

European Investment Bank's experience in financing nature-based solutions for climate adaptation in the water sector

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EUROPEAN INVESTMENT BANK

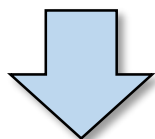
Contents:

- EIB, the Climate Bank
- Case Studies:
 - 1) Emscher Project (Germany)
 - 2) Alzette Project (Luxembourg)

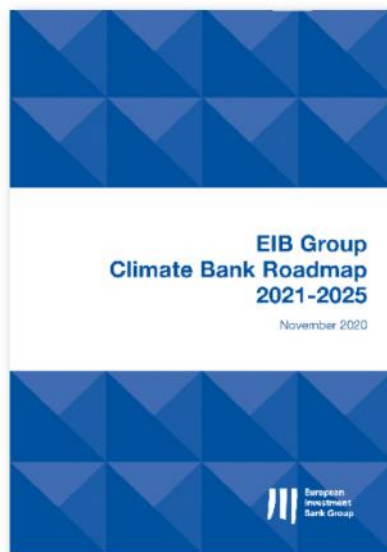
EIB's Climate Action Commitment - General

*“As the largest multilateral provider of climate finance worldwide, **we commit at least 25% of our lending portfolio to low-carbon and climate-resilient growth.**” (2016)*

*“The EIB will increase its level of support to climate action and environmental sustainability to **exceed 50% of its overall lending activity by 2025.**” (EIB Group Climate Bank Roadmap 2020-2025)*

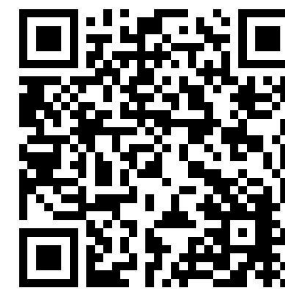


We want to demonstrate the climate impact (adaptation and/or mitigation) of all our projects!



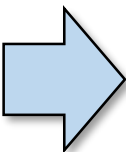
In 2020 EIB's climate financing totalled EUR 24.2 Billion (37% of total lending).

EIB's Climate Action Commitment - Adaptation



Standard Terms of reference for Climate Risk and Vulnerability Assessments (CRVA), available upon request (in English, French, Russian)

EIB's Climate Action Commitment - Technical Assistance



A single access point to a comprehensive offer of advisory and technical assistance services for all stages of the project cycle



European Investment *Advisory Hub*
Europe's gateway to investment support

UPSTREAM

- **Policy & program** advice
- **Preliminary** project assessment

PREPARATION

- **Technical advice** to our clients prior to appraisal (ToR, CBA)
- Advice on **financial structuring** (PPPs, investment platform & innovative projects)
- Selection & supervision of **consultants** for project prep.

IMPLEMENTATION

- Advice on **project implementation**
- **Enhanced monitoring** in delayed projects

CAPACITY BUILDING RELATED TO PROJECTS

Capacity building on technical issues – **Cooperation** centres of expertise -
Dissemination best practices & case studies

Case Study 1: Emscher Project

Located between Ruhr and Lippe



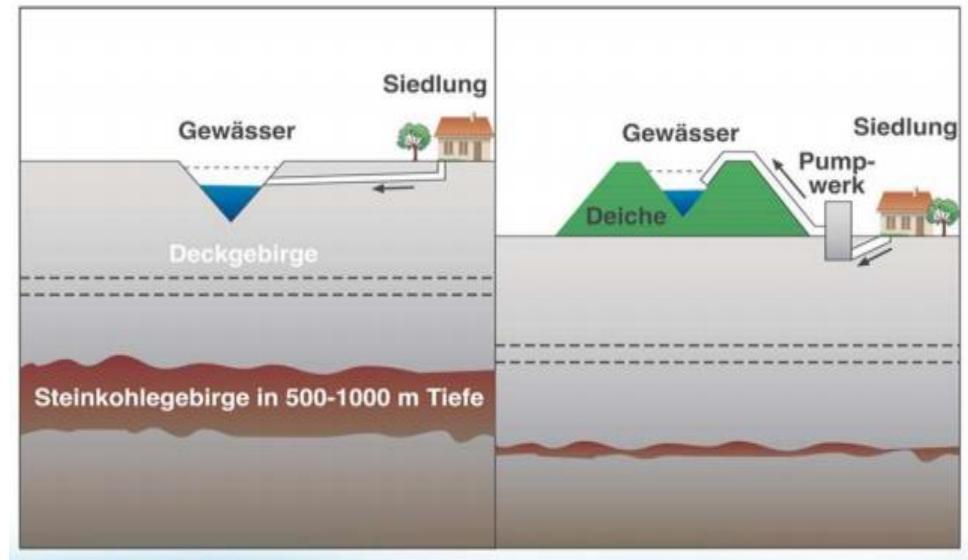
Source: ICPR



Timeline (1)

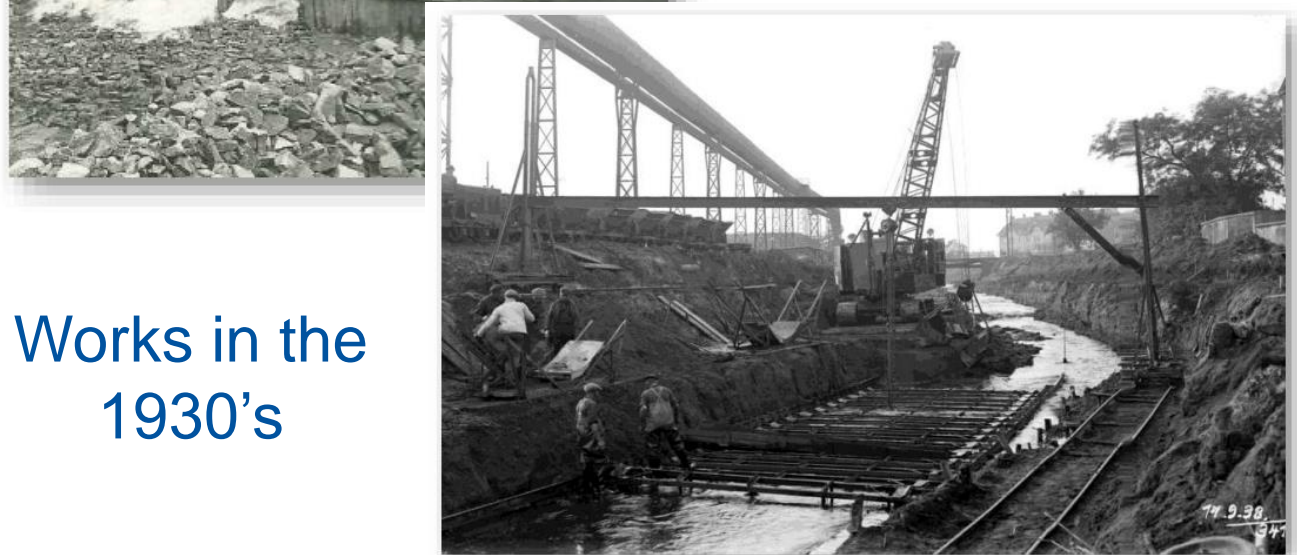
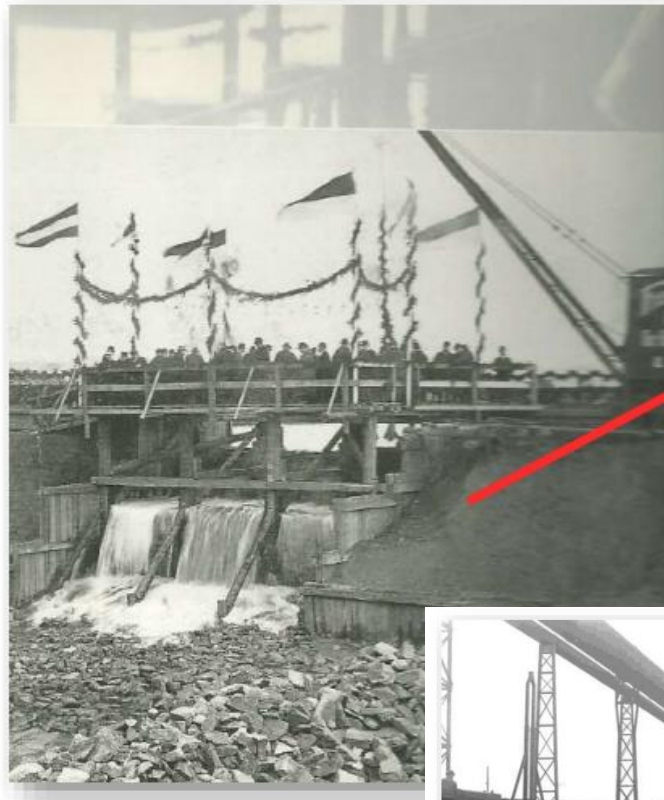
- Early 19th century: industrial development of coal mining in the Ruhr area triggers surface settlements and flooding (cause of diseases and hardship);
- 1899: creation of EMSCHER GENOSSENSCHAFT (EG, a cooperative) to finance the mitigation investments in flood protection and sewage collection;
- 1901: The “Middeldorf Plan” for regulating the Emscher, includes construction of approx. 120km of dykes.

Source: EG



1900-1960: 60 years of construction

1910: first new confluence with the Rhine



Works in the 1930's

Source: EG

1900-1960: 60 years of construction (cont.)

Works in the 1950's



1960: second new confluence with the Rhine



Source: EG

Settlements : piped sewers impossible until 1980's

Up to -26m in Dortmund: example of bridge reconstructed in 1970



350km of open sewers

An area of 327km² under the level of river Rhine



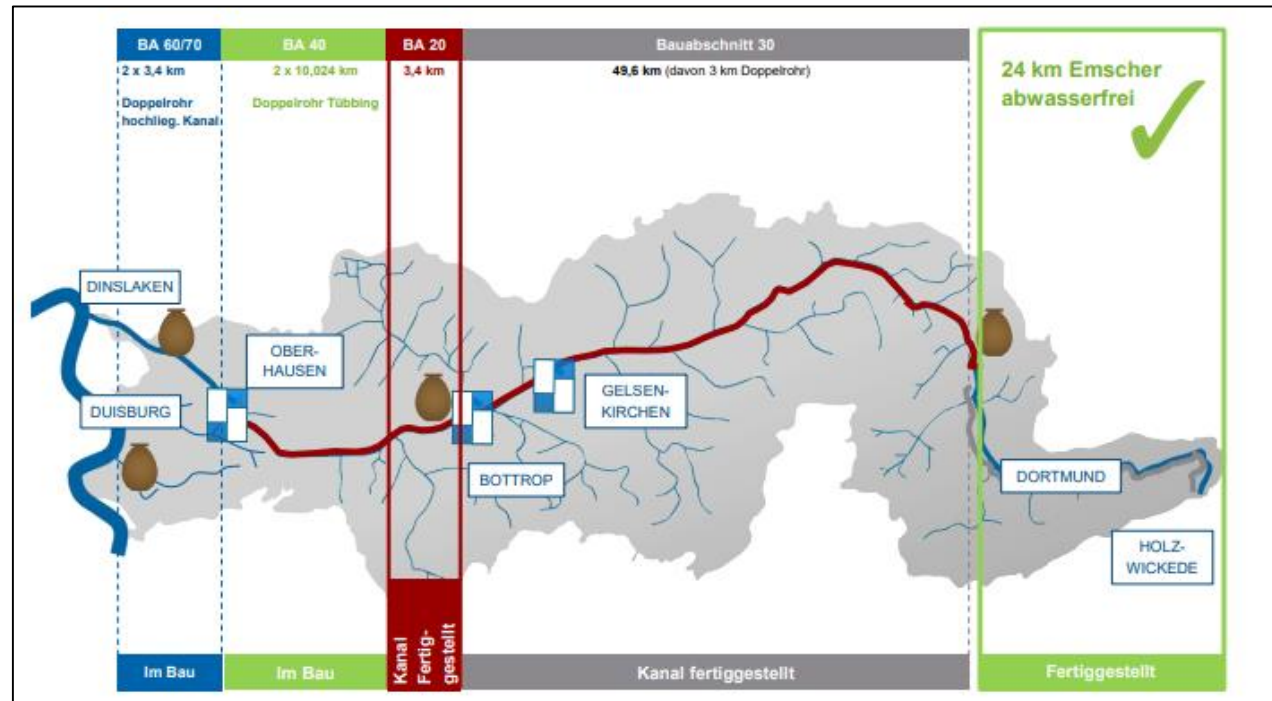
Source: EG

Timeline (2)

- End of 1980's: end of coal mining is looming
- 1991: political decision to clean up the Emscher river
- 2006: Final Master Plan



Source: EG



Concept:

- 4 main WWTP (total capacity: 4.95 M P.E.)
- 3 main pumping stations + 127 smaller PS
- 1 tunnel collector + 370 km of other collectors
- 345 km of restored rivers and creeks

Financing from EIB and EMSCHERGENOSSENSCHFT:

Project name	Signature date	Loan Amount (EUR m)	Loan Maturity (years)	Project Cost (EUR m)
EMSCHER RENATURIERUNG III	04/12/2020	500	45	1,500
EMSCHER RENATURIERUNG II	13/07/2017	450	45	1,371
EMSCHER RENATURIERUNG	01/10/2013	450	45	1,169
EMSCHER UMBAU	17/03/2011	450	50	1,121
	TOTAL	1,850		5,161

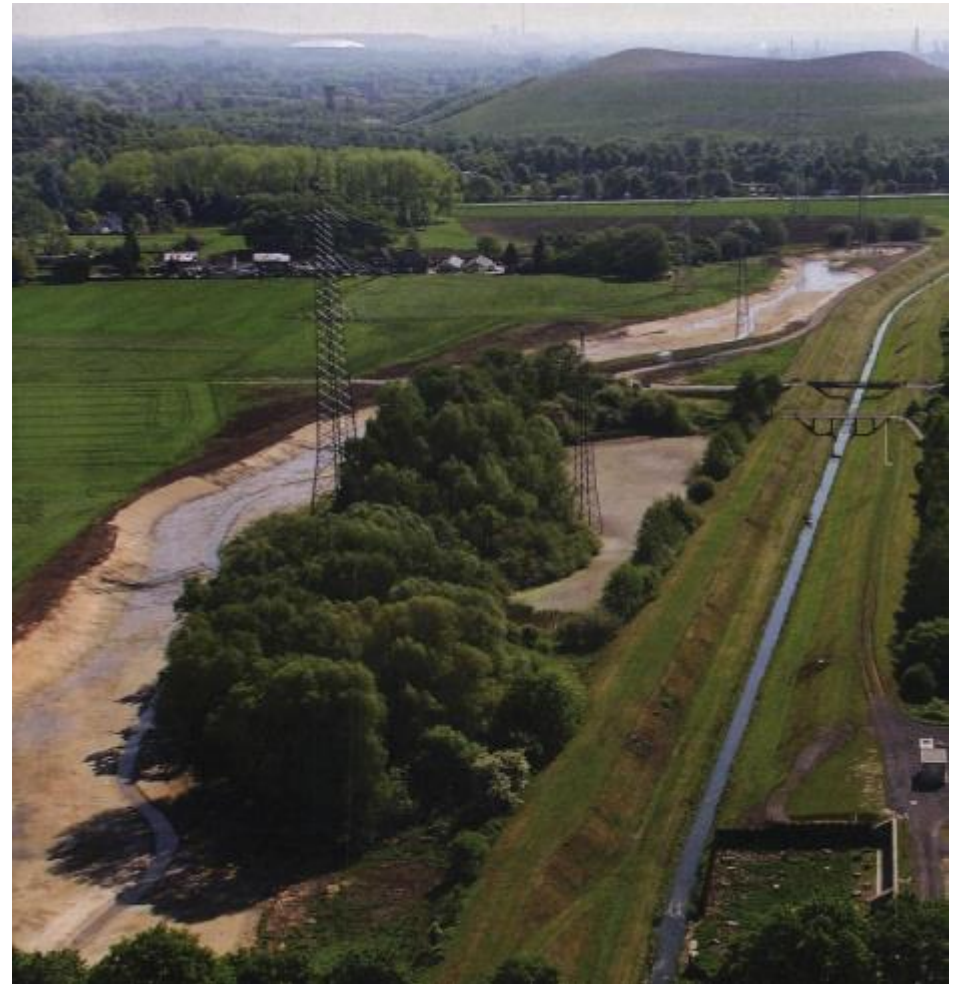
Cost breakdown:

- 80% Wastewater collection & treatment,
- 15% restoration works
- 5% flood prevention

Investment cost per capita: EUR 2,350
(2.2 million inhabitants in the Emscher catchment)

Source: EG, EIB

River Restoration (Before/After)



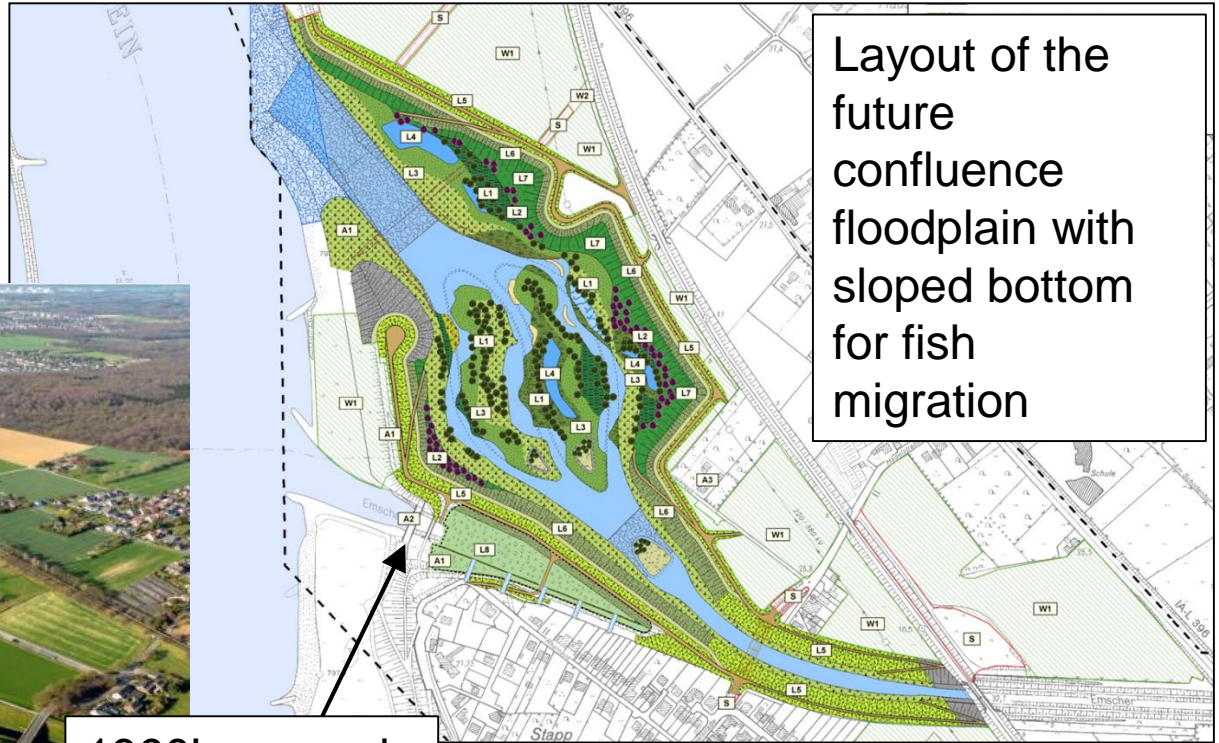
Source: EG

River Restoration

3rd new confluence with the Rhine



1960's cascade (see slide 10)



Layout of the future confluence floodplain with sloped bottom for fish migration

Situation before the works (above) and in March 2020 (on the right)



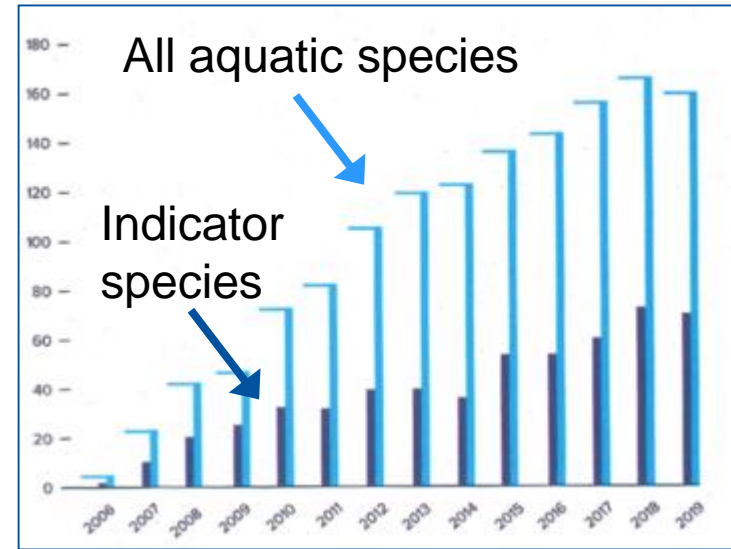
Source: EG

River Restoration: impact on biodiversity

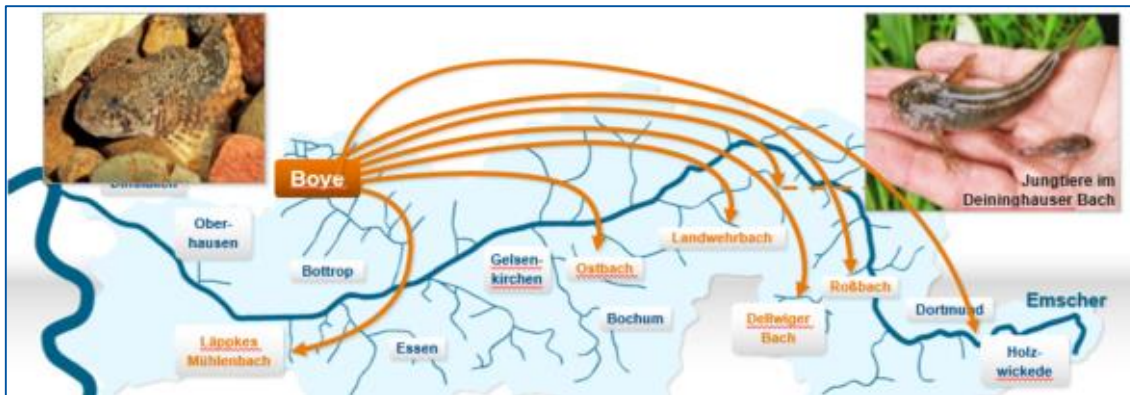
Increase in overall number of species of invertebrates: +280 (170 in 1990; 450 in 2020)

Timeline (3):

- 2020: first 24km free of wastewater
- 2021: Emscher totally free of wastewater
- 2039: good ecological status (EU WFD)



Increase in aquatic species 2006-2019



Emschergrotte (local variant of *Cottus rhenanus*) remained only in Boye creek; successfully re-introduced in other locations



Kingfisher is back!

Source: EG

Lessons learned after 30 years of river restoration of the Emscher and its tributaries:

- Nature-based solutions take time (10 years or more)
- Emscher will never be like a natural river (treated effluent content, persistent soil pollution, no full ecosystem continuity due to infrastructure)

“Step stone approach”



Ecological focus
areas



Protected areas



Source: EG

River Restoration: flood protection

Main technical data:

- 3.8 million m³ of Flood retention basins
- 450,000 m³ of rain water storage basins



Phoenix lake

Flood polder in Dortmund Mengede: first test in July 2021



Source: EG

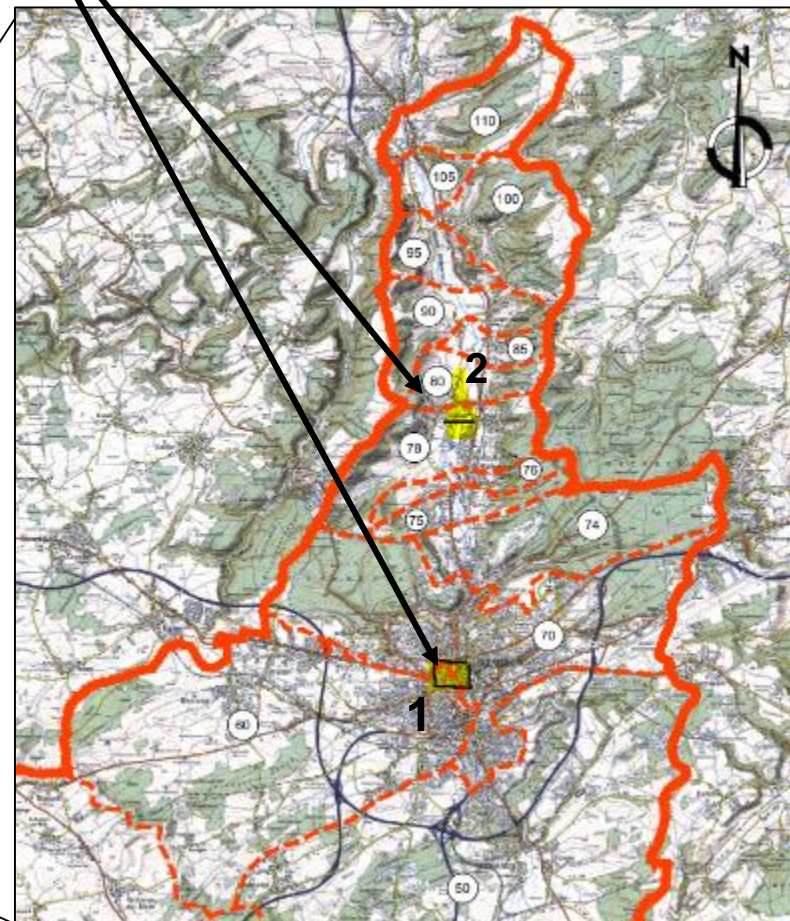
Case Study 2: Alzette River restoration (Luxembourg)

- Project Cost EUR 12m
- Promoter: Luxembourg's Ministry of Environment, Climate and Sustainable Development
- EIB Loan: EUR 9m
- Operation under the NCFF
- Status: Approved

Alzette River Restoration

Location of Alzette Basin in Luxembourg

Two Project Locations



Source: ICPR

Source: Administration de la Gestion de l'Eau

Alzette River Restoration

Location 1 (Pétrusse creek in city centre)

1904 and now (after 1930s works)



Source: Ville de Luxembourg

Alzette River Restoration

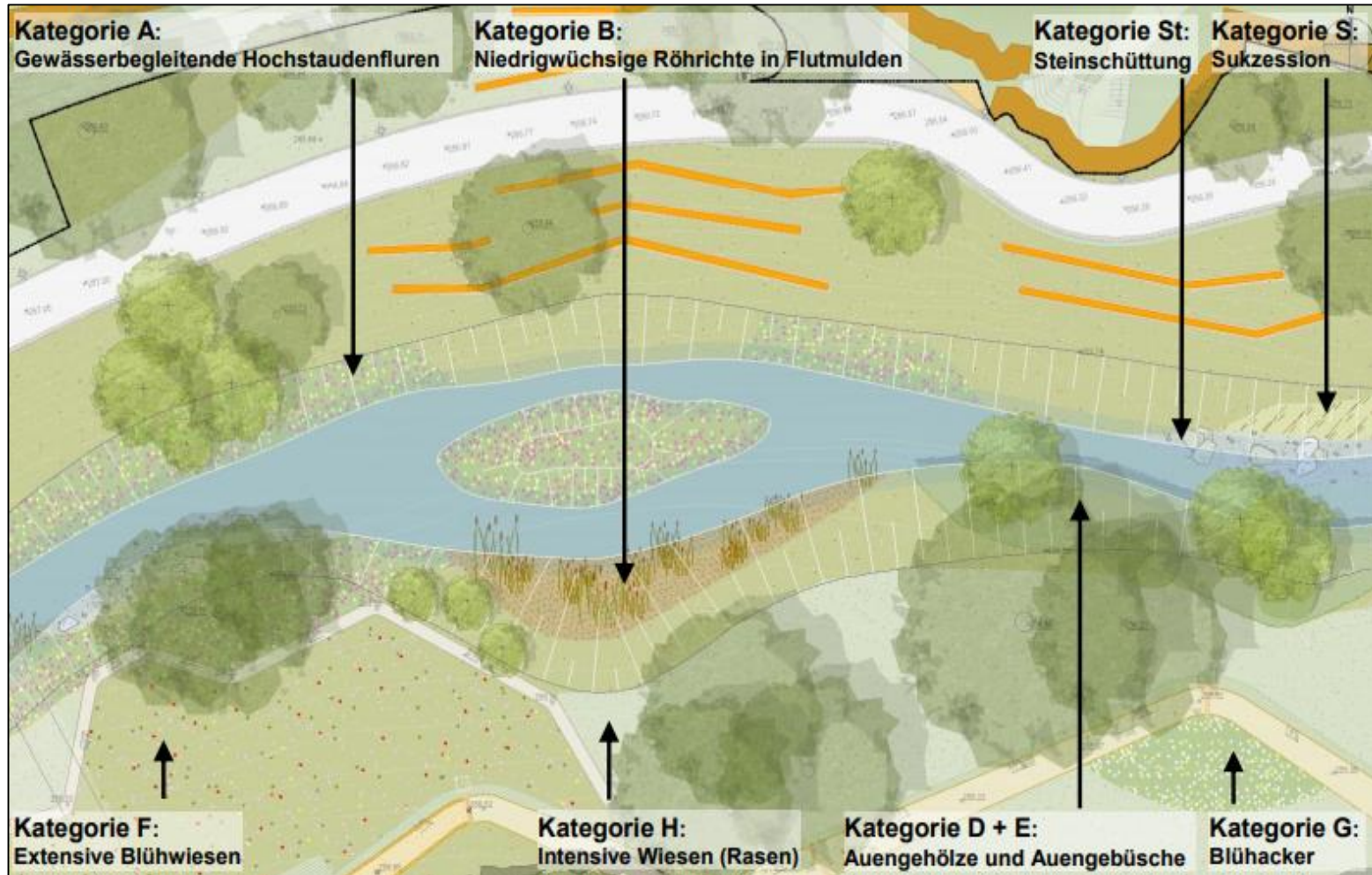
Location 1: Pétrusse restoration project in the existing city park (length:1km)



Source: Ville de Luxembourg

Alzette River Restoration

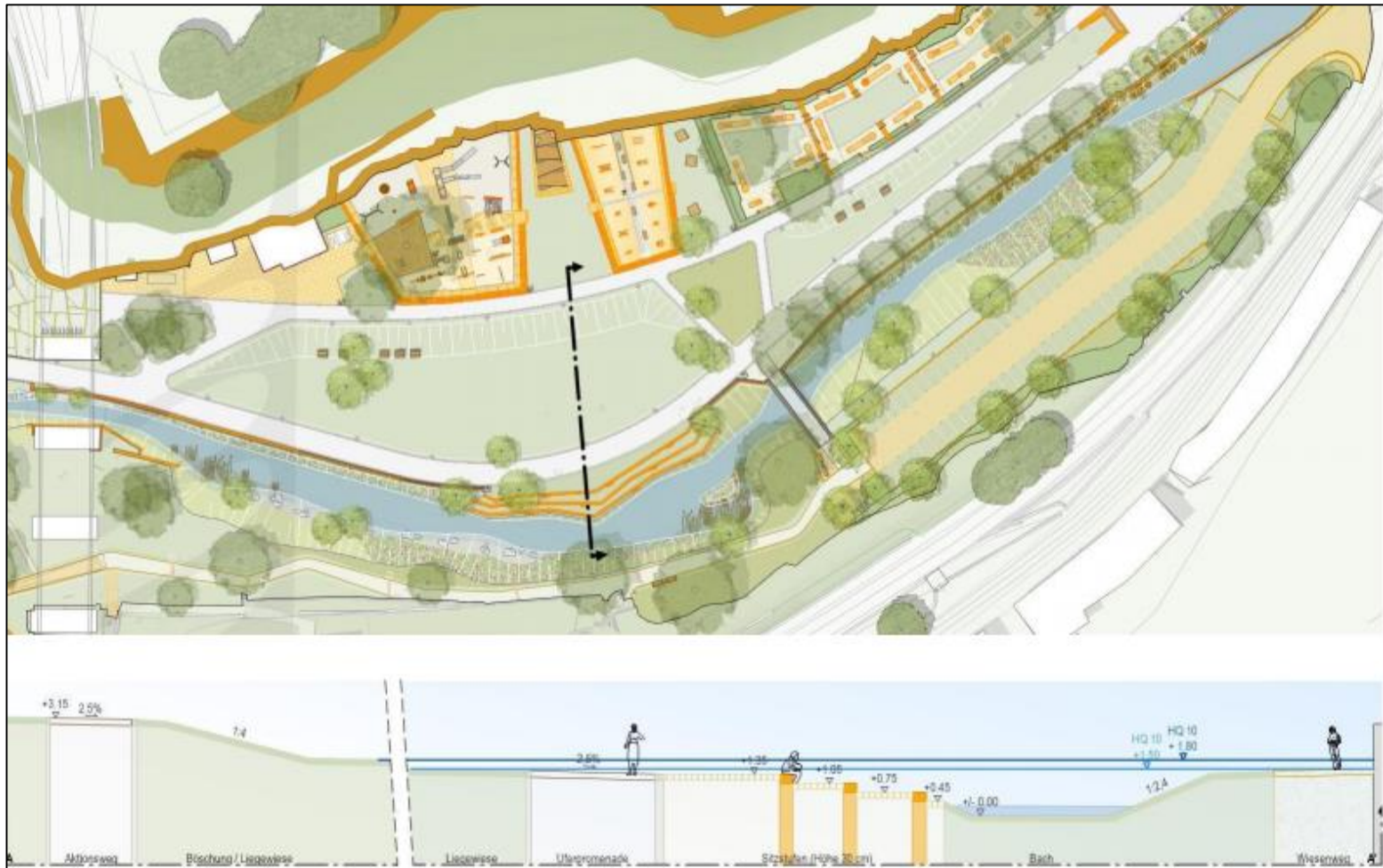
Location 1 (Pétrusse): Detail of biodiversity development area



Source: Ville de Luxembourg

Alzette River Restoration

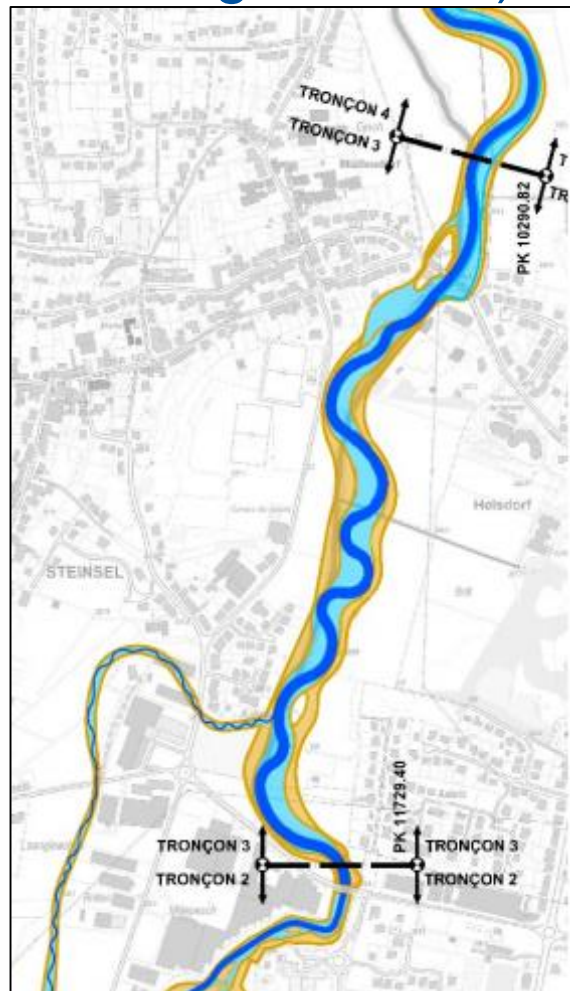
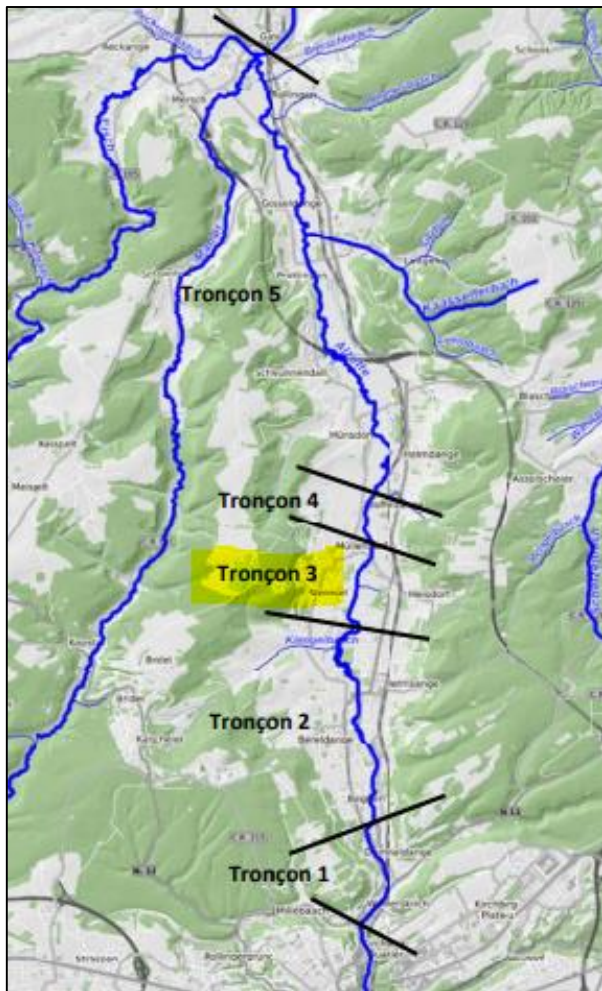
Location 1 (Pétrusse): Detail of flood expansion area



Source: Ville de Luxembourg

Alzette River Restoration

Location 2 (Alzette Section 3, North of the City, length 1.4km)



Source: Administration de la Gestion de l'Eau

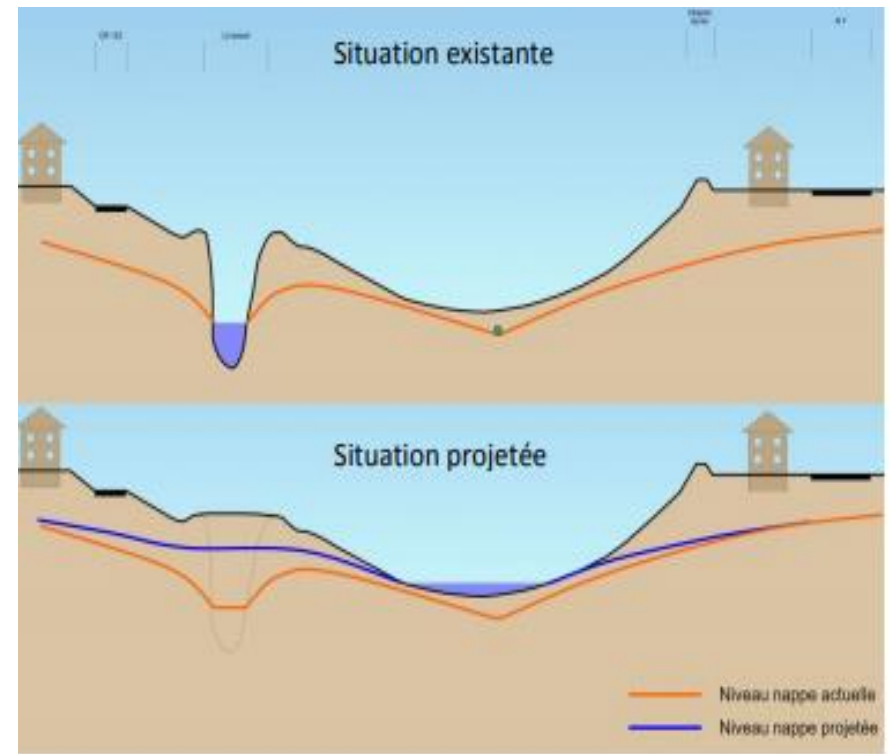
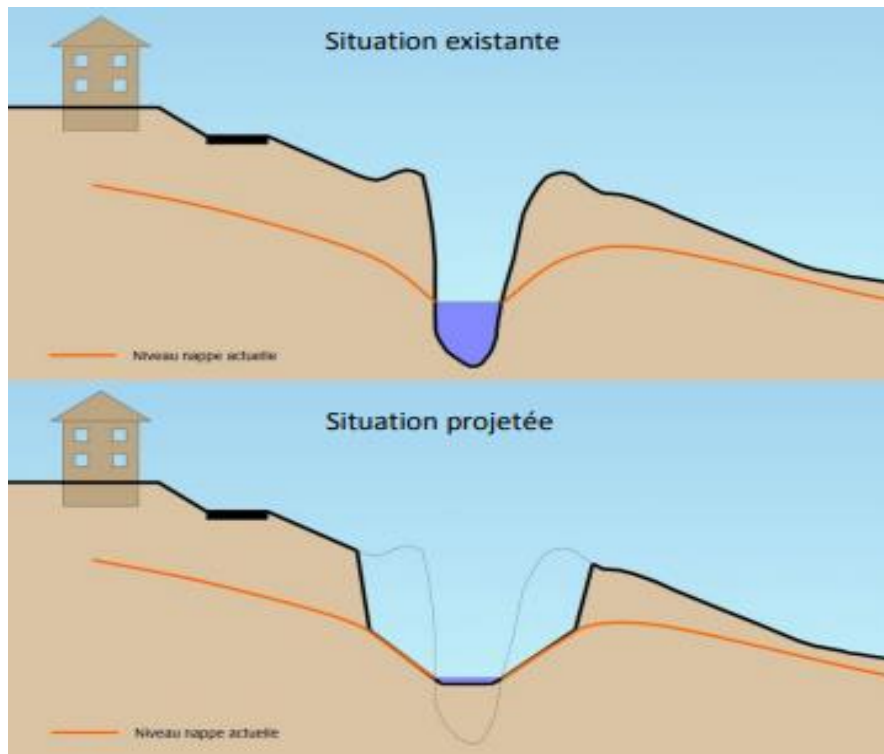
Alzette River Restoration Location 2, Photo of last major flood in Section 3 (December 1993)



Source: Administration de la Gestion de l'Eau

Alzette River Restoration

Location 2, Alzette restoration concept: lifting the riverbed up to the natural groundwater level, and move it to the thalweg where possible. Remove drains.



Source: Administration de la Gestion de l'Eau

THANK YOU FOR YOUR ATTENTION!



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