Belgium's urban and regional innovation hubs: Antwerp and Brussels areas

Keynote speech

by Pierre LACONTE - President Foundation for the Urban Environment – www.ffue.org
Past-President of International Society of City and Regional Planners (ISOCARP)

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1. Belgium, a weak national profile country but strong regional, local and private sector

- Difficulty of forming central government and formulating national policies, for example on energy.
- Resulting in weak multiparty governments reflecting the multiplicity of regional, local, and private interests, e. g. road, pharmaceutical and pesticide interests.

2. Belgium, a crossroad/roundabout country

- Being in the middle of the highest populated part of Europe its accessibility is the key of its prosperity.

- Its **rail**, **road and canal network including rivers Schelde and Meuse.** Its coal and iron resources made Belgium in the early 20th century the second most industrialised country of Europe. Its coal and steel resources went exhausted in the second part of the 20th century but its transportation network remained its main investment attraction.
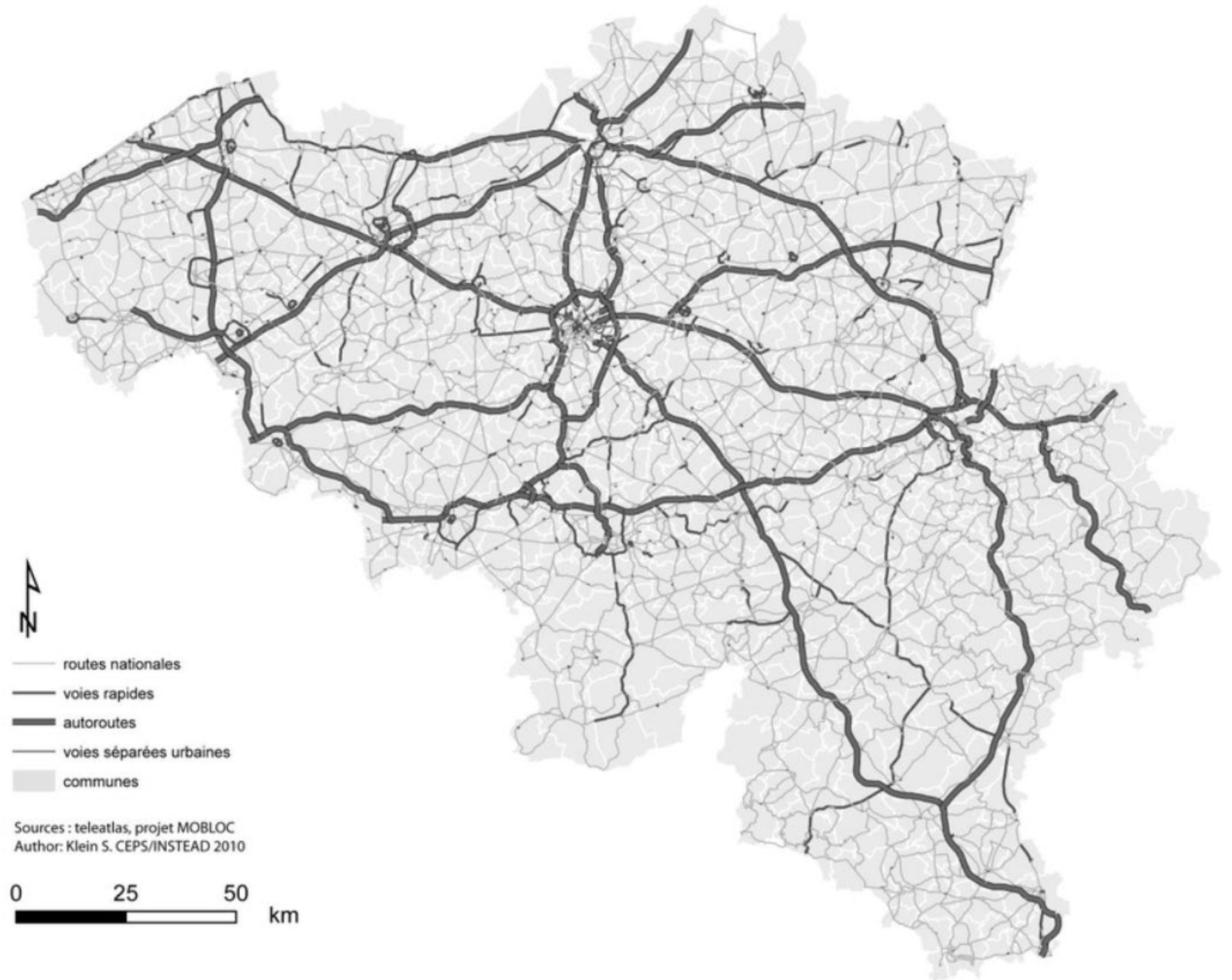
Not to forget a dense toll free motorway network.

routes nationales
voies rapides
autoroutes
voies séparées urbaines
communes

Sources : teleatlas, projet MOBLOC
Author: Klein S. CEPS/INSTEAD 2010

0   25   50   km

Illustration 1.

3. Two major Belgian urban metropolitan hubs: Antwerp and Brussels

- Dispersed settlements of productive investments and population but concentration of power and wealth in the hubs of Antwerp and Brussels.

- King Leopold II used to say: **"Brussels is the Capital of the country, but Antwerp is the Capital of capital".**

- Some geographers (Peter Hall) have found evidence that Antwerp and Brussels are a single hub of communications. However, the citizen identity is very different.

4. The ANTWERP innovative petrochemical and fluids transportation hub

Illustration 2. Port of Antwerp-Bruges headquarters. Architect: Zara Hadid. (c) Michielverbeek, Wikipedia.

The newly amalgamated Antwerp-Bruges international Port (after 500 years of rivalry) illustrates the innovative transformation and complementarity between:

- The **seaport of Bruges**, its intercontinental container shipping development and
- The **Antwerp inland petrochemical port** and multimodal transportation complex.

The Port of Antwerp has become the major pipeline hub of the European chemical industry.

It has largely succeeded in eliminating the use of semi trucks for transporting liquids and fuels from one plant to another.

By building a network of more than 1000 km of pipes, safely using some 60 different types of inter-plant pipeline connections, it has vastly increased its transport capacity, and reduced the fossil energy use, pollution, and operating costs of all plants in the hub.

The chemical pipeline hub and the switch from road to pipeline as main transportation mode.
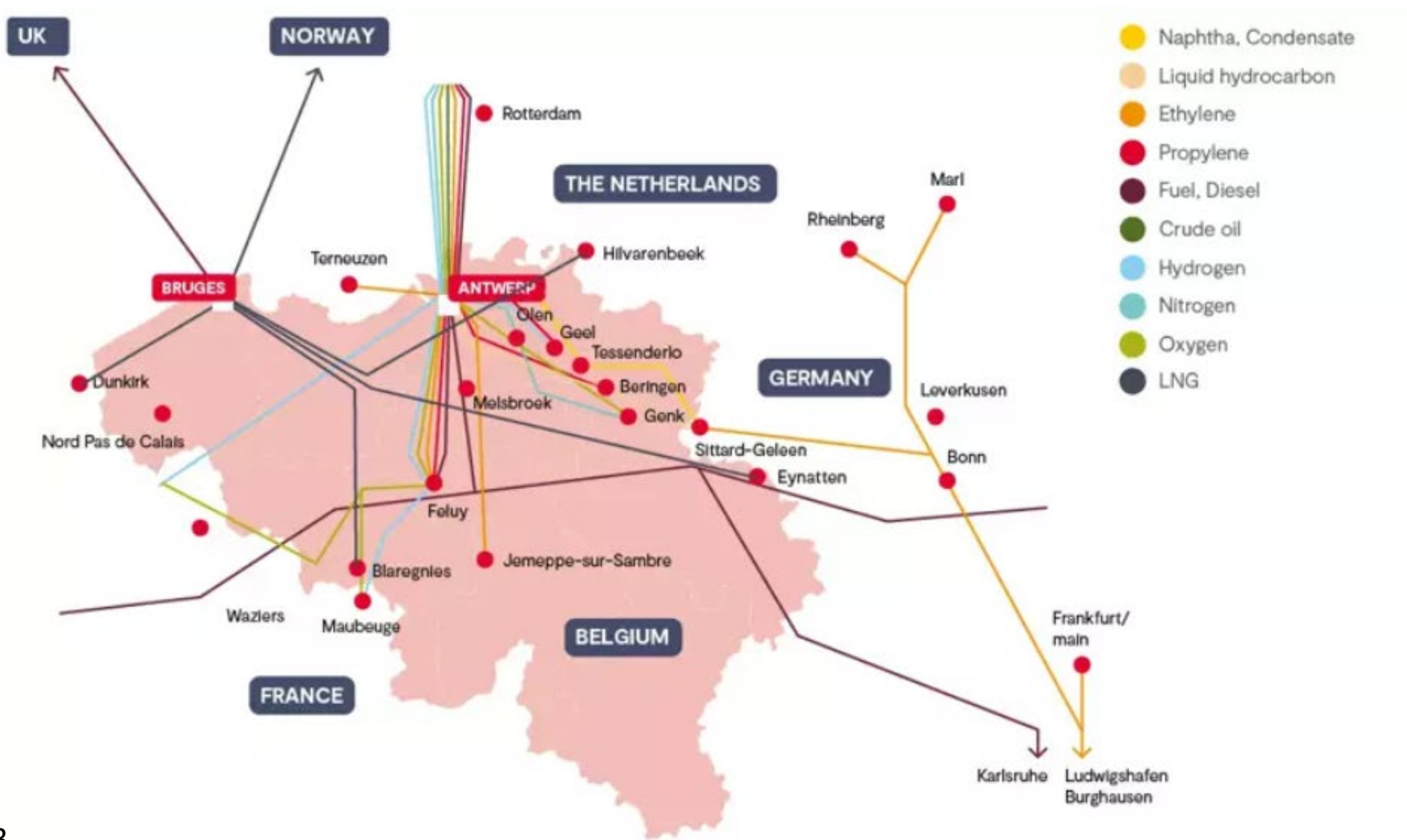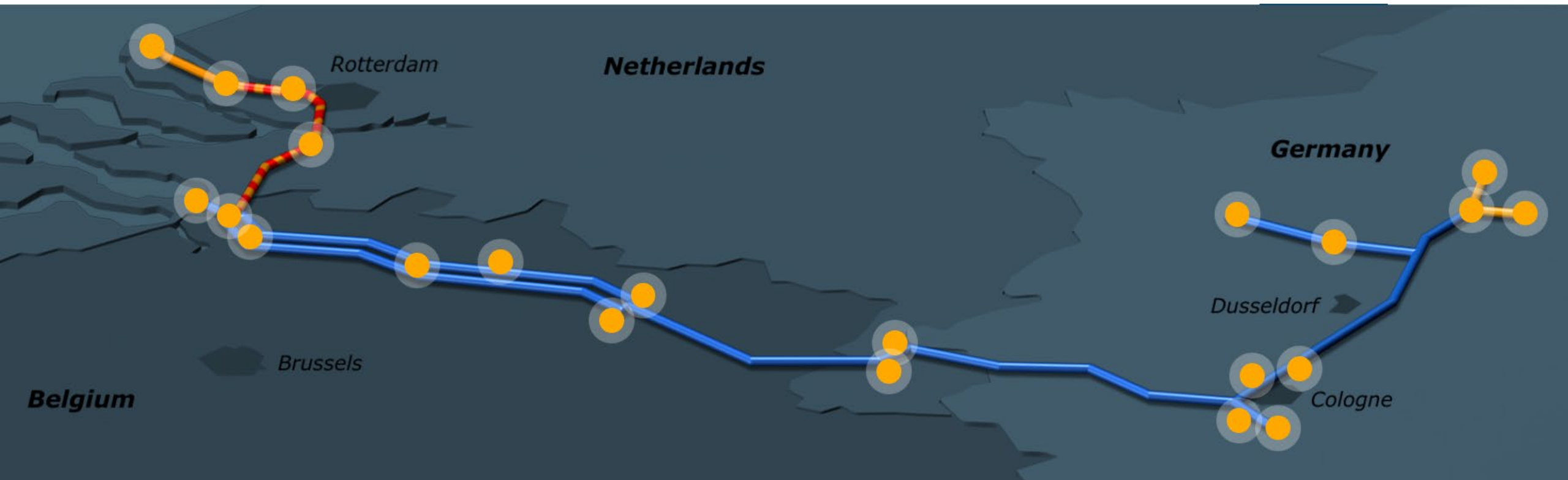

Illustration 3.

Illustration 4. International pipe connections.

The Port of Antwerp pipelines network not only links the intra harbour transport activties but also provides a link between Antwerp and the Channel-Ruhr pipeline.
(Source: ARKGk pipeline network.)

Indirect outcome of the petrochemical Port complex: development of common services to all big pharma firms in the region

The Antwerp hub in chemicals and pharmaceutical sectors: as an example **Vaccinopolis** brings together the competing vaccine producers in providing them common services increasing their common efficiency. Vaccinopolis works with The European Plotkin Institute for Vaccinology (University of Brussels).

Illustration 5. Source: Centre for Evaluation of Vaccination (Antwerp).

5. Antwerp's central station railway hub

The railway expansion has been equally creative, enhancing fuel saving and traffic increase on the same space.
Antwerp's Railway one-level terminus station of 1905 has been replaced by a four-level international through-station, linking all modes of transport while fully respecting its architectural heritage and achieving the rehabilitation of its surroundings. It is now on the World Heritage list.

Illustration 6.

6. BRUSSELS urban and regional services hub:
The innovative urban hub of the Canal area

Brussels planned a major urban transformation by concentrating new urban development around the former industrial canal. This "PLAN-CANAL" received the ISOCARP 2017 planning Award.

Its renovated former transportation hub "TOUR & TAXIS" that included the storage and customs activities and its transformation from industry to exchange of ideas and professional services and huge housing developments received two EUROPA NOSTRA Conservation Awards.

Illustration 7. Tour & Taxis: The former Royal Storage along the Canal was transformed into services (shops, conference spaces and offices).
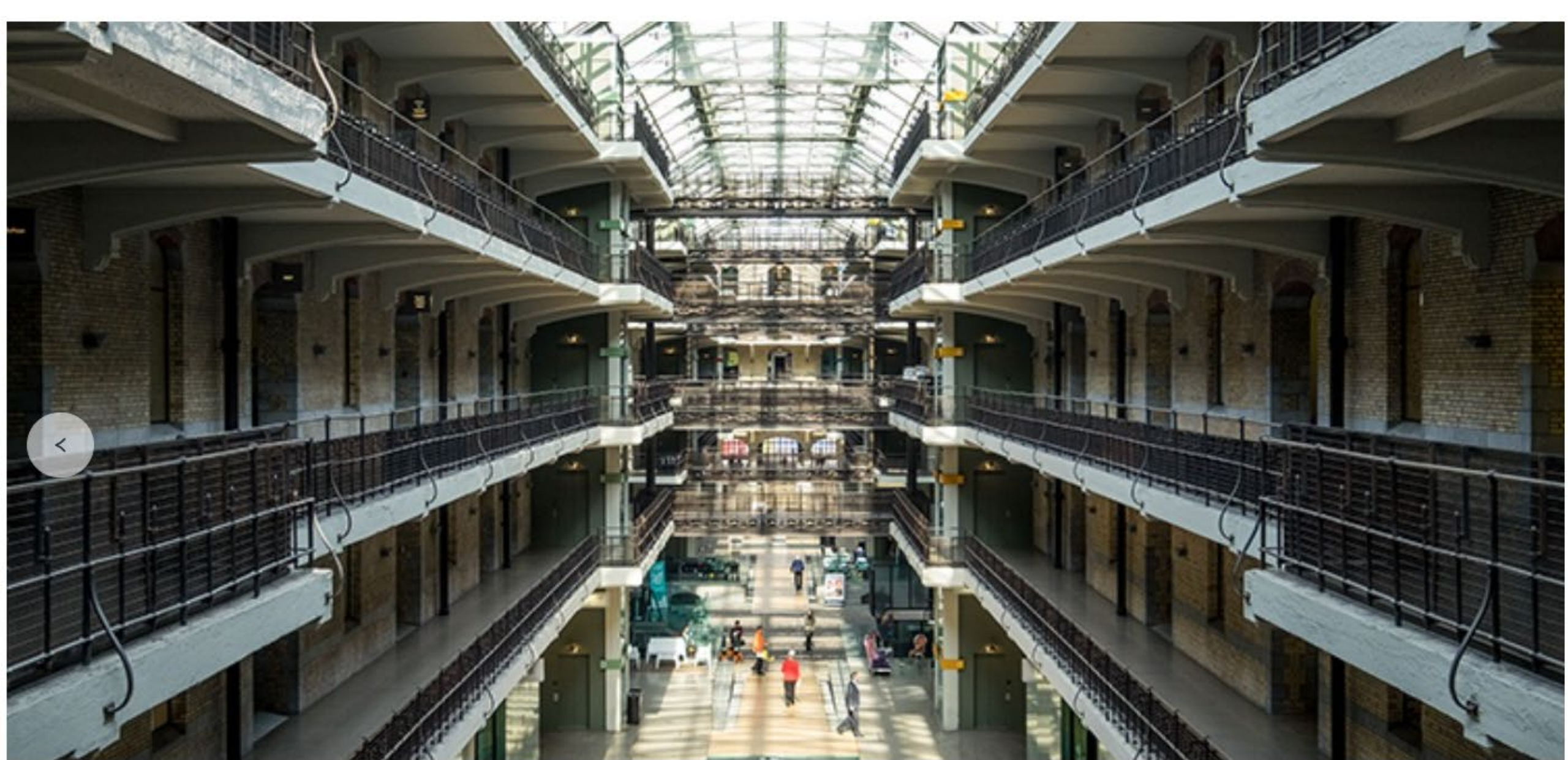
Illustration 8. Tour & Taxis: inside of the former Royal Storage, today.

Illustration 9. The former Maritime Station became a multipurpose hall including exhibitions, offices, inside garden spaces and restaurants.

7. Brussels Metropolis East: the LOUVAIN (LEUVEN) and New Louvain university hubs

Illustration 10. Satellite map showing the urbanised area of central Belgium, around Brussels.
In the Flemish region**,** Louvain/Leuven historic university town lies 25 km to the south east of central Brussels, in a diamond shape. The loose conurbation south of Brussels forms a kind of triangle.
The Louvain new university town has been located in this part of the Walloon region, less than 30 km south of central Brussels.
Historic old Louvain/Leuven - east of Brussels - and the New Louvain university town (« Louvain-la-Neuve ») - south of Brussels - are shown on the map by yellow squares.
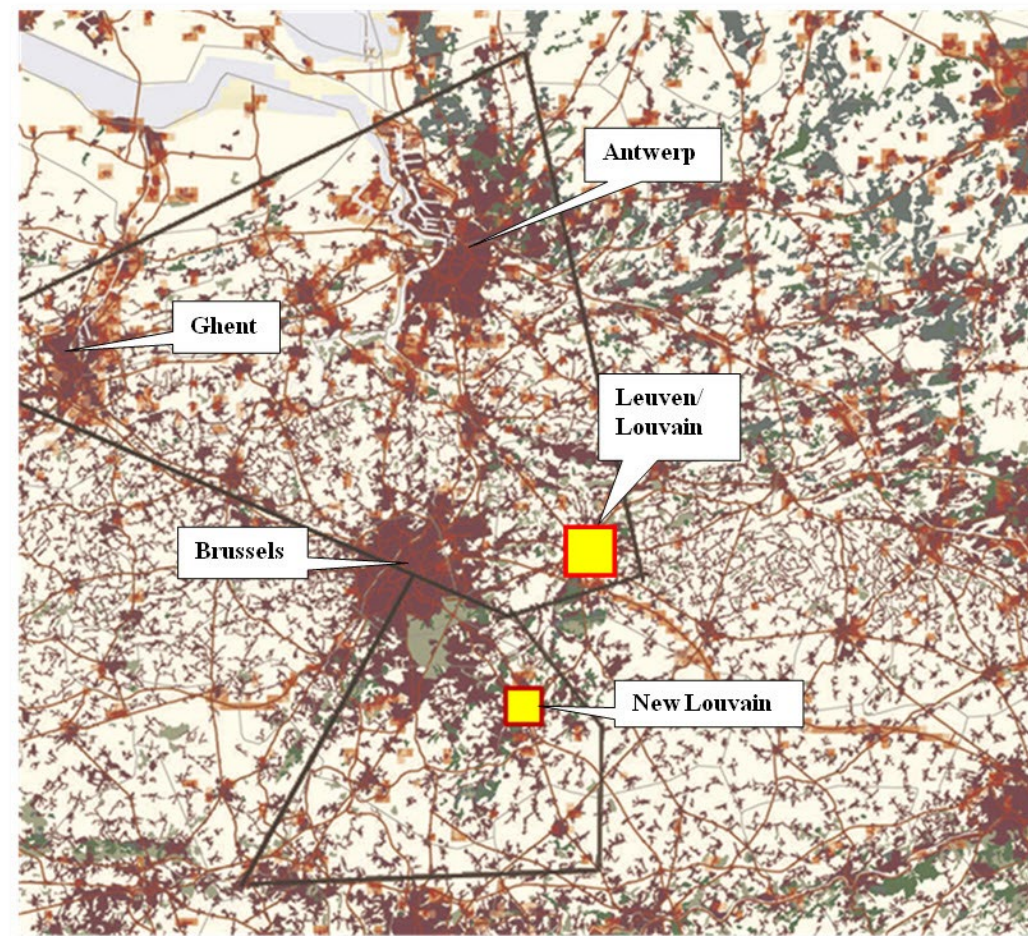
Illustration 11. Louvain/Leuven City, original site of the Louvain university (1425) and its Science Park. View of the main square. Source: Wikipedia.

Illustration 12. The Louvain research and development Center IMEC (Institut de microélectronique et composants).

IMEC describes its services as:

Expertise

With firm roots in nanoelectronics, our portfolio covers a range of hardware and software technologies.

Research

In our 12,000 m² cleanrooms and state-of-the-art labs, we're taking nano- and digital technology to the next level.

Development

Building on our infrastructure and expertise, our partners are able to accelerate their digital innovation.

Venturing & start-ups

Our venturing ecosystem supports tech entrepreneurs by providing them with funds and knowhow.

Code of conduct for imec's partners

Through its research and associated efforts, imec aims for the long-term perspective of a **better life in a better society**. To this end, imec works closely with partners such as suppliers, research partners and customers.

Imec holds itself to a standard of full compliance with all applicable laws and regulations of the countries where it operates, and we expect the same of our partners regardless of their physical location.

This Code of Conduct for imec's partners describes imec's **values, mission, vision, and general ethical working principles**. Imec believes that mutual respect for this Code of Conduct is a guarantee for building a trustworthy, fruitful, and professional collaboration between imec and its partners.

8. Brussels Metropolis South East: Louvain-la-Neuve (New Louvain) and its Science Park, an innovation hub

Illustration 13. Louvain-la-Neuve partial view including the Faculty university and all urban functions (university, commerce and culture). On the right the comic strip designer Hergé Museum (Arch. Portzemparc). The city centre is built on a platform above the new railway station

All streets pedestrian

Mixed development   Mixed development   Mixed development

Public parking   Railway   Access roads
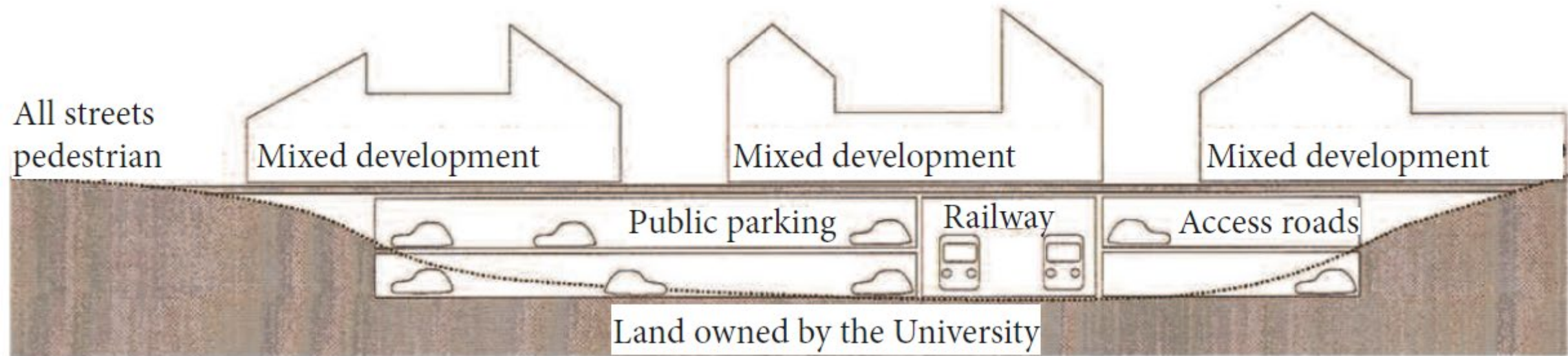
Land owned by the University

Illustration 14. Development diagramme 1975 central platform. Underground railway station and access roads, including parkings.

Illustration 15. Place des Sciences and Science Library 1972 (Arch. André Jacqmain). View taken in 2021.

Illustration 16. Aula Magna of the university built on the edge of the platform.
Source : EmDee, Wikipedia (fr).

Illustration 17. Clariant plastics R & D building. Credit: UCLouvain.

The New Louvain university town exemplifies an integrated urban hub, including space saving public transport infrastructure, linear growth pattern in autonomous phases and rain water collection into an artificial lake.

It has ca 55.000 day users, 25.000 students, 11.000 domiciled inhabitants, 280 high tech firms. A shopping mall of 35.000 sqm adjacent to the railway station attracts 8 million visitors per year.

9. Louvain-la-Neuve: a land policy for the 21st century

Urban development through renewable long term leases of building land and community land trusts.

A. LONG TERM LEASES OF BUILDING LAND

As a consequence of having to leave its original of site in Louvain, the university received a subsidy to buy some 900 ha of farmland on which to build a new campus. But this campus was to be limited to university-related buildings. Therefore the university could not sell land for non-university purposes such as housing or services.

It overcame this obstacle by developing the new university town exclusively through long term land leases (Emphyteusis / Erbpacht).

Such a lease allows its buyer to construct buildings, but they must revert to the landowner after a maximum of 99 years.

To circumvent this restriction, **the university planners devised a system by which the owner of the lease has the right, in the** **event of its sale, to allow the buyer to acquire a new lease.**

This makes it in effect perpetual. But the university, as landowner, remains in a position to impose uses in conformity with its development plan, throughout the succession of lease sales. It therefore retains **the long-term responsibility for urban planning.**

This system has proven successful as the yearly cost of leasing a plot of land is only a fraction of the amount payable for full ownership of a site.

This system has generated much interest within the development professions. The Brussels regional government for example now uses it for its own affordable housing programmes.

B. A LONG-TERM POLICY TO ENCOURAGE AFFORDABLE HOUSING: COMMUNITY LAND TRUSTS

In addition to selling individual leases, the university as sole landowner intends to sell housing rights to groups of applicants for housing. Plans are being drawn for an implementation from 2024.

Groups of people wishing to form a community of inhabitants, usually with shared services, can buy housing at a subsidized price. The allocation of these subsidised homes is based on income-related criteria.

The head leases have a duration of 50 years, but the owners of the houses can sell them at any time. In this case they have the right to allow the buyers to replace the initial deeds with new leases for 50 years. This effectively makes them perpetual.

The management of the houseowners' community is vested in a trust whose shareholders are the residents, but neighbouring associations and other institutions can be represented on the management board.

To prevent speculation, **if this affordable housing is sold, the owners receive only a quarter of the increased value of their dwelling.** The other three quarters of the increase in value is returned to the landowner for it to fund new Community Land Trusts and thus increase the total number of beneficiaries without requiring extra subsidies.

In 2012 the Brussels region successfully initiated its first Community Land Trust and association in a deprived neighbourhood, and so enhanced solidarity among the residents.

A Community Land Trust system is considered by Bezirk Friedrieschhein-Kreuzberg Berlin (2019).

10. Louvain-la-Neuve: the new Athena neighbourhood

The panel shows its continuity with the existing urban area (see general map and aerial view), and a view of the existing farm which is to be dedicated to "urban farming". In the background is the Monnet science building (see panel 11).

1.
Map of 400 ha and **pedestrian axis that crosses the entire new town** and Athena new neighbourhood. The Research & Development area is located east of the trunk road.
Credit: Jean Remy.

3.
Aerial view of the Athena neighbourhood and urban farming area.
Credit: Simon Schmitt - www.globalview.be.

4.
View of Ferme de Lauzelle towards Monnet centre (R&D park).
Credit: Simon Schmitt - www.globalview.be.

2.
Aerial view of the same area.
Credit: Simon Schmitt - www.globalview.be.