

What place for nature in Ecocities?

Urban densification and development of urban green spaces in Brussels

1. Problematic

« Balance between urban densification and green spaces »

Humanity is increasingly urban. This statement is valid for Brussels as well as for most of the Occidental cities. In 2010, more than 50% of the World population will be urban.

This population growth should be considered with a concerning on urban models: what place for nature in these models? Densification and land use intensification tend on one hand to lead to a reduction of green cover. On the other hand, new inhabitants should be able to attend to more natural open spaces. Urban greenery is usually threatened by urbanization. However, green open spaces are also potentially public spaces where ecological functions are merged with urban open air uses.

This urban densification issue illustrates the necessity for cities to create and develop substantial solutions conciliating inhabitants' growth with their well-being. Public spaces and urban landscape are interlinked. They have to be reviewed and requalified in order to consider a potential development of the urban space. The challenge is to aerate the city without spreading it out in order to preserve the quality of landscape linked with the identity of inhabitants. Nowadays, the matter of Nature can't be avoided – especially in fields such as architecture and city planning. No matter how density evolves, cities' remaining empty spaces would stay subjected to all kinds of pressures (property, social and traditional uses ...). Public authorities have to be able to evaluate them and carry appropriate strategies.

2. Frame

The study case of this research is Brussels. It is a very representative sample of tendencies in matters of urban densification combined with metropolitan issues regarding administrative and everyday functioning boundaries.

The Belgian administrative management or the institutional locking of Brussels' boundaries

Belgium is a combination of 3 regions:

- Flemish Region
- Walloon Region
- Brussels-Capital Region

The Brussels-Capital Region can be considered like an island surrounded by the Flemish Region. These 3 regions have specific competences among which is the territorial planning. Although, there exists a Region dedicated to Brussels-Capital, the actual Brussels' metropolitan area can't be managed in its whole since it spreads over the 3 regions.

The different definitions of the Brussels' territory

"Brussels-Capital Region"

The word « Brussels » stands for different realities. The main one refers to Brussels as "Brussels-Capital Region".

- Creation in 1989
- Total area of 161 km² (+15Km x 15Km)
- More than 1 million inhabitants

The Brussels-Capital Region counts 19 municipalities having the same status. Only one of them constitutes what is called "Brussels city", the historical core. It shapes a pentagon located in the center of the region.

Even if Brussels looks like a city bigger than the Brussels-Capital Region, politics about territory planning are leaded in the limits of the Brussels-Capital Region.

Population growth should ideally go with an increase of green spaces. Nevertheless, between 1980 and 2003, Brussels greenest plots of land have been nibbled in its second crown surrounding area. Unbuilt lands (fallow, agricultural areas ...) were turned over to constructed zones for accommodation and for business offices. So, densification of the second Brussels' crown represents a real stake on the scale of municipalities, on the Brussels-Capital Region as well as on the whole Brussels metropolitan area.

It is essential to evaluate the relevance of changing the cities' remaining empty spaces lands into residential areas, especially peripheral green spaces, that, despite their numerous functions – ecological, social, recreational, cultural – have a very precarious status, unlike historical parks or urban reserves.

Brussels' metropolitan area

The Brussels metropolitan area is not officially recognized and so official boundaries don't exist. Therefore any global strategies are in use on this area. The Brussels metropolitan area's limits vary according to specific logics (socio-economic, RER zone, 2Brabant provinces ...). However, a functional urban area can be distinguished. More than half of the active population living in this area is daily linked to the Brussels-Capital Region by their job. This functional urban area is spread to 130 municipalities with more than 2.7million inhabitants and more than 4 500km².

We also may consider this metropolitan area including 3 valleys in a frame of 50Km x 50Km.

- Senne Valley
- Dyle Valley

Obviously, undefined spaces are under pressure because they are an important issue in terms of sustainable development. Indeed, these fragile areas are subject to patrimonial, biodiversity and landscape protection desires but are also threatened by urbanization in order to avoid urban spreading in favor of obvious infrastructure and cost savings.

3. Research question

"what is the contribution of green areas in the Brussels densification context?"

By 2020, Brussels expects a raise of more than 170.000 inhabitants and 296 500 inhabitants by 2060. It means an increase of 20%.

At first sight, increasing amount of inhabitant is an advantage for Brussels because of the benefits due to the person taxes. However, the analyses show that tax return comes mostly from a population with low income or from a population with a very high income level, often linked to international institution but exempted from taxation. Departures from Brussels occur mostly among middle class families.

From social and economic point of view, this dynamic exposes the Brussels-Capital Region to a risk of being inhabited by a more and more dual society.

Density, urban shape, geographical distribution of inhabitants are closely linked to demographic questions and to the imperative necessity to offer attractive daily life conditions to middle class families with children. Brussels-Capital Region needs a credit worthy population in order to build a social cohesion. Furthermore, if we consider accommodations for an average of 2.5 persons, the population increase leads to a production of 85 000 dwelling-places for 2020 and more than 140 000 dwelling-places in the 50 coming years. According to this statement, how Brussels should be densified? Where to build the 120 000 required accommodations to face the demographic raise?

4. Methodology

This research considers a type of green spaces called "semi-natural" sites.

12 semi-natural sites:

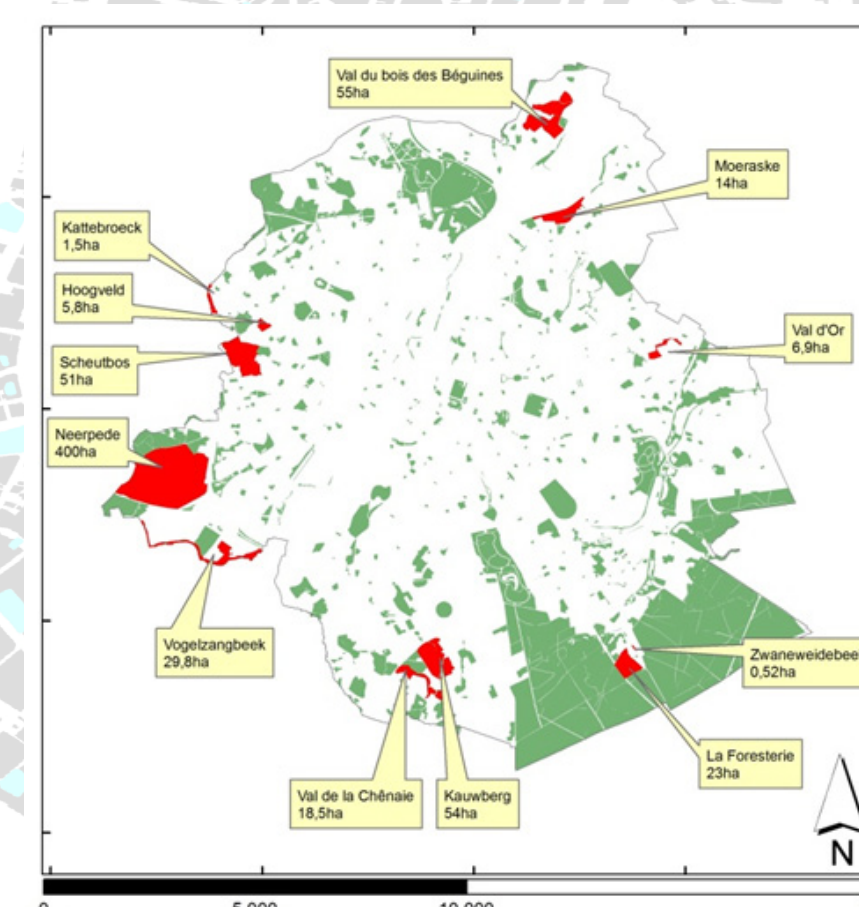
This research refers to a sample of 12 sites considered as semi-natural. All located in the second crown, near the Brussels' Region boundaries. They represent 660 ha. It stands for a bit more than 1,5 x the Pentagon surface (historical core) and a bit more than 4% of Brussels-Capital Region surface). In addition of these grounds with relatively important surfaces, smaller city voids spread out into different Brussels should be added and evaluated in order to complete this sample.

Characteristics: Semi-natural sites are generally divided between several owners without real maintenance.

Waste grounds, no man's land, indeed even plots waiting to be divided into lots, no right zones, and residual spaces are located on the periphery of the known city. These areas without any precise identity nor clarity in the urban network suffer from a public misunderstanding and indifference. Consequently they are abandoned to uncertainty.

Nevertheless, direct neighbouring is considering them with a strong symbolic value.

In fact, these particular sites give precious intuitive opportunities for many nonconformist and unleaded activities that have no place in a traditional area. These sites are subject of struggles in order to be preserved against property projects of all kinds.



Working with scenarios

In order to assess the specific pressures (real estate, property market, use, etc.) that are exerted on the city voids and especially to the semi-natural sites, this research aims to criticize the relevance of various densification scenarios.

The densification of the city may be made in three main operating ways:

- The densification of plots that are partially or completely build and/or the densification – reconversion, subdivision, heightening – of existing buildings without any loss of free ground area.
- The regeneration of urban systems in the core city or in the surroundings.
- The urbanization of peripheral urban systems through extensive housing developments.

Besides the three previous scenarios, one can superimpose new specific ones that are directly linked with semi-natural voids. We can either consider these semi-natural voids as:

- real-estate stocks being urbanized,
- natural reserves being protected or 'museumified',
- public spaces being (re)designed in order to use the nature carefully while offering this area to various open-air hobbies and events.

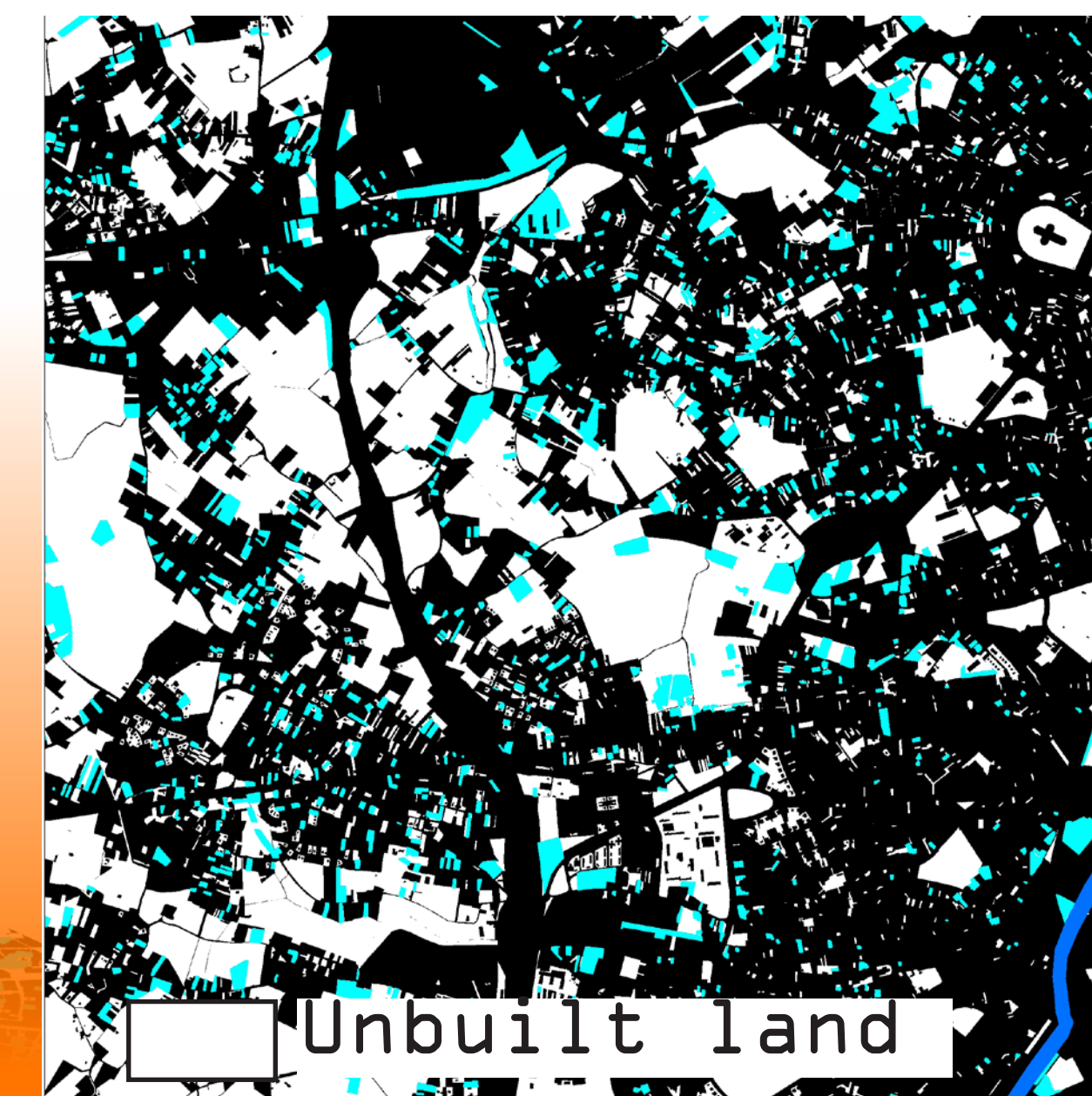
Each option has to be studied and exemplified in order to produce assessments considering housing density, spatial use, environmental and biodiversity quality.



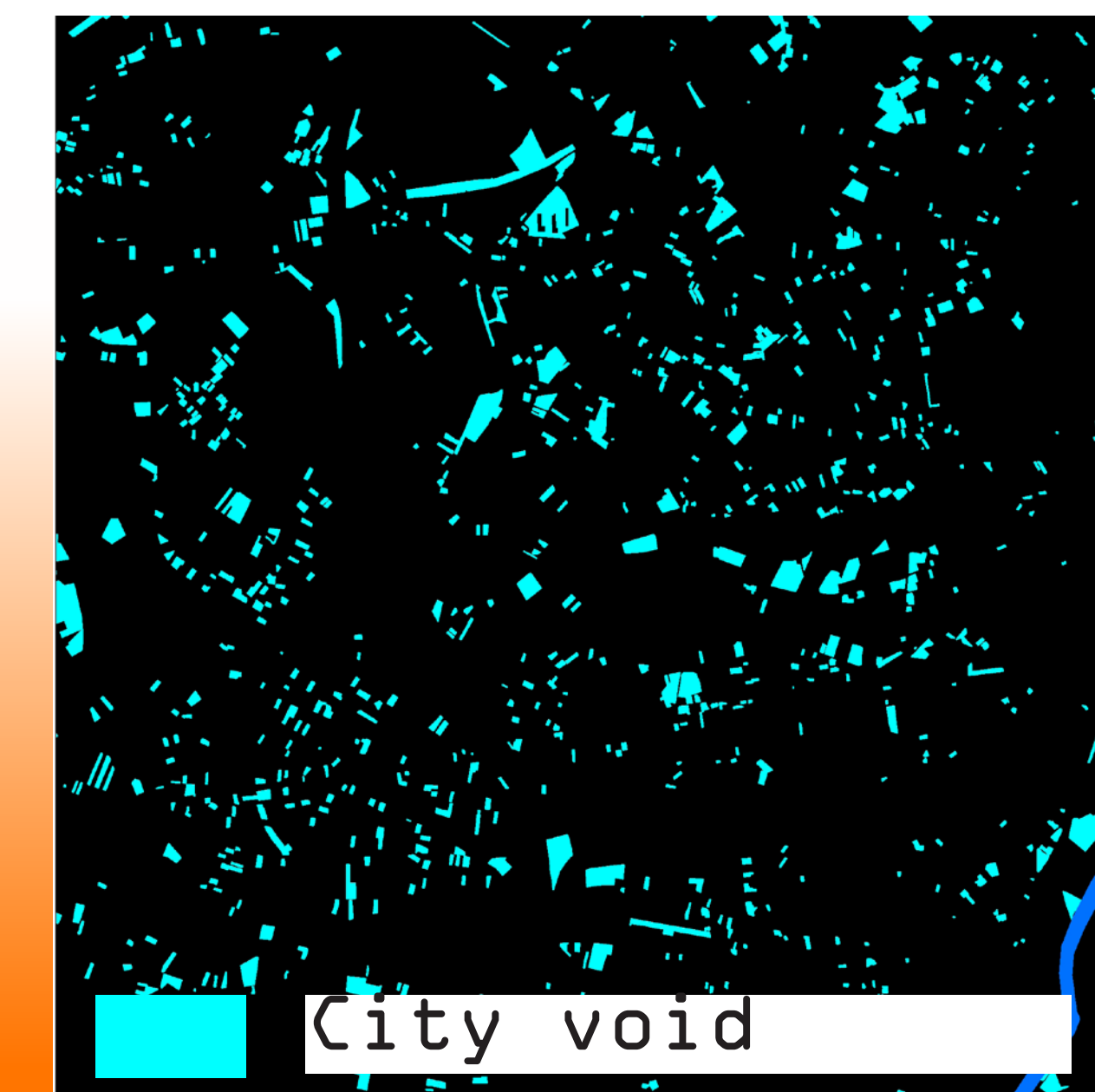
Semi-natural space



Aerial picture



Unbuilt land



City void