

HELPING CITIES BECOME MORE RESILIENT TO HEAT EXTREMES BY PLANTING TREES

THE EXAMPLE OF LIEGE



Coraline Wyard, Yasmina Loozen, Benjamin Beaumont, Marie Dury, Fabian Lenartz, Eric Hallot,



Julien Radoux, Pierre Defourny



Dirk Lauwaet, Filip Lefebvre,



Thomas Halford, Mélanie Haid, Michel Duc, Gilles Forêt

+3% of Canopy by 2050 = planting 24,000 trees

These plantations aims at cooling the city to attenuate the urban heat island (UHI, Figure 1), and enjoying ecosystem services provided by trees like air pollution improvement, storm water attenuation, hosting biodiversity, well-being enhancement, ...

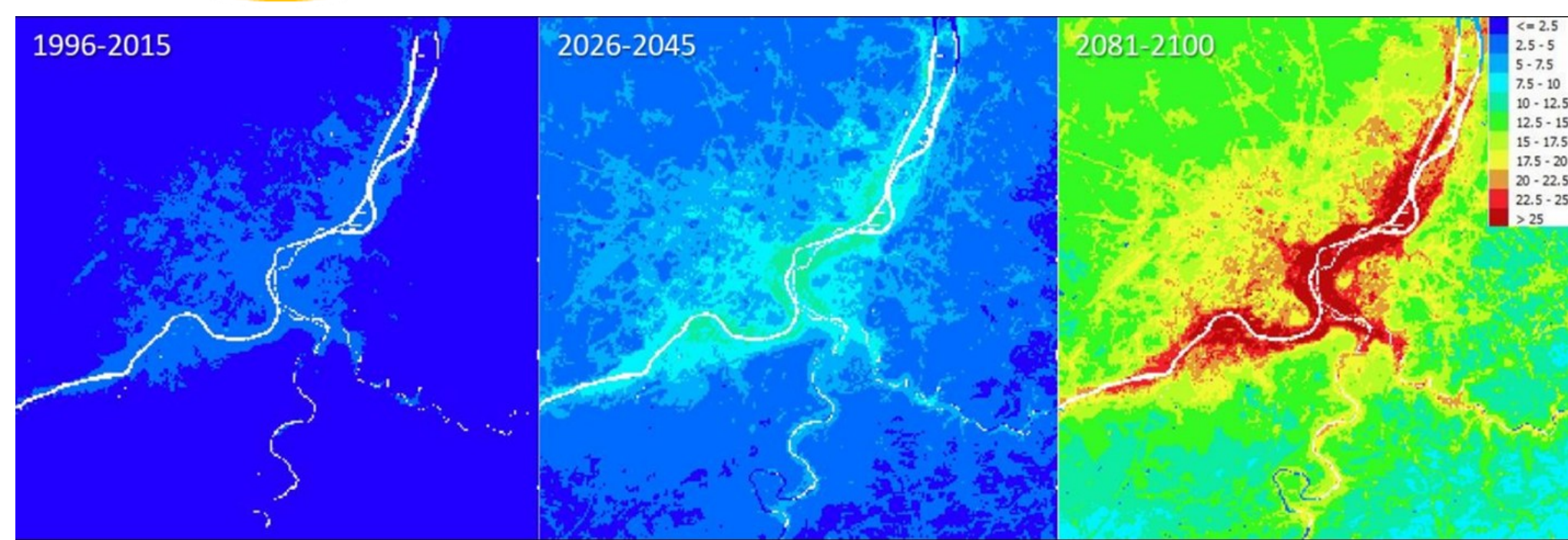


Figure 1. Estimated average number of heat wave days per year for Liège and its region according to the IPCC RCP8.5 radiative forcing scenario (Source: SmartPop, 2019)

1. Mapping existing tree cover

By considering tree crowns larger than 4 m² and higher than 3 m, the existing canopy was mapped (Figure 2). It represents a total area of 2,156 ha covering 37.4% of the Liège territory.

The canopy index varies from one district to another: it is larger than 25% for 13/32 districts and is the lowest in central districts (Figure 3).

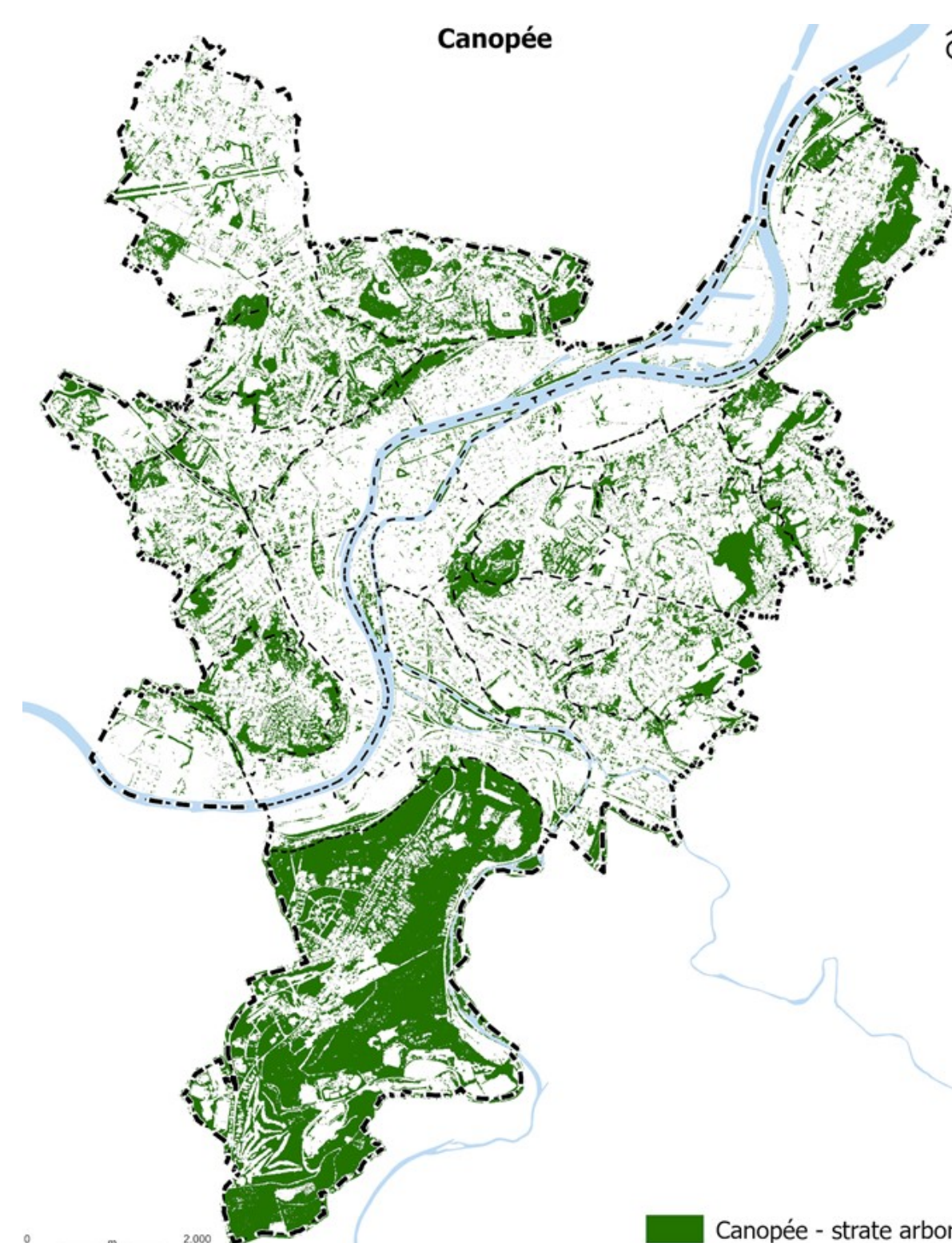


Figure 2. Existing tree cover in Liège (source : Plan Canopée).

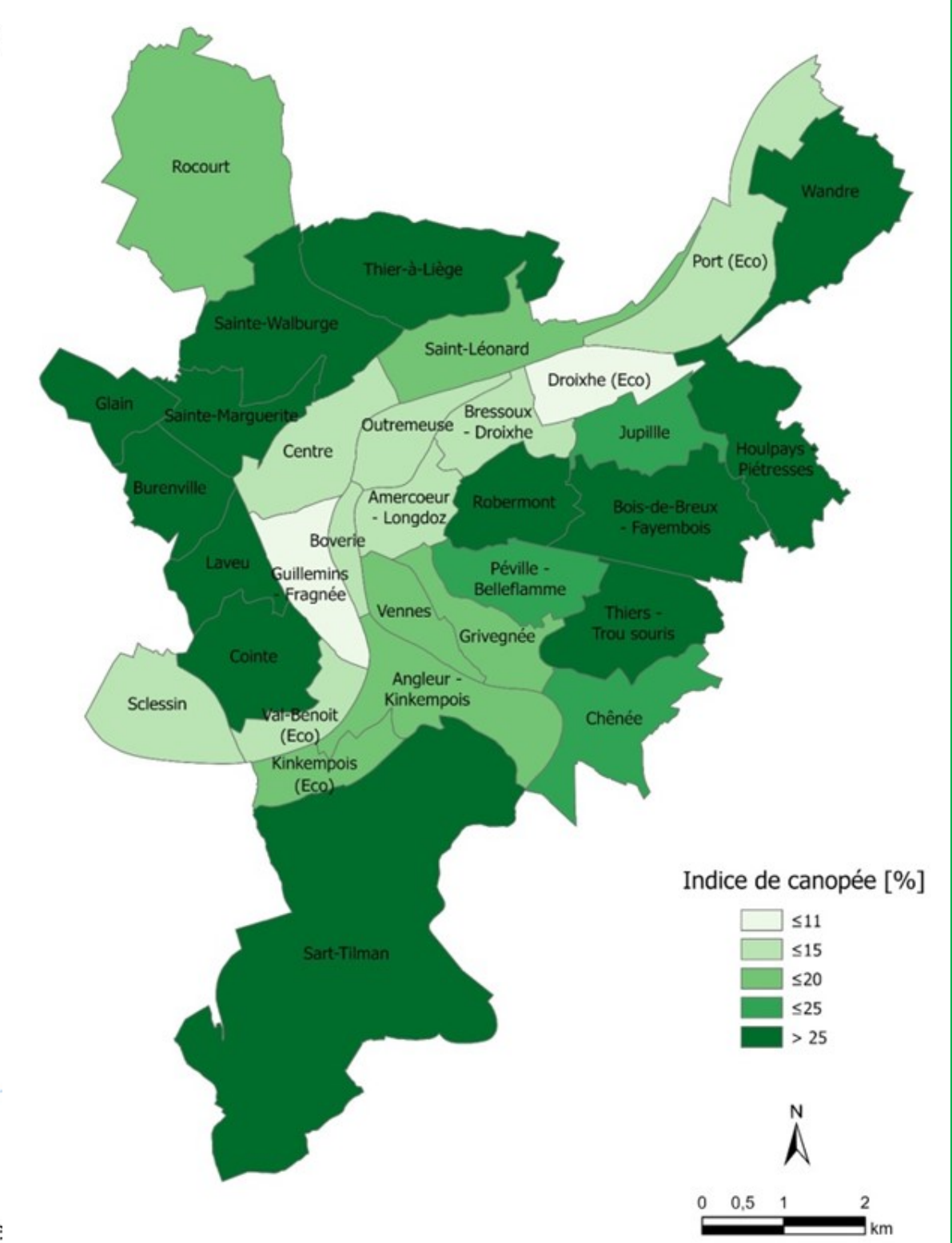


Figure 3. Canopy index per district (source : Plan Canopée).

5. Preserve, compensate and plant trees



800 trees planted along the tram route this winter (Source : https://www.rtc.be/).



Workshops with neighbourhood committees

The aim is to plant 24,000 net trees by 2032. The strategy is therefore to **preserve** existing trees, **compensate** for cut trees and **increase** the stock of trees.

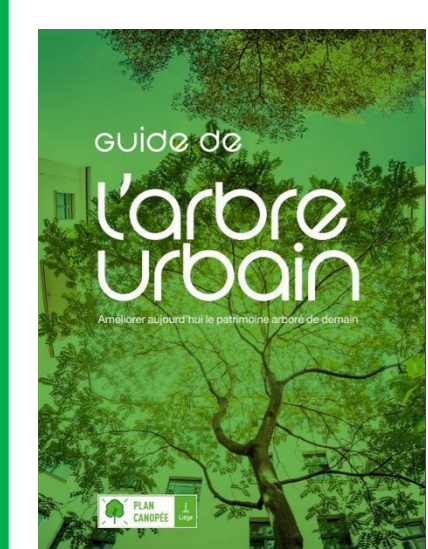
The town planning regulations was amended to preserve the trees and involve property developers.

Local authorities make great efforts to involve citizens:

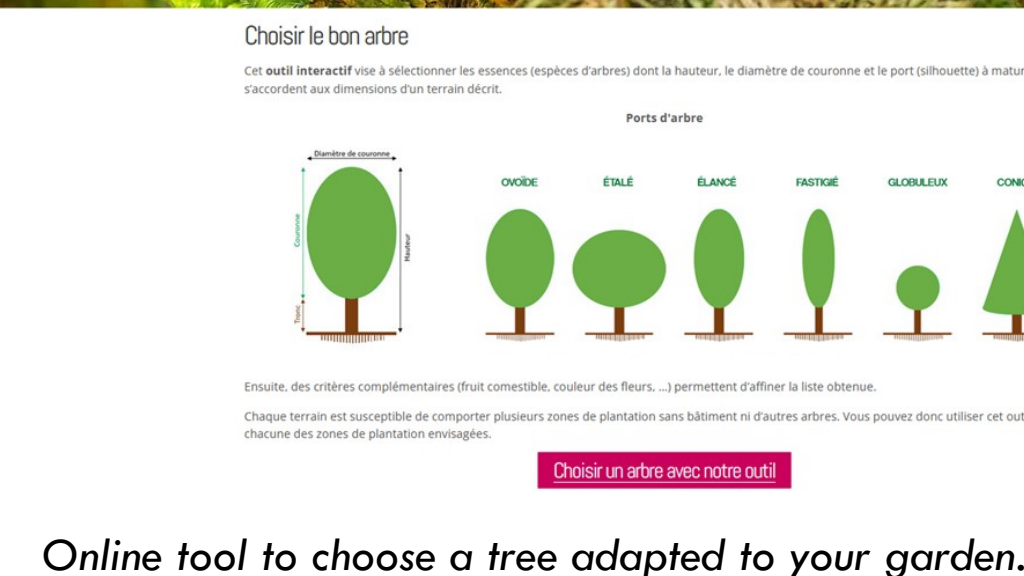
- Formation of 45 ambassadors
- Workshops with each of the neighbourhood committees
- Online tool to choose a tree species adapted to garden
- Tree distribution based on reservation with ID Card
- Holiday courses for children (10-14 years)

By the end of 2024, **6,000/24,000 trees adapted to city climate** will have already been planted ! Thanks to the watering of the trees, a recovery rate of **96%** of the young trees was observed.

Based on this experience, Liège as edited the urban tree guide of Belgium.



Plantations in the public space with the involvement of citizens



Online tool to choose a tree adapted to your garden.

4. Defining objectives per district

Local authorities defined plantation objectives for each district based on the previous analyses (Figure 7). An absolute increase of +4% is planned in high and medium priority districts. For instance, 889 trees will be planted in « Centre », and 691 in « Guillemins ». As the greatest potential canopy increase is located in private areas, 61% of the new trees will be planted in these areas with the help of citizens.

High resolution simulation of thermal comfort (WBGT) were later used to refine the selection of plantation sites (Figure 8).

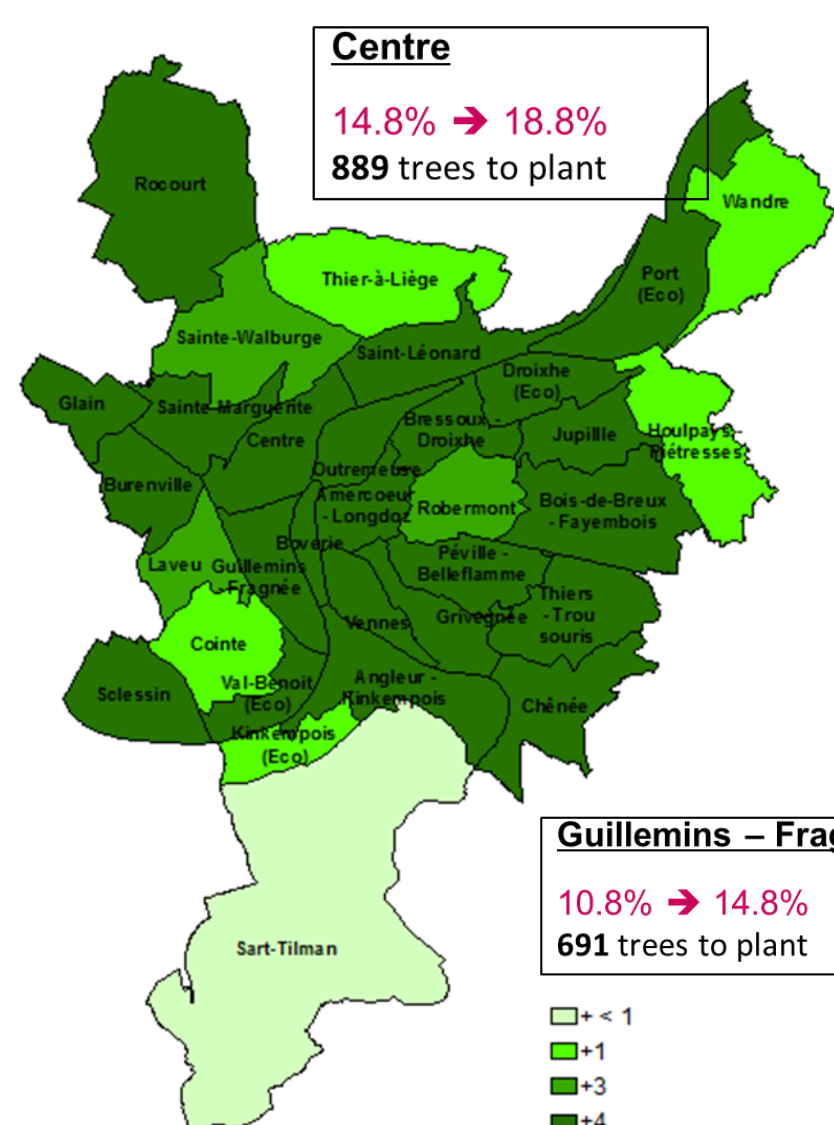


Figure 7. Absolute canopy increase planned for each district of Liège (source : Plan Canopée).

