LEVERS FOR SUCCESS

TECHNICAL ASPECTS AND PROJECT DESIGN

- **Plan in advance**: Identify tree felling /stump removal needs and surface areas available for new planting (e.g., calculate the size of tree pits). Identify needs in terms of shape, species, width and height of trees to be ordered from nurseries to avoid running out of stock.
- **Initial assessment**: The municipality had no up-to-date inventory of its tree heritage, which required numerous on-site checks and consequently slowed down the design and implementation of the project.
- **Plant at the feet of trees:** The upkeep of plantless spaces is very time-consuming with regard to weeding. Planting the feet of trees with beds of perennial shrubs reduces upkeep time over the year by means of plant cover.
- **Design an integrated project:** Villeneuve-le-Roi took advantage of its renaturation actions to rethink the functionality of its streets: transition to 100% LED street lighting, reduction of lighting power for some time periods; application of permeable coatings to parking areas, etc.

COMMITMENT OF STAKEHOLDERS

- **Lever effect:** The municipality freed up additional fundings (500 000 euros) to replicate the renaturation actions in other neighbourhoods.

MONITORING AND REPLICABILITY OF THE ACTION

- **Adaptive aspect:** The setting up of a regular monitoring and assessment system supported by technical experts and academics, notably via the Nature 2050 programme, ensures the capacity of the project to self-evaluate and adapt to unforeseen events to improve its effectiveness.

RECOMMENDATIONS

- **Demonstration:** In the areas planted on the edge of pathways, the municipality intends to communicate about the two indicators that measure the maturity of ecosystems by means of awareness-raising panels. In parallel, the Town is seeking to develop a tool for comparing unplanted and planted areas to demonstrate the technical and financial advantages of urban revegetation.

FOR FURTHER INFORMATION

- Villeneuve-le-Roi municipal website:
  https://www.villeneuve-le-roi.fr
- Webpage of the 2019 MGP call for projects:
  https://www.metropolegrandparis.fr/fr/lancement-de-lappel-projets-nature-2050-metropole-du-grand-paris-223
- Webpage of the Nature 2050 Programme:
  https://www.cdc-biodiversite.fr/realisations/village-aux-4000-arbres/

PROJECT LEADER

- **Julien Pringot**
  Head of Public Areas
  Villeneuve-le-Roi Town Hall, Technical Services Division
  julien.pringot@ville-villeneuve-le-roi.fr
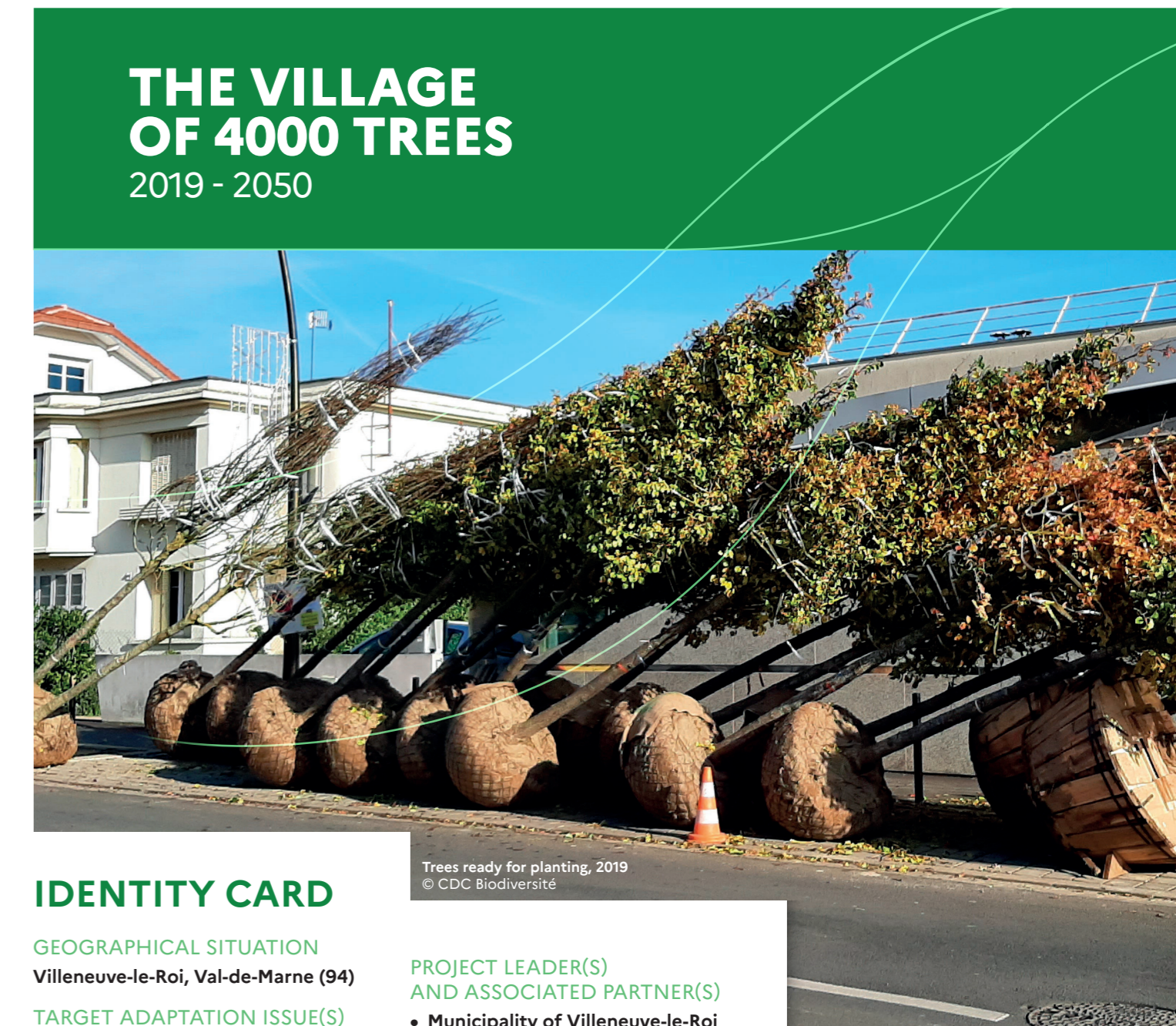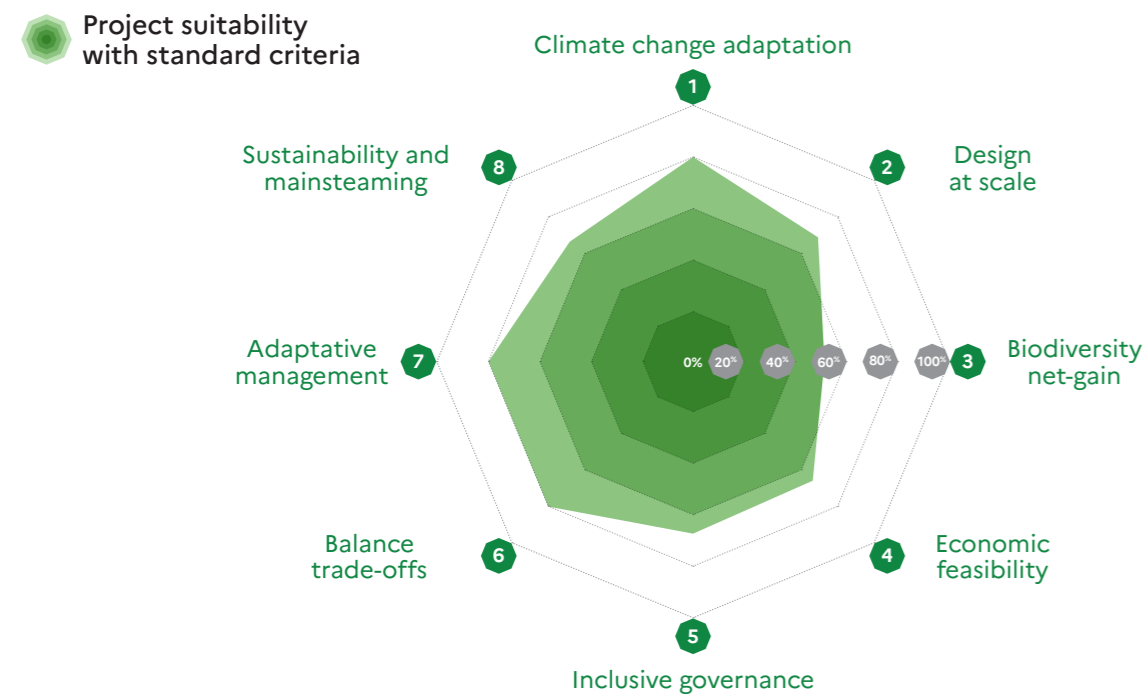
DATE

December 2021

FACT FILE EDITOR

Julie Tourron

ASSESSMENT ACCORDING TO THE IUCN GLOBAL STANDARD FOR NATURE BASED SOLUTIONS

Project suitability with standard criteria

- Climate change adaptation (1)
- Design at scale (2)
- Biodiversity net-gain (3)
- Economic feasibility (4)
- Inclusive governance (5)
- Balance trade-offs (6)
- Adaptive management (7)
- Sustainability and mainsteaming (8)

0% 20% 40% 60% 80% 100%

THE VILLAGE OF 4000 TREES
2019 - 2050

Trees ready for planting, 2019
© CDC Biodiversité

IDENTITY CARD

GEOGRAPHICAL SITUATION
Villeneuve-le-Roi, Val-de-Marne (94)

TARGET ADAPTATION ISSUE(S)
Urban heat islands and water infiltration

HABITAT(S) CONCERNED
Urban ecosystems

TYPE(S) OF NBAS
Restoration of ecosystems: Restoration of biodiversity corridors in town and improved resilience to the effects of climate change through renaturing actions and the planting of 1000 trees to increase the tree heritage to 4000 trees.

PROJECT LEADER(S) AND ASSOCIATED PARTNER(S)
- **Municipality of Villeneuve-le-Roi**
- Greater Paris
- Nature 2050 Programme – CDC Biodiversité

FUNDERS AND BUDGET
- Nature 2050 Programme, CDC Biodiversité: (72 %)
- Self-funding (28 %)

Budget: **696 600 €**

Together with the cost of sustaining and monitoring the project until 2050 funded by Villeneuve-le-Roi and CDC Biodiversité.

Ville de Villeneuve-le-Roi

Centre Ville

Villas de la Gare
Voie de Seine
Quartier du Coteau
La Seine
Axe 3
Axe 4
Axe 2
Quartier du Haut Pays
Quartier de la Faisanderie
Axe 1
Quartier des fleurs
Bassin versant Voltaire
Val d'Ablon

→ Existing green and blue corridors
To be strengthened or re-dynamized

⬤ Creation of corridors
Ecological renaturation

⬯ Restoration of permeable ground surfaces
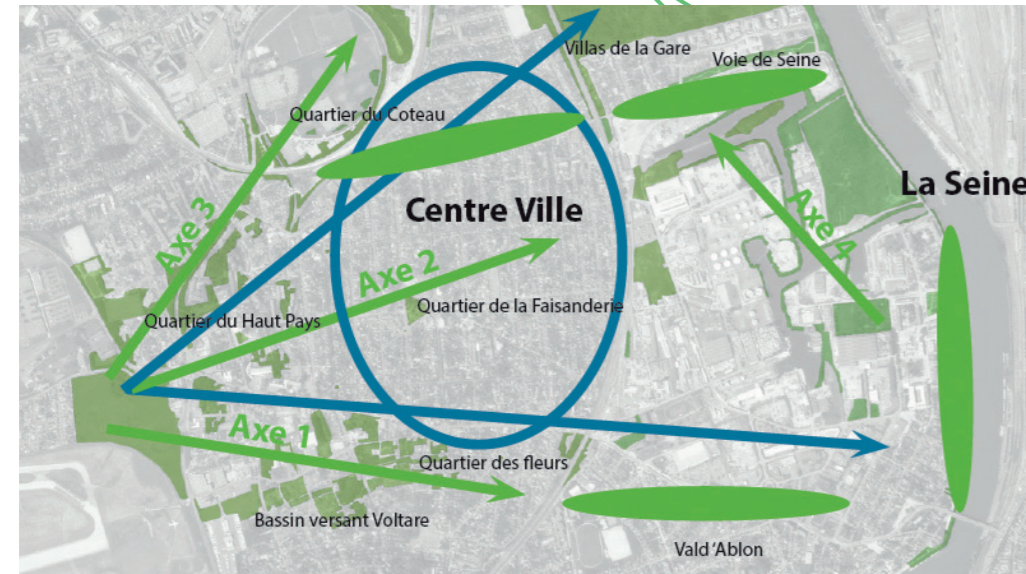Infiltration of rainwater

PROJECT OBJECTIVES

- **For climate adaptation**
Combatting heat islands, resilience to flooding risks and better infiltration of rainwater and runoff.

- **For biodiversity**
Restructuring of the green and blue network by restoring ecological corridors.

- **For the local community**
Reappropriation of nature in town by the inhabitants, increased well-being and raised awareness of environmental issues.

REGULATORY CONTEXT OF THE PROJECT

The Regional Ecological Coherence Scheme (SRCE), which identifies the town as a "wetland" to be conserved in

connection with the banks of the Seine that cross the town and "alluvial corridors to be restored".

CONTEXT AND ISSUES

A former agricultural village (vines, market gardening, etc.), the town of Villeneuve-le-Roi in Val-de-Marne stretches from the hillside of the Orly Plateau until the banks of the Seine. Over the years, developments linked to urbanisation have impermeabilized some of the ground surface, fragmenting the green network and forcing some of the blue network underground. This increased artificialisation exposed the urban habitats to heat island phenomena and flooding, amplified by climate change. Indeed, because of its geographical configuration, the town faces a double flood threat: on one side, the Seine may overflow its riverbed and reach urbanised areas during high-water events; and on the other, the hillsides where the storm rain falls and combines with the runoff from the Orly Plateau. As the water cannot infiltrate the impermeabilized ground, it is then retained further downhill and floods the residential area alongside the above ground railway tracks. To respond to these issues, since 2019 the town has been implementing renaturing actions, through its partnership with CDC Biodiversité (Nature 2050 Programme) and the Greater Paris Metropolis. The project aims to restructure the green network by creating ecological corridors that correspond with the axis formed by the runways of Orly Airport and the historical hillside, as far as the Seine, over a total surface area of 73 980m².

ACTIONS IMPLEMENTED

The project increases the town's tree heritage (3000 trees) by adding 1000 new trees, at 6 strategic points in the town by planting:

- 125 single- or multi-stem fruit or flower trees.
- 73 single-stem trees of hardy species to replace dead or sick trees.
- A linear woodland along the Voie de Seine made up of 250 trees (200 single-stem and 50 multi-stem).
- 600 seedlings on all streets with single or double rows (196 trees to renew the rows and 400 young trees to create wooded areas).

To carry out the planting, the target areas are redeveloped if necessary: burying of all open-air networks, relevelling to enable the flow of rainwater and surface water in the centre of the roadway, resurfacing of roads; de-paving and planting at the feet of trees, etc.

GOVERNANCE ADOPTED

The municipality is assisted by a consultancy Voirie Réseaux Divers (VRD) and several landscaping companies (Merlin et troisième paysage; Osmose ingénierie). The town is supported by MGP for administrative and legal support and by CDC Biodiversité via the Nature 2050 Programme and its scientific partners for defining and monitoring indicators until 2050. In the long term, the management and maintenance of the green spaces is shared between the town's road cleaning department (weeding) and parks & gardens department (scrub cutting) together with an outside company (tree heritage maintenance).

CALENDAR

PROJECT LIFESPAN

2019	Winner of the call for proposals by the Greater Paris Metropolis and CDC Biodiversité
	Co-development of indicators
2020	Start of work
	Partnership agreement with MGP and CDC Biodiversité
	Monitoring of indicators
2021	Agreement with LPO
	Continuation of planting
	Monitoring of indicators
2022	End of work
	Monitoring of indicators until 2050

Planting trees on Sadi Carnot Avenue, 2021
© Mairie de Villeneuve-le-Roi

BENEFITS AND CONTRIBUTIONS OF THE PROJECT

BENEFITS REGARDING TARGET ADAPTATION ISSUES

- Resilience of the town against flood risks linked to rainfall variations (heavy precipitation and high waters of the Seine) and better infiltration of runoff water, thanks to the renaturation of 1500 m² of tree pits.
- Combatting the effects of urban heat islands with the shade provided by plant cover.

BENEFITS FOR BIODIVERSITY

- Slow the loss of biodiversity by creating ecological corridors and restoring the green and blue network that crosses from the Orly Plateau to the Seine.
- Welcome a broad diversity of species (birds, bats, pollinisers, beneficial organisms) by creating new habitats (undergrowth, wetlands or banks of the Seine) and planting fruit trees and hedges.
- Increase the resilience of the tree heritage by choosing hardy species that are drought-resistant and tolerant of urban environmental constraints, especially linked to pollution (Narrow-leaved Ash, sweetgum, serviceberry, etc.).
- Reduction in light pollution.

OTHER BENEFITS CAUSED

- Socioeconomic: improvement in people's well-being and quality of life and awareness-raising regarding the return of nature to town.
- Mitigation of climate change: sequestration of CO2 by the trees.
- Improvement in water filtering capacity, lessening the strain on the rainwater network and improving air quality through the absorption of pollution by the trees

MONITORING INDICATORS

Adapting to climate changes

- Evolution / maturity of ecosystems: Measurements of soil quality including the stock of organic carbon in the soil and the natural abundance rate of Nitrogen 15 in the leaves
- Monitoring of extreme hydraulic events

Biodiversity

- Surveys of biodiversity

Other

- Monitoring of the number of people whose awareness was raised during educational actions.
- Monitoring of Villeneuve-le-Roi inhabitants' knowledge gains concerning biodiversity and climate adaptation.