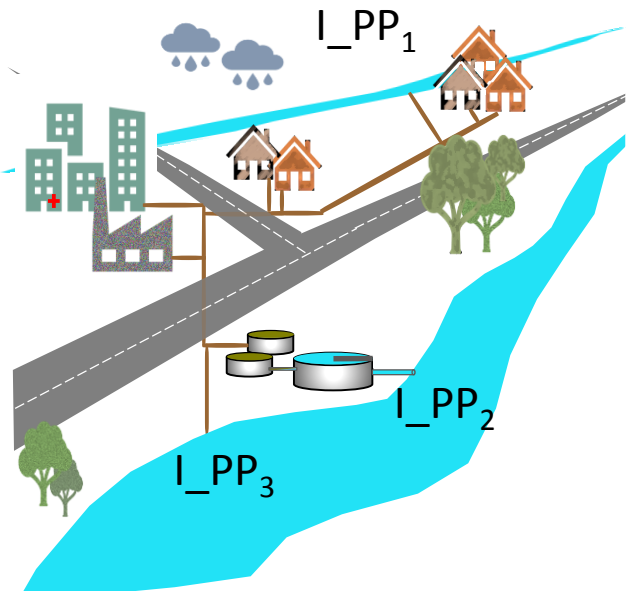
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## Index of flux (IF) and potential pressure (IPP)



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## Index of prioritisation



Physical characteristics + uses

Sensibility index

Index capacity of acceptance (ICA)

Index Potential Pressure  

$$IPP_{\text{water body}} = \sum (IPP_{\text{distance } x})$$

Index of prioritisation  

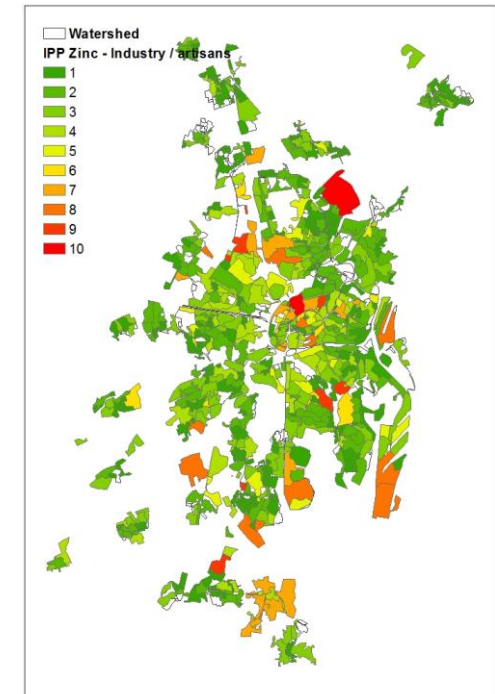
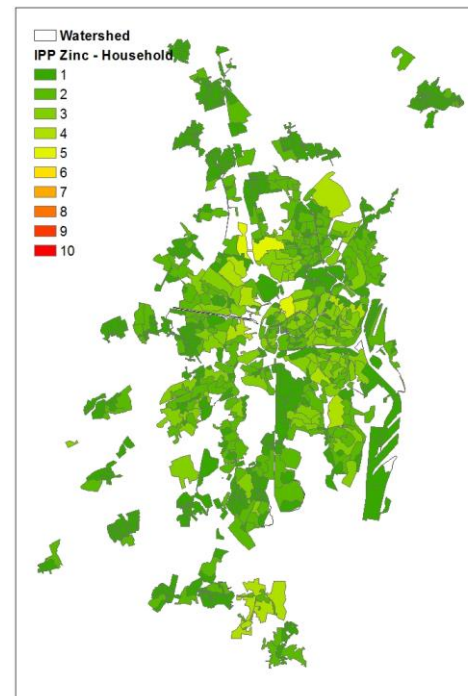
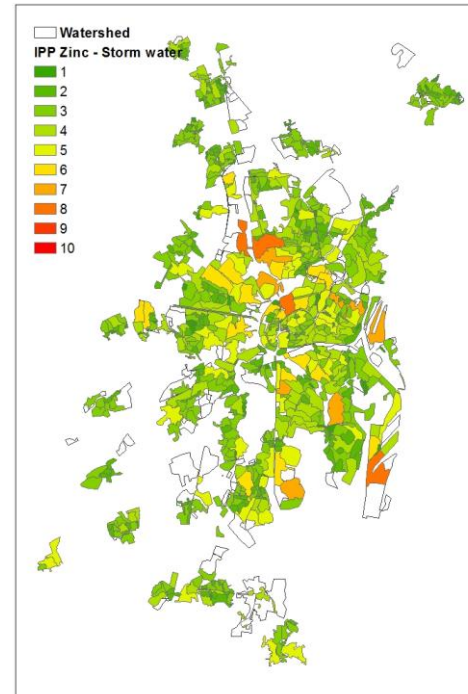
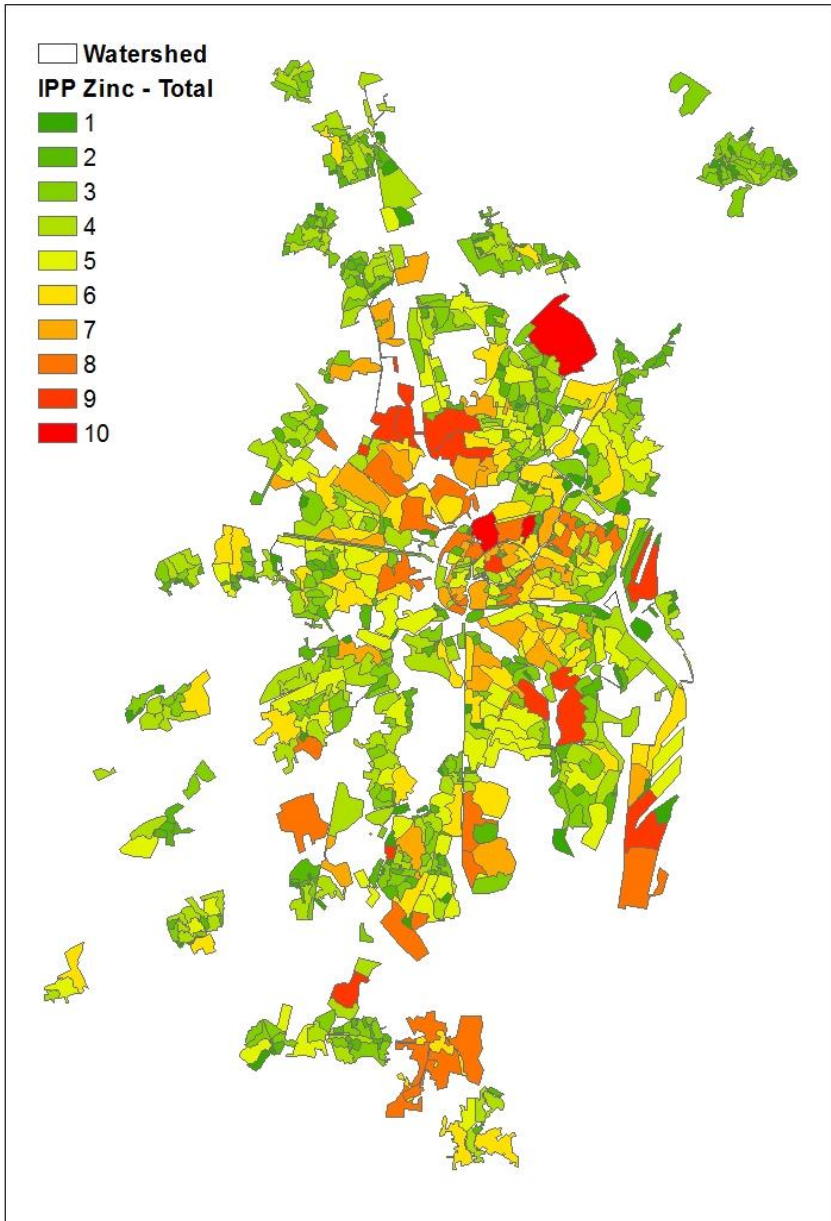
$$IPriority = IPP / ICA$$

Type	Sensibility index
Big river ( $Q_{\text{max}} > 50 \text{ m}^3/\text{s}$ )	27
Small lake	10
Bathing water	10

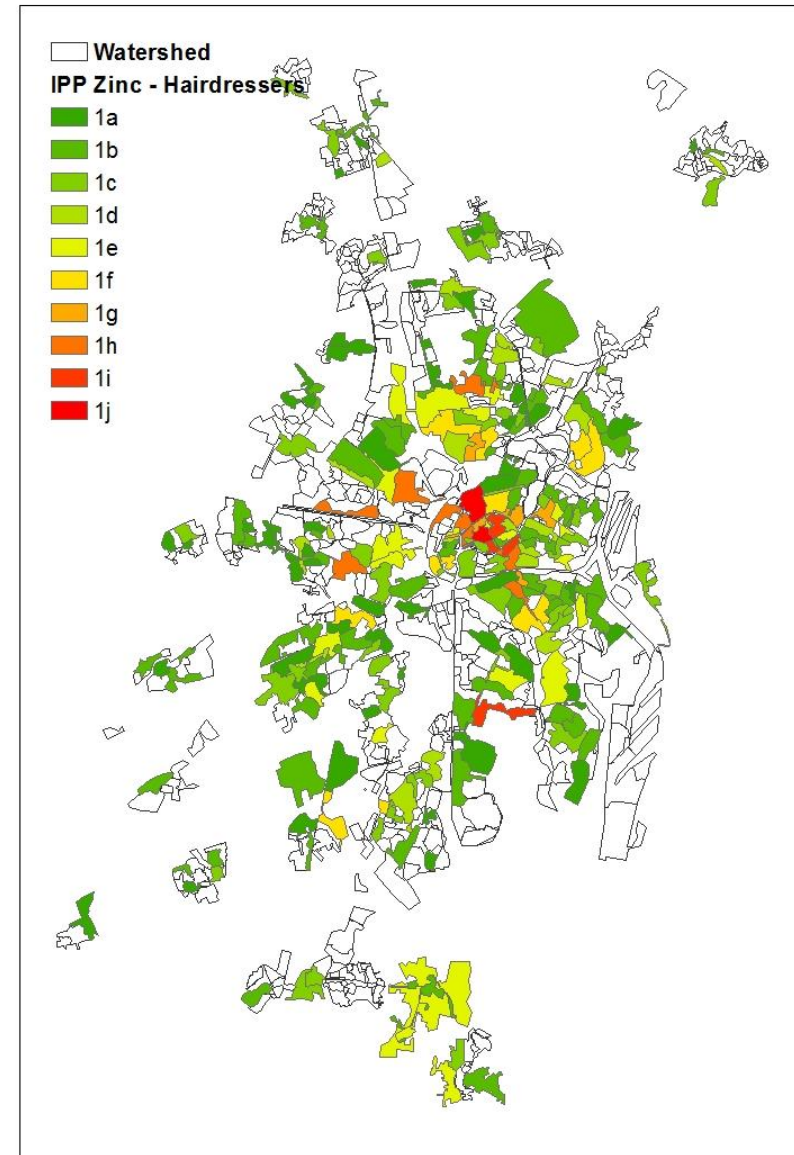
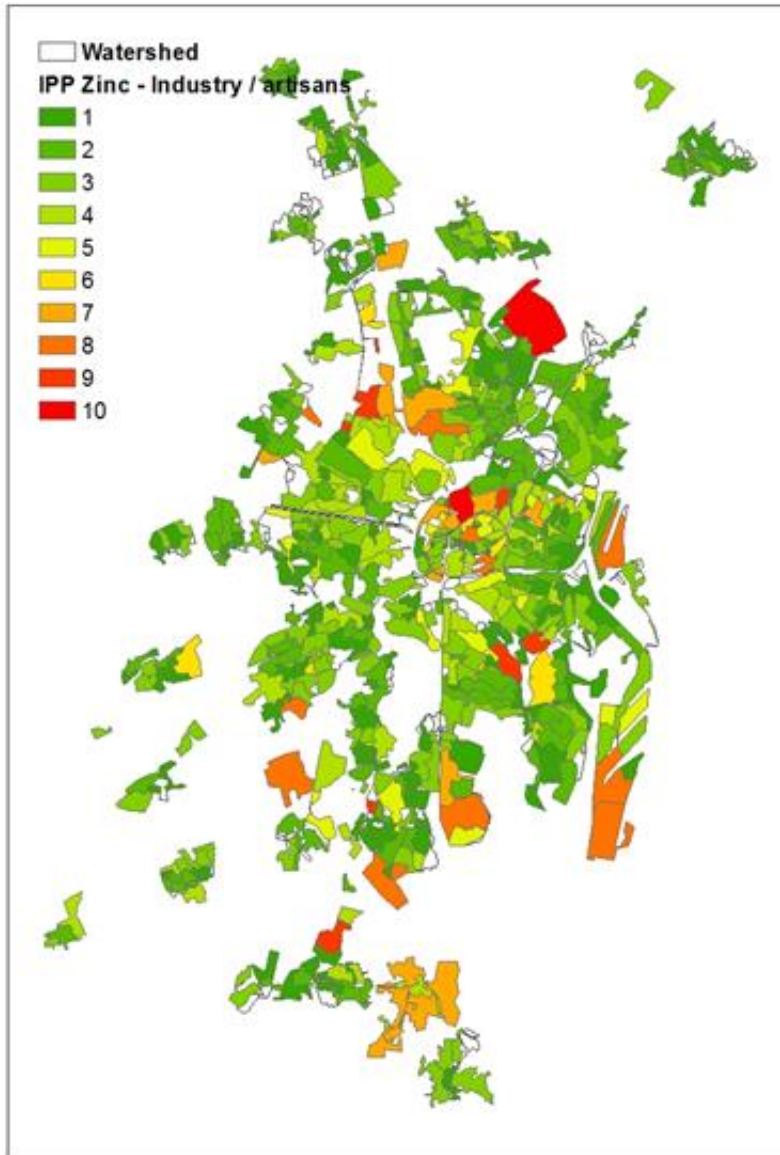
Local issue	Ponderation factor
NATURA 2000	...
Chemical status	...
Remarkable wetland	...



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## Main results

- Good correspondence with measured fluxes at the global scale
- Positive feedback from the service in charge of the sewage network

## Main limits/problems encountered

- Preservation of substances (SS, toluene,...)
- Activity code not always representative
  - Ex 1: activity code for location of small items include companies that do laundry of clothes
  - Ex 2: local administrations in charge of WWTP have the same activity code as WWTPs
- High variations are observed on calculated emission coefficient



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## Perspectives

- Continuous amelioration through rex from local studies
- Ameliorate diagnosis : by means of biosensors, analytical campaigns,....??
- Coupling with a data base concerning solutions (learning, information, substitution, treatment)
- Simulation of solutions and elaboration of an multiannual action plan



**THANKS FOR  
YOUR ATTENTION**