

Senne

be water
be .brussels 

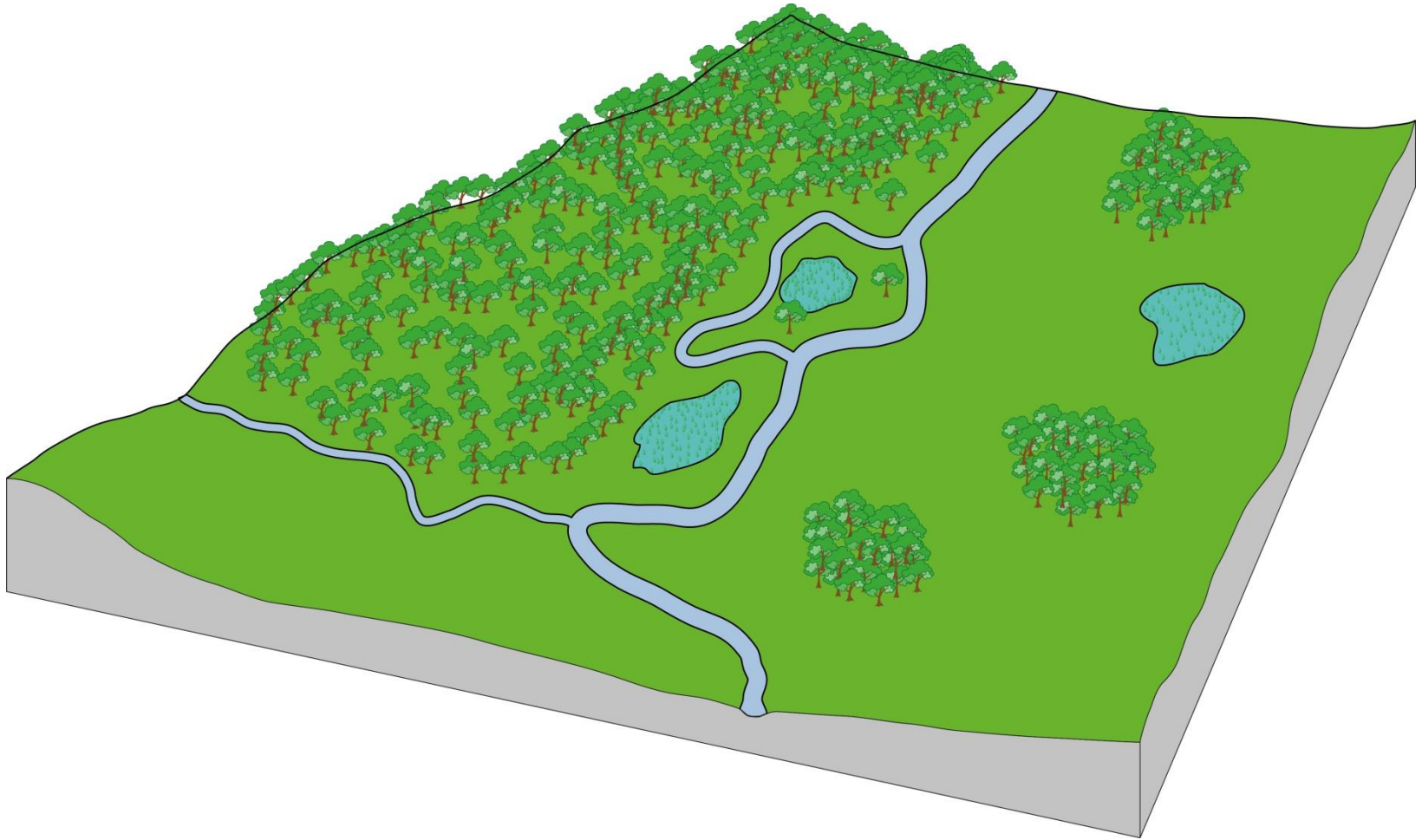
The Senne in the Brussels Region: context, challenges and opportunities



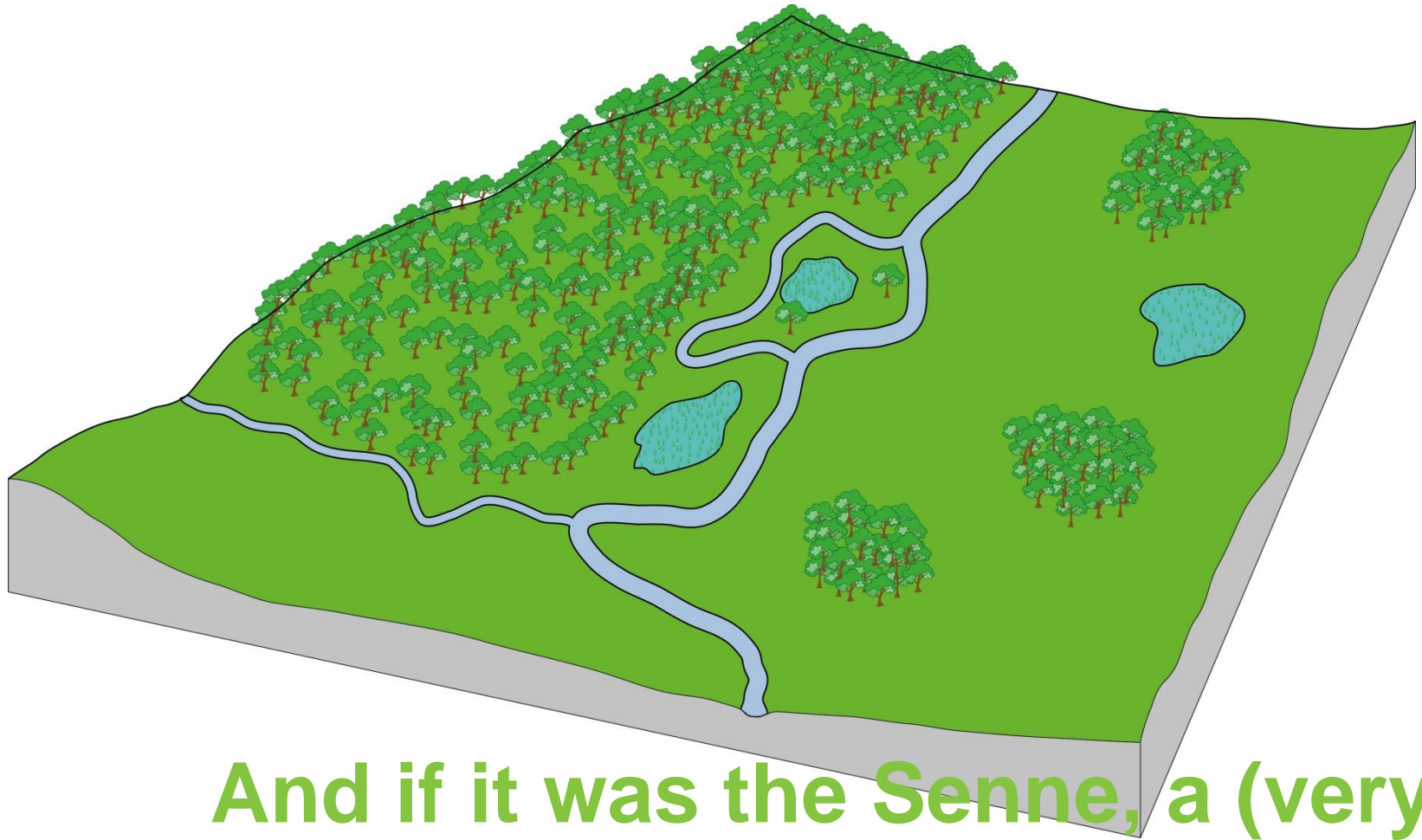
BRUXELLES ENVIRONNEMENT

IBGE - INSTITUT BRUXELLOIS POUR LA GESTION DE L'ENVIRONNEMENT

It all starts with a river...



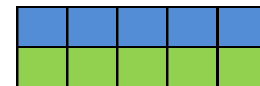
It all starts with a river...



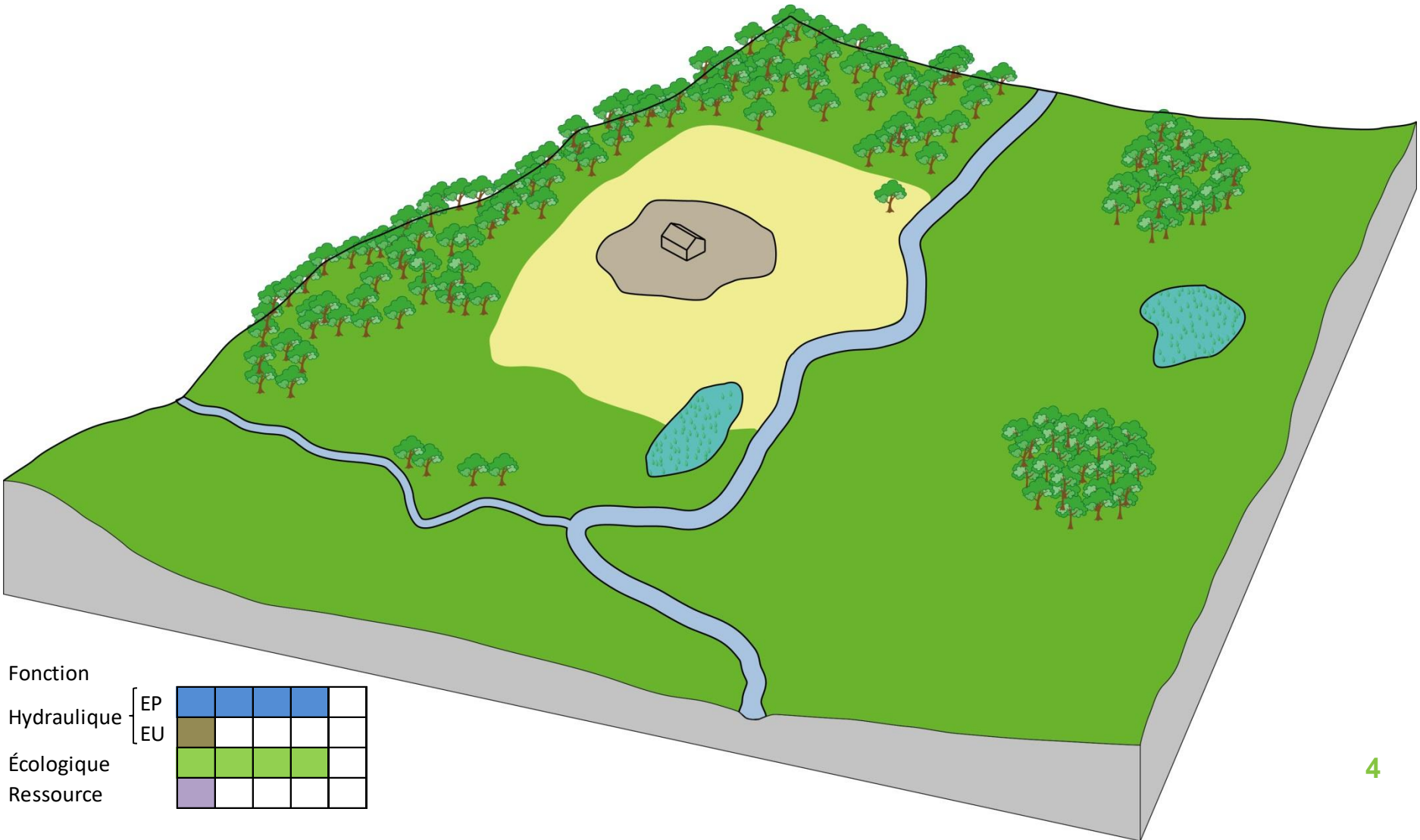
And if it was the Senne, a (very) long time ago



Fonction
Hydraulique
Écologique



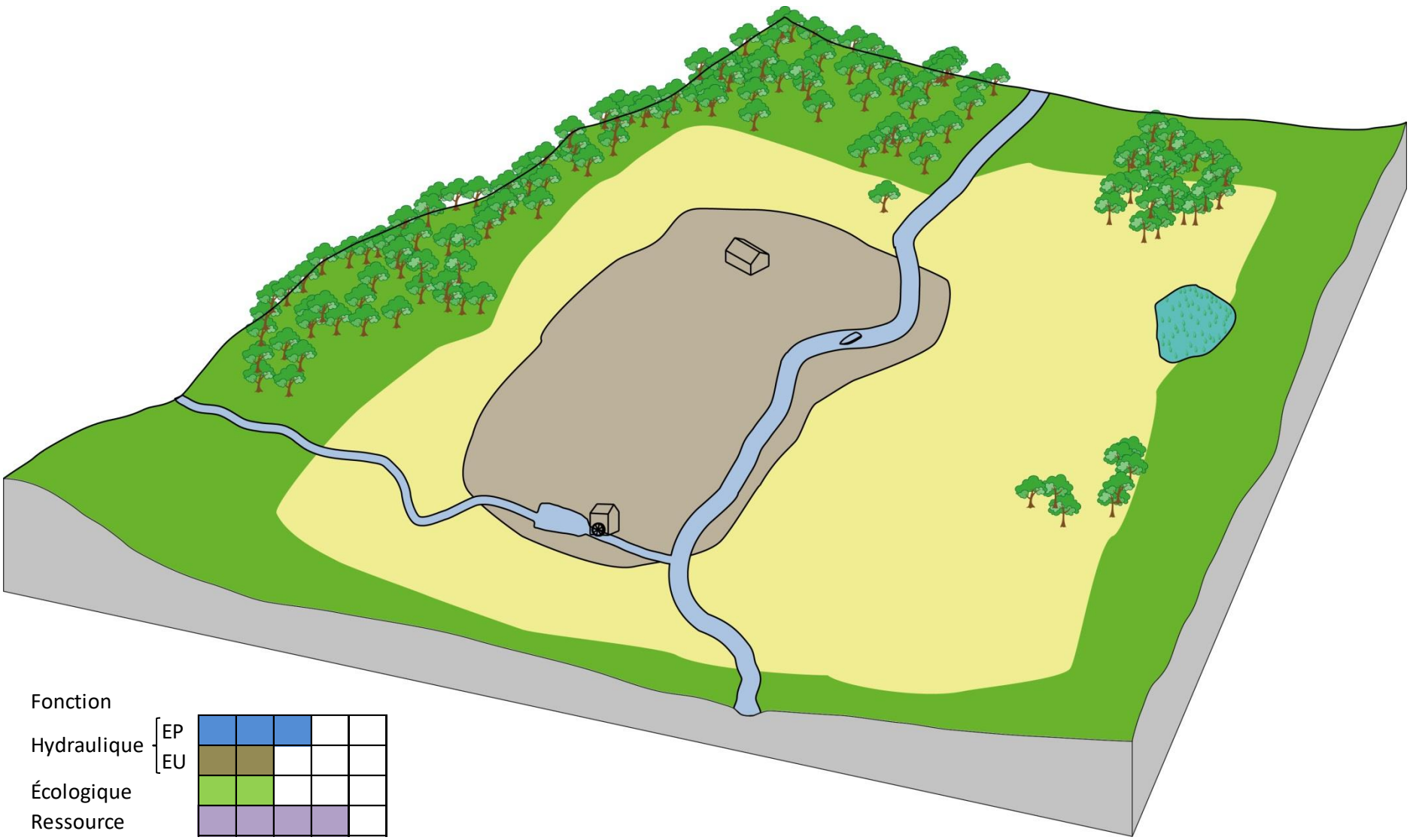
Men settle and shape their landscape



Fonction

Hydraulique	EP	Blue	Blue	Blue	Blue	White	White
	EU	Brown	White	White	White	White	White
Écologique		Light Green	Light Green	Light Green	Light Green	White	White
Ressource		Purple	White	White	White	White	White

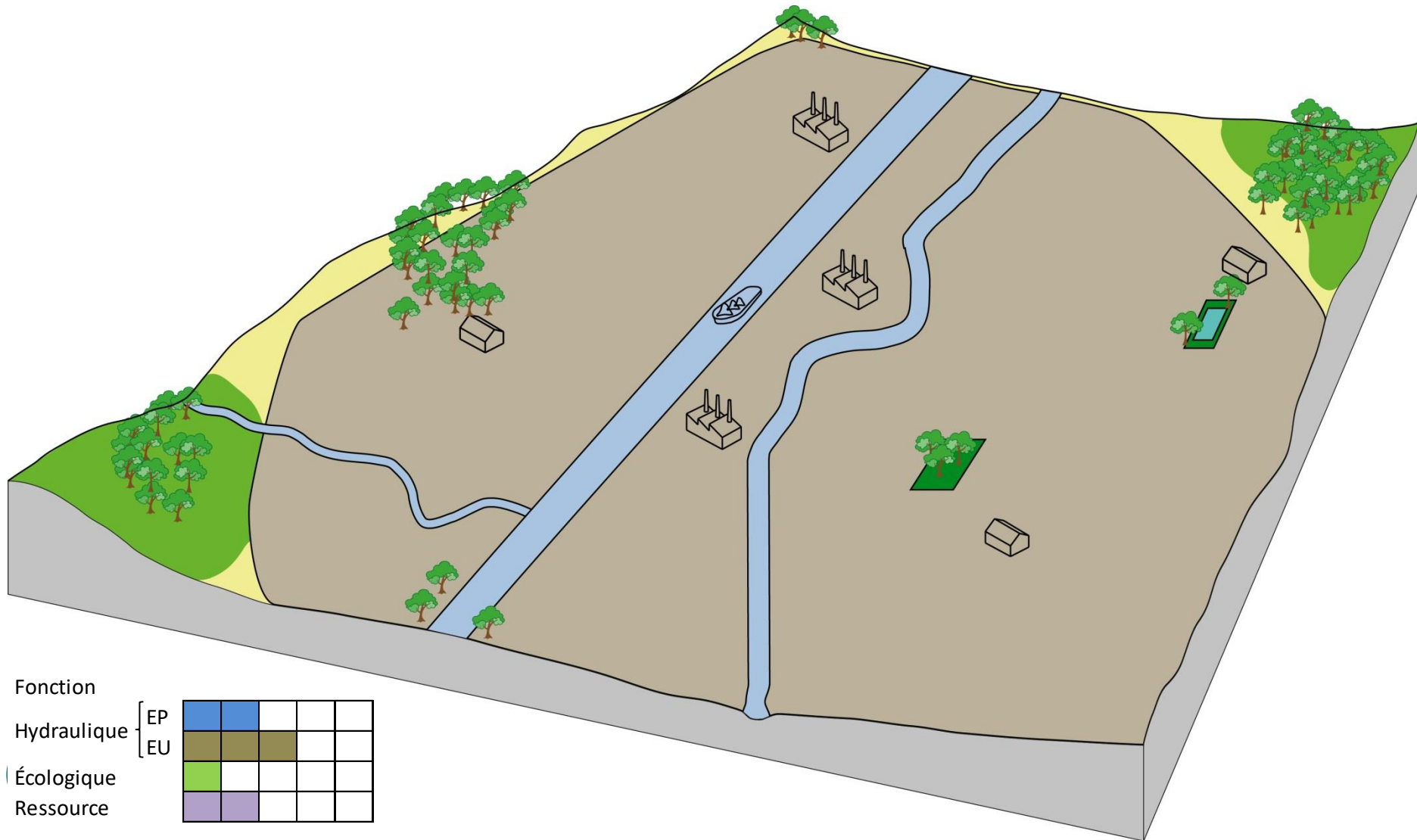
The city is growing and using the "water" resource



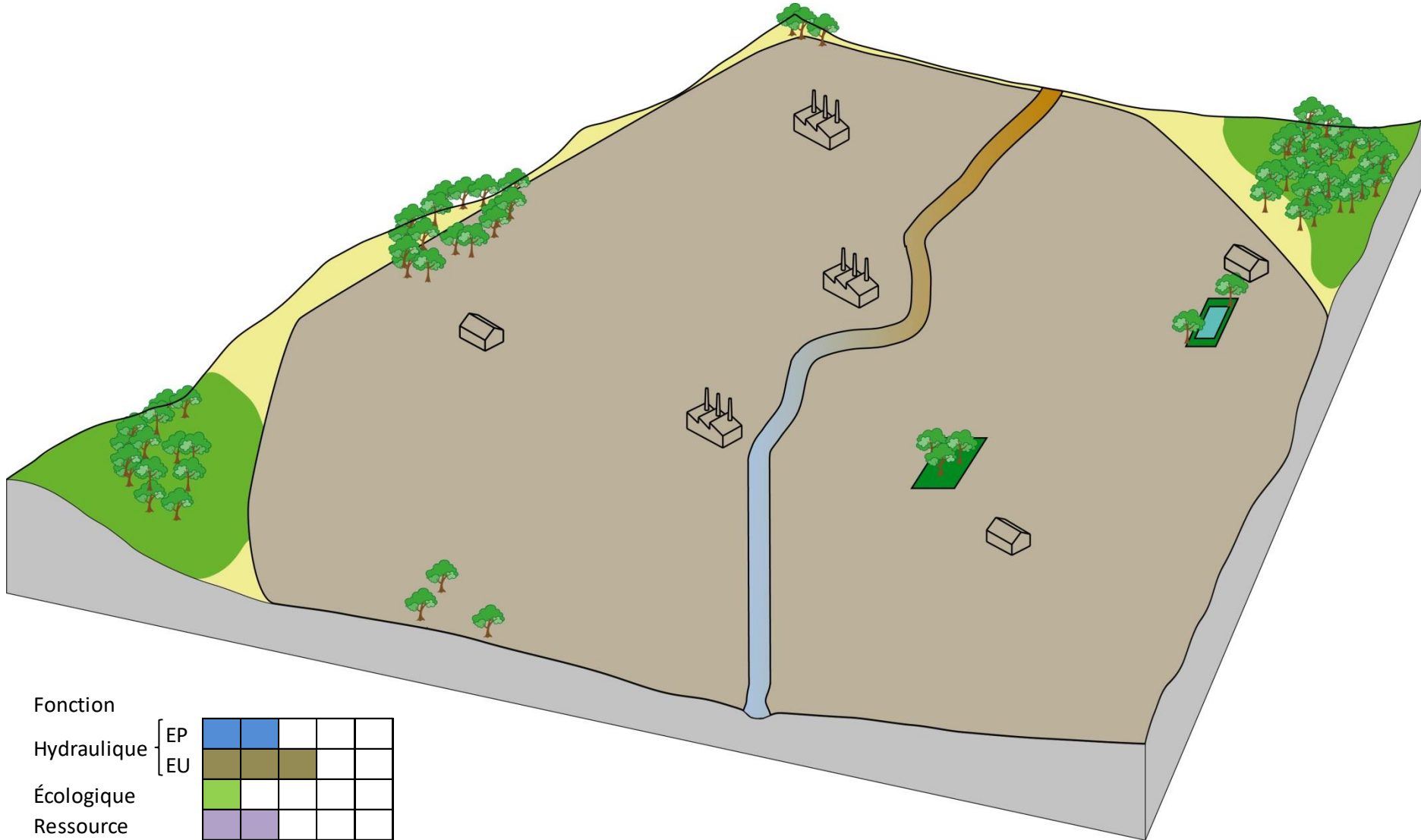
Fonction
Hydraulique
Écologique
Ressource

EP	Blue	Blue	Blue	White	White
EU	Brown	Brown	White	White	White
	Green	Green	White	White	White
	Purple	Purple	Purple	White	White

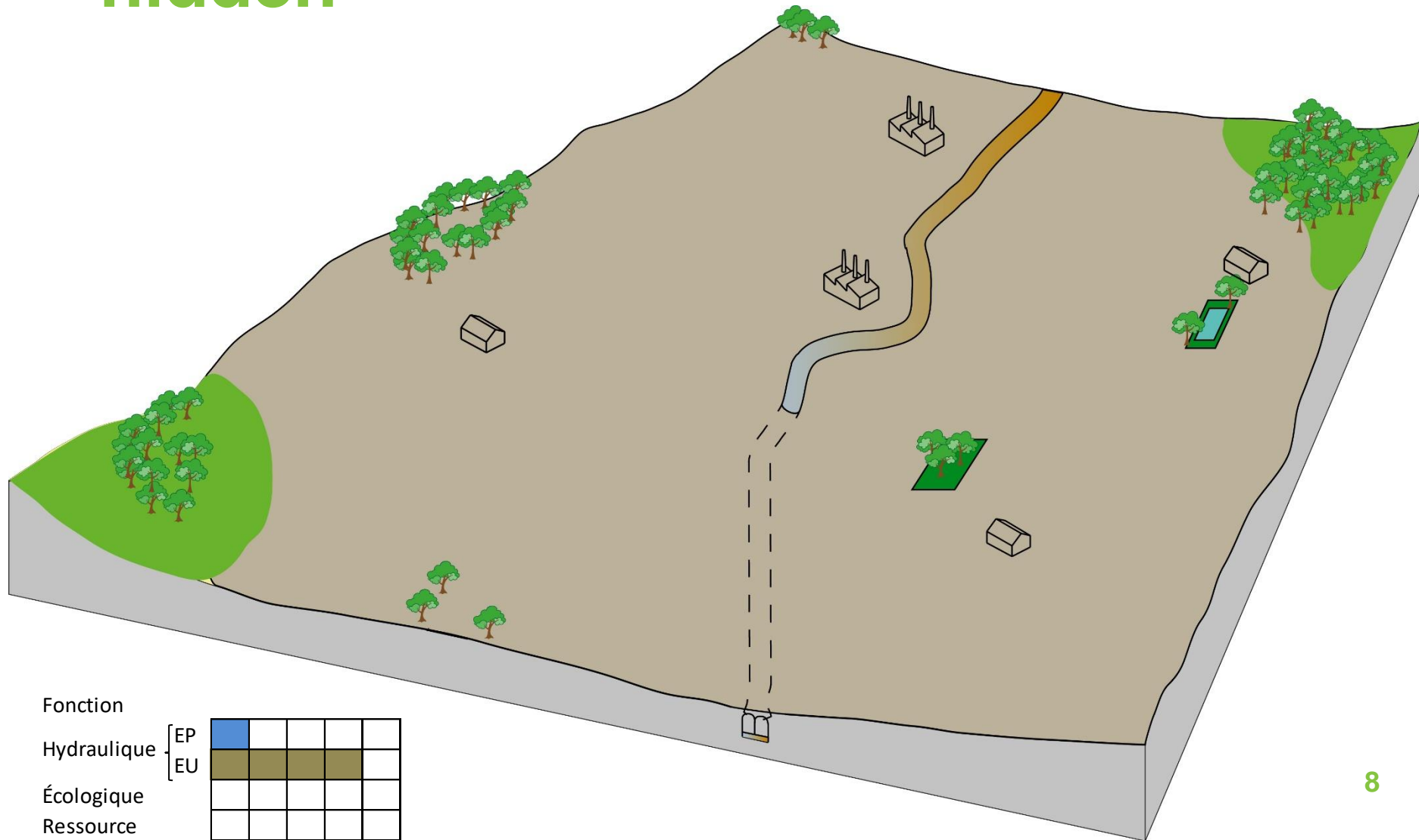
As things change, so do the needs...



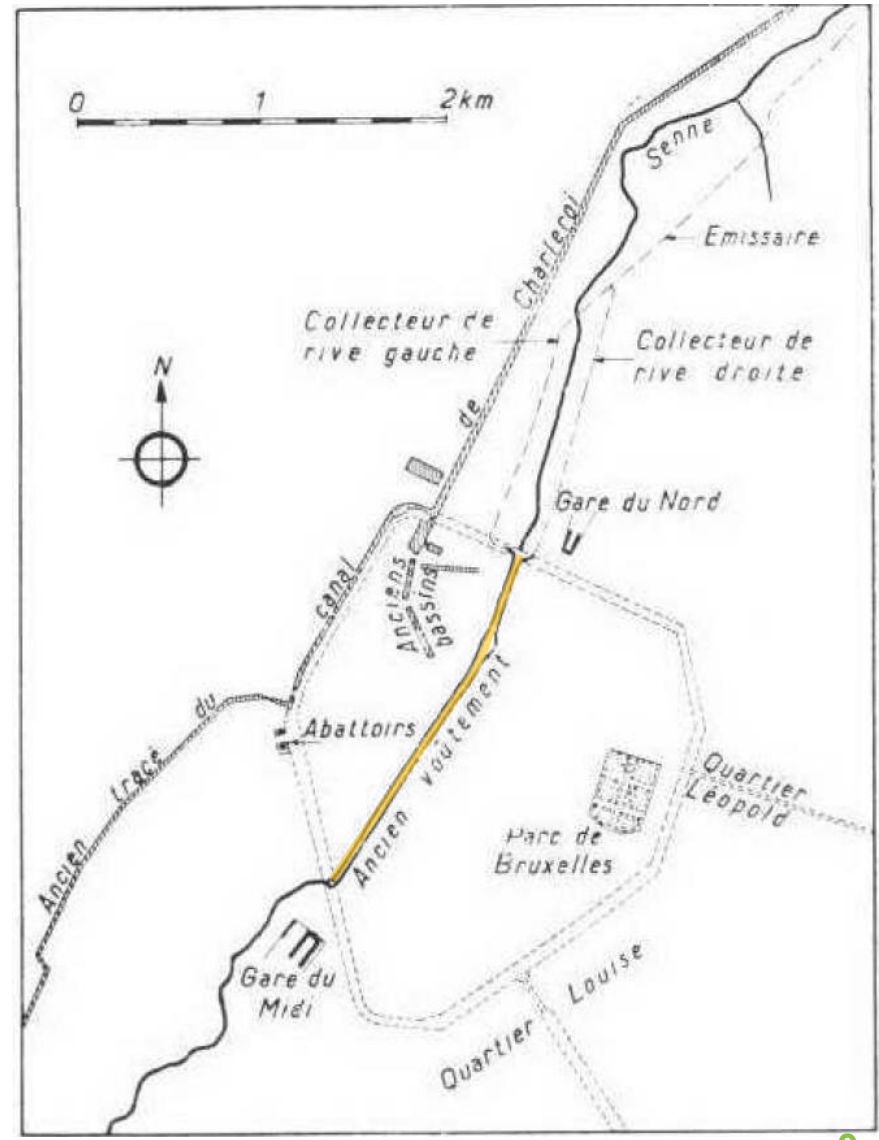
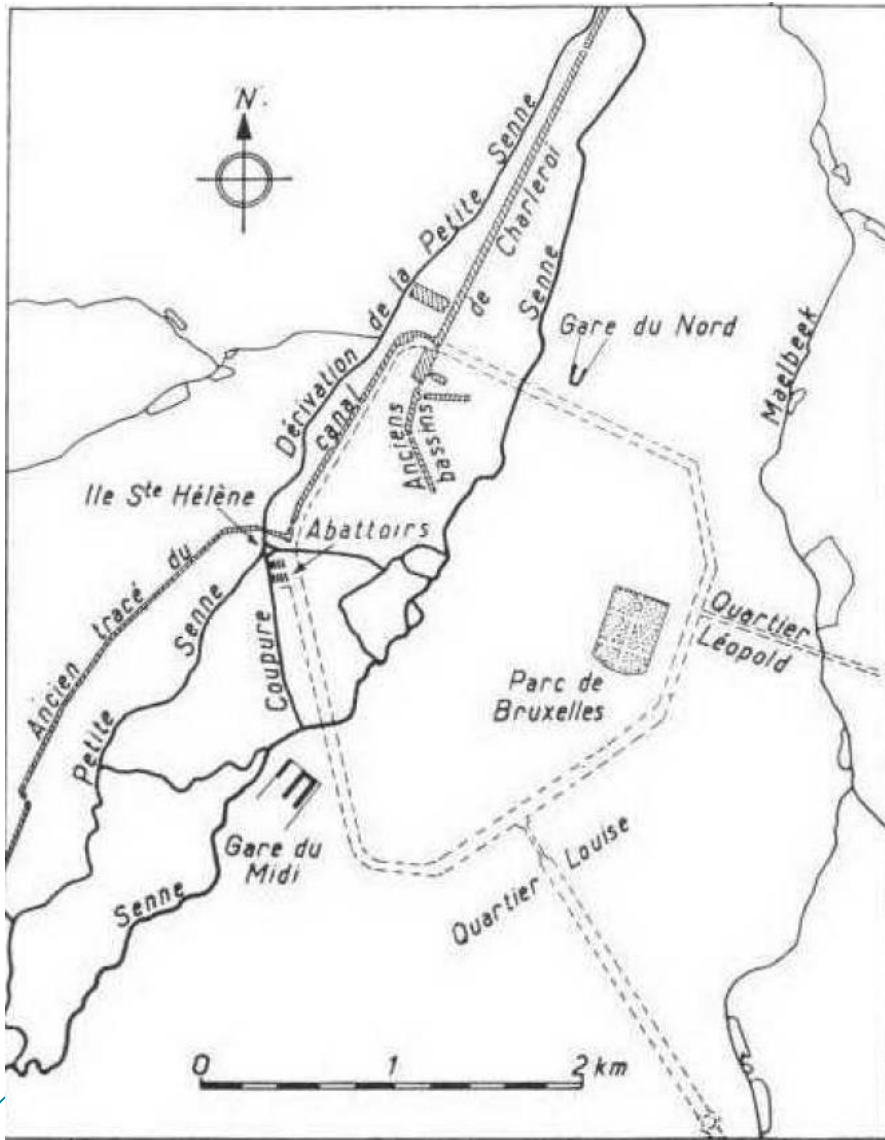
...and water quality is declining



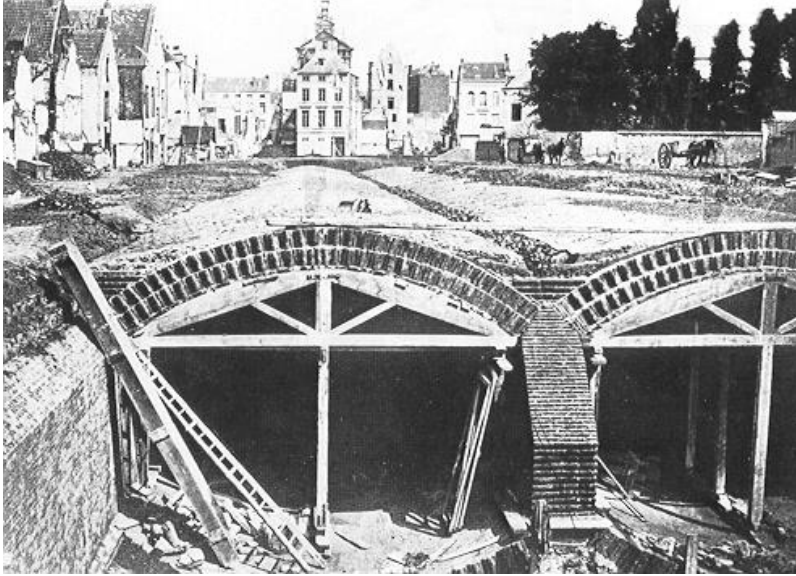
After having been a resource, water becomes a nuisance that is hidden



Senne before and after the "sanitation work" of 1867-1871



The "sanitation works" of 1867



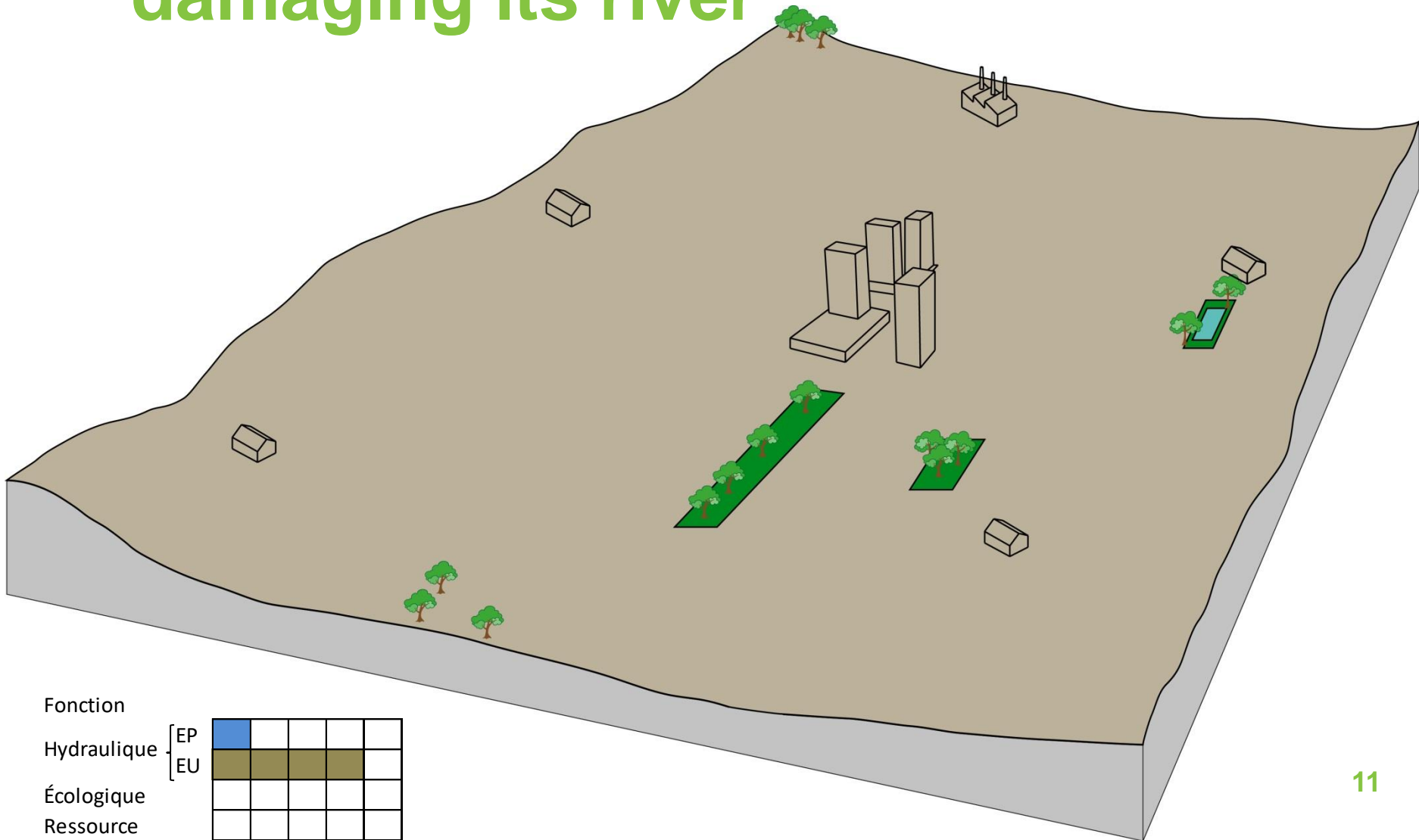
La rue des Pierres



Au niveau de la Bourse



Urbanization is still intensifying and the city is being (re)built by damaging its river



Fonction

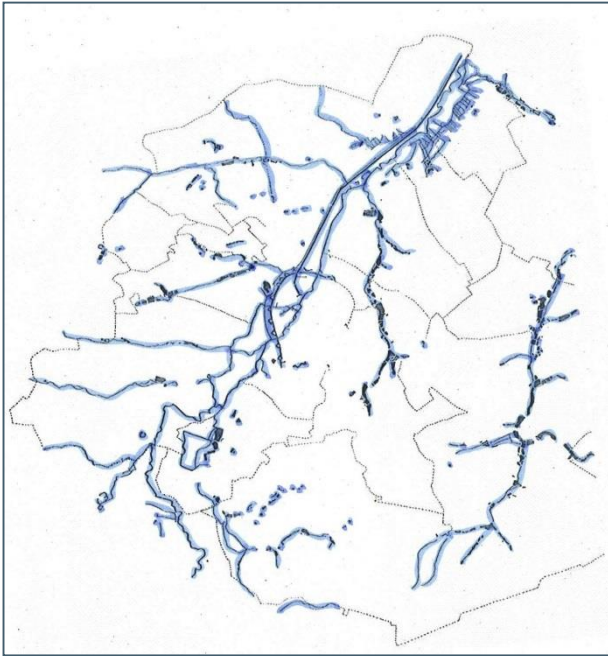
Hydraulique

Écologique

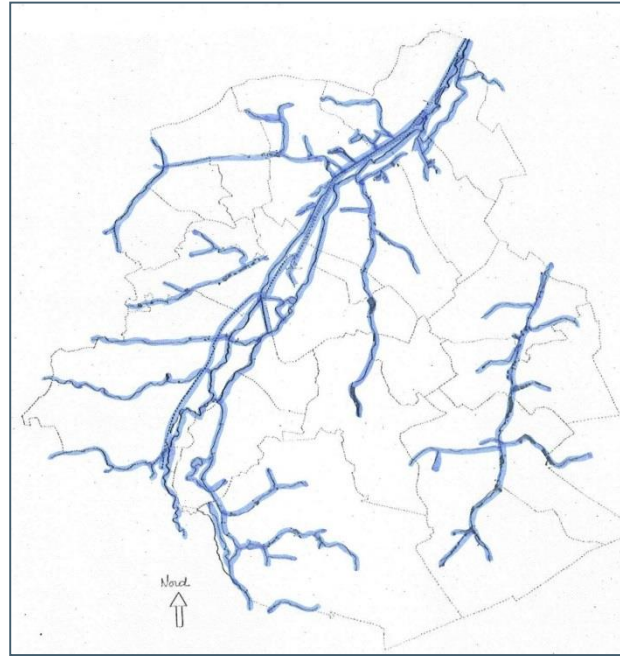
Ressource

EP					
EU					

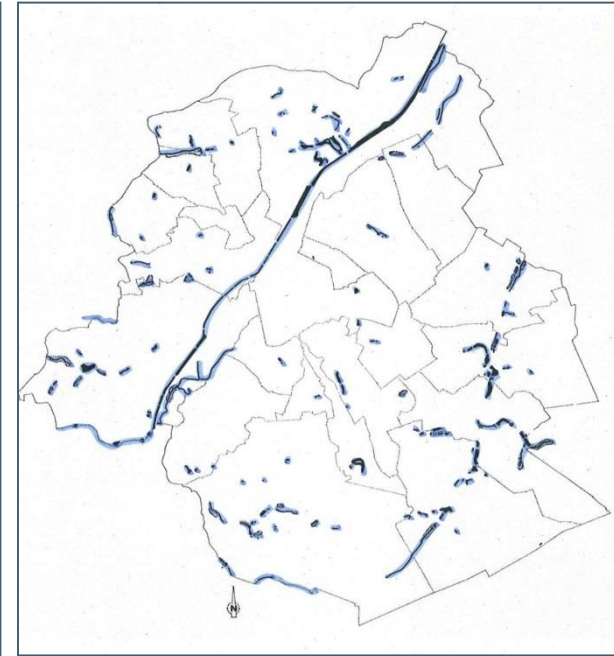
Disappearance of the hydrographic network



1770 (Ferraris)



1858 : Vandermaelen



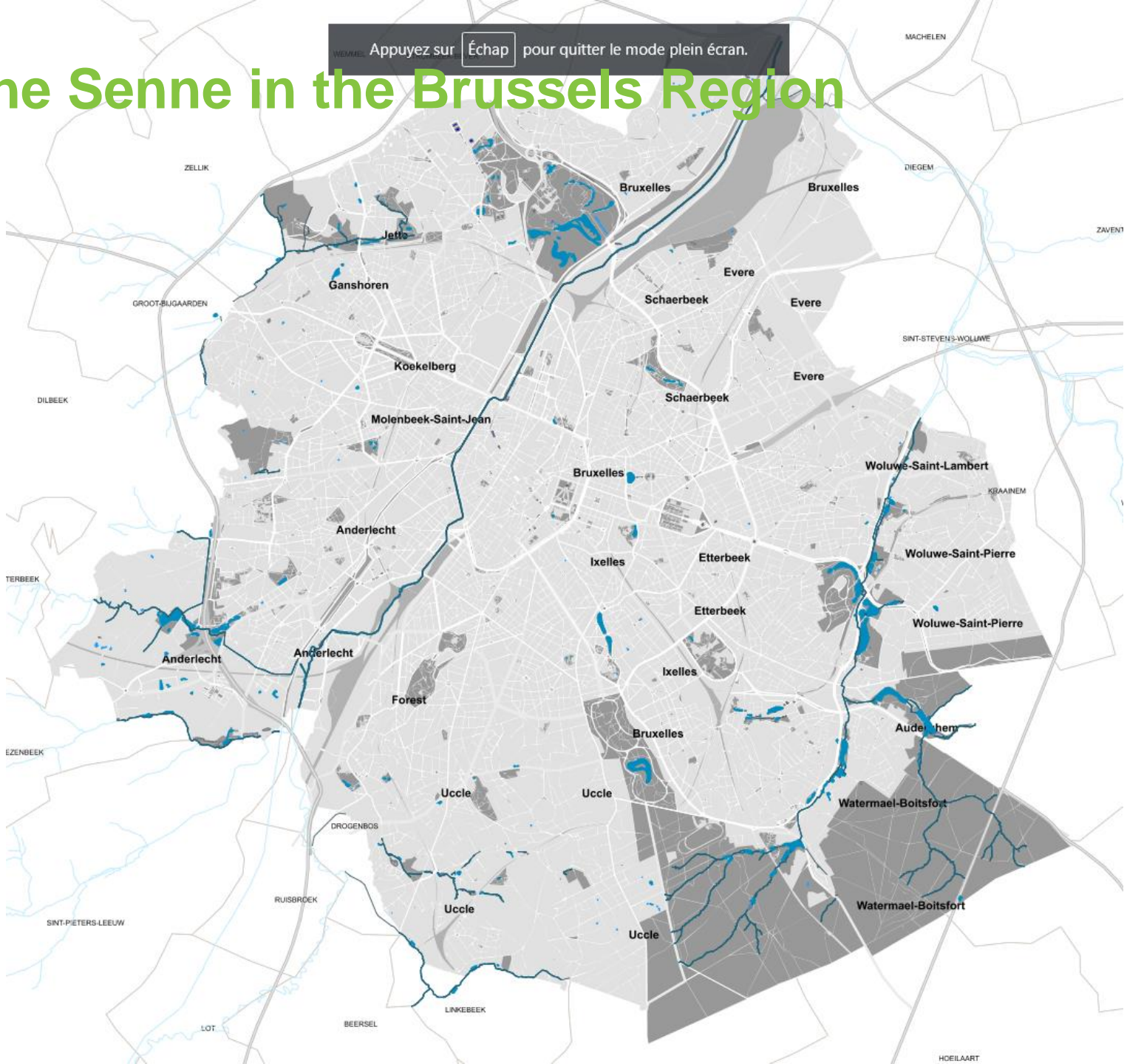
1993: IGN



Draining of ponds,
transformation of the rivers into open sewers,
then vaulting

Appuyez sur **Échap** pour quitter le mode plein écran.

The Senne in the Brussels Region



The Senne in the Brussels Region

2/3 vaulted



The Senne in the Brussels Region

1/3 open air



Then it's "quiet" on the ground, but things are changing "elsewhere".

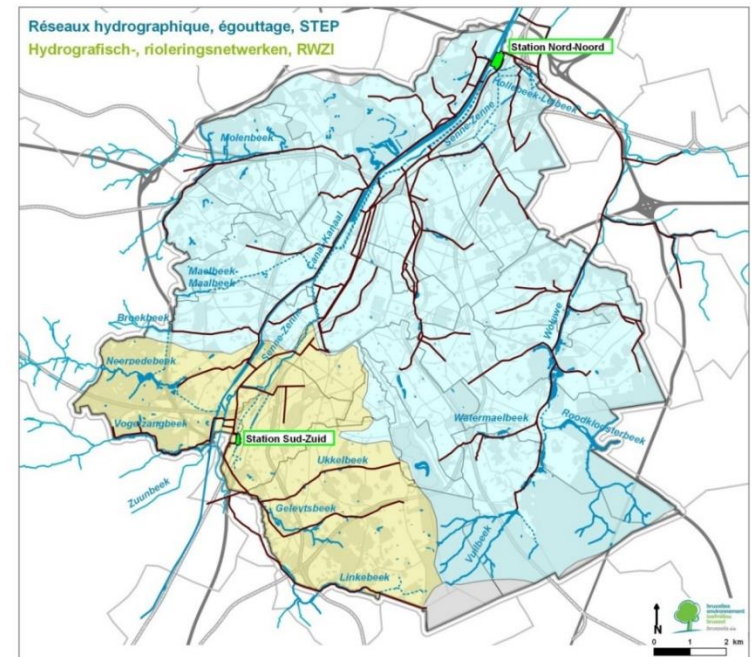
- At the societal level → Rise of environmental issues
- At the regional level
 - ▶ Creation of the IBGE (=Bruxelles Environnement) in 1989
 - ▶ Green/Blue Mesh concept in 1999



Then it's "quiet" on the ground, but things are changing "elsewhere".

- At the European level

- ▶ Council Directive 91/271/EEC concerning urban waste-water treatment
- ▶ Council Directive 92/43/CEE on the conservation of natural habitats and of wild fauna and flora



Hydrographique / Hydrografisch	STEP Station d'épuration des eaux usées RWZI Rioleringsinstallatie
— Cours d'eau à ciel ouvert Waterlopen open bedding	Bassin de collecte des eaux usées Vergaarbekken van het afvalwater
..... Cours d'eau voilée Overveilde waterlopen	■ Vers la station Nord ■ Naar het station Noord
Egouttage / Riolering	■ Vers la station Sud ■ Naar het station Zuid
— Collecteurs Hoottrienen	

Rédigé avec / Verspreid door middel van Brussels LUIS © Distribution / Verdeling & Copyright CBR-CBS

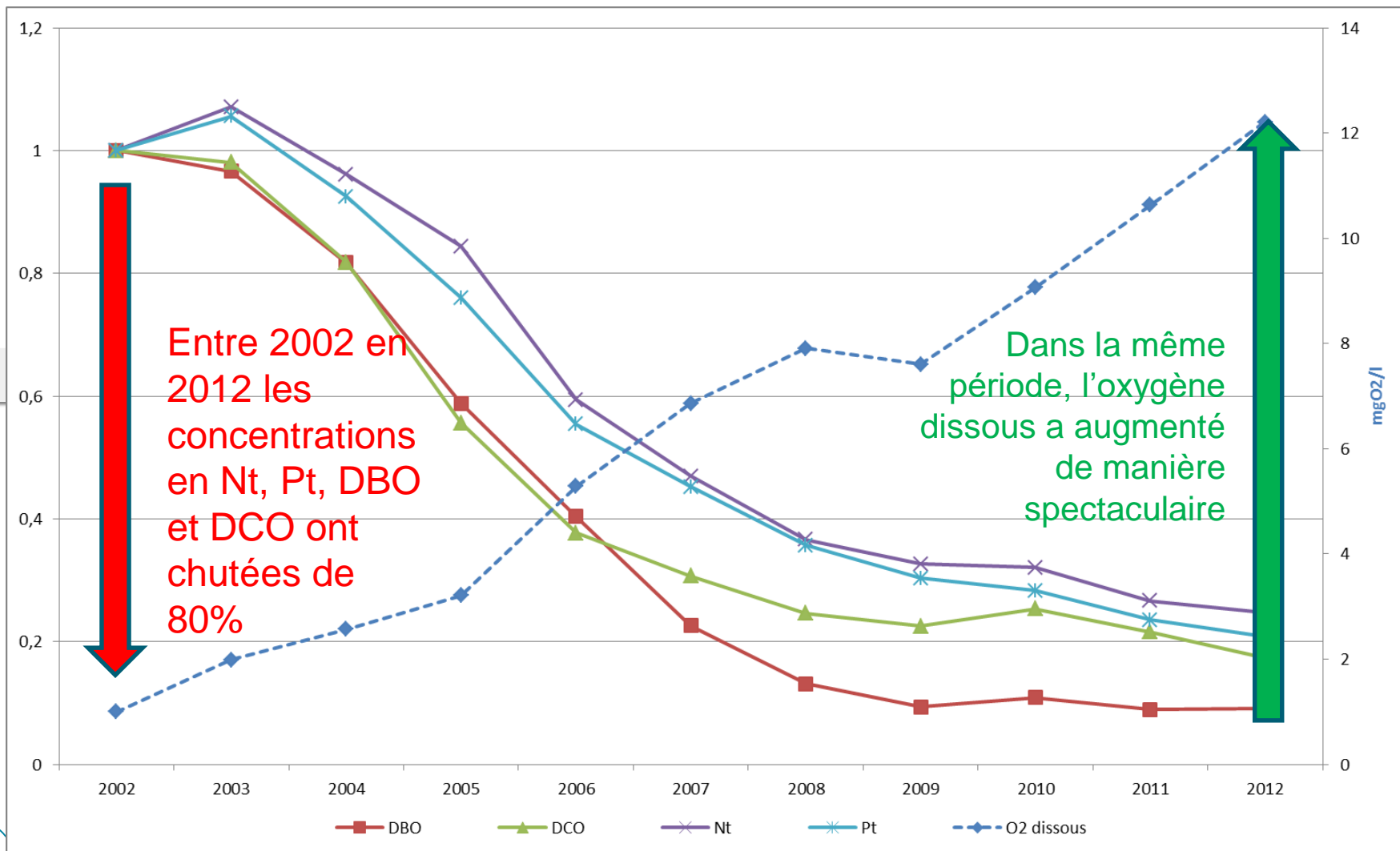


Then it's "quiet" on the ground, but things are changing "elsewhere".

- At the European level
 - ▶ Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy
 - › GOAL: to achieve good status of surface water
- At the regional level
 - 2006 : Declaration of the Senne as a river subject to the WFD to the EU
 - 2007 : management of the Senne by BE



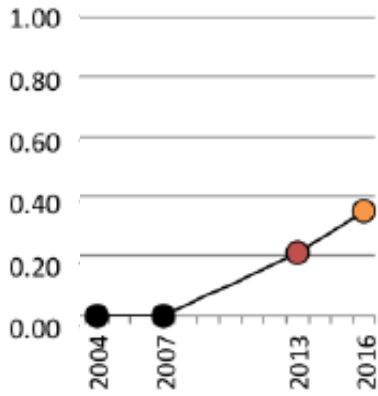
KNOWING THE QUALITY OF THE WATER





KNOWING THE QUALITY OF THE WATER

VIS



In 2016, for the first time in the Senne: 15 species, > 200 individuals

2013 – 1 fish

2004, 2007, 2010 – 0 fish





KNOWING THE QUALITY OF THE WATER

BUT...

There is still a long way to go to reach the European objectives ...

Zenne <i>(Toestand 2012/2013)</i>	
Algemene toestand	Slecht
Ecologische toestand	Slecht
• Biologische kwaliteit	Slecht (vissen)
• Fysisch-chemische kwaliteit	Niet-naleving (CZV, geleidb, ZD + BZV, Nt, Pt)
• Chemische kwaliteit – Specifieke verontreinigende stoffen	Slecht (Zink, pcb's, minerale oliën)
Chemische toestand	Slecht
• Met alomtegenwoordige stoffen	Slecht (Kwik (biota))





KNOWING THE QUALITY OF THE WATER

WHAT ARE THE MAJOR ISSUES TO BE RESOLVED?

1. The hydromorphological quality

belini



2. The storm overflows

belini



3. Wastewater treatment plants



JANVIER 2017





THE ROLES OF BRUSSELS ENVIRONMENT AROUND THE SENNE RIVER

1. Quality monitoring
2. Daily maintenance of the river
3. Develop the river to improve its hydromorphology



Daily maintenance of the river

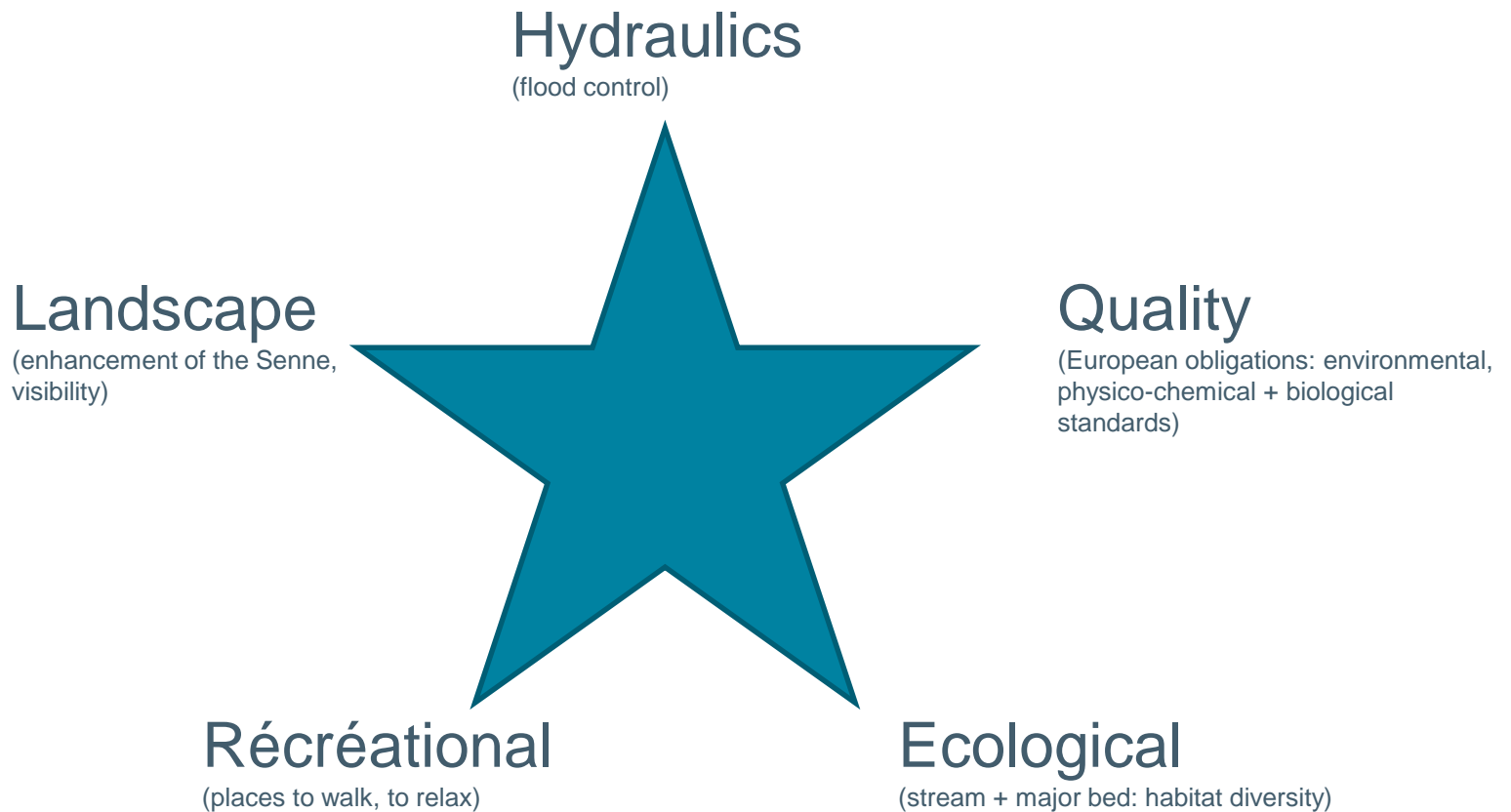
Dredging in the years 2013-2016

Fight against invasive species

Differentiated management



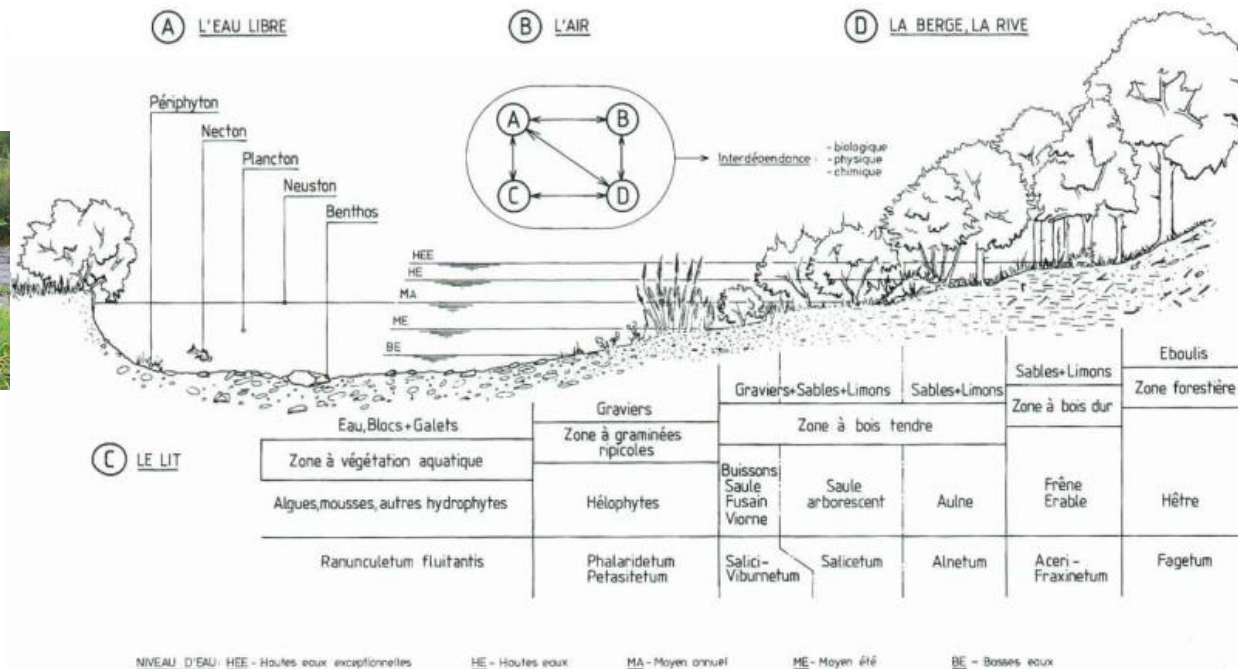
The future of the Senne: the principles



Issues in the restoration of the Senne River

Renaturation increases ecological capacity

- Improvement of the physico-chemical and biological quality
- Support for biodiversity in urban areas
- Improvement of the living environment
- Reduce the impact of the Region on the downstream



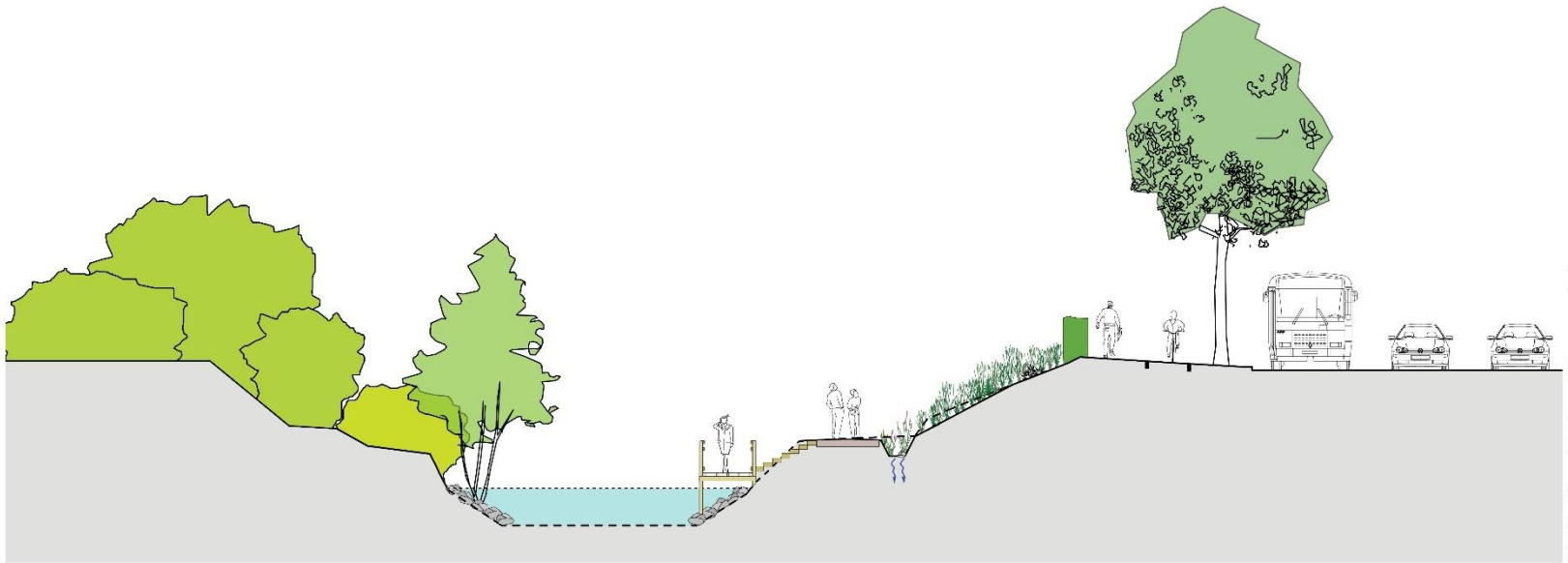
Issues in the restoration of the Senne River

Reconciling the issues around the Senne ?

Respons : 2 banks for 2 worlds

=> One "biodiversity-only"

=> Other accessible to man



© Atelier Eole - Paysagiste



Projects

Realized

 Renaturation

 Daylighting

WIP (Study)

 Renaturation

 Daylighting

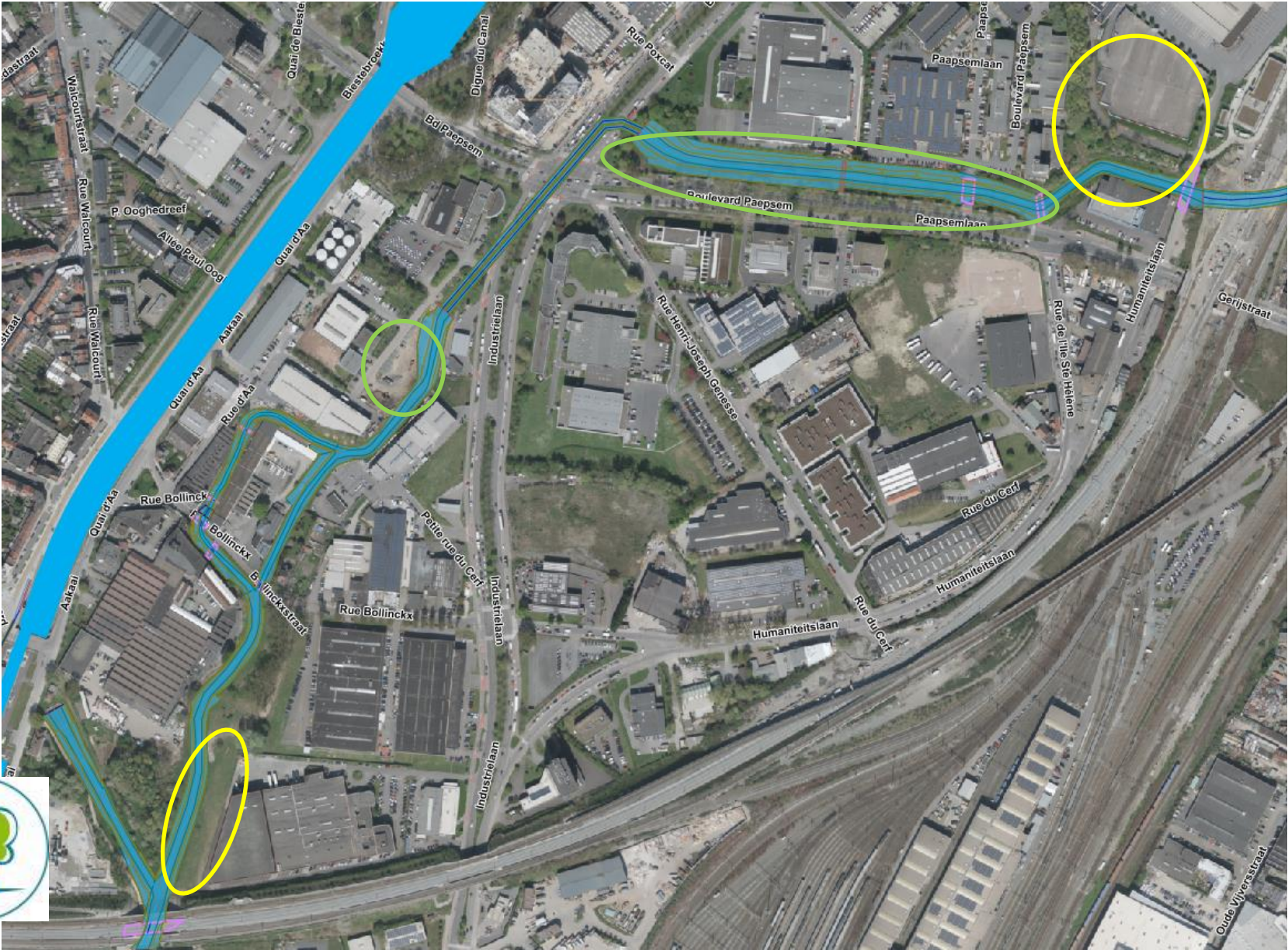
To initiate

 Renaturation

 Daylighting



South area (Anderlecht)



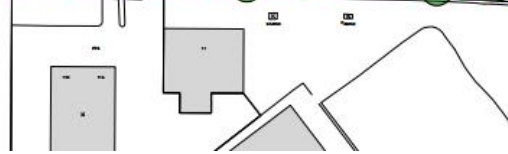
Temporary Immersion Zone - Wetland



- Work: 2018/2019
- Cost: 810 000 €



Renaturation and walk along the Paepsem Boulevard



© Atelier Eole - Paysagiste

- Work: 2018/2019
- Cost: 1 200 000 €

Max-sur-Zenne

A long-standing desire

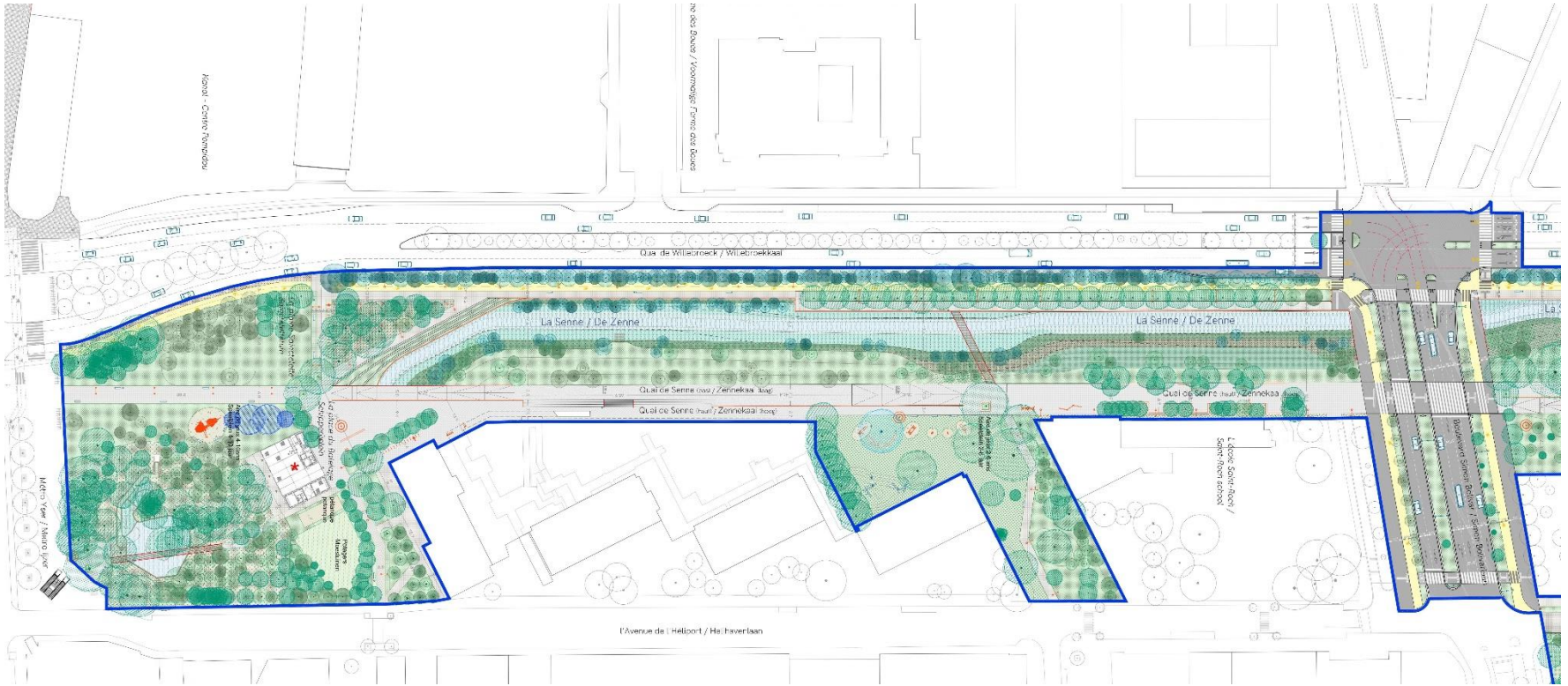
- 2005 – Study by the Fous de la Senne (Senne's crazys)

Technical pre-feasibility by IMDC

Conclusions:

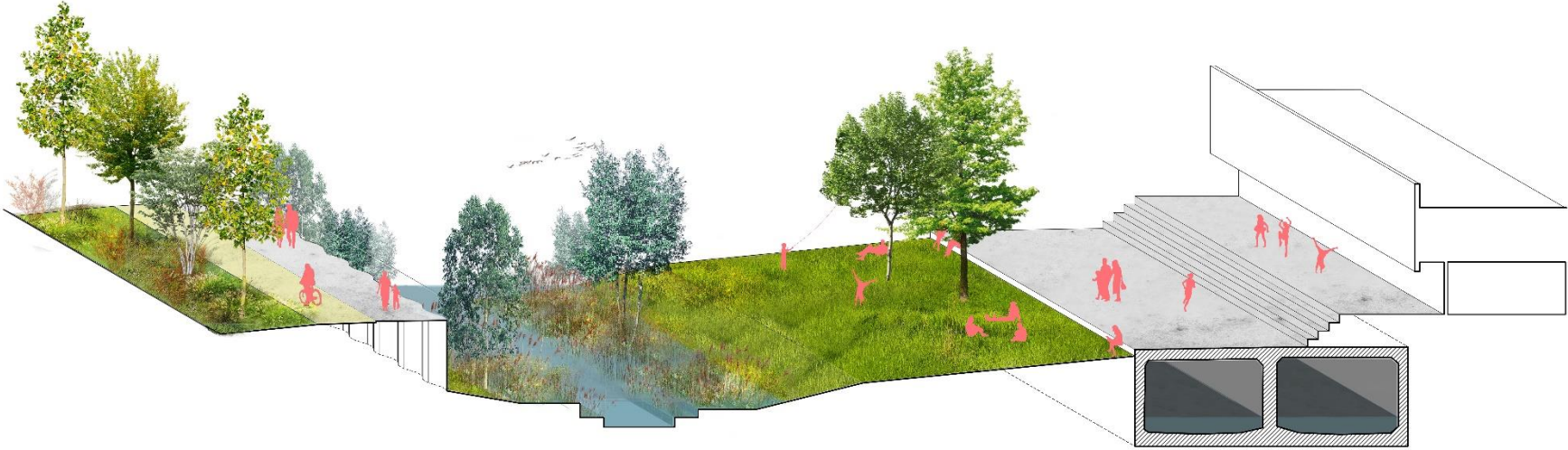
- › Several alternatives are possible depending on the choice of landscape, as well as the desired functions and uses
 - › Major constraint: poor quality of the Senne. (nb: the South WWTP has just been started up)
 - › Secondary constraints: depth, mosquitoes
- 2015 - Project relaunched by the City of Bxl in collaboration with BE
 - 2016 - Study of the level constraints within BE (sketches, stagings)
 - 2017 - Integration of a study of orientation / scenario / landscape impacts / ... in a Life IP project
 - 2017 - Project included in CRU n°1
 - 2018 – Feasibility study for the landscape integration of the Senne River in Maximilian Park
 - 2020 – Competition
 - 2021 – Start of project studies
 - 2022 – Planning Permits





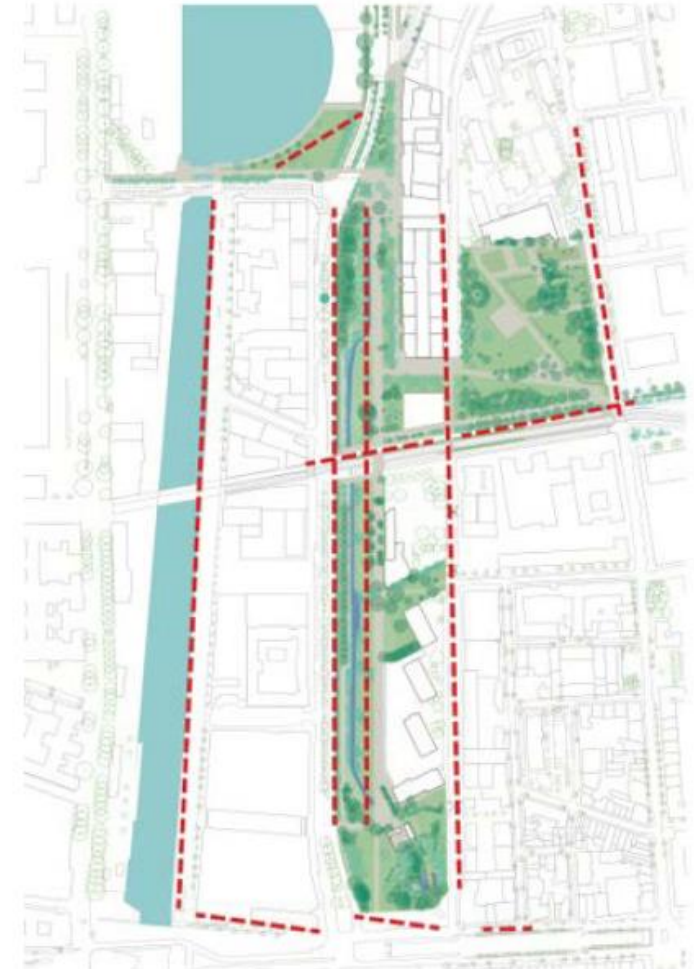


Max-sur-Zenne

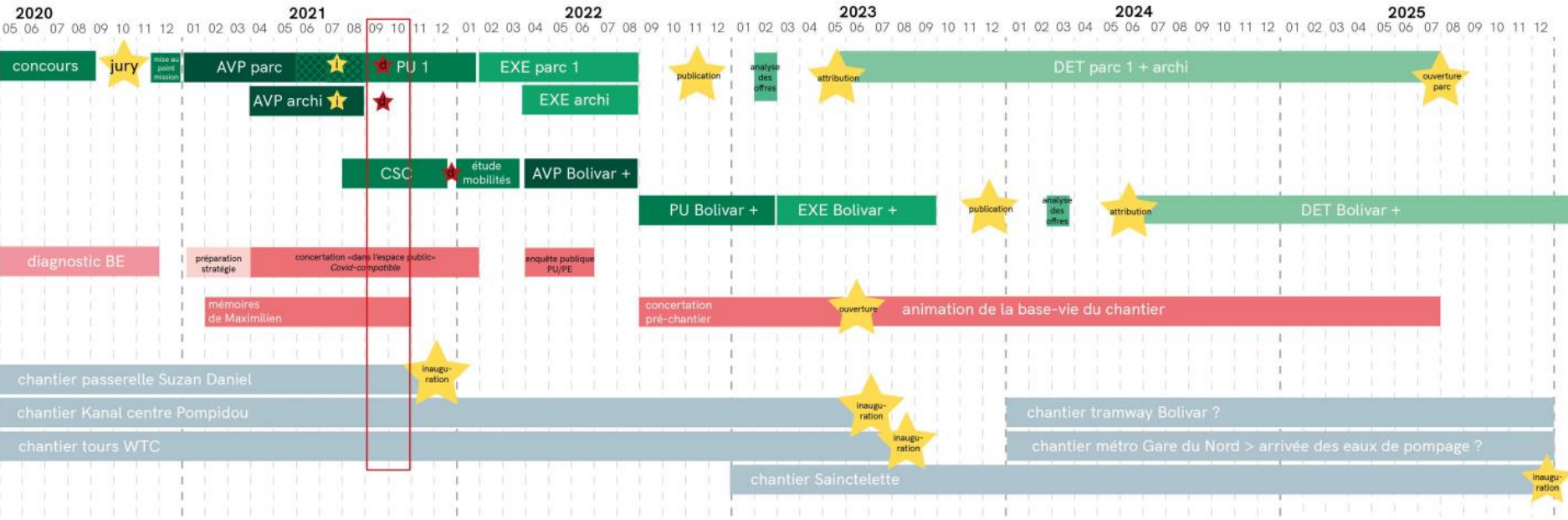


Max-sur-Zenne

PARTICIPATION



Max-sur-Zenne

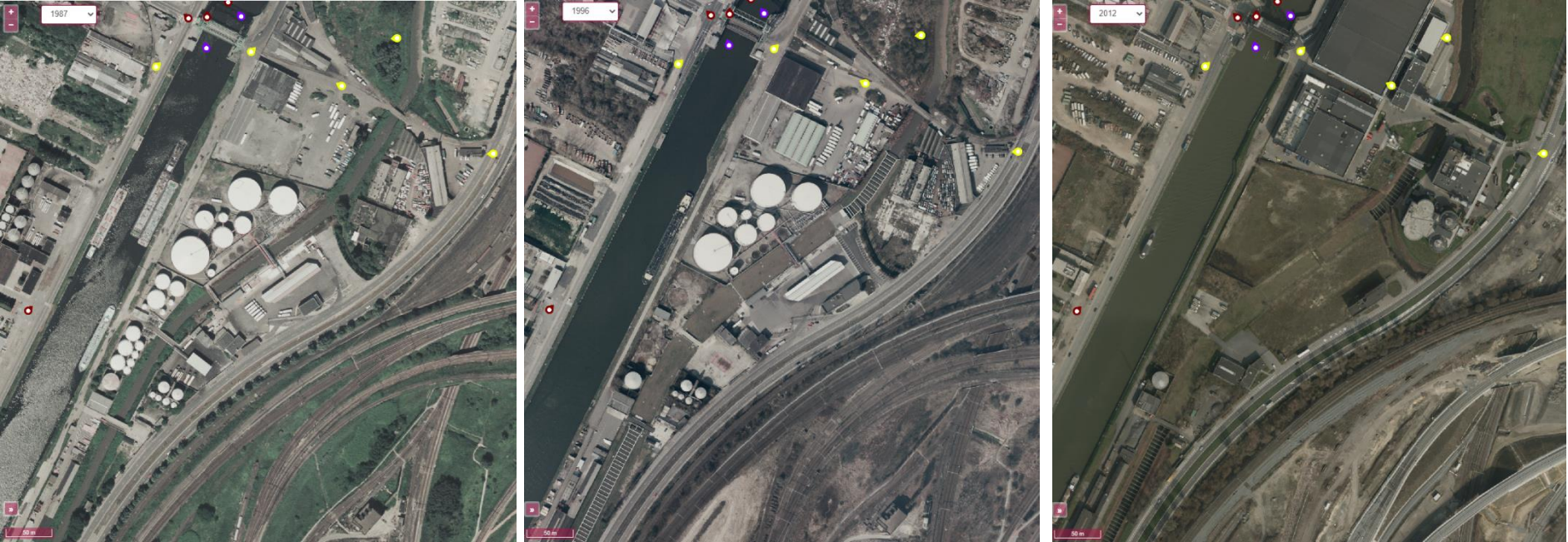


Le quai de Senne

Avec une canopée plus présente

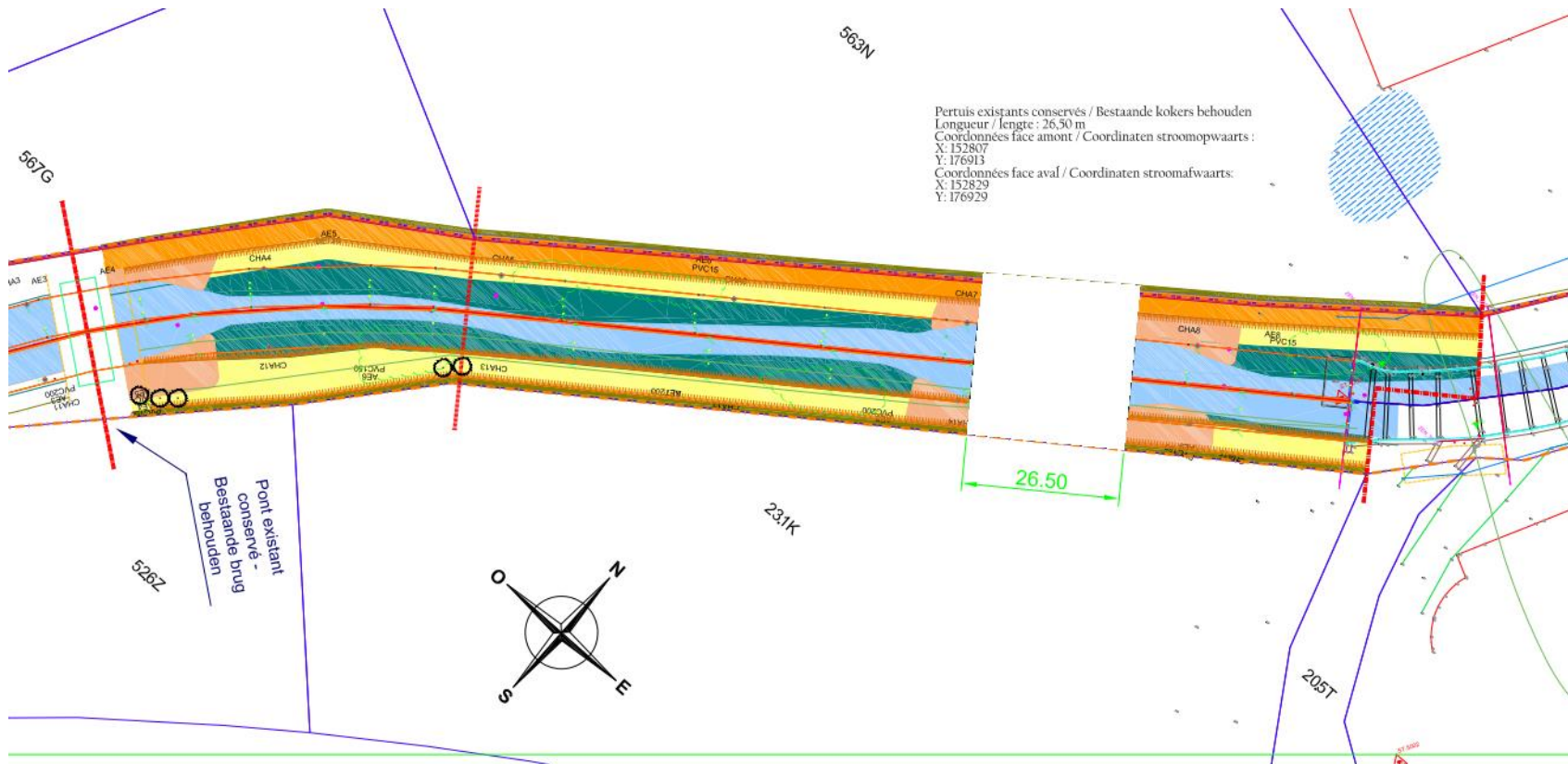


Daylighting of the Senne river in the north of Brussels



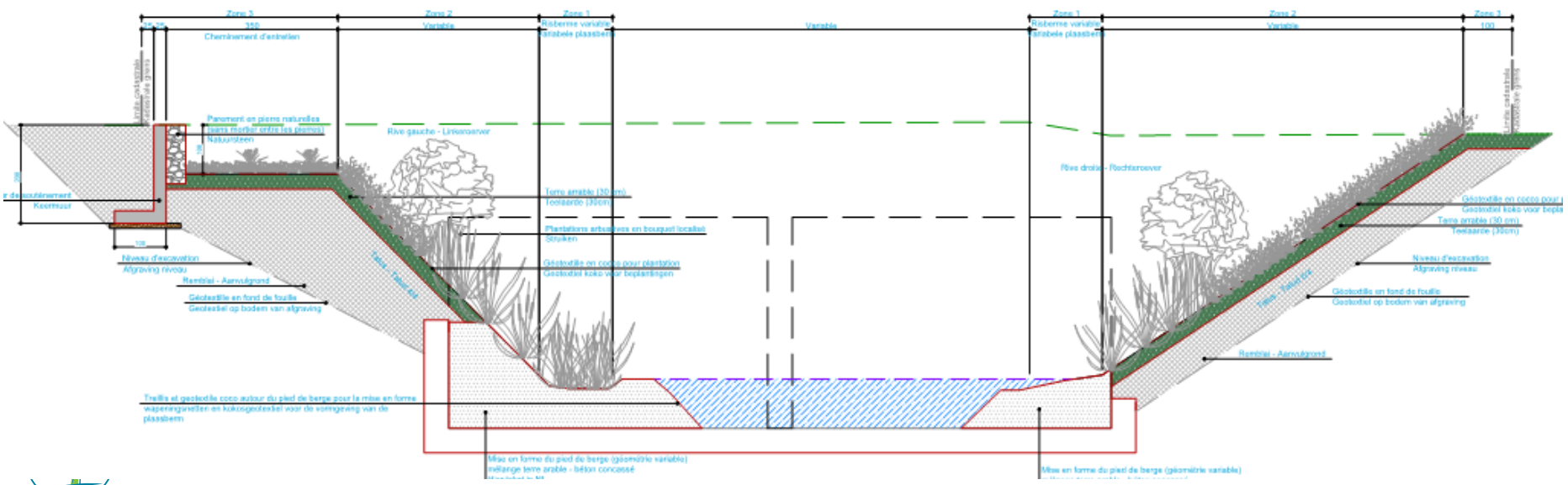
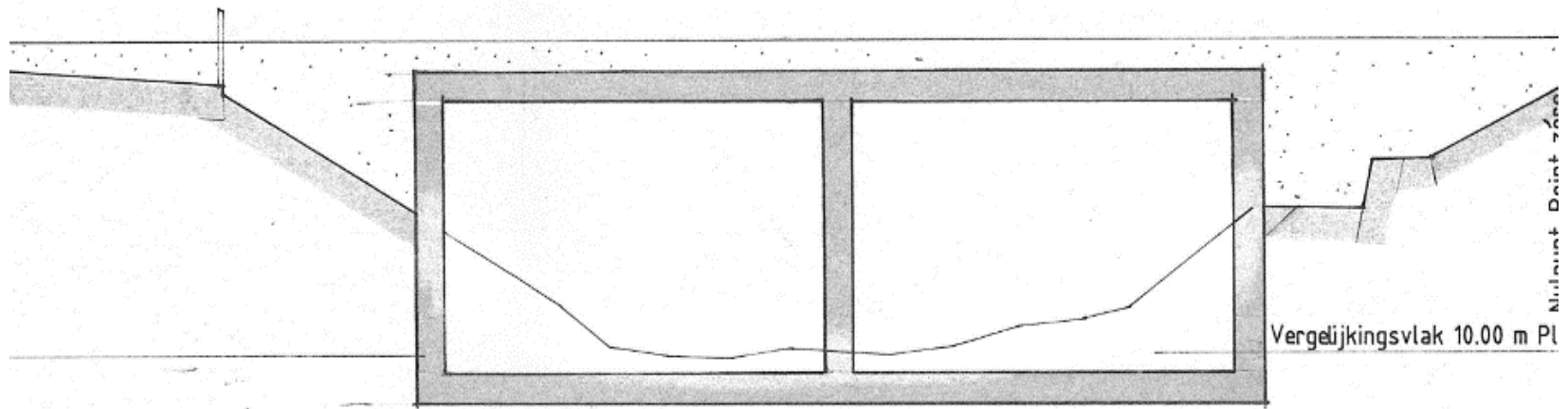
- 1996 = vaulting for environmental reasons (350 m)
- Mid 2000's = Causes completed, situation restored





- Study: 2017/2019
- Work: 2020/2021
- Cost: € 2.160.000





Some numbers

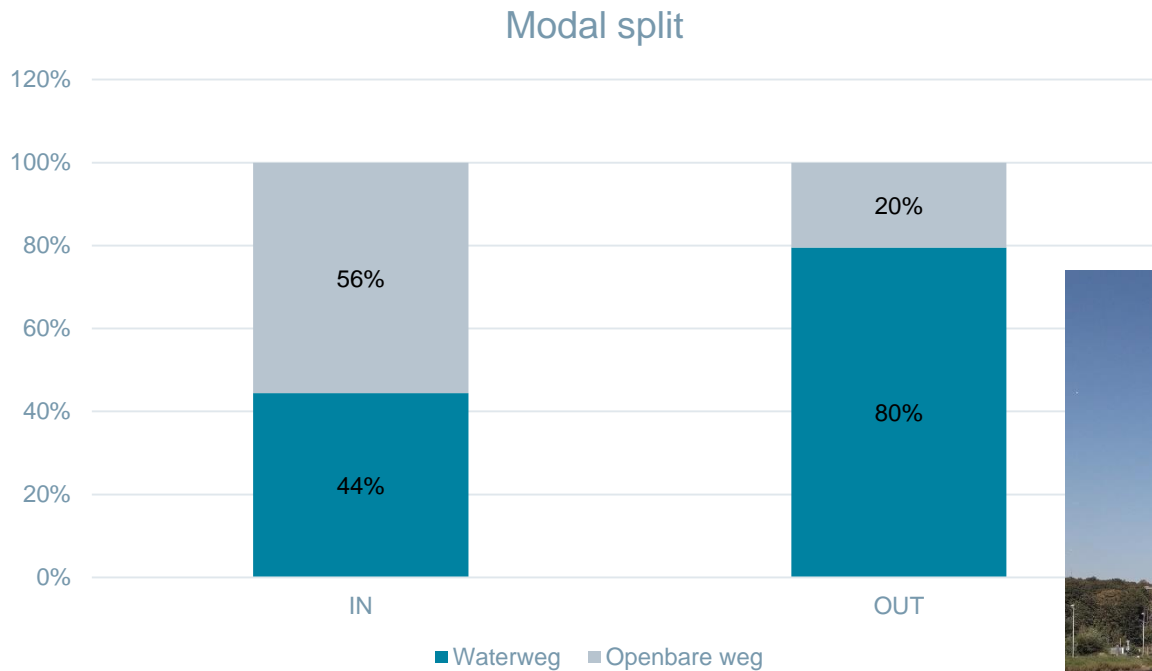
Volume of demolished concrete = 2,415 m³.

Volume of crushed and reused concrete = approx. 2,000 m³



Some numbers

Total Tonnage IN/OUT = 18.893,10 T



Total distribution :
70% by waterway
30% by roadway



Other opportunities

