

# Testing Hydrological Communities (HC) in Brussels, Belgium to mitigate flood risk

The BrusSEau project

Dimitri CRESPIEN

C5 - Improving Water Governance - 27/06/2019

Resilient Cities 2019

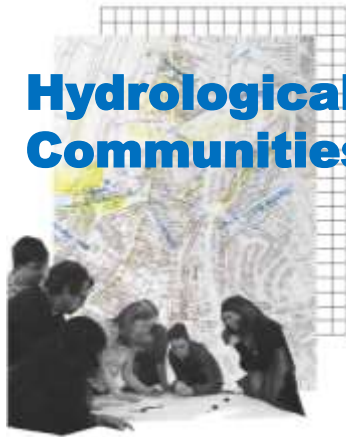
# .What is BrusSEau?

## Interdisciplinary research

- Academics (hydrology, architecture, historians)
- Civil society
- Design offices (landscape architects)
- Technicians



## Hydrological Communities



## Innoviris CoCreate 2016 Project period: 2017-2020

## Participatory research

- Citizens, inhabitants



# .What is BrusSEau?

## Main objectives

- Make the territory resilient to floods
- Improve resiliency of urban landscape for water
- To make the institutional system of water management more resilient



Eugène Toussaint street, Jette



Dupréstraat, Jette



Forest Park, Vorst

## .What is BrusSEau?

Hydrology in an urban context, a complex research...

- *Disturbed water cycle*
- *Difficulty to characterise the environment*
- *Limited access for measurements and gathering data*

Main postulate:

**Citizens** have a good knowledge about and insight in their **local environment**, which forms an important added value to **analysis** in water-related problems and to formulate alternative **solutions**

*“**Citizen science** is scientific research conducted, in whole or in part, by amateur (or nonprofessional) scientists.” (T. Gura, 2013)*





# .What is BrusSEau?

## Hydrological Communities (HC)



### Definition:

“Citizens/Inhabitants living/working in the same hydrological sub-basin”

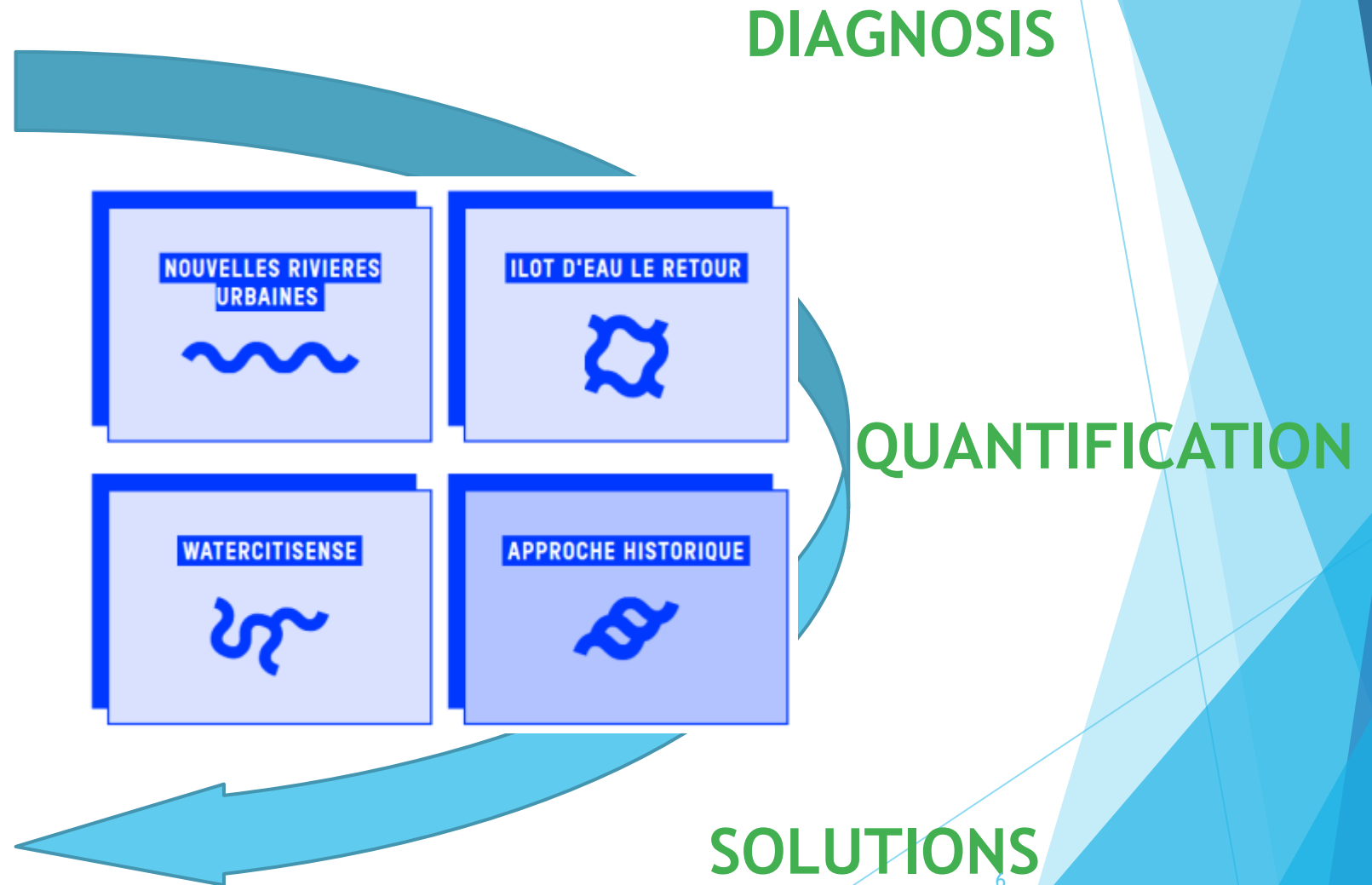
2 municipalities: Vorst & Jette

3 hydrological communities

- ▶ Vorst-Noord
- ▶ Vorst-Zuid
- ▶ Molenbeek (Jette/Ganshoren)



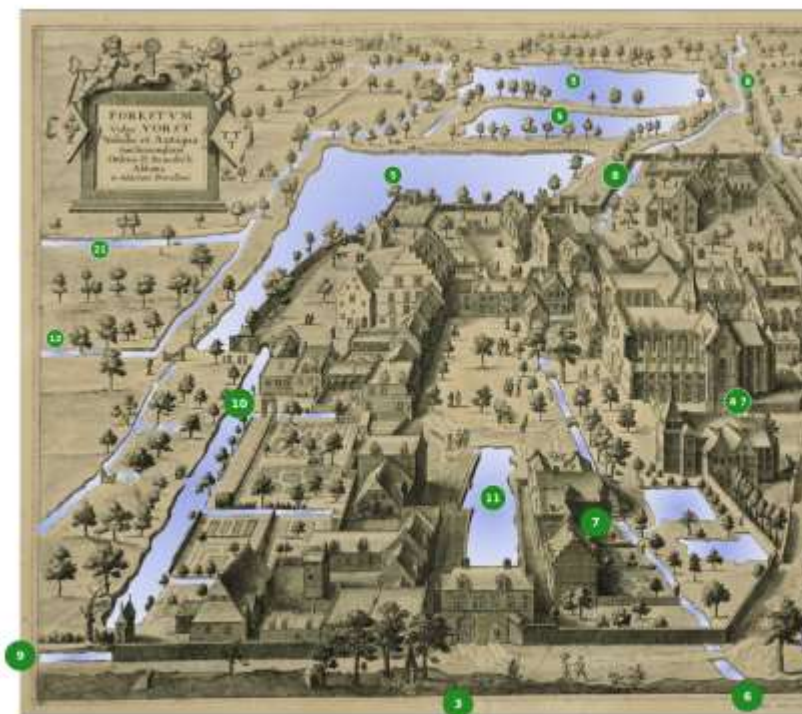
## .The BrusSEau approach





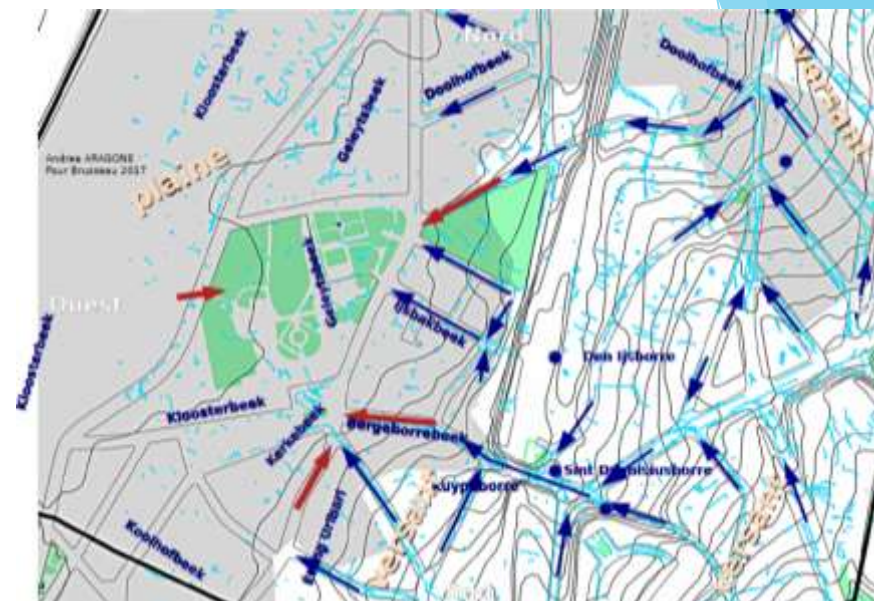
# .Historical Approach

Exploring evolution of water in the city



- L'abbaye de forest vers 1660  
gravure extraite de «  
Chorographia sacra flrabantiae »,  
Antonius SANDERUS  
Permet de se rendre compte du  
réseau hydrographique qui  
entourait le site
1. Geleytsbeek
  2. moulin de l'abbaye
  3. pièces d'eau proches du moulin
  4. pièce d'eau dans la Cour d'Honneur
  5. Saligheidsvijver
  6. Kleine Vyver (Petit étang)
  7. Grootte Vyver (grand étang)
  8. Vleesgracht
  9. Quakenbeekmolen (second moulin abbatial)
  10. Viscbeek
  11. Kloofterbeek
  12. Fontaine Saint-Benoit (actuelle fontaine de la pl. Saint-Denis)

Forest Abbey, 1660



Ancient streams around the Abbey



Flooded buildings around the Abbey



# .Water islands

Promoting community and private water management

ILOT D'EAU LE RETOUR



Collectif A : réservoir collectif



Collectif C+ : Noemi, rue du Dries 21





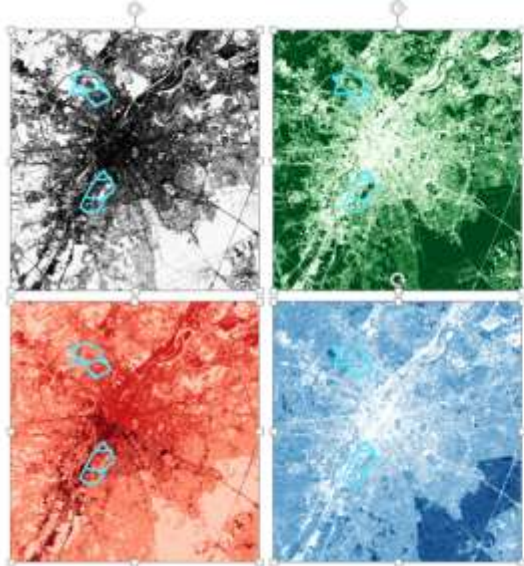
# .WaterCitiSense

Low tech tools to precisely measure hydrological flows

WATERCITISENSE



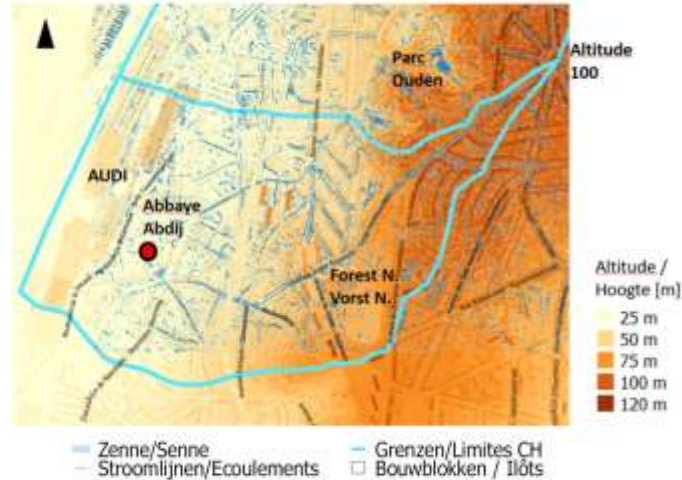
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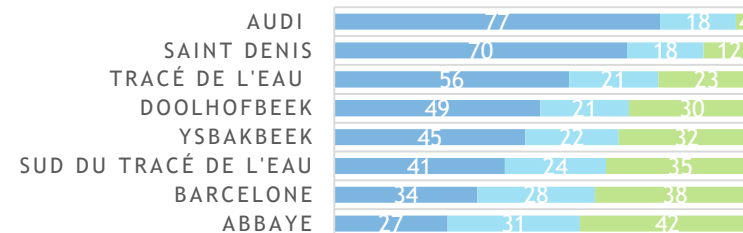
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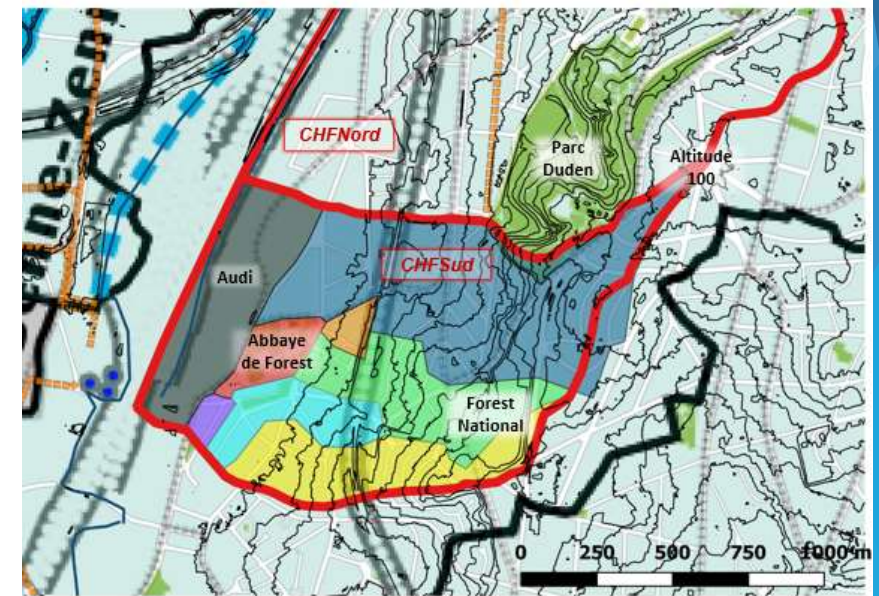
Remote sensing analysis; run-off model (WetSpass)

## DISTRIBUTION OF HYDROLOGICAL FLOWS- CHFSUD

Runoff Recharge Evapotrans



% OF THE DIFFERENT FLOWS





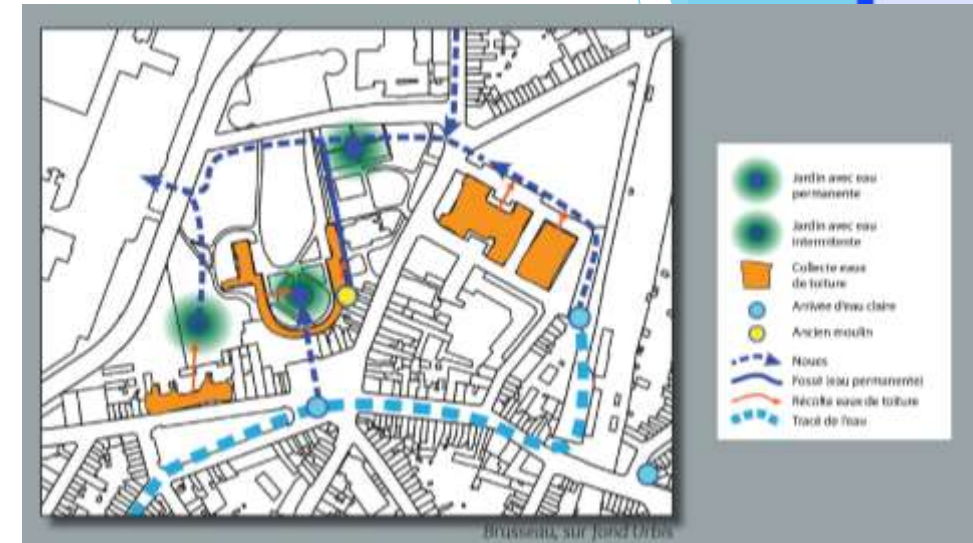
## *.New Urban Rivers*

*Network of low tech measures and plannings as an alternative to unitary water management*



Synthetic results of the “Map-It” workshops in Forest-South  
Synthetic results of the “Map-It” workshops in Forest-South

The BrusSEau project - D.Crespin - 27/06/2019



## Propositions for best practices in terms of water management for the renovation of the Abbey site

## *.Brussels sensitive to water?*

### RESULTS SO FAR (30 months)

#### **BRUSSEAU IN THE FIELD :**

Co-creation of strong propositions for an alternate water management

- Challenging storm basin implementation (5000m<sup>3</sup>)
- Promoting separative system for certain rivers (Molenbeek) to meet EU Directive
- Implementation of shared water management measures between privates (retention tank, green facades)
- (Re) discovery of still flowing urban streams and ancient water channels

#### **BRUSSEAU IN COLLABORATION :**

Reaching out to water actors and institutions to engage in best practices and citizen science

- **Round table** around 8 case studies carried by Hydrological Communities (June 2018)
- **Recognition:** Copiloting hydrological study at a regional scale
- **Empowerment:** enhanced involvement of citizens (HC) regarding water organisation in the city
- Regular **consultancy within municipality** renovation plans for the management of water



## *.Brussels sensitive to water ?*

### NEXT STEPs (6 months)

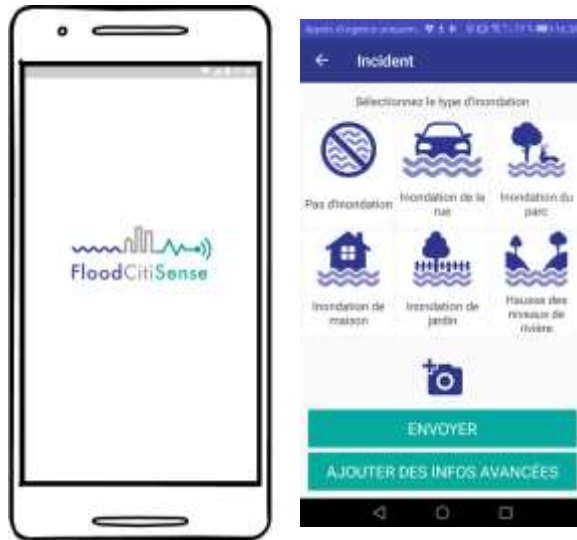
- 1-month **exhibition** to relate the research, raise questions about particular blockages and reach out to a large public (Nov.- Dec. 2019, La Vallée, Brussels)
- Decisive meetings with water actors to **consolidate collaboration** regarding « hot topics »
- Question **policies and financial distribution** of water infrastructures in Brussels Capital Region
- **BrusSEau bis** in 2020 ? Aim to accompany the **implementation** of propositions that emerged during the research and to develop new ones at a regional scales (involves direct funding and collaboration from several public institutions)

## *.Brussels sensitive to water ?*

Come and visit us at  
Exhibition S6



TESTING the **FLOOD  
REPORTING** app in your city



TESTING the **LOW-COST  
RAINSENSOR**





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# Thank you for your attention

Dimitri.crespin@vub.be

[www.brusseau.be](http://www.brusseau.be)

[Brusseau.lab@gmail.com](mailto:Brusseau.lab@gmail.com)

I definitively  
know  
something!

