

ECOLOGICAL RESTORATION AND FLOOD PREVENTION ON THE PULNOY GRÉMILLON STREAM

2017 - 2021



IDENTITY CARD

GEOGRAPHICAL LOCATION

Communes of Essey-lès-Nancy
and Pulnoy, Meurthe-et-Moselle
department, Grand-Est region

NATURAL RISKS TARGETED

- Flooding

HABITAT(S) CONCERNED

Continental aquatic habitats

TYPES OF NBAS

Sustainable management and
restoration of degraded ecosystems

PROJECT LEADER AND PARTNERS

Grand Nancy Metropolitan Authority

Restauration d'une zone humide
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FUNDERS AND BUDGET

- Grand Nancy Metropolitan
Authority (55%)
- Rhine-Meuse Water Agency (35 %)
- Grand-Est Region (10 %)

Total budget : 3 571 432 € exc. VAT

**métropole
GrandNancy**

PROJECT OBJECTIVES

- For adaptation to climate changes : combat flooding and erosion phenomena
- For biodiversity : improve riverbed-floodplain connectivity and restore biodiversity..



Before
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CONTEXT AND ISSUES

The Grémillon is a tributary of the Meurthe, about 6 km long, that drains a catchment area of more than 1200 ha. The stream is part of the urban landscape of the Nancy conurbation and flows through the communes of Pulnoy, Seichamps, Essey-lès-Nancy and Saint-Max, where it is considerably channelised. The stream has been much altered during the course of urban development, resulting in multiple problems: floods, sinking of the riverbed, partial dislodging of water treatment infrastructure, erosion and undermining of riverbanks, loss of biological functionalities in the stretches passing through conduits. The Grémillon was identified as a "Heavily Modified Water Body" in the SDAGE for the Rhine-Meuse river basin.

REGULATORY CONTEXT

- Masterplan for the Development and Management of Water Resources (SDAGE)
- Nancy Metropolitan Area Green and Blue Network
- Management of aquatic habitats and flood prevention (GEMAPI)

ACTIONS IMPLEMENTED

Les travaux se sont décomposés en deux phases :

- **Phase 1 — sector of the Essey-lès-Nancy urban zone :**
Restoration of the stream in the crossing of the urban zone, re-meandering, diversification of flows, removal of culverts to expose the watercourse to the open air, creation of a detention basin.
- **Phase 2 — Pulnoy sector :**
In the urban zone: ecological restoration of the watercourse in the crossing of the urban zone (demolition of concrete sills and riverbanks), redevelopment and ecological restoration of the previously created

Masserine reservoir;

In the agricultural zone: restoration of the stream, re-meandering, diversification of flows, removal of culverts to expose the watercourse to the open air, development of a wetland, creation of a detention basin.

Since works ended, scientific monitoring of water quality has been implemented. In addition, work has been undertaken to reform the land tenure system between the communes and the conurbation for the sharing of maintenance of public areas. Finally, a cofferdam was constructed to improve the distribution of the stream's flows.

CALENDAR

PROJECT SCHEDULE

2010 - 2012	Preliminary studies, Definition of project management programme
2013	Consultation for the project management commission
2014 - 2016	Study phases, Public inquiry, Concertation
2017	Start of works, Phase 1
2018	Start of works, Phase 2
2019	End of works
2020 - 2021	Scientific monitoring of water quality + complementary works

GOVERNANCE ADOPTED

Several partners were involved in the project by means of a steering committee and a technical committee: Rhine-Meuse Water Agency, Grand-Est Region, Meurthe-et-Moselle Departmental Territorial Directorate, French National Agency for Water and Aquatic Environments (ONEMA), Meurthe-et-Moselle Departmental Federation for Fishing and the Protection of Aquatic Habitats. Regular consultations were held with local residents through the municipal authorities and with farmers via the Chamber of Agriculture.

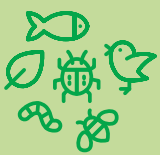


BENEFITS AND CONTRIBUTIONS OF THE PROJECT



BENEFITS REGARDING TARGETED ADAPTATION ISSUES

- **Flooding** : two storm events in 2018 proved the efficacy of the detention basins: they filled up during the course of ten-year and hundred-year rains, while the works were underway.



BENEFITS FOR BIODIVERSITY

- **Species** : the water retention zones and helophyte plants along the stream are favourable for dragonflies & damselflies and for amphibians; bats use the stretches of riverine woodland to guide them to hunting grounds.
- **Ecological continuity** : the creation of water retention zones and improvement of riverbed/flood plain connectivity enhanced the spatial contiguity of the wetlands.



OTHER BENEFITS

- **Living environment** : improvement in landscape quality, the stream having been considered as a ditch for the departmental road before being rehabilitated. The developments carried out create meeting places for local residents, which encourages social interaction.

MONITORING INDICATORS

Biodiversity

- Assessment of hydromorphological quality with the setting up of the Carhyce protocol;
- Assessment of physicochemical quality with in-situ measurement campaigns;
- Assessment of biological quality with the calculation of an NGBI (Normalised Global Biological Index).



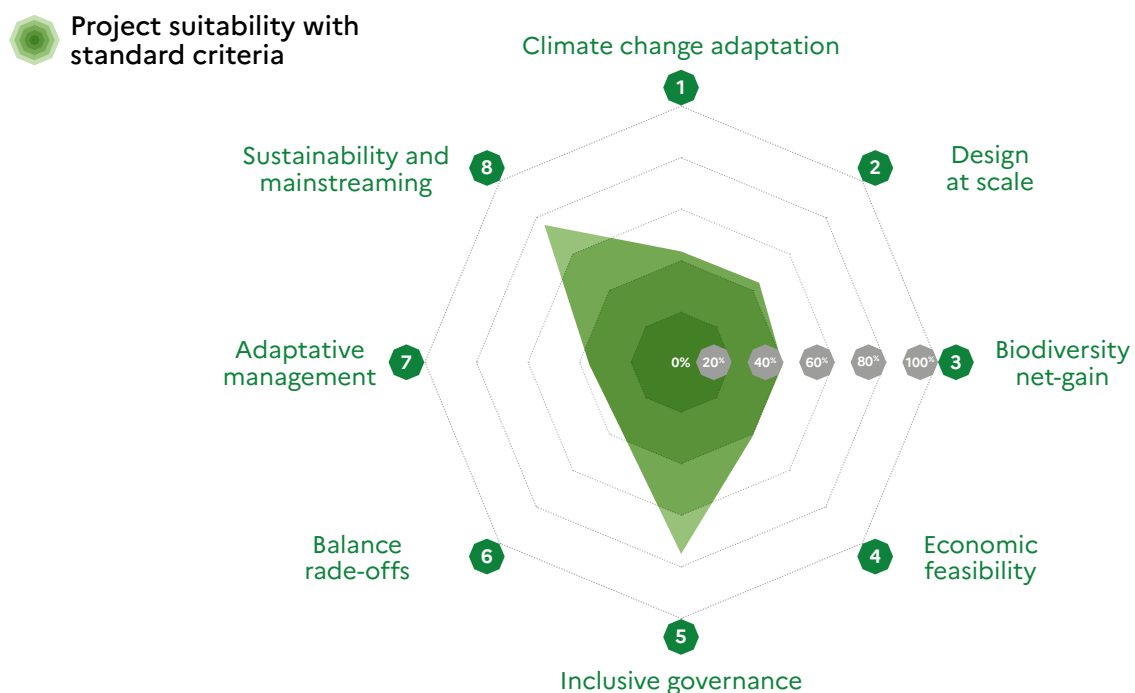
LEVERS FOR SUCCESS

- **Communication** : public information meetings were organised in each commune before the start of works, and at each major step as they were being carried out. Various communication media to inform the public (press packs, posters, information on the Grand Nancy website ...) were produced throughout the works period.
- **Partnerships** : numerous technical partners were involved in the project, which favoured exchanges concerning the design of developments to achieve better integration and acceptance among local residents.

RECOMMENDATIONS

- Set up more in-depth monitoring of the benefits provided for biodiversity by the project.

ANALYSIS ACCORDING TO THE IUCN'S GLOBAL STANDARD FOR NATURE-BASED SOLUTIONS



FOR FURTHER INFORMATION

Two films (in French) are available via the following links:

<https://youtu.be/2fvUxinEbpk>

<https://youtu.be/Ew4WdxU53OU>

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